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A CYCLOPÆDIA OF NATURE TEACHINGS

With an Introduction by

Hugh Macmillan, LL.D.

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A CYCLOPÆDIA OF

NATURE TEACHINGS.

A CYCLOPÆDIA

OF

NATURE TEACHINGS:

BEING

A SELECTION OF FACTS, OBSERVATIONS, SUGGESTIONS, ILLUSTRATIONS, EXAMPLES, AND ILLUSTRATIVE HINTS TAKEN FROM ALL DEPARTMENTS OF INANIMATE NATURE.

With an Introduction

BY

HUGH MACMILLAN, LL.D., F.R.S.E.,

AUTHOR OF 'BIBLE TEACHINGS IN NATURE,' ETC., ETC.

LONDON:

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INTRODUCTION.

It was not in a temple that God first appeared to Moses. It was in a bush growing on the lonely hillside. And yet that common piece of earth was made by the presence of God holy ground. Moses could feel as solemn there, and as near to heaven, and could worship God as fully, as if he were beneath the roof of the grandest temple that man had ever built. The little bit of soil on which the burning bush stood was but a specimen of the whole earth, which is full of God's glory. What God had said of it could be said with equal truth of every spot. In every place a revelation from God may be received, and the soul of man brought into communion with the majesty of Heaven. God makes the place of His feet everywhere glorious, and every wayside bush is aflame with His presence.

The Jews imagined that only in Jerusalem could God be worshipped; and the Samaritans believed that Mount Gerizim was the true trysting-place between the soul and God. And we, too, have the feeling that only in consecrated places, in churches and chapels, can God be found. We do not worship as our forefathers often did, on the hillside, or on the banks of a stream, with the blue infinite heights of the sky above us, and the murmur of the waters, and the hum of the bee, and the sigh of the breeze, mingling with the service as Nature's anthem. We worship God entirely in churches and under the roofs of houses. We have made our religion almost wholly an indoor religion. This has been caused, no doubt, by the uncertainty of our weather and the general inclemency of our climate, necessitating that for stated services shelter should be provided. But the custom has created a tendency to confine our ideas of God and of the religious life to such places and occasions, and to make us forget that He is everywhere; that the whole world is the sphere of worship, and all our life an opportunity for it. And in this way our worship has lost in a large measure its sacramental character, by being removed from those objects of Nature which are

the symbols and types of spiritual truth, and make the outward world to us the image of a living heavenly world. Nature too separated from religion has lost many hallowing associations, and we do not think of the hills and woods as places in which God is to be revealed at all, but as material scenes fit only for the worship of the false gods of the heathen. For this reason our studies of the natural world, in these scientific days, have a tendency to become atheistic or agnostic.

Other nations are wiser in this respect than we are. They do not worship God exclusively within the walls of a holy building. Everywhere on the Continent religion is made an outdoor thing—a thing of daily life and familiar experience. On the roadsides, in the fields, in the most solitary nooks of wood or mountain, you come continually upon little shrines which are set up, with their touching pictures of the crucifixion, to direct the attention of the passer-by to the things that belong to the salvation of his soul, and to make him pause and pray. However superstitious may be the use that is made of these shrines, there cannot be a doubt that they arose from a right feeling, and that they are of no small help to faith and love in the common business of life; giving a sacredness to the scenery, and making the place on which they stand holy ground. It would be well if we could bring our religion in a more spiritual way into the haunts of Nature, and train ourselves to connect thoughts of God with the scenes and objects which we find among the woods and hills and on the sea-shore, so that these things in their turn may be full of holy associations to us.

We can make Nature sacred or secular, according to our own mood of mind; just as we can make a church sacred or secular in the same way. A scene is to us very much what we ourselves make it, as our thoughts will make a church solemn to us, or dull and unimpressive. What we have to do in church is not to expect to be passively affected by the devotional atmosphere, but to cultivate in ourselves a frame of mind which will impress us with the high and solemn character of the place; and there should be as much pains to acquire such a frame of mind as there ought to be in acquiring a new language or a new art. We thus form reverential feelings and associations in connection with the church, which in their turn will help us to be reverential. The holiness of the sanctuary will have established itself in our minds, and it will drive out idle and inappropriate thoughts, and become the constant and natural mood of our mind.

And as it is in the church, so is it in Nature. We cannot expect that Nature itself will produce in us, without any thought or trouble on our part, the feeling of God's presence. The objects of Nature to those

who will not take pains to consider them are mere material things that have nothing about them to remind us of God, or to lift up our hearts to Him. We must bring to Nature the same devout frame of mind that we bring to church, if we expect that God will reveal Himself to us in the wayside bush, and make the lonely wood, or hill, or sea-shore to us holy ground. Too often in our holiday visits to the beautiful solitudes of Nature we bring with us the restless, dissatisfied spirit, and the love of excitement characteristic of our ordinary life; and Nature in such a superficial, ungenial mood refuses to communicate her celestial messages and heavenly grace to us.

Mr. Lockyer, in a recent scientific paper, refers to a curious mistake made by an eminent artist in a fine picture of a garden with children playing in it. One of the children was blowing soap-bubbles from a pipe. Several of those bubbles were floating in the air, and all of them had on their filmy surface reflections of windows. Now, there were no windows in the garden to make such reflections. The light in the open air would have fallen freely and equally on the bubbles all round, and therefore the artist ought to have represented them without any reflections. But it turned out that instead of painting his bubbles from nature, he had copied them from a scientific book in which there were coloured photographs of these objects, thinking that, being a scientific book, they must be perfectly correct. And so they were in the book, for they had been taken from bubbles blown in a laboratory lighted up with many windows, and therefore these windows were reflected upon their surface, and appeared in the photographs. But the artist, ignorant of this circumstance, thought that it was the nature of bubbles to have these reflections upon them, and therefore he transferred them to his garden scene, not realizing that they were out of keeping with the circumstances of the place. And do not too many act in the same way with their feelings in regard to Nature? They transfer to some beautiful scene which they visit the sordid cares and worldly thoughts which belong to their business life. Instead of exposing their thoughts and feelings freely to the light of heaven, to be illumined and coloured by the purer suggestions of God's works around, they bring to them the dark images of the world, the reflections of the selfish, material pursuits they have left for awhile behind. And such thoughts and feelings are out of harmony with their surroundings. They cannot help them to enter into communion with the great heart of Nature. They can comprehend the soul of nothing that they see. Nothing speaks to them of the higher world, of which the world around them is the veil and the shadow.

In the house of God's building we are brought out of all our straits and conventionalities into a large place. The infinite sky, the vast ocean, the boundless horizon of hills, all give width to our thoughts and feelings. Time, too, seems to partake of eternity amid the scenes of Nature, which are all hoary with age, and yet young with an eternal youth: the rocks of geological antiquity, the forests of the slow growths of centuries, the waters primevally old and perennially fresh, the sky on whose azure brow time writes no wrinkles. How swiftly do the hours pass amid the transient works of man, where everything reminds him that he must hasten in his work ere the sun sets! How slow and yet with unperceived and unweighted pace, on the other hand, do the moments glide in the quiet haunts where Nature carries on her tireless operations, which are timed to the revolutions of the eternal stars! As we claim our kinship with Nature, we feel at the same time our heirship to the Father of Nature.

What an immense difference there is between the feeling that we have in a magnificent human dwelling, and that which we have in one of the grand scenes of Nature! If a poor man were by any chance to enter the splendid home of a rich man, he would have a painful and humbling feeling of restraint and self-consciousness. Everything would remind him that he was out of his natural sphere; and he would be afraid to speak or move, or even look, lest he should offend against propriety, and expose himself to ridicule. But introduced into one of the most beautiful scenes of Nature, into a hall whose roof is the wide blue sky with its golden clouds, whose walls and pillars are the lofty rocks and the great pine trees, whose floor is the emerald grass, decked with the loveliest flowers, and lighted up with the noonday sun, upon the radiance of which no eye can gaze undazzled, he would feel at once at home, and would move about with the utmost freedom and confidence.

It is very strange when one comes to think of it, this great difference of feeling in the two places. The abode of the rich man is made for the very purpose of exalting the person who inhabits it, and separating him from his fellow-creatures. All his splendid surroundings are meant to show what a great personage he is. The very object of the magnificent architecture and furniture is to overwhelm the spectator with astonishment and awe. But, on the other hand, everything in God's dwelling is meant to attract the poorest and humblest visitor, and by the gentleness of God exhibited in every object to make him great. God made His house so grand and beautiful in order that He might teach our minds and win our hearts. Everything is intended to produce in

us a deep sense of the lovableness of the Divine character. And when we find out with what wonderful skill God has adorned the smallest things for our sake, and how wisely He has fitted them to gratify the innocent desire for pleasure, we yield to the attraction of His softer attributes, and realize that He delights in the happiness of His creatures.

There is a story graphically told by Miss Frances Power Cobbe, of a French princess of the House of Orleans, visiting her uncle, the Duke of Lucca, one summer when the land was filled with flowers and every tree bright with foliage, and wreathed with the tendrils of the vine. She had never before been in Italy, and the wonderful beauty seemed to her like a dream of paradise. She fancied that the lovely landscape around her was thus decorated for her sake, and thanked her uncle with tears in her eyes for his wonderful welcome. But a poet standing by the side of the princess told her that the giver of the festival was the King of kings, and that His loving hand had made the land one bower of bloom not more for her than for the poorest peasant girl. And yet the feeling which the princess had was in a certain sense true. It was, indeed, for her that the beautiful festival of Nature was got up. God adorns His world for everyone who is capable of seeing and enjoying its beauty. Its glory is born anew in every heart that is conscious of it. He who can see all the splendour, and take in all the joy of the landscape, has the true possession of it—no matter to whom its acres belong. All the beauty, all the tender touches with which God has filled it are for him alone, a kind of confidential cipher-writing which he alone can interpret, in which God reveals to him the secrets of His wisdom and love.

It is indeed in man's soul that the beauty of Nature has any existence. In the physical world it is mere colour and shape, and substance and motion, mere matter with its various attributes. But in man's soul it becomes a scene of Divine order and beauty, full of infinite significance. Nature takes the hue of a man's own feeling, and he finds in it what he brings to it. In proportion as he becomes more intelligent and holy, so does it become more beautiful and significant to him. We know how much more heavenly this earth seems to us when we ourselves are in a heavenly frame of mind. And everyone who has been made by his conversion in sympathy with Nature, and in harmony with God's creation, when he gazes upon some beautiful scene of Nature, feels that it touches within his soul some secret sense of more perfect scenes, of which, in future stages of his being, he is destined to bear a part.

And that feeling greatly helps his spiritual communion with God,

and gives a sacred character to the landscape. Every emotion which natural objects inspire assumes the character of devotion. He has not, when he seeks the solitude of Nature, to work himself into an elevated frame of mind, or to regard the time and place only as a fit opportunity for holy meditation and prayer. He passes at once into a mood of Divine fellowship. The atmosphere around him is itself devotional. The supernatural is to him but the natural disclosed. He sees an impress of God upon the whole scene, and everything witnesses of Him. The place is none other than the house of God and the gate of heaven.

At one time it was considered a mark of superior piety to be utterly indifferent to the works of God. The soul was supposed to be best occupied when it was entirely abstracted from the contemplation of Nature, and fixed upon thoughts of heavenly things. We have read of men who passed through the finest scenery, not only without any admiration, but with a positive feeling that it was wrong to yield the mind to such attractions of sense. In his diary of travels on the Continent the saintly Fletcher expressed his deep penitence on account of the pleasure which the beauty of the Rhine had given him. The type of religionists who think they exalt the spiritual by despising the natural, and honour God by neglecting His works and praising His personal qualities, is not yet wholly extinct. But for the most part we have emerged from such crude and unworthy conceptions of Nature into a truer understanding of its Divine purposes.

We are beginning to realize that the second crop of poetic and religious suggestions which we reap from the fields of Nature is more precious and enduring than the first crop of material benefits. We are beginning to find that the eye that is closed to the spiritual intimations of Nature is apt to be blinded to the spiritual meanings and messages of God's Word, and that the mind which fails to see anything in the open parables of Nature is equally destitute of insight into the parables of Scripture. The Apostle has declared that the invisible things of God are interpreted by the things that are made; and every object of the natural creation, when rightly regarded, is an avenue by which we can draw near to God—a step in the ladder which connects heaven and earth, and which is by no means a long one—a channel for holy and heavenly meditation.

The Bible is full of such natural aids to devotion. We look upon the love of Nature as an essential feature of modern times, the great peculiarity of modern poetry. But like everything beautiful in modern culture and thought, the seed of it may be traced to the Bible. In all the literature of Greece and Rome there is no such appreciation

of the beauty of Nature as we find in holy Scripture. And this was owing to the higher and purer religious faith of the sacred writers, their deep consciousness of the all-pervading presence of the one living and true God. They made use constantly of the beauties of Nature, not to create a mere idle sentiment, but to illustrate and emphasize man's moral and spiritual relations to God, as a kind of pictorial language of trust, prophecy, and prayer. They studied the universal beauty of life only in God's will. In the Hebrew Psalms, long ages before the light of physical science had dawned, there is a glowing recognition of the glory of the earth and sky, teaching us to open our ears and eyes to listen to God's whisper, and to look upon God's face in the wonders of creation. And therefore everyone should give way to this feeling. Instead of suppressing it under the mistaken idea that in this way we are doing God service, we should earnestly cultivate it. For the more truly religious we become, the more we can enter into the simple life of flower and bird and tree, and rise through this vividness of sympathy to the spiritual images or symbols which they suggest, and which our Lord so wonderfully embodied in His teaching.

Modern science when looked at from this Bible view-point, which we hold to be the only proper one, is a most valuable handmaid to religion. Its methods teach patience and exactness, a love of detail, a distrust of mere superficial appearances, and an earnest desire to penetrate to the heart and to the bottom of things; and these methods when carried into the study of religious truth afford a wholesome discipline and corrective. Its discoveries have widened the horizon of thought, shed light upon the harmony of God's workings in all parts of the universe—from the greatest to the most minute, from the remotest star to the least atom of matter beneath the microscope—furnished larger and more exact fields of religious illustration, and supplied vast materals for those grand generalizations which it is the business of the theologian to carry to their true climax by connecting them with one supreme creative and governing Will.

Agassiz long ago said that scientific systems are in truth but translations into human language of the thoughts of the Creator; and we are finding out more and more the deep significance and truthfulness of these weighty words. Even the theory of evolution, which in some quarters is said to be so dangerous to faith in a personal God, gives in reality a sublimer conception of Him as the Ancient of days—the same yesterday, to-day, and for ever—and of the creative process and method as freed from all caprice and arbitrary intervention, and but the unfolding of one vast Divine plan conceived in eternity and carried out in time.

The great results of modern science, so far from emptying the world of heaven, and extirpating faith from the earth, are only making to those who have eyes to see and hearts to feel the world more Divine—the very forum of the Heavenly Powers—a more glorious and wonderful temple in which God may be more clearly seen and more truly worshipped.

The religious teacher, therefore, who does not care to make use of the great helps which science gives to him in all these ways, is like the professor who would study human physiology without knowing anything about vegetable physiology, or the anatomist who would confine his researches to the structure of man and ignore altogether comparative anatomy. We cannot isolate religion and make it an island or kingdom in the air. It has relations and affinities with all the worlds of space and matter and life, and is the highest generalization, connecting everything that God has made with Him in whom, as the Apostle tells us, all things consist, who is the Keystone of the great arch of the universe, in whom dwells all fulness—the fulness of the creation and the fulness of the Creator. God has two books, the Old Testament of Scripture and the older testament of Nature, and they are meant to supplement and shed light upon each other, and furnish, like the two pictures in a stereoscopic slide, one impressive image standing out in clear relief and living perspective.

It is in order that the religious teacher may avail himself for this purpose of the ample materials which modern science has supplied that the following work has been compiled. It ranges over a vast variety of subjects; and its numerous striking examples of the close analogies between the objects and processes of Nature and the methods of Divine grace cannot fail to be profitable to the reader. They will also be helpful in the highest degree to the teacher, who uses them in the right way, for making others sharers with him in the enlargement and enrichment of religious thought, and in producing a deeper conviction of the truth of those revealed things which are most surely believed among us.

HUGH MACMILLAN.

INANIMATE NATURE: I.—THINGS ABOVE THE EARTH.

AIR, ATMOSPHERE, SEASONS, MIST, ETC.

The Charm of the Atmosphere.

They who would serve God may find various spheres of service.

It rises above us, with its cathedral dome, arching towards that heaven of which it is the most familiar synonym and symbol. It floats around us, like that grand object which the Apostle John saw in his vision,—'a sea of glass, like unto crystal.' So massive is it, that when it begins to stir, it tosses about great ships like playthings, and sweeps cities and forests, like snowflakes, to destruction before it. And yet it is so mobile, that we have lived years in it before we can be persuaded that it exists at all, and the great bulk of mankind never realize the truth that they are bathed in an ocean of air. Its weight is so enormous, that iron shivers before it like glass; yet the tiniest insect waves it aside with its wing. It ministers lavishly to all the senses. We touch it not, but it touches us. Its warm south wind brings back colour to the pale face of the invalid; its cool west winds refresh the fevered brow, and make the blood mantle in our cheeks; even its north blasts brace into new vigour the hardened children of our rugged clime. The eye is indebted to it for all the magnificence of sunrise, the full brightness of mid-day, the chastened radiance of the gloaming, and 'the clouds that cradle near the setting sun.' But for it, the rainbow would waste its 'triumphal arch,' and the winds would not send their fleecy messengers on errands round the heavens. The cold ether would not shed its snow-feathers on the earth, nor would drops of dew gather on the flowers. The kindly rain would never fall, nor hailstorm nor fog diversify the face of the sky. Our naked globe would turn its tanned and unshadowed forehead to the sun, and one dreary, monotonous blaze of light and heat dazzle and burn up all things. Were there no atmosphere, the evening sun would in a moment set, and without warning plunge the earth in darkness. But the air keeps in her hand a sheaf of his rays, and lets them slip but slowly through her fingers: so that the shadows of evening gather by degrees, and the flowers have time to bow their heads; and each creature space to find a place of rest and to nestle to repose. In the morning, the garish sun would at one bound burst from the bosom of night, and blaze above the horizon; but the air watches for his coming, and sends at first but one little ray to announce his approach, and then another, and by-and-by a handful, and gently draws aside the curtains of night,

and slowly lets the light fall on the face of the sleeping earth, till her eyelids open, and, like man, she goeth forth again to her labour till the evening.

The Play of Forces in the Atmosphere.

The energies of nature are the power of God at work.

Two mighty forces are continually acting on the atmosphere. The one is heat, which tends to expand it and force it like an unbent coil into surrounding space. The other force is gravitation, which grasps the atmosphere, and holds it to the surface of the earth. These two opposing forces are so balanced that they may be said to be held in equilibrium, and few persons would suspect the vastness of either one.

The pressure of the atmosphere on one man is equal to sixteen tons —thirty-two thousand pounds. The pressure of the atmosphere upon this church (Philadelphia, U.S.) is much more than the weight of the building itself. The pressure of the atmosphere upon one square mile of the earth's surface is over twenty-six millions of tons. The pressure of the atmosphere on the entire state of Pennsylvania, with its forty-six thousand square miles, is equal to two million three hundred and ninety-two thousand millions of pounds. This is the work that gravity does in the whole world upon the elements of the atmosphere alone.

Now consider the power that balances all this. What is it? The sun's heat; the force that is lodged in sunbeams. How softly they fall! How they brighten the face of Nature! How gladly we welcome them as they steal gently through the window-glass to sweeten and cheer the frosty brow of winter, or flood the fields and hills to gladden and enrich the soft days of spring. What gentle things they are! How noiselessly they fall! Yet all this force is lodged within their touch.—*H. C. McCook, D.D.*

Vapour hiding the Stars.

Our hearts may provide the mists that hide from us the shining of God's face.

An invisible vapour may hide a star, and we only know that the film is in the nightly sky because Jupiter, which was blazing a moment ago, has become dim or has disappeared. So fogs and vapours from the undrained swamps of our own selfish, worldly hearts may rob the thought of God of all its genial lustre, and may make it an angry ball of fire, or may hide Him altogether from us.—*A. Maclaren, D.D.*

The Solidity of the Heavens.

Restfulness comes by contemplation of the steadfast heavens.

One observation, as to the appearance of the universe, struck me as new and very remarkable. I say that the whole heavens may present to superior beings the appearance of a solid body. You recollect what Boscovier and other physical writers have said about the ultimate atoms of matter: that they do not touch, and that they have what we call repulsion for one another. That distance from each other which is requisite for the ultimate atoms of this tree we are looking upon, which yet presents a solid appearance, may find, perhaps, an exact parallel in the distance of these stars one from another; they may, therefore, to a Being who could behold them after the same fashion as we behold this tree, present the appearance of solidity. I cannot help thinking that no space is lost, and that the whole universe is as much occupied as the space which this tree seems to occupy. There are small creatures to whom this stone appears compact, while all the rest

that it can behold, perhaps, seems wide and disjointed; yet to us these wide, disjointed things are solid. I do not know how you may take my fancies; but, at any rate, I trust you feel, with me, that there is immortal consolation in the aspect of these heavens, which we are allowed to look upon, probably the greatest physical privilege permitted to man; and that from this vast contemplation we may derive some comfort for every sorrow, some alleviation for every regret, and some benign hope to throw a ray of cheerfulness into the gloomiest depths of despondency.—*Helps.*

The Changes of the Sky.

The darkness and the light are both alike unto God (PSALM cxxxix. 12).

What is the lesson conveyed by the great alternate changes of the sky? Now it is sweetly luminous, and now a solemn darkness. Strictly speaking, as we all know, there is no change in the sky at all. It is always an infinite Darkness, and always lit up by myriads of stupendous suns. But we should not know this if the earth did not turn on her axis, and successively face the sun, and again turn away from him.

To the turning of our planet from the sun we owe our knowledge of the universe. In the symbolism of its darkness and light, we have our sublimest revelation of God. Light which is called God, and is God, issues for ever from the Infinite Bosom of His Darkness. Darkness and Light are both alike to him; for He is as much one as the other. The Son of God, the only-begotten Light, reveals the '*Father of Lights*,' as suns reveal the ether. God presents Himself in the Light, but also conceals Himself: as we both present ourselves and hide ourselves in our garments. 'Thou *coverest Thyself* with Light as with a garment.' As the infinite ether is hidden by the daylight, even so is God hidden by the Light of the angelic heavens, which reveals Him. Therefore, all those who dwell in the Eternal Light worship the Unseen God, and live 'as seeing the invisible.' They know that Light is but His effluence. They worship the Light, as God, and again, with silent ineffable adoration, they worship what is behind the Light.—*John Pulsford.*

The Various Constituents of the Atmosphere.

There should be a proper representation of all classes in the body politic.

In order that the air should be wholesome it is necessary that it should not be of one kind, but the compound of several substances, and the more various the composition to all appearances the more salubrious. But it is chiefly by the predominance of some peculiar vapour that the air becomes unfit for human support, and a thousand accidents are found to increase these bodies of vapour. Heat may raise them in too great quantities, and cold may stagnate them. Minerals may give off their effluvia in such proportion as to keep all other kind of air away; vegetables may render the air unwholesome by their supply; and animal putrefaction seems to furnish a quantity of vapour at least as noxious as any of the former. All these united generally make up the mass of respiration, and are, when mixed together, harmless; but any one of them for a long time singly predominant becomes at length fatal. In like manner it is maintained that society is most safe and healthy when, on the one hand, no one class is unduly powerful, and when, on the other hand, no class is unfairly lessened in influence, and that because the objectionable qualities of each are balanced by the compensating ingredients of all, it is desirable to preserve to

them severally their natural influence and scope, and perfect freedom, to ensure vitalizing action. —'*Scientific Illustrations and Symbols.*'

The Universality of the Ether.

From the Divine resources a new body may be provided for our disembodied spirits.

Dying is but one of our helpless conditions, put into God's hands for renewal and multiplication. When the body of our earthly house falls away, does little remain? All that is vital survives: and God will enter into our little, and make it more. The Ether out of which all things are made is immeasurably greater in quantity than all the suns and planets which float in it. What, then, should hinder the ever-active Spirit from clothing our emancipated spirit with an ethereal body? Nothing is so earnest and swift in its motions as the Divine Love. If the wind travels only a hundred miles an hour, it makes a hurricane. But the waves of ether which bring to us the light of the rising sun travel upwards of twelve millions of miles in a minute. There is no disturbance; but there is a universal awakening to consciousness and gladness. Think now, not of the motion of light in its passage from the sun to the planets, but of the motion of God's Life to souls, which is Love to love, His Love flashing into the desiring love of His children.—*John Pulsford.*

Vapours keep to Low Levels.

The power of the sun of God's favour to dispel the earth-mists that oppress us.

The earth-born vapours may hang about the low levels, and turn the gracious sun himself into a blood-red ball of lurid fire; but they reach only a little way up, and high above their region is the pure blue, and the blessed light pours down from the upper surface of the white mist, and thins away its opaqueness, and dries up its clinging damp, and at last parts it into filmy fragments that float out of sight, and the dwellers on the green earth see the light, which was always there even when they could not behold it, and which, by shining on, has conquered all the obstructions that veiled its beams. —*A. Maclaren, D.D.*

Dangers of Walking in a Fog.

The need of wisdom in times of strain, perplexity, and trial.

While visiting the Isle of Wight, I set out early one morning for a walk over one of the rockiest and most romantic parts of the coast. For the first three or four miles the way was well defined, and, with gorgeous hills on the one hand, and the broad blue sea on the other, the walk was exquisitely pleasant. By-and-by, however, there came creeping lazily over the downs a dense dark fog, which soon rendered walking exceedingly perilous. Winding among huge masses of detached rock were several paths, but it was impossible to discern whither they tended. Rolling close by, but no longer visible, was the treacherous sea, and one false step would have plunged us into its fatal depths. This circumstance brought very vividly before my mind the position into which Christian people are sometimes brought on their way to heaven. They go on for months, perhaps for years, and the road is plain before them; nothing occurs to perplex their minds or to harass their hearts. Then, quite unexpectedly, there comes a change in their experiences; darkness settles down upon their prospects; they find themselves at a spot where many paths branch out to the right and to the left, and they fear to move a step, lest the path

they choose should quickly bring them to the verge of some terrible abyss, into which they may fall and be lost. This picture is not overdrawn. It is true to the heart and life of thousands. We cannot tell how soon it may be true to the heart and life of some of us. Verily, in such circumstances, there is need of the wisdom that cometh from above.—*B. Wilkinson, F.G.S.*

The Mists and the Sunshine.

The power of the Sun of Righteousness to dispel the mists of human trouble.

In autumnal mornings mists settle over the Connecticut Valley, and lie cold and damp upon the meadows and the hill-sides, and it is not till the sun rises and shines down warm upon them that they begin to move; and then there are swayings and wreathings and openings, till at length the spirit which has tormented the valley can stay no longer, but rises and disappears in the air. So is it when the Sun of Righteousness shines upon the troubles which brood over our souls. Shining but a little, they only fluctuate; but if the Sun will shine long, they lift themselves and vanish in the unclouded heaven.—*H. W. Beecher.*

The Early Morning Air.

Strength comes after, and through, rest.

Experience has decided that the early morning air is much more inspiring and vigorous than the evening. What is the law? Is not the atmosphere, like all other substances and tissues, spoiled of its energy by the action of light and heat? Does it not, like the vegetable and animal kingdom, require rest? After a night's rest it is recruited and young again.

Joy fatigues the spirit in the same way, which requires rest from delight, no less than the body requires rest from labour. Grief, like night, is salutary. It cools down the soul, by putting out its feverish fires; and if it oppresses her, it also compresses her energies. The load once gone, she will go forth with greater buoyancy to new pleasures. The night of death is a wise and merciful conclusion to the excitement of mortal life; with a calm, beautiful, wondrous strength, the regenerate spirit enters upon its new life.—*John Pulsford.*

Hoar-Frost not on Sides of Valleys.

The working of regular laws of nature is often hindered by the cross working of other laws.

It is well known that the localities chiefly affected with hoar-frost are the bottoms of valleys, and land-locked places of all kinds, whether natural or artificial. The altitude to which its effects reach on the sides of the valleys is dependent on the mean temperature of the day and night at the time of its occurrence: when that temperature is high, the lower places only are affected by the frost; but when low, the frost extends to much higher grounds. Hoar-frost occurs only during a calm state of the air, and when the sky is clear; but the stillness of the air in the bottoms of the valley is invariably accompanied by downward currents of air along all the sloping sides of the valley. After sunset, in all seasons of the year, and at all mean temperatures of the air, and whether or not the ground be covered with snow, whenever the sky is clear, although there may be a dead calm at the bottom of the valleys, currents of air, more or less strong and steady, run downwards on the inclined lands, whatever may be their aspect with reference to the points of the compass. These currents are the result of the sudden depression of temperature sustained by the surface of the earth in consequence of rapid radiation, by which the stratum of air in immediate contact with that surface, becoming specifically heavier by condensa-

tion, descends into the valley, and is replaced by air which has not been thus cooled, and which therefore prevents the formation of hoar-frost on the surface of these declivities.—*J. Farquharson, LL.D.*

The Mounting of the Ocean into the Sky.

Effort to rise is characteristic of all created beings.

By evaporation, the dense, oceanic waters mount up and float in the sky. In turn, every drop of the sea acquires a newness of existence and elemental freedom. The fountains of dark waters hidden in the heart of the earth urge themselves on and on through tortuous rocky paths of darkness that they may see the day, float upward as vapour, become mirrors in the dew, be organized in verdure, and sport in the sunbeams.

The effort to come forth from under earthly restrictions and oppressions is really universal.—*John Pulsford.*

Vapours qualifying the Sunlight.

Moral vapours of earth have their gracious mission.

Just as the dark and vaporous layers of the atmosphere, investing our earth at sunset, by absorbing and decomposing the rays of light, deprive the sun of his dazzling fierceness, and fill the western sky with crimson hues, so the dark moral vapours that have risen from our earth in the sunset of our race, by modifying and softening the character of God's revelations of Himself, have brought out new excellencies in His nature, and filled the horizon of our faith with glowing colours of love before unknown.—*Hugh Macmillan, LL.D.*

The Wordless Message of the Heavens.

'*The heavens declare the glory of God.*' (PSALM xix. 1).

But 'there is no speech nor language: their voice is not heard.' Their message is too great for utterance—it is a deep which never breaks into the spray of language. It is as if some wondrous, most God-like, creature were ever standing before us with his finger everlastingly upon his lips, as though he had much to say which could not find expression—always looking down upon us, always shedding sweet influences upon us without a motion or a sound.

Mist or Vapour.

The ephemeral nature of vapour reminds us of the brevity of life.

A determined volume of air—a cubic foot, for example—at a given temperature has the property of receiving certain quantities of vapour of water in an invisible state, or, as it is called, humidity. When it contains all the humidity it is capable of receiving, it is said to be saturated. If then the temperature be increased, the atmosphere will hold more vapour. If the temperature be lowered, the capacity for containing vapour is diminished, and a part thereof will be condensed, appearing within the atmosphere in the form of fog or mist, or will be precipitated as dew, rain, or frost, according to the degree of cold and consequent condensation. The moist air is, in fact, like a sponge filled with water, which, if it be squeezed by pressure of any sort, will yield up a portion of its contents. This pressure upon the atmosphere is supplied by various causes, principally the presence and absence of heat.

The air surrounding the earth is continually charged more or less freely with the vapour of water. In the aggregate the amount of moisture contained is immense. Under ordinary circumstances it is so expanded by heat of the sun's rays that it is invisible; but when the two conditions of a moisture-charged atmosphere and a reduced temperature come together, this invisible vapour is condensed and

becomes visible. As the earth is commonly cooler at night, mist or fogs are more likely to prevail at that time, or in the early morning when the earth is most chilled by radiation.

I once stood upon the highest peak of the Alleghany hills in the vicinity of Pittsburg, and looked eastward upon a beautiful landscape. Before me were rolling hills dotted with farmhouse, cottage, and wood; beyond was the valley of Monongahela, and beyond that still the landscape stretched in more impressive beauty until it grew dim in the distant horizon. An hour thereafter I looked again. A dense mist had risen from the river, and the lovely scene on which I had gazed with such delight was hidden. Only hidden! for I knew that the landscape still remained, and that the morrow's sun would chase away the fog and reveal once more the woods, cottages, farmhouses, and rolling hills. —*H. C. McCook, D.D.*

No Eastern or Western Poles.

East and west provide a more effective figure of the unmeasurable than do north and south (PSALM ciii. 12).

The distance from north to south is measurable. In every sphere there are north and south poles—both fixed points; and on the earth the distance between them is about twelve thousand miles. So that had the psalmist said, 'As far as the north is from the south,' our conceptions would have been thus limited. It is otherwise with the east and the west. There are no eastern and western poles. From every point alike in the circuit of the world, the east extends in one direction, the west in the other. Thus, the traveller westward, for example, might be said to be for ever chasing the west without coming nearer to it.

The psalmist himself might not have known this astronomical fact; yet, regarding his words as dictated by the Spirit of God, we are surely permitted to read them in the light of modern science, and so to discern in them the most forcible illustration that can be imagined of the illimitable distance to which God has removed the iniquities of His people.

Skyey Influences.

Everyone is more or less affected by the conditions of the atmosphere.

General experience convinces most people that the body and mind are both liable to be affected by the skyey influences. Some, indeed, like Dr. Johnson, may affect to treat this with ridicule, and the strong and robust may scarcely be sensible of any minute changes which the state of the weather may effect on their systems; but the more sensitive and susceptible are fully alive to the facts, so much so, indeed, as to become in some measure living barometers. Who has not, in some part of his life at least, experienced the depressing effect of a dull, rainy day on his spirits? or who, on the contrary, has not felt the exhilaration of dry air and a bright glowing sunshine? At times, even in good health, a state of mind comes across us in which everything appears dark and gloomy; in which little ills are magnified into terrible evils, and in which casual annoyances seem as if they were to be perpetual and never to be got over. All this may endure for a day, and we cannot account for it; but tomorrow's sun rises bright and cheerful; a wonderful change has come over our spirits, and hope and joy have suddenly taken the place of all our former sorrows. How much is man thus a creature of circumstances, and how apt is his mind thus to be unnecessarily agitated! It is right, however, that he should know this; and a few explanations of the effects of

the weather on the animal system may not be without their use.—*Chambers's Journal.*

The Influences of the Atmosphere.

God's grace to man is an all-pervading, all-sanctifying benediction.

The deep of air that surrounds the earth enters into union with the earth at its surface, and with its waters, so as to be the apparent cause of their ascending into life. First, it warms them and shades at once, staying the heat of the sun's rays in its own body, but warding their force with its clouds. It warms and cools at once, with traffic of balm and frost, so that the white wreaths are withdrawn from the field of the Swiss peasant by the glow of Lybian rock.

It gives its own strength to the sea, forms and fills every cell of its foam, sustains the precipices, and designs the valleys, of its waves; gives the gleam to their moving under the night, and the white fire to their plains under sunrise; lifts their voices along the rocks, bears above them the spray of birds, pencils through them the dimpling of unfooted sands. It gathers out of them a portion in the hollow of its hand; dyes with that the hills into dark blue, and their glaciers with dying rose; inlays with that, for sapphire, the dome in which it has to set the cloud; shapes out of that the heavenly flocks—divides them, numbers, cherishes, bears them on its bosom, calls them to their journeys, waits by their rest, feeds from them the brooks that cease not, and strews with them the dews that cease. It spins and weaves their fleece into wild tapestry, rends it, and renews; and flits and flames, and whispers, among the golden threads, thrilling them with a plectrum of strange fire that traverses them to and fro, and is enclosed in them like life.

It enters into the surface of the earth, subdues it, and falls together with it into fruitful dust, from which can be moulded flesh; it joins itself in dew, to the substance of adamant, and becomes the green leaf out of the dry ground; it enters into the separated shape of the earth it has tempered, commands the ebb and flow of the current of their life, fills their limbs with its own lightness, measures their existence by its indwelling pulse, moulds upon their lips the words by which one soul can be known to another, is to them the hearing of the ear and the beating of the heart; and, passing away, leaves them to the peace that hears and moves no more.—*John Ruskin.*

Ether the Essence of Everything.

The breath of God is living ether, and the life of everything.

The ethers are more solid than any metal, and the metals are capable of being converted into ethers again. Nothing is so solid, nothing so strong, as the everlasting sky. It is the soul and essence of all gold and silver; and the golden Glory of God, or Pure Love, glorifying Love, may be drawn out of the Sky into your soul. The sky is pure substance and the mother of all substances. The densest things, and things most attenuated, are all one primal substance. The sweet transparency, which we call ether, is equally akin to spirit and matter. One word expresses both ether and spirit. The breath of God, or the Holy Spirit, is *living* ether, Divine ether; and the ether of the sky is equally the clothing of His Spirit, and the matrix of matter. It is 'stretched out' above and beyond the atmospheres of all worlds, and is to all who behold it a mirror of the Infinite Spirit.—*John Pulsford.*

Plants and Animals in Relation to the Atmosphere.

Reciprocity is a law of nature.

Plants possess two modes of respiration—one diurnal, in which the leaves absorb the carbonic acid of the air, decompose this gas, and extract the oxygen whilst the carbon remains in their tissues; the other nocturnal and the reverse, in which the plant absorbs the oxygen, and extracts the carbonic acid—that is to say, they breathe in the same manner as animals do. The carbon which is used by plants during the day is indispensable to the perfect development of their organs and the consolidation of their tissues. By respiration plants live and grow. Plants purify the air injured by the respiration of men and animals. If animals transform the oxygen of the air into carbonic acid, plants take this carbonic acid back again by their diurnal respiration. They fix the carbon in the depths of their tissues and return oxygen to the air in reparation. Such is the admirable equilibrium which the Creator has established between animals and plants, such the beneficial communication which assures to the air its constant soundness, and maintains it in that state of purity which is indispensable to support the life of the living creatures which cover the globe.—'*Scientific Illustrations and Symbols.*'

The Aurora Australis.

The glory of God is revealed in the wonders of the sky.

Just after dusk the 'Aurora Australis' appeared like a large and brilliant pink cloud, extending about twenty-five or thirty degrees above the horizon, and sixty or seventy degrees in length. It continued visible for about twenty minutes, during the last five of which splendid 'streamers' of pink and white light were shooting vertically through it. It was seen almost throughout these colonies at the same time, and on four nights in the same week; but I only saw it twice—once as above, and again on Friday, September 2, when the most gorgeously brilliant display took place. It commenced immediately after sunset, and increased in splendour during the evening. The moon was in her first quarter. For several hours little was to be seen but a deep, rich, pink light over the southern part of the sky; but by degrees it extended, and about nine o'clock a huge pillar of fire appeared in the west, where it remained until midnight. After the moon went down, the brilliancy of the aurora increased; and from about half-past eleven till past twelve, a beautiful, pale, soft, greenish-blue light, like the dawn of morning, extended itself above the southern horizon for about one hundred to one hundred and ten degrees, and about eighteen or twenty degrees in height. From this streamers, or radii of 'red, white, and blue' light, shot upwards to beyond the zenith, fully half the sky being covered with this splendid illumination, the light from which equalled that of the full moon in England. These radii converged towards a point about fifteen degrees north of the zenith, but did not themselves extend more than half that distance beyond the zenith. This was its 'last appearance,' and a splendid *finale* it was. Fifty of the largest comets blazing away at once could hardly have presented a finer sight.—*J. B. Austin, Kapunda, South Australia.*

The Atmosphere laden with Rejected Gases.

Consciously, and unconsciously, we exert influence one on another.

As the atmosphere, laden with rejected gases, comes forth from the lungs and mingles with the

common air, so do the thoughts and affections of our spiritual nature go forth to be inbreathed again by other souls. On this ground Jesus taught that when the Holy Spirit dwells in a man, streams of holy influence flow forth from that man's spirit. If a frail flower breathes sweetness into the general air, how much more a holy man? If a cesspool emits a pestiferous influence, how much more a bad *man?* Is not every man an open gate into the world, either for heaven or hell?—*John Pulsford.*

Obscuring Mists in the Lowlands.

The man of faith can go cheerfully through earth-mists, or rise to heights that mists cannot reach.

Have you ever walked in the early morning or late at night over some familiar path covered with fogs, and wondered how strange all things looked? From yon Delaware, flowing before the gates of our great city, I have often seen in the autumn the mists rolling out, hiding for a time the lovely landscapes of our suburban regions. When venturing sometimes to walk abroad through these mists, or driving from my summer lodging toward my city home, I have noted how hard it is to tell the features of the scenery. They are distorted as seen through the mist. They are obscured by the mist. The familiar landmarks are blotted out. Even the well-known pathway to home, where dearest friends await with welcome, seems strange and unknown to the eye, or is wholly hidden from sight. Yet well did I know that friends, and home, and blue heaven, and the light of God, were all there beyond the mists, and that by-and-by it would appear thus to me.

I was driving once with a company of college friends along the valley of Chartiers Creek, in Western Pennsylvania. It was a foggy morning. We moved through the valley, for the road threaded the course of the stream. We wrapped our coats around us, and shivered in the morning chills. Soon our path led away from the valley and stream up a sloping hillside. Higher still we mounted, up, still up, until suddenly we emerged from the mist into full sunlight. All around us and above us lay fields, hillsides, and forests beautiful in the rays of heaven's luminary that poured its morning glory on the scene. Below us, covering all the valley, lay the mist, rising here and sinking there, like a tossing vapour sea. We had escaped all that. We were out of the fogs. We had come *out* simply by coming *up*. Mists love the lowlands. Forsake the lowlands of that life of unbelief in which you are living. Go higher! still higher! On wings of faith mount nearer to the throne, nearer to that hill whose healing cross is the central point of human hopes.—*H. C. McCook, D.D.*

Air not Sweet when Silent.

Health and strength depend upon wise activities.

No air is sweet that is silent; it is only sweet when full of low currents of under-sound, triplets of birds, and murmur and chirp of insects, and deep-toned words of men, and wayward trebles of children.—*John Ruskin.*

Pure and Impure Air.

The influence of society upon the soul.

The atmosphere which a man breathes purifies or poisons the fountain of health. What the atmosphere is to the body, that society is to the soul. While there are results, secret as well as manifest, proceeding from the air we breathe, so there are consequences, unknown as well as known, in our spiritual life, arising from the associations of our daily history.—*John Stoughton, D.D.*

Soilings by the Atmosphere.

Every man is influenced for good or evil by his surroundings.

As in certain atmospheres, without intention, and contrary to our intention, our faces and garments are soiled, so are our souls and affections in certain places and in certain company saturated with evil. In the purest atmosphere which the world affords we cannot keep white garments untarnished; but there are conditions which at once specially charm and specially pollute the soul. — *John Pulsford.*

THE SEASONS—AUTUMN.

Signs of Autumn.

The changes of life come gradually.

We are on the threshold of the autumn. Plain to read are the tokens of its coming. Faint and shadowy lines they are which divide the other seasons. Winter, ever parting with reluctance, is apt to steal back in the night and leave his traces even on the flowers. It were hard to say when spring has ended and the summer set in. But the story of autumn is traced in bolder letters and more certain tones —its closing chapters even in characters of fire. The air grows sharper and the days draw in. Longer still and heavier lies the dew upon the glistening fields. Gray mists, that after sundown brood over rich meadows like a fate, linger in the valleys like phantoms, sullenly retiring in the dawn. On the hills there is the first warm flush of heather that ere long, mingling its purple with the gold of blossomed furze, will spread over all the broad brown slopes like the light of sunset. The trees begin to brighten as under the touch of Midas. The chestnut wears a tinge of gold. The hedgerow is lighted with the fiery foliage of the maple. The sombre tones of the woodland are broken with the young leafage of the oak—here pale yellow changing into bronze, there tipped with points of vivid scarlet. Each gust of wind shakes down a shower of rustling leaves. In all the air there is an odour of decay. There are broader dashes of colour in the fields of corn, where under the magic of the sunlight green is melting into gold. Through the long wet summer days, while the ruined hay lay rotting on the ground, while the farmer was chafing at the dull weather and the frequent rain, the corn grew tall and strong, until the well-filled ears wanted nothing but a spell of sunshine. But, alas! the sky is leaden and the air is chill. Ours is a fickle climate, at the best. We know it well. The only disappointments it brings us are for the most part when it turns out better than we had hoped for. We have long abandoned to the poets the praises of the spring. We expect her to play us false. We are only too well accustomed, after welcoming the early primrose, to see the landscape whiten under a fresh touch of winter. Yes—

> 'The spring, she is a young maid
> That does not know her mind.'

And summer too, for all the charm of her early dawns and pleasant twilights, her green draperies, and her wealth of flowers—

> 'And summer is a tyrant
> Of a most unrighteous kind.'

But we look away from all this with the firm faith that autumn, at least, will be kind to us:

> 'But autumn is an old friend
> That loves one all he can,
> And that brings the happy barley
> To glad the heart of man.'

But now that autumn is upon us he deals his gifts with grudging hand. The days are marred with rain. The half-reaped fields are waiting for the sun. Now and then there comes, as if by way of consolation, a perfect day, a day of royal weather. Across the fair blue overhead drift a few soft dreamy clouds. A flood of warm sunshine fills the landscape. Breast-high among the bearded grain stand groups of stalwart reapers. On every side there rises the whirr of the machine or the clink of a whetted blade. Along the hedgerows wait the feathered gleaners—linnets and buntings in sober brown, finches and yellow-hammers in green and gold. Here, too, are the footprints of the autumn. Here among the waving grain rises the graceful corn-cockle; there a patch of scarlet poppies shines like fire among the wheat. In the meadow beyond, the long grass is aflame with autumn crocus—a blaze of colour in the noonday heat; in the twilight a soft, warm glow that clings about the slopes and in the hollows like a purple mist. The field-gate opens into a lane, an old British roadway from ancient lead-mines to the sea. The camps that guarded once the line of devious road look down from the hills out of waves of bracken, now just tinged with brown, or through the orderly ranks of feathery larches. A flint arrow-head, a fragment of pottery, or a rusted weapon turned up here or there, are all that remain of the noble defenders of these ruined ramparts. Centuries of wheel-tracks have worn down the ancient way far below the level of the adjoining fields. The elms that lean over it, through whose interlacing boughs filters a dim green light, are centuries old. Within their cavernous chambers generations of owls have lived and died. Troops of birds find shelter in their friendly hollows. The straggling hedgerows, unchecked by bill or pruning-hook, are draped with trailing masses of bryony, or with pale festoons of bindweed whose great white flowers hang like lamps among the graceful sprays. Brilliant butterflies flit here and there among the brambles, and yonder skims along on rustling wings that deadly foe of theirs, the dragon-fly, brave with burnished mail. Among the thickets cling the torn and empty nests from which long since the eager broods took wing. Not all are yet abandoned; there are still unfledged nestlings clamouring for food. But the world is peopled with the new generation; young robins with breasts spotted like thrushes, and betraying their real parentage by their speech and attitudes alone; goldfinches, too, resembling their brilliant parents only in the yellow of their wings.

'Linnet and meadow-lark and all the throng
That dwell in nests and have the gift of song.'

Under the bank among the broad fronds of hartstongue shine the bright berries of the arum. The hazel-boughs are heavy with rich brown clusters. The dogwood and the wayfaring tree are beginning to show their bold autumnal tints. The mountain-ash is fully in its prime, hung all over with bright scarlet bunches—welcome feast to noisy missel-thrush and wandering ouzel.—*Daily News.*

Autumnal Revelations.

We find beauty in things that we are soon to lose.

There is no season in all the year so beautiful, so radiant with glory, as the early autumn. There is no time when the human soul drinks in so fully the glory and beauty of nature. All objects of beauty are more beautiful while passing away from us. The closing up of a beautiful life—the fading of the holy stars in the dim light of morning—the ending of a quiet

summer day and the passing away of the bright summer glory, are all more sweet and lovely as they are lost to us. The death-glow always beautifies anything that wears the trace of beauty ere it goes back to nothingness. We do not understand the secret of this principle, yet we know that it is some law of the infinite mind.

The sweet beauty that is connected with autumn may not be so radiant and brilliant as that which crowns the queenly spring-time, yet it is no less beautiful. The 'golden rod' by the roadside, the climbing clematis among the willows, may not be so glorious as the gaudy flowers of spring—yet there is a charm lingering about them full of sweetness and beauty. The days may not be so bright and balmy—yet the quiet and melancholy that linger around them is fraught with glory. Over everything connected with autumn there lingers some golden spell—some unseen influence that penetrates the soul with its mysterious power.

The human soul is slow to discover the real excellence of things given to us by a bountiful Creator, and not until the shadows of death begin to gather around the object that we love, do we see its worth and beauty. Autumn is the dim shadow that clusters about the sweet, precious things that God has created in the realm of nature. While it robs them of life, it tears away the veil and reveals the golden gem of beauty and sweetness. Beauty lurks in all the dim old aisles of nature, and we discover it at last.

At last!—oh, words so closely akin to Never! Oh, blinded eyes that do not see the beauty of this world until it is going from us! Oh, icy hearts that do not receive the tender love of Christ until the last moment! How blind—how cold are souls that were created to glow and throb with infinite love for ever!

In the great, glorious life to come we shall see the golden chain of love as it binds together all created things. We shall understand the hidden secrets that have been to us like 'sealed books.' We wait patiently until the 'scales fall from our eyes.'—*Northern Advocate.*

The Autumn Fire.

Nature needs yearly purging.

A hidden fire burns perpetually upon the hearth of the world. . . . In autumn this great conflagration becomes especially manifest. Then the flame that is slowly and mysteriously consuming every green thing bursts into vivid radiance. Every blade of grass and every leaf in the woodlands is cast into the great oven of Nature; and the bright colours of their fading are literally the flames of their consuming. The golden harvest-fields are glowing in the heart of the furnace. . . . By this autumn fire God every year purges the floor of nature. All effete substances that have served their purpose in the old form are burnt up. Everywhere God makes sweet and clean the earth with fire.—*Hugh Macmillan, LL.D.*

The Beauty of the Fading Autumn Leaves.

There is a ministry even in decay.
We serve the race by dying.

No one can take a walk in the melancholy woodland in the calm October days without being deeply impressed by the thought of the great waste of beauty and creative skill, seen in the faded leaves which rustle beneath his feet. Take up and examine one of these leaves attentively, and you are astonished at the wealth of ingenuity displayed in it. It is a miracle of design, elaborately formed and richly coloured—in reality more precious than any jewel; and yet it is dropped off the bough as if it had no value, and rots away un-

heeded in the depths of the forest. Myriads of similar gems are heaped beneath the leafless trees, to moulder away in the rains of November. It saddens us to think of this continual lavish production and careless discarding of forms of beauty and wonder, which we see everywhere throughout nature. Could not the foliage be so contrived as to remain permanently on the trees, and only suffer such a periodical change as the evergreen ivy does? Must the web of nature's fairest embroidery be taken down every year, and every year woven back again to its old completeness and beauty? Is nature waiting for some great compensation, as Penelope of old waited for her absent husband, when she unravelled each evening the work of each day, and thus deluded her eager lovers with vain promises? Yes! she weaves and unweaves her web of loveliness each season —not in order to mock us with delusive hopes, but to wean us from all false loves, and teach us to wait and prepare for the true love of our souls, which is found not in the passing things of earth, but in the abiding things of heaven. This is the secret of all her lavish wastefulness. For this she perpetually sacrifices and perpetually renews her beauty; for this she counts all her most precious things but as dross. By the pathos of her autumn loveliness she is appealing to all that is deepest and truest in our spiritual nature; and through her fading flowers and her withering grass, and all her fleeting glories, she is speaking to us words of eternal life, whereby our souls may be enriched and beautified forever. Faded and fallen leaves, how worthless they seem! Who cares for them? And yet how much do we owe to these yellow trophies of decay! They, and the generations that preceded them, were the tiny architects that built up the mighty monarchs of the wood. The huge trunks and branches of great trees, centuries old, were elaborated by their tender cells. They have perished themselves, but they have left behind them as their great life-work and enduring monument all the timber from which we fashion our shipping, our homes, and our furniture. They kept the atmosphere pure by breathing its noxious vapours, and changing them into their own substance; they protected the cradles of the streams from the evaporation of the sun by their cool shadows, and water-nymph and dryad held sweet converse in their bowers; they sheltered and adorned the landscape; they formed, by their wonderful alchemy, the fragrant blossoms and the luscious fruits that gratified every sense in summer; and now they enrich the soil by the products of their decay, and feed the very trees that discarded them. Pondering upon all these varied uses, we are powerfully impressed by the thought that instruments apparently insignificant are employed by Providence to bring about the greatest and most important results. Our life, too, is frail and fleeting as that of the leaf. May it be as useful while it lasts, making the world fairer and purer by its presence; may it fade and go out in hues as tender and bright, making the darkness of death itself beautiful; and may it leave behind it lasting remembrances in the great good it has done, and the noble work it has achieved! We all do fade as a leaf; but it has been proved that even an annual leaf can be made perennial by grafting it on the twig of a tree. United to the more enduring structure, it shares in the prolonged existence of that structure; it changes from a frail perishing leaf into a firm and persistent branch; and while its former companions become discoloured and fall off in the frosts of autumn, it continues fresh and green through all the changes of the seasons. So our fragile leaf-

like life, which must fade in the autumn of earth's doom, by being united through faith to Him whose name is the 'Branch,' will partake of His everlasting endurance; and neither life nor death, nor things present, nor things to come, can separate us from His love!—*Hugh Macmillan, LL.D.*

Autumn and Old Age.

A life of struggle is more beautiful than an old age of rest.

Beautiful is old age—beautiful as the slow-dropping mellow autumn of a rich glorious summer. In the old man, Nature has fulfilled her work; she loads him with blessings; she fills him with the fruits of a well-spent life; and, surrounded by his children and his children's children, she rocks him softly away to a grave, to which he is followed with blessings. God forbid we should not call it beautiful. It is beautiful, but not the most beautiful. There is another life, hard, rough, and thorny, trodden with bleeding feet and aching brow, the life of which the cross is the symbol; a battle which no peace follows, this side the grave; which the grave gapes to finish before the victory is won; and—strange that it should be so—this is the highest life of man. Look back along the great names of history; there is none whose life has been other than this. They to whom it has been given to do the really highest work in this earth—whoever they are, Jew or Gentile, Pagan or Christian, warriors, legislators, philosophers, priests, poets, kings, slaves—one and all, their fate has been the same—the same bitter cup has been given to them to drink.—*J. A. Froude.*

Autumn Restlessness.

Unrest is due to external influences.

Along the sere and yellow woods, the autumnal winds crept with a lowly but gathering moan. Where the water held its course, a damp and ghostly mist clogged the air; but the skies were calm, and chequered only by a few clouds, that swept in long white spectral streaks over the solemn stars. Now and then the bat wheeled swiftly round, almost touching the figure of the student, as he walked musingly onward. And the owl that, before the month waned many days, would be seen no more in that region, came heavily from the trees like a guilty thought that deserts its shade. It was one of those nights, half dim, half glorious, which mark the early decline of the year. Nature seemed restless and instinct with change; there were those signs in the atmosphere which leave the most experienced in doubt whether the morning may rise in storm or sunshine. And in this particular period the skyey influences seem to tincture the animal life with their own mysterious and wayward spirit of change. The birds desert their summer haunts; an unaccountable disquietude pervades the brute creation; even men, in this unsettled season, have considered themselves, more than at others, stirred by the motion and whisperings of their genius. And every creature that flows upon the tide of the universal life of things feels upon the ruffled surface the mighty and solemn change which is at work within its depths.—*Bulwer Lytton.*

The Sunshine of an Autumn Afternoon.

Things take their tone from the medium through which they are apprehended.

The sunshine of the autumn afternoons is faintly tawny, and the long grass by the wayside takes from it a tawny undertone. Some other colour than the green of each separate blade, if gathered, lies among the bunches, a little perhaps like the hue of the narrow pointed

leaves of the reeds. It is caught only for a moment, and looked at steadily it goes. Among the grass, the hawkweeds, one or two dandelions, and a stray buttercup, all yellow, favour the illusion. By the bushes there is a double row of pale buff bryony leaves; these, too, help to increase the sense of a secondary colour.

The atmosphere holds the beams, and abstracts from them their white brilliance. They come slower with a drowsy light, which casts a less defined shadow of the still oaks. The yellow and brown leaves in the oaks, in the elms, and in the beeches, in their turn affect the rays, and retouch them with their own hue. An immaterial mist across the fields looks like a cloud of light hovering on the stubble: the light itself made visible.

The tawniness is indistinct; it haunts the sunshine, and is not to be fixed, any more than you can say where it begins and ends in the complexion of a brunette. Almost too large for their cups, the acorns have a shade of the same hue now before they become brown. As it withers, the many-pointed leaf of the white bryony and the bine as it shrivels, in like manner, do their part. The white thistle-down, which stays on the bursting thistles because there is no wind to waft it away, reflects it; the white is pushed aside by the colour that the stained sunbeams bring.

Pale yellow thatch on the wheat-ricks becomes a deeper yellow; broad roofs of old red tiles smoulder under it. What can you call it but tawniness?—the earth sunburnt once more at harvest-time. Sunburnt and brown, for it deepens into brown.

Here and there a thin layer of brown leaves rustles under foot. The scaling bark on the lower part of the tree-trunks is brown. Dry dock-stems, fallen branches, the very shadows, are not black, but brown. With red hips and haws, red bryony and woodbine berries, these together cause the sense rather than the actual existence of a tawny tint. It is pleasant; but sunset comes so soon, and then after the trees are in shadow beneath, the yellow spots at the tops of the elms still receive the light from the west a few moments longer.—*Richard Jefferies.*

Promise of Spring in Autumn Time.

Nature has its compensations.

There is one common image presented in autumn. When the leaves are whirling yellow and brown along the ground—ay, and long before, while they are still green on the tree, you may notice the bud carefully wrapt up for the coming spring. It is Nature's sure prophecy of a future, the compensation for the decay of the present. But the compensation lies in the future alone, not in the present, except in the prophecy as believed and trusted in the present.

I once watched a series of dissolving views. One especially riveted my attention—a beautiful scene in Italy, where Nature appeared in her loveliest and richest dress. On the verge stood a ruin, which lent to the scene pathos and romance, tenderness and humanness. It was not without a feeling of regret that I observed this scene begin to fade. But while it faded there rose, dim at first, but ever clearer, the outline of another picture—the one keeping pace with the other, the vanishing of the old, the appearing of the new—till at last, when the old had wholly gone, there stood forth in majesty, obscure still, but nevertheless splendid, a picture of the sea, the mountains, and the stars overhead. The eternal had taken the place of the transient. It was a lesson in compensation. The same lesson is read to us every evening. The bright day departs. The curtains of night are drawn.

We see no more the features of the accustomed earth; but when earth is hidden, heaven begins to unfold its treasures; when the transient scenes of time are shut from our view, the watch-fires of eternity are lit; when we lose this little world, we gain innumerable worlds. In both of these instances we have examples of what is undoubtedly a present compensation, but still a compensation gained by the surrender of the present. In the renewal of the inner man we have both a transcendent compensation in the present, and the pledge of a glorious and eternal future, which also enriches and glorifies the present.—*Joseph Leckie, D.D.*

The Lovely Days of Fine October.

Time puts a sacred touch on everything.

In the entire circle of the year there are no days so delightful as those of a fine October, when the trees are bare to the mild heavens, and the red leaves bestrew the road, and you can feel the breath of winter, morning and evening—no days so calm, so tenderly solemn, and with such a reverent meekness in the air. The lyrical upburst of the lark at such a time would be incongruous. The only sounds suitable to the season are the rusty caw of the homeward-gliding rook—the creaking of the wain, returning empty from the farmyard. There is an 'unrest,' which men miscall delight, and of that 'unrest' youth is, for the most, composed. From this middle age is free. The setting suns of youth are crimson and gold; the setting suns of middle age

> 'Do take a sober colouring from an eye
> That hath kept watch o'er man's mortality.'

Youth is the slave of beautiful faces, and fine eyes, and silver sweet voices—they distract, madden, alarm. To middle age women are but the gracefullest statues, the loveliest poems. They delight, but hurt not; they awake no passion, they heighten no pulse. And the imaginative man of middle age possesses after a fashion all the passionate turbulence, all the keen delight, of his earlier days. They are not dead—they are dwelling in the antechamber of Memory, awaiting his call; and when they are called they wear an ethereal something which is not their own. The muses are the daughters of Memory; youth is the time to love, but middle age the period at which the best love poetry is written. And middle age, too—the early period of it, when a man is master of his instruments, and knows what he can do—is the best season of intellectual activity. The playful capering flames of a newly-kindled fire is a pretty sight, but not nearly so effective—any housewife will tell you—as when the flames are gone, and the whole mass of fuel has become caked into a sober redness that emits a steady glow. There is nothing good in this world which time does not improve. A silver wedding is better than the voice of the Epithalamium; and the most beautiful face that ever was is made yet more beautiful when there is laid upon it the reverence of silver hairs.—*Alexander Smith.*

Autumn by the Sea.

Stern winter times of life need preparing for.

There is a change on the shore and on the sea. It is not the absence of the crowds, of the pleasure-boats, of the bathing-machines, of the general revelry of the beach, that makes the difference. The transformation has been wrought by the southing of the sun. The boisterous days and nights may not yet have come, but somehow there is the familiar prophecy of winter, bleak and black and howling, in the handwriting of

the breakers on the sand; in the depth of the brown ridges; in the darker dye that has entered the fibres and leaves of the slimy, tossing lengths of seaweed; in the hoarser notes of the gulls, and the swifter sweep of their pinions as they head straight for a quarter of a mile, and then round into the wind's eye on vibrationless wings, and fling their tough and salted cries to the surges beneath. The change is on the face of the cliffs—dim and vague, perhaps, but perceptible in them as they shoulder out through the ashen light, and stare seawards in search of the coming enemy under their beetling brows or shaggy summits. The pools among the low dry rocks are deeper and more numerous; and one knows that winter is not far off behind the water yonder by the chill that comes down even in the sun-lit wind when it flies, with a grumble of storm in the echo it leaves in the ear, down the steep ravine to the white upon the sand, where the surf answers its salute by a light outfly of crystalline smoke. Everywhere there is the aspect of preparation—the hint of making ready for the wild conflicts of short days and long nights. The squalls run lead-coloured along the horizon, and there is a spite in the rolling vaporous masses for which the holiday-maker would have sought in vain in the thunder-charged blackness of a few weeks since. The white sail gleams seldom; the familiar sights are now the dark canvas of the smack heavily labouring homewards over the long swell, or pitching hard as she heads for her grounds under reefed cloths; or the gray sails of some distant ship whose outline leans from the dusky mistiness over the horizon, and whose canvas as it lifts with the sea shows like an albatross pausing on out-stretched wings; or the funnel of some deep-laden steamer pouring smoke that flies low to unite in a score of such streamings. As yet there is but a promise of the cold and wet, the snow-storm, the flying scud, the tumbling sea-line, the nearer boiling of the green billows—of the long winter, indeed, whose herald is with us now. That promise, however, holds a world of suggestiveness and significance to him who looks closely into the workings and subtle transformations of nature; and chiefly is it conspicuous by the sea-shore, richest there in wild poetry, and most solemn in the majesty of transition. There is not a volume of gray water rushing its burden of foam and shingle and weed up the beach; there is not a white-edged shadow upon the sea, with the horizon dim beyond, and the billows livid in its embrace; there is not a sudden sharp firing down of silver sunlight over the rounded edge of some deep-bosomed, fleece-like cloud, but bears with it the story of the stormy time that is coming, or reminds us that the summer lies dying with its sweetness scattered.

Autumnal Tints on Little Plants.

Small things, as well as great ones, respond to Nature's adorning.

The beauty of the autumnal tints is commonly supposed to be confined to the fading foliage of the trees. This is indeed the most obvious feature of the season—that which appeals to every eye, and reads its lesson to every heart. But Nature here, as everywhere else, loves to reproduce in her smallest things the peculiarities of her greatest. It was a beautiful myth, created by the glowing imagination of the Greek poets, that the great god Pan, the impersonation of Nature, wedded the nymph Echo; so that every note which he blew from his pipe of reeds awakened some harmonious response in her tender bosom. Most truly does this bright fancy represent the real design of Nature, ac-

cording to which we hear on every hand some curious reverberation of some familiar sound, and see all things delighting to wear each other's robes. The fading trees pipe their many-coloured music aloft on the calm blue October air —for the chromatic scale is the harmonious counterpart of the musical — and the lowly plants that glow beneath their shadow dance to the music. The weeds by the wayside are gifted with a beauty in the decline of life equal to that of the proudest oaks and beeches. No tints of the autumn woodlands are lovelier than the amber hues of the October foliage of the little silver-weed that creeps in dense masses along the barren sands of the sea-shore; or the scarlet glare of the withered wild parsley, whose plumy leaves nestle beneath the wayside hedge; or the golden splendour of the faded lady-fern that lights up the glade of the woodland as with a mimic sunshine softly filtered through overshadowing leaves. No tree-colouring is so rich as the vivid crimson on the lowest faded leaves of the St. John's wort, or on the withered leaves of the wild field-sorrel. The hectic beauty of the autumn woods is indeed eclipsed by the surpassing and wondrous loveliness of multitudes of herbaceous plants, whose fading foliage gleams among the grass or moss in waste places like fairy jewels.

But this profusion of minute fading glory is overshadowed by the green luxuriance of higher vegetable life, which is passing on to its unfolding. The foliage of all the trees changes its hues about the same time, and therefore it arrests our attention by its uniform blaze of splendour; but the lowly herbaceous plants fade gradually and successively—a leaf now and a leaf then, an individual here and an individual there; and therefore the coloured flame of each expiring taper fails to light up the general green gloom, and is extinguished in its place without notice. It is the same with the trees of arctic and tropical woods; their leaves, too, fade gradually and successively. On the evergreen pines of the arctic regions individual leaves fade one by one, until after a considerable lapse of time the whole fall off; but the discoloration of these individuals is not noticed amid the general greenness, and the void created by their fall is at once filled up by the formation of fresh foliage; and thus we suppose that the leaves of such trees are perennial and unfading.

Only in one limited region of the earth is the glory of the autumnal woods to be seen. Over the temperate zone the trees fade simultaneously, and, as a whole, at a certain fixed period, and clothe the round earth throughout this narrow belt with a rainbow of loveliness once every year. To the favoured inhabitants of this region alone is exhibited the great sight of the woods burning with the flameless fire of the autumnal decay. Would that we turned aside more frequently from our sordid pursuits to behold it! and that it awakened in us the proper feelings of awe and reverence towards the Angel that dwelt in the bush, whose glory is burning away unconsumed in it.—*Hugh Macmillan, LL.D.*

CLOUDS.

The Beauty of the Clouds.

The marvellous goodness of God is seen in His making necessary and useful things also beautiful.

An inspired writer has said, 'He hath made everything beautiful in His time'; and in our own country there is no season when the beauty of cloud-land does not reveal itself. And we are justified in believing that God has made the clouds beautiful for the sake of giving us pleasure. There is probably no department of Nature in which God has done more for the mere sake of pleasing us than in this, and yet there is not one in which we attend less to appointed reminders of His loving-kindness and tender mercy. No doubt the phenomena of cloud-formation are designed primarily to water the earth; to gather together the moisture from the salt sea, and from dark, unwholesome fens; to purify them by the mysterious alchemy of the sky; to carry them onward by sweeping storm or by gentle zephyr, and let them descend gently in the mist, or steadily in the rain, which will waken sleeping seeds, and revive drooping vegetation. But all this might (possibly) have been effected if now and then an ominous black cloud had blotted out the sun from our sight, and poured down a deluge till it had spent itself, and then had left the sky glaringly bright and blue till the process required to be repeated. Instead of that, hardly a day passes but we may see in the sky above us that God is producing scenes of perfect beauty, or of glorious majesty, which so far as we know are only produced for the sake of giving us pleasure. Besides the nimbus—the rain-cloud we all know so well—what beautiful and varied scenes one may often gaze upon! When a calm, clear evening follows a warm day, we see the mist gathering in the valleys, creeping stealthily and silently up the hill-sides, and rising into the air in long, low, horizontal streaks, which are made beautiful by the silent, silvery light of moon and stars. In the morning we sometimes notice the scattered specks and flakes gathering together, growing and spreading into the magnificent cumulus, stacked up in gigantic heaps, till the afternoon sun glorifies a range of sky-mountains, beside whose stupendous heights earth's loftiest range is dwarfed, and whose summits are white as no fuller on earth can white them. Or when the weather is steady and fair, we see in a far higher region the lovely cirrus-cloud, light and waving as locks of hair, or tiny feathers of exquisite hue, the first to catch the splendour of the coming sun, the last to lose the glories of his light. Now, if God made the clouds so beautiful, did He not mean us to gaze upon them and be thankful for them?—*Alfred Rowland, LL.B.*

The Charm of the Clouds.

Exceeding interest attaches to common-place, ordinary things.

Common-place! Look up! What is that apparition of dazzling brightness rising softly upon the blue sky from behind those tall and massive elms? If you saw it for the first time in your life, you would say it must be some celestial visitant. Is it light itself from heaven taking shape, and just softened and subdued to the endurance of a mortal vision? It is nothing but a cloud!—mere vapour that the unseen wind moves and moulds, and that the sun shines on for a little time. And now it has risen above the massive and lofty tree, and throws its pleasant shadow down upon the

earth—pleasant shadow that paces along the meadows, leaving behind a greater brilliancy on tree, and grass, and hedge, and flower than what, for a moment, it had eclipsed. It is all common-place. Light, and shadow, and the river, the meadow, with its clover blossoms and childish buttercups. Very childish all. Match it!—match them!—match these trees in their meadows, ye restless prophets with your palaces of crystal, and walls of sapphire, and pavements of jasper! I think there is no better lesson to teach us the beauty of the real and familiar than to read, let us say, some great epic poet labouring to describe his imaginary bliss, or his celestial city. He builds of jasper, and carbuncle, and emerald; and, lo! he can produce nothing comparable to that thatched cottage standing in the corner of a field with the elm-tree at its back. All the apocalyptic visions you have ever read cannot rival a meadow in spring-time. That simple field, with its buttercups and clover blossoms, outshines the imagination of all the poet-prophets that have ever lived. Thank God, all you who have a spark of rational piety in your hearts, for the glorious common-place of earth and sky, for this cloud-embosomed planet in which you pass your lives.—*William Smith.*

The Mysteries of the Clouds.

Man can ask questions to which no answer can now be given.

That mist which lies in the morning so softly in the valley, level and white, through which the tops of the trees rise as if through an inundation—why is *it* so heavy? and why does it lie so low, being yet so thin and frail that it will melt away utterly into splendour of morning, when the sun has shone on it but a few moments more? Those colossal pyramids, huge and firm, with outlines as of rocks, and strength to bear the beating of the high sun full on their fiery flanks—why are *they* so light, their bases high over our heads, high over the heads of Alps? why will these melt away, not as the sun rises, but as he descends, and leave the stars of twilight clear, while the valley vapour gains again upon the earth like a shroud?

Or that ghost of a cloud, which steals by yonder clump of pines: nay, which does *not* steal by them, but haunts them, wreathing yet round them, and yet—and yet slowly: now falling in a fair waved line like a woman's veil; now fading, now gone: we look away for an instant, and look back, and it is again there. What has it to do with that clump of pines, that it broods by them and weaves itself among their branches to and fro? Has it hidden a cloudy treasure among the moss at their roots which it watches thus? Or has some strong enchanter charmed it into fond returning, or bound it fast within those bars of bough? And yonder filmy crescent, bent like an archer's bow above the snowy summit, the highest of all the hill—that white arch which never forms but over the supreme crest—how is it stayed there, repelled apparently from the snow—nowhere touching it, the clear sky seen between it and the mountain edge, yet never leaving it—poised as a white bird hovers over its nest?

Or those war-clouds that gather on the horizon, dragon-crested, tongued with fire—how is their barbed strength bridled? what bits are these they are champing with their vaporous lips, flinging off flakes of black foam? Leagued leviathans of the Sea of Heaven, out of their nostrils goeth smoke, and their eyes are like the eyelids of the morning. The sword of him that layeth at them cannot hold the spear, the dart, nor the habergeon. Where ride the captains of their armies? Where are

set the measures of their march? Fierce murmurers, answering each other from morning until evening—what rebuke is this which has awed them into peace? what hand has reined them back by the way by which they came?

I know not if the reader will think at first that questions like these are easily answered. So far from it, I rather believe that some of the mysteries of the clouds never will be understood by us all. 'Knoweth thou the balancings of the clouds?' Is the answer ever to be one of pride? 'The wondrous works of Him which is perfect in knowledge?' Is *our* knowledge ever to be so?—*John Ruskin.*

The Sun is behind the Cloud.

God's sunshine of forgiving love is behind the cloud of our sin, and will find a way to burst through.

Sin is but the cloud, as it were, behind which the everlasting sun lies in all its power and warmth, unaffected by the cloud; and the light will yet strike—the light of His love will yet pierce through, with its merciful shafts, bringing healing in their beams, and dispersing all the pitchy darkness of man's transgressions. And as the mists gather themselves up and roll away, dissipated by the heat of that sun in the upper sky, and reveal the fair earth below, so the love of Christ shines in, melting the mist and dissipating the fog, thinning it off in its thickest places, and at last piercing its way right through it, down to the heart of the man that has been lying beneath the oppression of this thick darkness, and who thought that the fog was the sky, and that there was no sun there above.

Cloud-Shadows.

Man never knows a sky without a cloud.

The overshadowing cloud to mar the sunshine is one of the commonest of common-places in man's experience. Perpetually being verified in prosaic reality, all too real is the poet's image:

'Across the sunbeam, with a sudden gloom,
A ghostly shadow flitted.'

The very exuberance of human happiness tends to suggest its opposite. A thought comes over us sometimes in our career of pleasure, Lord Lytton remarks; or in the exultation of our ambitious pursuits, a thought comes over us like a cloud, that around us and about us Death, Shame, Crime, Despair, are busy at their work. He tells us what he has read somewhere of an enchanted land, where the inmates walked along voluptuous gardens, and built palaces, and heard music, and made merry; while around and within the land were deep caverns, where the gnomes and the fiends dwelt; and ever and anon their groans and laughter, and the sounds of their unutterable toils or ghastly revels, travelled to the upper air, mixing in an awful strangeness with the summer festivity and buoyant occupation of those above. And this he claims to be a picture of human life. Always there is a black spot in our sunshine, exclaims Mr. Carlyle; and he tells us what it is, 'the shadow of ourselves.'—*Francis Jacox.*

The Shadow of a Cloud.

'*Thou shalt bring down the noise of strangers, as the heat in a dry place, even the heat with the shadow of a cloud; the branch of the terrible ones shall be brought low*' (Isa. xxv. 5).

An Eastern traveller writes: 'About mid-day, when the heat was very oppressive, a small cloud, scarcely observable by the eye, passed over the disc of the burning sun. Immediately the intense heat abated, a gentle breeze sprang up, and we felt refreshed. The immediate relief afforded us by the interposition of a small and almost

imperceptible cloud, taught us the lesson of the prophet, with what divine ease and speed God can relieve His suffering Church, and bring low her proudest enemies.'

The Storm-Sign of a Little Cloud.

We need to guard against little things, out of which great evils may grow.

'A little cloud in the horizon,' says Dr. Kitto, 'would be to us of small significance; but it is not so in the East. The clearness of the sky renders the slightest appearance of the kind distinctly visible, and it is known to be a sign of an immediate storm with violent rain. Of several instances that might be mentioned, one of the most graphic is that given by Mr. Emerson in his "Letters from the Ægean." He is at sea in a Greek vessel in the Levant. One morning, which had opened clear and beautiful, it was announced that a squall might be expected. No sign recognisable by European landsmen appeared; but on attention being properly directed, "a little black cloud" was seen on the verge of the horizon towards the south, which was every instant spreading rapidly over the face of the sky, and drawing nearer to the vessel. Orders were immediately given to strike sail, and to prepare the vessel for scudding before the hurricane. "But scarcely an instant had elapsed ere the squall was upon us, and all grew black around; the wind came rushing and crisping over the water, and in a moment the ship was running almost gunwale down, while the rain was dashing in torrents on the decks. As quick as thought the foresail was torn from the yards, and as the gust rushed through the rigging, the sheets and ropes were snapping and crackling with a fearful noise. The crew, however, accustomed to such sudden visitants, were not slow in reefing the necessary sails, trimming the rigging, and bringing back the vessel to her proper course; and in about a quarter of an hour, or even less, the hurricane had all passed away; the sun burst out again through the clouds that swept in its impetuous train; the wind sunk to its former gentleness, and all was once more at peace, with the exception of the agitated sea, that continued for the remainder of the day rough and billowy"' (1 Kings xviii. 44).

The Purity of the Clouds.

Purity belongs to the realms above our sinful earth.

See these pure white clouds that stretch in ranks, like rolling waves, across the canopy of heaven in the still deep noon of a summer day! Row after row they lie in the light, opening their bosoms to the blaze of a noon-day sun; and they are all fair; they are 'without spot or wrinkle, or any such thing.' Who are these that stand, as it were, around the throne of God in white clothing, and whence came they? These are they that have come from various places on the surface of the earth and sea, some from the briny ocean, and some from miry land; some from yellow, overflowing rivers, and some from cool crystal springs; some from stagnant pools in distant, lonely deserts, and some from the slimy bed of the Thames, or the Clyde, where living beings can scarcely breathe on the banks. All are alike welcome to these heavens, and all are in their resurrection state equally pure.

May I, spiritually distant and unclean — may I rise, like these snow-white clouds, from earth to heaven, and take my place, without challenge, among the stainless witnesses who stand round the Redeemer's throne? I may. Not because my stains are few, but because 'the blood of Jesus Christ, God's Son, cleanseth from all sin.' I may. Not because my sins are small, but because my Saviour is great.—*W. Arnot.*

All Clear above the Clouds.

They live in the calm who can rise above earth's cloud-troubles.

I wanted to reach the summit of one of the Western mountains. I had been told that sunrise was very beautiful when seen from the summit. A little party of us started with a good guide. Before long it began to rain, and then it became a regular storm of thunder and lightning. I thought there was little use in going on, and said to the guide, 'I think we'd better turn back; we won't see anything this morning with all these clouds.' 'Oh,' said the guide, 'we'll soon get through these clouds, and get above them, and then we'll have a glorious view.' So we went on, whilst the thunders were rumbling right above our ears. But soon we began to get above the thunder-cloud; the air was quite clear, and when the sun rose we had a splendid view of his rays as they tinged the hill-tops; and then, as the glorious sunshine began to break on where we stood, we could see the dark cloud far beneath our mountain-height. That's what God's people want—to get into the clear air above the stormy clouds, and to climb higher, away up to the mountain-peak. There you'll catch the first rays from the Sun of Righteousness far above the clouds and mists. Some of you may be in great darkness and gloom; but fear not, climb higher, get nearer to the Master, and soon you'll catch His bright rays on your own soul, and they will sparkle back upon others.

Influence of Clouds on Feeling.

Culture readiness of response to Nature's moods.

More than once David speaks of the clouds as God's chariots. He evidently remembered how God had come down on Mount Sinai in clouds and flame, and also how God had led His people, the children of Israel, through the wilderness in a pillar of cloud by day and fire by night. Clouds are often most beautiful. They are very different both in look and in shape. Those furthest from us are the lovely light white clouds which we see in fine weather, and which are all kinds of fanciful shapes, sometimes like horses' tails and manes flying out in the wind, and sometimes like the beautiful markings of the fish called the 'mackerel.' Then there are the grand storm-clouds, which most of us learn to know at once by their look, with their dark masses and silvery edges. And then there is the gray, leaden, unbroken cloud, which spreads over the whole sky, and seems to shut us hopelessly out from the rest of God's universe, and press us down on our own little world. This is the cloud I really cannot help disliking. Many years ago, when I first lost my nearest and dearest, I could not bear such days as these. They seemed to shut me away, not only from the universe generally, but also more completely from those I loved, and who I thought might be somewhere away in the depths of that universe. I always felt happier when I could look straight up to the deep blue sky, and feel there was nothing between me and those other distant worlds about which we know so little, and cannot help thinking so much. I believe everyone is less cheerful in such dull weather as I am speaking of, and I think this feeling of being shut down by the clouds into our own little world has something to do with it.

These dull clouds are also those really closest to our earth, and in hilly countries they sometimes come half-way down the sides of the mountains. They rarely go away either without giving us a good downpour of either snow or rain, and they are altogether most depressing and uncomfortable.

But when clouds are broken up with bright bits of sky between, and the sunlight shining on their edges, showing us all their majestic heights and depths, or streaming through their clefts in broad bands of light and shade, the beauty and variety are marvellous. Again, at sunrise or sunset we owe much to the clouds, for without them we should lose a great part of the glorious colouring, which sometimes makes these daily changes the most splendid and magnificent scenes on earth. If you have never noticed any of these beautiful sights before now, I hope you will begin to watch them, and then you will find that we owe a great deal to the clouds, and you will learn to be thankful to Him 'who spreadeth out the heavens like a curtain,' and not always one of sober gray or brilliant blue, but one rich in every gorgeous tint—purple, amber, crimson, gold, and green—such colouring as may give some faint ideas of the glories of the city of God, the New Jerusalem, with its jewelled walls, and pearly gates, and golden streets.—*F. C. R. W.*

The Vanishing of Clouds.

God's way of dispelling from view man's transgression.

Travellers in the East tell us that in the morning the sea-mist, which lies all over the Holy Land, is transformed into vast snow-white clouds, which presently break into separate masses, and rise up the mountain-sides to disappear in the blue above, dissipated by the increasing heat. Oftentimes in the early mornings dull masses of cloud, which would in our climate have brought a whole day's rain, may be seen in the eastern sky. They do not drift away; they do not pass into a different region of the heavens; they just vanish on the spot. Such is the absorbing power of the sun. These peculiarities give force to the Divine assurance, which should bring supreme comfort to human souls, 'I have blotted out as a cloud thy transgressions, and as a thick cloud thy sins' (Isa. xliv. 22).

The Balancings of the Clouds.

Man's imagination makes poetry of nature's pictures.

'The clouds that curtain the descending sun group themselves at the apparently wayward will of the moisture and the wind.' And the groupings are often weird, and strange, and beautiful, suggestive to sensitive souls in their various moods of feeling. One Sabbath evening, which closed a quiet, restful, holy day, I wandered on the cliff above the strange little fishing harbour of Dunbar. The sun was near its setting, seeming to run swiftly down into the waters, and light, broken clouds filled the western sky, which appeared hurrying to gather round the last moments of the lord of the day. Then in a moment the scene changed. As the sun sunk below the edge of the horizon, and its beams struck up into the heavens, it flushed those clouds with crimson and with gold; it seemed to break them up into million autumn-tinted leaves, which the angels were scattering over the resting-place of the dying lord of day. It seemed to picture, what must be yet unseen to mortal eyes, the sweet angel-tendings of the saintly souls that pass beyond the earth-horizon, but no more die than that cloud-covered sun dies when it sets in the western sky. Not merely to shine o'er earth again tomorrow, but shining on still, though in other spheres than ours. As I watched those moving, shining, quivering, hanging cloud-leaves, I could imagine what the Bible-writer meant by the wonderful 'balancings of the clouds.'

Returning through the Border country, where there are long stretches of grassy plains, and roll-

ing hills, making varying outlines against the sky, I watched the strangest sunset I had ever seen or heard of. There were wandering thunder-clouds in the sky, and the sun was passing down behind a low hill, having just such a plateau as would serve for the position of a great castle, which could protect a town below it and a wide sweep of country. Usually the clouds seem to lie in huge masses flat against the sky, and we only realize their thickness upon careful observation. That evening the thunder-clouds seemed to gather upon that hill-plateau and *stand erect*, their edges making walls and towers, behind which one could see dome, and spire, and campanile, and palace-windows. It was a most real, but vast, castle and palace and town. All seemed real and earthly enough until the passing sun flushed through the openings, and the windows; and touched all the tops of walls, battlements, towers, and spires with richest gold, and then to me it became a vision of the celestial city come down out of heaven from God (Job xxxvii. 16). —*R. Tuck.*

Divine Meanings in the Clouds.

Moral ends are to be sought through the vision of beautiful things.

Several of our poets have given to us some of the most glorious cloud-paintings, and no wonder, for what are they but darkened glasses, enigmatical windows, through whose opaque splendour we obtain some of the finest glimpses of the magnificent presence of the King? It was not to be thought that Wordsworth, living so immediately and constantly in communion with Nature, moving to and fro, not less by night than by day, among the mountains, could be unimpressed by these magnificent mysteries; and long as the quotation is, perhaps our readers will suffer us to give them what we believe to be the finest piece of cloud-painting to be found in the compass of English words. No doubt the imagination of the writer projected from itself many of the forms of extraordinary brilliancy the eye beheld.

'A step,
A single step, that freed me from the skirts
Of the blind vapour, opened to my view
Glory beyond all glory ever seen
By waking sense, or by the dreaming soul.
The appearance, instantaneously disclosed,
Was of a mighty city—boldly say
A wilderness of building, sinking far
And self-withdrawn into a boundless depth,
Far sinking into splendour—without end!
Fabric it seemed of diamond and of gold,
With alabaster domes, and silver spires,
And blazing terrace upon terrace, high
Uplifted; here, serene pavilions bright,
In avenues disposed; there, towers begirt
With battlements that on their restless fronts
Bore stars—illumination of all gems!
By earthly nature had the effect been wrought
Upon the dark materials of the storm
Now pacified; on them, and on the coves
And mountain steeps and summits, whereunto
The vapours had receded, taking there
Their station under a cerulean sky.
Oh, 'twas an unimaginable sight!
Clouds, mists, streams, watery rocks, and emerald turf,
Clouds of all tincture, rocks, and sapphire sky,
Confused, commingled, mutually inflamed,
Molten together, and composing thus,
Each lost in each, that marvellous array
Of temple, palace, citadel, and huge
Fantastic pomp of structure without name,
In fleecy folds voluminous enwrapped.
Right in the midst, where interspace appeared
Of open court, an object like a throne
Under a shining canopy of state
Stood fixed; and fixed resemblances were seen

To implements of ordinary use,
But vast in size, in substance glorified;
Such as by Hebrew prophets were beheld
In vision—forms uncouth of mightiest power
For admiration and mysterious awe.
This little vale, a dwelling-place of man,
Lay low beneath my feet; 'twas visible—
I saw not, but I felt that it was there.
That which I *saw* was the revealed abode
Of spirits in beatitude.'

'The sky,' says John Ruskin, 'is the part of creation in which Nature (or Nature's God) has done more for the sake of pleasing man, more for the sole and evident purpose of talking to him and teaching him, than in any part of her (His) works, and it is just the fact which man regards with least attention. Every essential purpose of the sky might be answered, so far as we know, if once in three days, or thereabouts, a great ugly black rain-cloud were brought up over the blue sky, and everything well watered, and then all left blue again till next time, with perhaps a film of morning and evening mist for dew. But instead of this there is not a moment or a day in any of our lives when Nature (or her God) is not producing scene after scene, picture after picture, glory after glory, and working still upon such exquisite and constant principles of the most perfect beauty, that it is quite certain it is all done for us, and intended for our perpetual pleasure. Yes, the sky is for all, sometimes gentle, sometimes capricious, sometimes awful, never the same for two moments together, almost human in its passions, almost spiritual in its tenderness; its appeal to what is immortal in us is as distinct as its ministry of chastisement or of blessing to what is mortal in us is essential.'

Thus, not merely in the teachings of science and in the visions of imagination, but in the offices and exercises of faith, clouds have Divine meanings. All things are synthetic—that is, they have a Divine unity; God has a synthesis, or principle of unity, for a plant, for a flower, for the mountain, and even for the clouds. He who sets the planets to music, so that we speak of the music or harmony of the spheres, teaches us by the balancing of the clouds that He has a synthesis or principle of harmony also for human lives. Job was taught that clouds which sweep over the human soul, and envelop it in gloom, have also their Divine ends and meanings, their balancings not less assured, not more outside of Divine guiding and directing than the clouds which sweep over the face of the sky. Well do we remember when we first saw a singular etching by the great German etcher, Retsch, called 'Cloudland.' It was a very cunning piece; we could not at first make out what the painter meant by it, it seemed merely a mass of floating clouds, nothing but clouds soft and shadowy; but if you sought and looked long you perceived that every cloud contained an angel's face, angel's wings, and what at first seemed only a mass of gloom looked out upon the spectator, as it were, hundreds of angel eyes and angel wings. Shall it not be so, not only with Job, but with all our poor human lives, if God comes nigh to us in His cloudy chariot? Will not the time come when we shall look at them, and find that for us they have turned into angels?

'We shall see the lights of heaven
Gleam through the rain and mist,
And the feeling of joy come o'er us
The soul cannot resist.'

Paxton Hood.

COMETS.

The Origin of the Comets.

Severity of discipline fits men for their missions in the future.

Regarding a large proportion of the material visitants of the earth as originally earth-born, we may conclude that in the remote time when our earth was a baby world, sunlike in condition, her path was traversed by hundreds of comets, her own progeny. These comets were followed severally by their trains of meteoric attendants. They were exposed to the action of those solar forces by which, within the last half-century, a once promising member of another comet family became dissipated until it finally lost altogether its cometic character. Millions of years ago, probably, every one of them had been thus broken up until nothing remained but the streams of meteoric bodies travelling round the orbit which had once been that of the earth-rejected comet.

But this being the case with the earth, was the case also, no doubt, with every planet. Even our own little moon, whose scarred face still shows signs of the volcanic energies she once possessed, played her part in giving birth to such comets as she was equal to. If she possessed less volcanic power than the earth (at the same stage of the life of each), she required less power to eject matter for ever from her interior. On the other hand, the giant planets required greater power; but then they also possessed it. If Jupiter, for example, required power enough to eject bodies with a velocity of forty or fifty miles per second, yet it must be remembered that he is three hundred and ten times as massive, and therefore three hundred and ten times as strong, as our earth. (For matter, 'inert matter' as many choose to call it, measures in reality the strength of the orbs in space, and not only possesses power, but a power acting so swiftly across vast distances that the velocity of light is rest by comparison. . . .) So with the other giant planets.

Jupiter, then, and each one of his giant brethren, must, during its sunlike stage, have possessed the comet-ejecting power. Each giant planet must have had its comet family, at that remote time in the history of the solar system. And the comets thus formed by the giant planets, while no doubt very numerous, must, many of them, have been far more important than those to which our earth gave birth. Those comets would have lasted much longer, before dissipation due to solar disturbances set in. Then, also, the sunlike state of the giant planets must have lasted long after the earth and all the terrestrial planets had passed that state. For being so much larger, the giant planets must have longer lives—the stages of planetary life being in effect stages of cooling. In fact, there are clear signs that neither Jupiter nor Saturn has cooled down to the earth's condition; each is still too hot for the waters of its future seas to rest on its fiery surface. On this account, also, then, we might expect to find that some comets, sprung from giant planets and forming their families, might have remained even to the present time.

Turning to the solar system, we find that this actually is the case. Nay, I myself, long before I had the least thought of attributing comets to planetary eruptive energies, had described the comets which hang about the orbits of the giant planets as 'the comet families of the giant planets.' Some of the members of these families are among those from which the asso-

ciation between meteors and comets came first to be known. For instance, the meteors of November 13, 14 (*the Leonides*), are associated with a comet depending on the orbit of Uranus; and the meteors of November 27, 28 are associated with a comet depending on the orbit of Jupiter—Biela's famous comet.

Of course, the members of these comet families are exceedingly old. How old they are we cannot tell; but that they are very old indeed is shown by the way in which, while they are unmistakably associated with the paths of the several giant planets, their orbits yet diverge far enough from those of their respective planet parents to indicate hundreds of thousands of years of perturbing action, unless, indeed, in some cases, we may suppose that not the slow perturbing action of bodies at a distance, but the very active influence of some orb coming very close to a comet, may have shifted the comet's path. So many of their orbits pass through the widely-spread zone of asteroids, that we may very well imagine occasional very close approach to one or other of these bodies, and consequently a considerable change of orbit. It was thus that Sir John Herschel for a time tried to explain the disappearance of Biela's comet. 'May it not,' he said, 'have got entangled in the zone of asteroids, and have had its course altered by the influence of one of these bodies?'

Encouraged by the confirmation of the expulsion theory of comets, which we have found at this our first step, may we not boldly proceed yet one step farther?

The stars, like the giant planets, should have their part to play—a grander part, of course—in the world of comet expulsion. They differ only from the giant planets—nay, from the earth herself—in being in a different part of their orb life. It is probable, indeed, that among the stars there are orbs differing much less from Jupiter or Saturn than either of these still hot and fiery planets differs from the earth. Of course, an orb like our sun, the one star we are able to examine, will require much greater energy to expel from his interior a flight of bodies, to become presently a flight of meteors or a comet, than would a planet even of the giant type. Our sun, for example, would have to impart a velocity of three hundred and eighty-two miles per second to a body ejected from his interior, that that body should pass away from his control for ever. But the sun possesses the required power. His mass, and therefore his might, exceeds that of the earth more than three hundred and twenty thousand times; that even of Jupiter one thousand and forty-eight times.

We have no means of recognising, by its orbital motion, a star-expelled comet or meteor flight. But we need not seek for bodies to tell us of expulsion ages on ages ago. The stars are now in their sunlike state. They must, therefore, be doing such work now if there is any truth in the theory to which we have been led. Now, there is one of the stars which is near enough to be asked whether it really possesses and uses such expulsive power—our own sun. His answer is unmistakable. In 1872, and at sundry times since, he has been caught in the act of ejecting bodies, probably liquid or solid, through the hydrogen atmosphere around his globe, with velocities so great that the matter thus expelled from his interior can never return to him—the velocities ranging to four hundred and fifty miles per second at the least. What he is doing now he has doubtless done for millions—nay, for tens of millions—of years in the past. What he has thus done, his fellow-suns, the stars, thousands (if not millions) of millions in number, have doubtless done also. Uncounted billions, then, of ejected meteor flights or

comets must be travelling through interstellar spaces, visiting system after system, and sun after sun, in periods to be measured by millions of years.

The answer, then, to the question, Whence came the comets? would appear to be:

1. Comets which visit our system from without were expelled millions of years ago from the interiors of suns.

2. Comets which belong to our system were mostly expelled from the interior of a giant planet in the sunlike state, but a small proportion may have been captured from without.

3. The comets of whose past existence meteor streams tell us were for the most part expelled from our earth herself when she was in the sunlike state, but some of the more important were expelled from the giant planets, and a few may have been expelled from the sun.—*Richard A. Proctor.*

THE DEW.

The Dew in the Sunshine.

'Now we see through a glass darkly' (1 Cor. xiii. 12).

In the night-time, all over the trees, and throughout the grass, is deposited the condensed moisture of the air; and silent dewdrops are on every flower and every leaf. If you go and look at them in the darkness of night, there is no form or comeliness in them; but by-and-by God will have wheeled the sun in its circuit so that it shall look over the horizon; and the moment its light strikes these hidden drops, small and scattered, every one shall glow as if it were a diamond, and all Nature shall be lighted up with myriad fires, each reflecting something of the Divine glory. God has His own plans. He never told us in full what they are. We know this, however, that we are fragmentary in our lives; that it takes many to make the one idea of God; that the work of past generations is hinged upon this, and that the work of this generation is hinged upon that of generations to come; and that God sits in sublimity of counsel, putting part with part, so that when we see the connected whole, the things that now seem most insignificant will shine out in wonderful beauty and magnificence.—*H. W. Beecher.*

The Free Distribution of the Dew.

Christians are as a dew from the Lord.

As the dew, formed in the silence of the darkness while men sleep, falling as willingly on a bit of dead wood as anywhere, hanging its pearls on every poor spike of grass, and dressing everything on which it lies with strange beauty, each separate globule tiny and evanescent, but each flashing back the light, and each a perfect sphere, feeble one by one, but united mighty to make the pastures of the wilderness rejoice—so, created in silence by an unseen influence, feeble when taken in detail, but strong in their myriads, glad to occupy the lowliest place, and each 'bright with something of celestial light,' Christian men and women are to be 'in the midst of many people as a dew from the Lord.'—*A. Maclaren, D.D.*

Chemical Value of the Dew.

Illustrative of the work of the Holy Spirit in man.

In Hosea the gift of the Holy Spirit is compared to dew, 'I will be as the dew unto Israel.' Now, it is peculiarly true of the dew that it moistens everything where it

falls; it leaves not one leaf unvisited; there is not a tiny blade of grass on which the diamond drops do not descend; every leaf and stem of the bush is burdened with the precious load. Just so it is peculiarly true of the Spirit, that there is not a faculty, there is not an affection, or power, or passion of the soul, on which the Spirit does not descend, working through all, refreshing, reviving, renewing, recreating all. And if we are really in Christ Jesus, abiding in Him by faith, we are bound to expect this supernatural power to work through our understanding (Hos. xiv. 5).—*R. M. McCheyne.*

The dew seems to be the richest present the atmosphere gives to the earth, having, when purified in a vessel, a black sediment like mud at the bottom; this seems to cause the darkish colour to the upper part of the ground, and the sulphur which is found in the dew may be the chief ingredient of the cement of the earth, sulphur being very glutinous, as nitre is dissolvent. Dew has both these.—*Tull.*

The Mystery of the Dew.

The great nature laws work together to produce beneficent results.

If clouds are necessary to produce rain, sunshine is an essential to the formation of dew. A dewy morning only follows a day whose sun has well warmed up the earth. It is necessary that the heat should readily radiate into the surrounding atmosphere by night. When the surface of the earth thus cools down more rapidly than the incumbent air about it, and when the air is saturated with moisture, then, by the contact of temperatures, the air becomes unable to retain its moisture, and yields its sprays and vapours to be shaped by a natural law, the same which rounded the world out of chaos, and orbed the universe; and then what was invisible becomes visible in drops of settling dew. So, whenever dew is seen to fall, there must first have been a flowing down of sunshine in the day, and then a responsive current of warmth uprising in the night toward the region whence it came. The earth receives and yet returns the heat the heavens gave, and as if to reward such gratitude the dew descends to refresh and gladden its beseeching and thankful breast.—*A. Clark.*

'See how the Orient dew,
Shed from the bosom of the morn,
Into the blowing roses,
Yet careless of its mansion new,
For the clear region where 'twas born
Round in itself encloses:
And in its little globe's extent,
Frames as it can its native element.
How it the purple flower does slight:
Scarce touching where it lies;
But giving back upon the skies,
Shines with a mournful light,
Like its own tear,
Because so long divided from the sphere.
Restless it roll'st insecure,
Trembling lest it grow impure,
Till the warm sun pities its pain,
And to the skies exhales it back again.'—*Andrew Marvel.*

The Dewdrop and the Sun.

Divine sanctifying leads on to deliverance from earthly surroundings.

It was a summer's morn, dawning brightly after a dewy night. The sun rose joyously, and shone over the fields. And nestling on a leaf, as yet shadowed from the light, lay a little drop of dew. Then spake the sun, and said:

'Open thy heart, thou little dewdrop, and let my beams enter and shine within thy bosom!'

'And what, O great sun,' said the tiny thing, 'wilt thou give me,

or do for me, if I open my bosom to receive thee?'

'I will light thee up,' said the sun, 'with my rays, till thou shalt sparkle like a jewel or a star, and at length I will draw thee softly away up to the heaven!'

So the dewdrop gave consent, and as the sun shone upon it, lo! it became a gem, and the passers-by wondered to behold its diamond beauty. But as they looked, the glittering drop lessened until it disappeared. Yet they mourned it not, for they knew it had gone far away up, on unseen wings, into the skies.—*Dr. Edmond.*

The Dewdrop.

A pearly dewdrop see some flower adorn,
And grace with tender beam the rising morn;
But soon the sun permits a fiercer ray,
And the fair fabric rushes to decay:
Lo, in the dust the beauteous ruin lies;
And the pure vapour seeks its native skies.
A fate like this to thee, sweet boy, was given:
To sparkle, bloom, and be exhaled to heaven.—*Lord Byron.*

The Secret Work of the Dew.

Transitory piety is but as the early dew.

The real work of the dew is invisible; not by the sparkling profusion which meets the eye, but by that unseen portion which is drunk in by the thirsty earth or grateful plants is the actual benefit of the dew measured. Hence transitory piety is compared to the morning cloud and the early dew (Hos. vi. 4). It may lie on the rock, on the sand, and on the dead tree, but it does no good there. So how often does God's Spirit seem to rest on a soul drenched with feeling, and bright with promise; but when the sun waxes hot, the dew vanishes, the heavenly manna melts, and the heart is left drier, harder, deader than before (Hos. vi. 4).—*Conder.*

The Swift-passing of the Dew.

The dew is a type of instability.

Dew, like liquid crystal, often bespangles the garment in which the young day presents himself rejoicing before us. Our summer earth is given to us from the bosom of night, with this dripping mantle of infancy upon her. But what so transient, so visionary, as the dew of the morning? It is the very type of instability. It greets us silently, with soft glances, from its myriad of myriads of eyes. We hail it, admire it—we feel young in its presence; but it is gone, exhaled in an hour. But Jesus has the beauty of eternity's morning upon Him to-day, and will retain it for ever. As though He were but now proceeding from the Father, he wears, unchanged, the pledges of His youth. And from the womb of the resurrection morning He ascended, in the clothing of our glorified humanity, to inherit *the youth* which He had with His Father before the world was. Everlasting morning sits upon His brow, and comes forth from Him as the regenerative power of all souls. With Him the fresh and fragrant morning, the rich, dewy morning, standeth still for ever.—*John Pulsford.*

Dew a Type of God's Soul Refreshings.

The preciousness of early communings with God.

It is one of the rarest exceptions when no dew falls in my garden, and perhaps it is nourished even more in this way than by the rains. As I go to my morning work among the flowers, the dew rests everywhere, often as heavily as though a shower had fallen—

that is, everywhere that there is life to receive it; for I do not find the dew upon my garden walks, nor on any barren spot. But every leaf is laden and every flower is fresh from this baptism by the hand of God. And then as I lightly stir the soil around my flowers, where it is becoming hard and impervious to air, these heavy dews contribute their little quota of rich refreshing to the soil itself.

'Oh, blessed dew of the speech of God!' How faithful and constant is thy coming! How thou visitest us in the still hours and in the hours of shadow! How dost thou utter thy wisdom almost inaudibly! We see no cloud, we hear no sound, and yet thy presence is with us and our souls are rejoicing. Thy love bathes our souls with delight. We bow down beneath its gentle pressure in adoring gratitude. The fragrance of our souls goes forth to thee as every pore of our being opens at this soft touch. We are alone with thee, and thou speakest to our hearts. Thou canst not come to us thus in the broad light of the busy day, and we bless thee for the still hours in which our souls are charged anew with life.—*Sarah Smiley.*

Mountain Dew.

There are richer refreshings on the high grounds of religious experience.

We had sensible proof at Rasheiya of the copiousness of the 'dew of Hermon,' spoken of in Psa. cxxxiii. 3, where 'Zion' is only another name for the same mountain. Unlike most other mountains, which gradually rise from lofty tablelands, and often at a great distance from the sea, Hermon starts at once to the height of nearly ten thousand feet from a platform scarcely above the sea-level. This platform, too—the Upper Jordan Valley and marshes of Merom—is for the most part an impenetrable swamp of unknown depth, whence the seething vapour, under the rays of an almost tropical sun, is constantly ascending into the upper atmosphere during the day. The vapour, coming in contact with the snowy sides of the mountain, is rapidly congealed, and so precipitated in the evening in the form of dew, the most copious we ever experienced. It penetrated everywhere, and saturated everything. The floor of our tent was soaked, our bedding was covered with it, our guns were dripping, and dewdrops hung about everywhere. No wonder that the foot of Hermon is clad with orchards and gardens of such marvellous fertility in this land of droughts.—*Tristram.*

The History of a Dewdrop.

Things change their missions, but nothing is ever lost.

In any of the fairy scenes of Nature, what can be found more innocent, more beautiful and pure, than a morning dewdrop glistening in the cup of a flower? Sometimes from a distance of several yards away it reveals its presence by the bright ray of light it has just received from the sun, and flashes out again. You approach the glistening little object, and try to look into its tiny depths. From one point of view it is dark, almost black: from another it is so bright that you cannot look into it at all; its reflected ray is as pure and intense as that of the most brilliant diamond. Then, looked at in a different direction, it is clear and transparent, looking so cool and beautiful. There it is, trying to be a perfect little globe, which it would be if it were not for the pressure of its weight on the petals of the flower. But see, while you look into it and admire it, it gradually becomes less and less, till, kissed by the rays of the morning sun, it vanishes away. The heat contained in the rays of light that were pass-

ing through it was sufficient to overcome the mutual attraction of the molecules of water of which it was composed, and alter its form from liquid to vapour. It has again become invisible moisture, and floated away in the air, from which, during the night, when the air was cooler, and therefore more contracted, and unable to hold so much moisture, the little dewdrop was squeezed out into the cool cup of the flower. Where did it come from, and how did it get into the night air, ready to be deposited as dew? and where is it gone to now, and what changes will it undergo? The dewdrop has become invisible, but is it lost? No; no atom of matter can ever be lost, or destroyed, or cease to be of use. It is as impossible to annihilate an atom of matter as to create one. The liquid gem that glistened in the rays of the morning sun disappears from view, but in the form of invisible vapour it may be inhaled by the breathing leaves of plants or trees, or it may rise to become again visible in the floating cloud, and, by reflecting and refracting the solar rays, may help to paint the glowing sunset. To-morrow it may descend to the earth again as rain, to be drunk up by the roots of some thirsty plant, or serve to refresh some happy singing-bird, so entering into the composition of animal or vegetable form; or it may trickle through some crevice in the ground into the reservoir beneath, and, mingling with the streams that flow in the interior of the earth, may ooze out again in some cool spring, join the stream of the valley, rippling and dancing on its way to swell the volume of the river, dash down the waterfall, and then emerge into the ocean, there to be again evaporated by the sun, or sparkle on the crest of the wave that the tide rolls in upon the shore; or the dewdrop that to-day is exhaled from the heart of a flower, and rises to become cloud, may be carried by winds hundreds of miles away into colder regions, and fall in the form of hail or snow. It may roll down in the avalanche into the valley, or, falling as a snow-flake on some lofty mountain-peak, it may form part of the glacier or ice-river that glides slowly down the valley into the sea.

But through all these various transformations the dewdrop continues to be water. Its changes from solid to liquid and from liquid to aeriform are caused by differences of temperature. These are physical changes. It may, however, undergo chemical changes, by which it may cease to be water in any form. Water is composed of two invisible gases, hydrogen and oxygen. Oxygen has a strong affinity for iron. If the dewdrop is deposited on iron instead of a leaf or flower, the iron robs the water of some of the atoms of oxygen, and lets the hydrogen go free. This union of iron with the oxygen of the water forms the thin film of rust, or red oxide of iron, observable on iron that has been exposed to dew or rain.

In other ways, also, water may be decomposed, and its oxygen or hydrogen enter into the composition of other substances. So the dewdrop we admire to-day may continue to be water in the form of vapour, or liquid, or solid ice, or snow, for thousands of ages; or it may be decomposed in a few hours, and cease to be water in any of its forms. Nor can we tell how long the dewdrop has been water. It might have been water in some form for ages, or it might have been created by the decomposition of some other substance a few hours ago. Coal-gas, which is used to light the streets, contains hydrogen, which in burning unites with the oxygen of the air to form water, which passes away as invisible vapour. The watery vapour, therefore, which has been condensed to form the dewdrop, may have been produced during the night by the burning of the gas in

the streets. The cool dewdrop might be born of the burning plain. Its atoms might have been sleeping for ages, hundreds of yards below the present surface of the earth, in the coal-bed composed of the vegetation of some forest of the ancient world. Or they might have entered into the formation of some limestone rock on which the bed of coal rested, or the more ancient granite rock, still lower down in the earth. There each tiny atom might have done its best for ages to uphold the mighty mountain above it, till, rent by earthquakes or melted by internal fires, and poured forth from the crater of some volcano, it was again brought under the influences of sun and air, of heat and light, and moisture and frost, and subjected to physical and chemical changes, till it came to sparkle in the morning dewdrop.

But, whatever wondrous transformations the dewdrop may have passed through, we know that it existed even when there was no cooling dew, nor thirsty flowers, nor forests, nor fields, nor lofty mountains, nor pleasant valleys, nor rolling rivers, nor widespread ocean, nor solid land; when the earth and all it now contains was vapour. 'The earth was without form and void.' During ages longer than we can count, this great mass of vapour cooled down till some parts became solid; some still remain fluid, and others gaseous, as the air that surrounds the globe. From a shapeless mass of vapour it has been slowly transformed into the beautiful world it is to-day, where flowers bloom, and birds sing, and children play. During all these long ages each atom in the dewdrop has existed somewhere in some form. Each atom of hydrogen or oxygen, or each molecule of water, has done its duty and served some useful purpose. So it will continue to do in the countless ages to come. It will never be destroyed or lost. It will be useful or beautiful somewhere for ever.—*Samuel Brazier.*

EVENING.

An Evening Scene.

Nature teaches her sweetest and best things in the evening light.

Up! up! my friend, and quit your books,
Or surely you'll grow double;
Up! up! my friend, and clear your looks;
Why all this toil and trouble?

The sun, above the mountain's head,
A freshening lustre mellow
Through all the long green fields has spread,
His first sweet evening yellow.

Books! 'tis a dull and endless strife:
Come, hear the woodland linnet;
How sweet his music! on my life,
There's more of wisdom in it.

And, hark! how blithe the throstle sings!
He, too, is no mean preacher;
Come forth into the light of things,
Let Nature be your teacher.

She has a world of ready wealth,
Our minds and hearts to bless—
Spontaneous wisdom breathed by health,
Truth breathed by cheerfulness.

One impulse from a vernal wood
May teach you more of man,
Of moral evil and of good,
Than all the sages can.

Sweet is the lore which Nature brings;
Our meddling intellect
Misshapes the beauteous forms of things—
We murder to dissect.

Enough of science and of art;
Close up those barren leaves;
Come forth, and bring with you a heart
That watches and receives.
William Wordsworth.

Norwegian Evening.

Man needs the darkness for his physical health, and the things represented by darkness for his spiritual health.

The long, bright Norwegian twilight is inexpressibly beautiful. The earth sleeps, but her heart waketh; the golden tints of the departing day still linger on the distant hills, and a light, soft and sweet as the smile of an infant in its first slumber, fills all the sky; and you would think that the dawn had returned, only that the glory is in the west instead of in the east. Nothing reminds you of darkness and sleep but the rich liquid lustre of Venus hanging near the pale-blue horizon, like a silver lamp let down out of heaven by an unseen hand, and flecking a little shadowy pathway of light upon every exposed sheet of water. The long daylight is very favourable to the growth of vegetation, plants growing in the night as well as in the day in the short but ardent summer. But the stimulus of perpetual solar light is peculiarly trying to the nervous system of those who are not accustomed to it. It prevents proper repose and banishes sleep. I never felt before how needful darkness is for the welfare of our bodies and minds. I longed for night; but the farther north we went, the farther we were fleeing from it, until at last, when we reached the most northern point of our tour, the sun set for only one hour and a half. Consequently, the heat of the day never cooled down, and accumulated until it became almost unendurable at last. Truly, for a most wise and beneficent purpose did God make light and create darkness. 'Light is sweet, and it is a pleasant thing to the eyes to behold the sun.' But darkness is also sweet; it is the nurse of Nature's kind restorer—balmy sleep — and without the tender drawing round us of its curtains, the weary eyelid will not close, and the jaded nerves will not be soothed to refreshing rest. Not till the everlasting day break, and the shadows flee away, and the Lord Himself shall be our light, and our God our glory, can we do without the cloud in the sunshine, the shade of sorrow in the bright light of joy, and the curtain of night for the deepening of the sleep which God gives His beloved.—*Hugh Macmillan, LL.D.*

Evening in Autumn.

The evening of a noble life should be calm and peaceful.

Evening, when the busy scenes of our existence are withdrawn, when the sun, descending, leaves the world to silence, and to the soothing influence of twilight, has been ever a favourite portion of the day with the wise and good of all nations. There appears to be shed over the universal face of Nature, at this period, a calmness and tranquillity, a peace and sanctity, as it were, which almost insensibly steal into the breast of man, and dispose him to solitude and meditation. He naturally compares the decline of light and animation with that which attaches to the lot of humanity; and the evening of day and the evening of life become closely assimilated in his mind.

It is an association from which, where vice and guilt have not hardened the heart, the most beneficial result has been ever experienced. It is one which, while it forcibly suggests to us the transient tenure of our being here, teaches us at the same time how we may best prepare for that which awaits us hereafter. The sun is descending, but descending after a course of beneficence and utility, in dignity and glory, whilst all around him as he

sinks breathes one diffusive air of blessedness and repose. It is a scene which marshals us the way we ought to go; it tells us that, after having passed the fervour and vigour of our existence, the morning and the noon of our appointed pilgrimage, thus should the evening of our days set in, mild yet generous in their close, with every earthly ardour softened or subdued, and with the loveliest hues of heaven just mingling in their farewell light. It is a scene, moreover, which almost instinctively reminds us of another world. The one we are yet inhabiting is gradually receding from our view; the shades of night are beginning to gather round our heads; we feel forsaken and alone, whilst the blessed luminary now parting from us, and yet burning with such ineffable majesty and beauty, seems about to travel into regions of interminable happiness and splendour. We follow him with a pensive and wistful eye, and, in the vales of glory which appear to open round his setting beams, we behold mansions of everlasting peace, seats of ever-enduring delight. It is then that our thoughts are carried forward to a Being infinitely good and great, the God and Father of us all, who, distant though He seem to be, and immeasurably beyond the power of our faculties to comprehend, we yet know is about our path, and about our bed, and careth for us all; who has prepared for those who love Him scenes of unutterable joy; scenes to which, while rejoicing in the brightness of His presence, the effulgence we have faintly attempted to describe shall be but as the glimmering of a distant star.—*Drake.*

The Evening Time.

Men should grow better as they draw nearer to life's close.

Men's lives should be like day—more beautiful in the evening; or like summer—aglow with promise; and like autumn—rich with golden sheaves, where good deeds have ripened in the field.

Poetical Suggestions of Evening.

The holy stillness of the evening time.

It is a beauteous evening, calm and free;
The holy time is quiet as a nun
Breathless with adoration; the broad sun
Is sinking down in its tranquillity;
The gentleness of heaven is on the sea:
Listen! the mighty Being is awake,
And doth with His eternal motion make
A sound like thunder—everlastingly.
Dear child! dear girl! that walkest with me here,
If thou appear'st untouched by solemn thought,
Thy nature is not, therefore, less divine:
Thou liest 'in Abraham's bosom' all the year;
And worshipp'st at the temple's inner shrine,
God being with thee when we know it not.—*Wordsworth.*

Coolness of the Evening Breeze.

He who would fulfil his mission finds how noble and useful is the mission he has to fulfil.

Spirit that breathest through my lattice, thou
That cool'st the twilight of the sultry day!
Gratefully flows thy freshness round my brow;
Thou hast been out upon the deep at play,
Riding all day the wild blue waves till now,—
Roughening their crests, and scattering high their spray,
And swelling the white sail. I welcome thee
To the scorched land, thou wanderer of the sea!

Nor I alone :—a thousand bosoms round
Inhale thee in the fulness of delight ;
And languid forms rise up, and pulses bound
Livelier, at coming of the wind of night ;
And, languishing to hear thy grateful sound,
Lies the vast inland, stretched beyond the sight.
Go forth into the gathering shade ; go forth,
God's blessing breathed upon the fainting earth !

Go rock the little wood-bird in his nest ;
Curl the still waters, bright with stars, and rouse
The wide old wood from his majestic rest,—
Summoning from the innumerable boughs
The strange, deep harmonies, that haunt his breast ;
Pleasant shall be thy way where meekly bows
The shutting flower, and darkling waters pass,
And 'twixt the o'ershadowing branches and the grass.

The faint old man shall lean his silver head
To feel thee ; thou shalt kiss the child asleep,
And dry the moistened curls that overspread
His temples, while his breathing grows more deep ;
And they who stand about the sick man's bed,
Shall joy to listen to thy distant sweep,
And softly part his curtains to allow
Thy visit, grateful to his burning brow.

Go ! but the circle of eternal change,
That is the life of Nature, shall restore,
With sounds and scents from all thy mighty range,
Thee to thy birthplace of the deep once more ;
Sweet odours in the sea-air, sweet and strange,
Shall tell the home-sick mariner of the shore ;
And, listening to thy murmur, he shall deem
He hears the rustling leaf and running stream.—*Bryant.*

ELECTRICITY, LIGHTNING, ETC.

The Electric Wire.

The circle must not be broken that keeps us in relation to Christ.

I have seen a heavy piece of solid iron hanging on another, not welded, not linked, not glued to the spot, and yet it cleaved with such tenacity as to bear, not only its own weight, but mine too, if I chose to seize it and hang upon it. A wire charged with an electric current is in contact with its mass, and hence its adhesion. Cut that wire through, or remove it by a hair's breadth, and the piece of iron drops dead to the ground, like any other unsupported weight. A stream of life from the Lord, in contact with a human spirit, keeps that spirit cleaving to the Lord so firmly that no power on earth or in hell can wrench the two asunder. From Christ the mysterious life-stream flows, through the being of a disciple it spreads, and to the Lord it returns again. In that circle the feeblest Christian is held safely, but if the circle be broken, the dependent spirit instantly drops off.—*William Arnot.*

The electric wire is the spinal cord of civilization.

Wherever now we may wander the electric wire runs by our side

and murmurs the music of great joy. Familiarity is said to breed contempt, but it seems impossible to become familiar with this ethereal cord which binds together the ends of the earth, and places any one locality in immediate correspondence with all other localities and peoples. It seems a fairy thing belonging to the region of romance rather than a tangible fact of this everyday world. And yet it is very real, and, as we say, go where we will, greets our gaze, being the most suggestive thing in the landscape, whatever else the landscape may contain. Not in ponderous masses of steel, but in a delicate needle do we become conscious of the existence and set of the great magnetic currents which silently modify the world; and not in the more noisy and obtrusive events and institutions of society do we become conscious of the master forces which shape the character of the nations and determine their destiny, but rather in the trembling string which runs along the hillside, spans the streets, surprises us in solitary places, and which, in fact, seems omnipresent, never being long out of our ken. Vast and delightful is the significance of the metallic film. It is the symbol of the unity of the nations. Not only do we behold it in our utmost wanderings, but we know it extends to regions we may not penetrate — mountain paths searched by the eagle's burning eye, ocean depths unseen, unsounded, snowy wastes, desert solitudes. It girdles and intersects the whole earth. If the orator, dwelling on the comity of nations, wishes to concentrate his great argument in a single image, he points to the electric wire, and the rudest audience perceives at a glance the force and grandeur of the illustration. It is, however, not only the symbol, it is also the organ of the unity of the nations. On this wire do we specially practically realize the unanimity of the various climates and nationalities. As the silver cord in our physical organization binds together hand and foot and eye, and gives the sense of unity and community amongst the many different organs and powers of the one complex system, a sense of unity which is immediately lost if that cord be seriously injured or broken, so the electric wire, pulsing with messages from a thousand different quarters, transmitting to great centres of sensation the facts, pleasing or painful, concerning the various peoples of the wide, wide world, ascertains graphically the unity of the race. No cord of silver, no thread of silk, no bond of gold, was ever half so significant as that common wire by the modern roadside traversed evermore by the vital spark of the universal human life. It translates sublime theory into sublime fact, and sets forth in practical form the unity of the many-tongued earth, the identity of the apparently conflicting interests of all peoples.

The Electric Jar.

There is something in man which responds when God's Word is applied to him.

A jar may be charged with electricity, and capable, in certain circumstances, of giving forth light and heat; yet if it remain isolated, all is dull, and dark, and silent. You cannot distinguish that charged, susceptible vessel from another of similar shape and size that is not so charged. When a certain sharp point is brought near the susceptible vessel, sparks of living light are emitted; whereas, though the same sharp point is brought near the other vessel, all will remain dark and dead as before. Thus there is a human spirit, a susceptibility, and a capacity which lies dormant, indeed, as long as man is left to

himself, but which leaps into life as soon as the word of God is pointed to the heart. — *William Arnot.*

The Oldest Lightning Conductors.

Things are often found to be serving unrecognised uses.

The temple of the Jews at Jerusalem was, by its situation, more particularly exposed to the very frequent and violent thunderstorms in Palestine. Nevertheless, neither the Bible nor Josephus mentions that it was ever struck by lightning. The cause of this is very simple. By a fortuitous circumstance, the Temple of Jerusalem was provided with a lightning-conductor, which came very near that discovered by Franklin, and used by us. The roof of the temple, similar to those found in Italy, was covered with thickly gilt wood. Beneath the forecourt of the temple there were cisterns, into which flowed the water coming from the roof by means of metal pipes. Here we find such a multitude of lightning-conductors, that Lichtenberg was right when he maintained that the mechanism of the like construction in our days is far from presenting an apparatus so well adapted to produce the desired effect.—*Arago.*

The Gentleness and Strength of Electricity.

'Behold, therefore, the goodness and severity of God' (Rom. xi. 22).

The spiritual unfoldings of wisdom in the religious world are equally manifold. John moves you by his fear and terror; Jesus moves you by His quiet goodness. John's wisdom thunders; the wisdom of Jesus flows out in mild words. Men 'wonder at the gracious words which proceed from His mouth.' Through the intellect God appeals to you in one way; and through sympathy in quite another way. How sweetly gentle is electricity in the growth of lilies, and in the generation of birds, bees, butterflies! But in certain conditions it gathers itself up, and flashes in lightning, accompanied with terrible artillery. Tranquil and silent as the ether, it is always at work, weaving fluids into muscle and bone, running along the silvery nerves, glancing in the eyes, and playing in smiles. Now think of the Spirit of God as the Supreme Electricity, the all-vital, tender, intense Electricity, which is Love itself, and therefore Wisdom itself. —*John Pulsford.*

Isolation necessary for the Reception of Electricity.

He who would be filled with the Spirit must shut himself away from the world.

When a lecturer on electricity wants to show an example of a human body surcharged with his fire, he places a person on a stool with glass legs. The glass serves to isolate him from the earth, because it will not conduct the fire —the electric fluid; were it not for this, however much might be poured into his frame, it would be carried away by the earth; but when thus isolated from it, he retains all that enters him. You see no fire, you hear no fire; but you are told that it is pouring into him.

Presently you are challenged to the proof—asked to come near, and hold your hand close to his person; when you do so, a spark of fire shoots out towards you. If thou, then, wouldst have thy soul surcharged with the fire of God, so that those who come near thee shall feel some mysterious influence proceeding out from thee, thou must draw nigh to the source of that fire, to the throne of God and of the Lamb, and shut thyself out from the world—that cold world which so swiftly steals our fire

away. Enter into thy closet, and shut to thy door, and there, isolated 'before the throne,' await the baptism; then the fire shall fill thee, and when thou comest forth, holy power will attend thee, and thou shalt labour, not in thine own strength, but with demonstration of the Spirit and with power (Ephes. v. 18).—*W. Arthur.*

The Electric Fluid.

Harmful things are often better conducted aside than openly resisted.

The electric fluid will not leave its centre to enter a bad conductor if it can find a good one. On this simple principle depends the utility of the lightning-rod. In its flight towards the earth, the lightning avoids a bad conductor, and selects a good one if it is to be had; hence it will spare the house or the tower so long as there is sufficient iron-rod attached through which it may descend to the earth. In this way the electric discharge, which would have shattered the bad-conducting tower, glides easily and safely past it into the ground. In dealing with any violent elements, the same principle should guide us; we should arrange not to oppose them, for that is useless, but to conduct them away harmlessly. The spirit of a starving mob would often strike down valuable institutions; but it may be diverted into the paths of hopeful industry, in which it will expend all its fire. The appetites of a people may threaten to run riot in the temples of drunkenness and debauchery; but if they are conducted into the pure atmosphere of wholesome amusement and recreation, they will spend themselves as harmlessly as the lightning spends itself on the greensward when the genial showers conduct it thither. 'The quality of mercy,' which 'droppeth as the gentle dew from heaven,' is the best conductor of all violent social elements.—'*Scientific Symbols.*'

The Electric Light.

Their light is maintained who are 'light in the Lord.'

Did you ever see that electric light which is made by directing a strong stream upon two small pieces of carbon? As the electricity strikes upon these, and turns their blackness into a fiery blaze, it eats away their substance as it changes them into light. But there is an arrangement in the lamp by which a fresh surface is continually being brought into the path of the beam, and so the light continues without wavering, and blazes on. The carbon is our human nature, black and dull in itself; the electric beam is the swift energy of God, which makes us light in the Lord. —*A. Maclaren, D.D.*

Insects attracted by the Electric Light.

Men in the darkness of sin and suffering are drawn to Christ, the Light.

Leaving the Paris Exhibition as the sun went down, I noted an electric light that, revolving round and round, shot its ethereal, pencilled rays far across the sky, touching with a momentary radiance the vegetation or the buildings across which they passed; and, looking up, I noted innumerable sparks wavering, vibrating in the illumination. For a moment I could not think what this meant, for there is scarcely any scintillation, and certainly no spark, thrown off the electric light. Then in an instant it occurred to me that these bright lights were myriads of insects attracted from the dark ocean of air around, and which, protected from the burning luminary by the strong glass, were safely rejoicing in the ecstasy of those beams. So here, around the beams of spiritual light and love that radiate from the Saviour, the innumerable hosts of suffering, struggling men and women of our Lord's day come within the field of our vision.—*J. Allanson Picton, M.A.*

Supposed Forms of Lightning.

Observation needs to be guided by knowledge.

Professor Faraday says: 'When, after a serene sky, or one that is not overcast, thunder-clouds form in the distance, the observer sees the clouds and the illumination of the lightning displayed before him as a magnificent picture; and what he often takes to be forked lightning (*i.e.*, the actual flash, and not a reflection of it) appears to run through the clouds in a most beautiful manner.' In many cases that which is thought to be the electric discharge is only the illuminated edge of a cloud, beyond and behind which the real discharge occurs. It is in its nature like the bright, enlightened edge which a dark, well-defined cloud often presents when between the sun and an observer; and even the moon also frequently produces similar appearances. In the case of its production by lightning and distant clouds, the line is so bright by comparison with the previous state of the clouds and sky, so sudden and brief in its existence, so perfectly defined, and of such a form, as to lead everyone at the first moment to think it is the lightning itself which appears.

But the forms which this line assumes, being dependent on the forms of the clouds, vary much, and have led to many mistakes about the shape of the lightning-flash. Often, when the lightning is supposed to be seen darting from one cloud to another, it is only this illuminated edge which the observer sees. On other occasions, when he is sure he sees it ascend, it is simply this line more brilliant at its upper than its lower part. Some writers have described curved flashes of lightning, the electric fluid having parted from the clouds, gone obliquely downwards to the sea, and then turned upwards to the clouds again; this effect Professor Faraday has occasionally seen, and has always found it to be merely the illuminated edge of a cloud.

Lightning preferring White Colours to Black Ones.

Watching the ways of evil things enables us to guard against their evil influence.

Captain John Arrowsmith tells of lightning passing over the parts of the masts of his ship painted with lamp-black and oil without the least injury; while it shivered the uncoated parts, tearing out splinters so as to render the masts comparatively useless. The experience of thirty voyages, during which, on reference to his journals, the vessel he commanded had been at ninety-eight different periods within the vortex of the electric fluid, and escaped without having been once struck, has confirmed Captain Arrowsmith in the belief of the efficacy of the precautions, adopted by him at the commencement of those voyages on reading the singular facts related of piebald cattle and horses struck by lightning. The affinity of the fluid to those parts of the streaks in the animals which were white, being very remarkable, led him to adopt the use of black paint on the mast-heads, yards, caps, and trucks; and to take in and furl the upper and light sails whenever forked lightning approached the vessel he commanded. The captain adds, from this experience, 'Any part of a body composed of wood, sufficiently coated with black, or lamp-black and oil, possesses a property of resisting the destructive effects of the fluid;' and that, had he possessed this knowledge during his sea-life, he would have used the black to the fullest extent, covering with it the whole of the masts and hull of the vessels.—*Literary Gazette.*

LIGHT AND DARKNESS.

Light the Beginning of Creation.

Light is the beginning of life for man, as well as for the world.

It is with man's soul as it was with Nature: the beginning of creation is light. Till the eye have vision, the whole members are in bonds. Divine moment, when over the tempest-tossed soul, as once over the wild, weltering chaos, it is spoken, 'Let there be light!' Even to the greatest that has felt such moment, is it not miraculous and God-announcing, even as under simpler figures to the simplest and least? The mad, primeval discord is hushed; the rudely-jumbled, conflicting elements bind themselves into separate firmaments; deep, silent rock-foundations are built beneath, and the skyey vault, with its everlasting luminaries, above. Instead of a dark, wasteful chaos, we have a blooming, fertile, heaven-encompassed world.

I, too, could now say to myself, Be no longer a chaos, but a world, or even worldkin. Produce! produce! Were it but the pitifullest infinitesimal fraction of a product, produce it in God's name. 'Tis the utmost thou hast in thee; out with it, then. Up! up! whatsoever thy hand findeth to do, do it with thy whole might. 'Work while it is called to-day, for the night cometh wherein no man can work.'—*Thomas Carlyle.*

Latent Light.

'Where is the way where light dwelleth?' (Job xxxviii. 19).

On one occasion, when Dr. Buckland, George Stephenson, and Sir William Follett were on a visit to Sir Robert Peel, the party had just returned from church, and were standing together on the terrace near the hall, when they observed in the distance a railway-train flashing along, throwing behind it a long line of white steam.

'Now, Buckland,' said Mr. Stephenson, 'I have a poser for you. Can you tell me what is the power that is driving that train?'

'Well,' said the doctor, 'I suppose it is one of your big engines!'

'But what drives the engine?'

'Oh, very likely a canny Newcastle driver!'

'What do you say to the light of the sun?'

'How can that be?' asked the doctor.

'It is nothing else,' said the engineer; 'it is light bottled up in the earth for tens of thousands of years—light absorbed by plants and vegetables being necessary for the condensation of carbon during the process of their growth, if it be not carbon in another form—and now, after being buried in the earth for long ages in fields of coal, that latent light is again brought forth, and liberated; made to work, as in that locomotive, for great human purposes.'

Like a flash of light, it illuminated in an instant an entire field of science.

At a meeting of the British Scientific Association, Sir D. Brewster exhibited a piece of chalcedony, within which a minute landscape could be seen. If kept in total darkness for four hours, this marvellous picture vanished, but reappeared as vivid as ever on ten minutes' exposure to the sunlight, proving that not only could a design be mysteriously insinuated into the interior of the mineral, but that light could be stored up therein, and produced at will. It was surmised that this effect had been produced by the action of nitrate of silver, salts of silver being, as all photographers well know, very sensitive to the influence of light.

The Reflection of Light.

The light we receive from Christ we are to reflect on others, not to merely absorb.

If a thing reflects no light, it is black; if it reflects part of the rays, it is blue, or indigo, or red; but if it reflects them all, it is white. If we are like Christ, we shall seek, not to absorb, but to reflect the light which falls upon us from heaven upon others, and thus we shall become pure and spotless; for this is the meaning of the 'white robes' which the saints wear in glory.—*H. W. Beecher.*

Light and the Eye.

The sensitiveness of the soul to the subtlest moral influences is even keener than the sensitiveness of the eye.

But the relations between the light and the eye are more astounding still. To get the sensation of redness our eyes are affected 482 millions of millions of times in a second; of yellowness 542 millions of millions; and of violet 707 millions of millions of times (Sir John Herschell). So that the seven-hued rainbow, whose firm and subtle flame is reared out of drops of water that are ever shifting, plays upon the human eye in a manner so astounding that the strongest mind might stagger beneath the awful revelation.—*T. Starr King.*

Light and Life.

God the Light is the Source of spiritual life to the soul.

Light is essential to life, health, and growth. What wonderful medicinal efficacy it possesses! There is no tonic like it. It imparts that green hue by means of which the plant changes inorganic into organic matter, creates and conserves what everything else consumes and destroys, and acts as the mediator between the world of death and the world of life. Take away the light from man, and immediately he becomes a prey to the dead, inert forces of Nature. The tissues of his body degenerate, and the powers of his mind decay. It affects the stature, the blood, the hair, the liver, the whole body inwardly and outwardly. Under solar radiation sickness is more speedily cured, wounds heal more rapidly, and the healthy acquire fresh vigour and elevated vitality. It is difficult even to express the full enjoyment of all the senses, except by metaphors drawn from light.

Owing to this healing, life-giving power of natural light, we see how it becomes the salvation of the natural man. He owes to it all the vital force by which he conquers and beats back the foes of Nature that seek to destroy his life. And in regard to our souls, the Lord is our Salvation because He is our Light. The plant instinctively and inevitably turns to the sunlight, wherever it is, because the sunlight is its salvation, its very life. Shut out from the light, it can neither live nor grow. The sunflower opens its eye to the sun when it rises, follows it all day, closes when a cloud passes over the face of the sky and when the sun sets, because the sun supplies both the vital forces by which it assimilates the materials of growth, and the materials themselves. A plant growing in a cellar, where but a feeble ray of light penetrates, is a dwarfed and forced growth, exhausting all there is in its seed or bulb mechanically, but adding no new material of growth; without any sign of inward vitality, or promise of perennial production. It is a weak, blanched ghost of a plant, without any sap in its veins, or colour in its leaves, without any power to produce blossom or fruit. But bring the miserable shadow of life out into the open sunshine, and it recovers itself; its white, brittle stem becomes green and full of

sap; its leaves assume their natural and vivid hue, and open out their blades in the golden air. The whole plant revives as if by magic, and speedily puts forth its beautiful blossom and fruit.

What the sunlight is to the plant, God is to the soul. He is the Source of our spiritual life. Between Him and the nature which He formed in the image of Himself there is the closest and the most intimate relationship. They are co-natural; apart from Him the soul can find no substitute for God, none to fill His place, none to induce the sweet contentment and calm repose which it seeks. 'Whom have I in the heavens but Thee; and there is none upon the earth whom I desire beside Thee,' this is the deepest language of the soul. The good of man is to be found—and even in an age of material prosperity like this, we more profoundly than ever feel its truth—not in the increase of corn and wine and oil, be they ever so abundant, but in the deepened sense of God's love, in the clear revelation of His grace, and the fuller enjoyment of His peace. If He lifts the light of His countenance upon us, we are saved in the truest and highest sense. No assertion, then, of our dependence upon God for the creation and maintenance of the life of our souls can be too absolute.

Wonderful—although it is so familiar to us that we do not think of its wonderfulness—is the mysterious combination between a far-off, glorious object, like the sun, and a little insignificant wayside weed. The great orb that fills the whole heavens with its radiance, floods all the horizon with its light, illumines all the countries of the world at the same time, and all the planets and satellites that revolve around it, lies in the bosom of the little violet. It needs all the sun to sustain its life, to adorn its beauty, to make it what it is. And still more wonderful is the association of the great God with beings like us. We need all of Him for our saving health, for the very life of our souls; all His qualities, all His powers, are indispensable for our spiritual existence. As the daisy is co-ordinate with the whole sun, so our souls are co-ordinate with God, and as He dwells in our natures we are transformed into His likeness, as the sunflower becomes an image of the sun.—*Hugh Macmillan, LL.D.*

Day and Night.

He who does his own work well need never either envy or scorn any fellow-worker.

Day and Night contended with one another for the preference. The fiery, brilliant, busy Day spoke thus concerning the strife: 'Poor, gloomy mother!' said he; 'what hast thou like my sun, my heavens, my fields, my restless, busy life? What thou makest die, I waken to feel new life; what thou causest to sleep, I raise.' 'Do I not also thank thee for thy activity?' said the discreet, veiled Night. 'Must I not refresh what thou hast wearied? And when can I so well accomplish this as through thy own forgetfulness! I go forth, the mother of gods and men. I take all that I have brought forth with their own contentment, into my lap; soon as the border of my garment is touched, they forget thy delusions, and bow their heads gently down. Then I nourish, then I sustain the peaceful soul with dew from heaven. To those eyes that, under thy fierce sunbeams, dared not look towards heaven, I, the veiled Night, unveil a host of innumerable suns, innumerable images, new hopes, new stars.' Day even now touched the border of her sable garment, and silent and weary sank into her curtained lap. But she, in her starry mantle and her starry crown, still sat with eternal tranquillity upon her brow.

Night Emblems.

Night suggests repose, evil, and fear (Rev. xxi. 25).

It is the season of *Repose*—'the blessed barrier betwixt day and day'—when the hum and bustle, the anxiety and fatigue of business are suspended; when the tired artisan rests from his toil; when the voyager on the wide ocean forgets for awhile the perils of the main; when the warrior ceases for a time to hear the roar of the cannon or to face the foe; and when all Nature is hushed to slumber, save the weary watchers by the bed of suffering, and wakeful, loving mothers tending their dear ones in their quiet nests.

It is the time of *Evil*—the season chosen for the performance of deeds of darkness and of sin. 'They that be drunken are drunken in the night.' They who live by plunder then steal forth to invade the peaceful dwelling, or to arrest in his course the solitary traveller. Then it is that the libertine seeks the gratification of his inordinate desires; and the murderer, too, often selects that season for the performance of his deeds of blood.

And it is the time of *Fear*. The silence is so dead and the darkness so profound that, whether you walk alone in the open air, or are roused from your peaceful slumbers by some sudden sound or some disturbing dream, a solemn sense of awe steals over your frame.

Yet, notwithstanding all this, I praise God for the night. I bless Him for *the day*, with its early sunrise, its noontide glory, its evening shades; but I bless Him also for *the Night*, with her sable mantle, her vague solitude, her quiet rest.—*S. D. Hillman.*

The Value of Darkness.

'*Thou makest darkness, and it is night*' (Psa. civ. 20).

Immediately after landing we hired horses to conduct us to Fanskog, ten miles and a half, where we arrived at so neat an inn, and were withal so subdued by want of sleep and fatigue, that we rested for a few hours, writing our journals without candles half an hour after midnight, by a light that could not be called twilight; it was rather the glare of noon, being reflected so strongly from the walls and houses that it was painful to our eyes, and we began already to perceive, what we had never felt before, that darkness is one of those benevolent gifts of Providence the value of which, as conducive to repose, we only become sensible of when it ceases altogether to return. There were no shutters to the windows, and the continued blaze which surrounded us we could gladly have dispensed with, had it been possible. When we closed our eyes, they seemed to be still open; we even bound on them our handkerchiefs; but a remaining impression of brightness, like a shining light, wearied and oppressed them. To this inconvenience we were afterwards more exposed; and although use rendered us somewhat less affected by it, it was an evil of which we all complained, and we hailed the returning gloom of autumn as a comfort and a blessing.—*Clarke's 'Travels.'*

Isaac Taylor, writing on 'A Dark Night,' argues on and illustrates the fact, that one or two absolutely dark nights during the year are essentially necessary for the well-being of the vegetable and animal worlds. They provide times of absolute resting. It is very significant of the importance of darkness, that we can sleep in the dark; and that God arranged for about one-third of our lives to be spent in the silence of darkness. There is evidently a natural connection between darkness and bodily and mental rest.

'A dark night, I mean a night really dark, which is not so fre-

quent an occurrence, taking the year round, as you might suppose; speaking colloquially, a *dark* night is not an every-day occurrence. Nights as absolutely lightless as some central cavern among the roots of the mountains may be are not many in the round of the year. There may be two or three such nights occurring between October and February, or in some years there may not be even one such night. For producing a genuine dark night several atmospheric and meteorologic conditions must combine.

'Whence comes the peculiar darkness of this night, or how is it produced? And what is it for, or what are the purposes in the great economy of Nature which it subserves?

'The earth's own temperature, not now radiated into the celestial spaces, is shut in—it is *ovened*, or muffled up; and this warmth is agreeably suffused throughout the space intervening between the earth and its cloudy envelope. A uniform vapoury firmament constitutes the inferior stratum, which at once shuts in the warmth of the planet and shuts out the starry sky. Yet this *one* envelope by itself would leave us quite light enough to see the road, even to see the handpost, and enough, perhaps, to read the inscription thereon. There must be a *second* covering to create a dark-*dark night*. There must be a loftier firmament; there must be an unbroken expanse of cloud, between which and the lower stratum there will be a space of perhaps a mile in altitude, or two miles may intervene. It is this upper tier, it is this roofing high above the roof, it is this ample over-all that, in the meteorological sense, gives us here below indeed a Dark Night.

'This dark and silent night, is it in fact a *dead* time in Nature? It is far otherwise. Everywhere it is a most busy hour, although the forces that are in action continue to perform their various offices in strictest silence. This is true of the vegetable, animal, and insect world.'

The Effect of Darkness on Plants.

Proper development depends on proper conditions.

Plants, as well as animals, nurtured and grown in perfect darkness, never acquire their natural colour. The former become white instead of green. This fact is observed in the *etiolation* (or blanching, as it is termed) of certain vegetables, such as celery, sea-kale, endive, etc. Their leaves, deprived of the sun's rays, do not attain their normal growth or form, neither is the natural odour of such plants fully developed. Professor Robinson, descending into a coal-mine, accidentally met with a plant growing luxuriantly. Its form and qualities were new to him. The sod on which it grew was removed, potted, and carefully attended to in his garden. The etiolated plant languished and died, but the roots speedily threw out vigorous shoots, which, from the form of the leaves and their peculiar odour, he readily recognised as tansey. He repeated similar experiments upon other plants, viz., lovage, carvi, and mint, with analogous results. The biography of mankind affords innumerable examples illustrative of this same principle, that the proper development of every kind of life is dependent on proper conditions. It is not thereby necessarily implied that man is the slave of his circumstances, because, unlike the lower creation, he possesses within certain limits power to bring himself under the influence of the conditions favourable to the proper development of his intellect and character. Certain, however, it is that where opportunities for the exercise of that power have been wanting, and where the man has

not been brought under suitable conditions, his faculties have dwindled into insignificance, or become abnormally distorted in their growth. A stunted moral and physical manhood is inevitably the result of certain conditions of existence which can easily be named; and the converse is also true.—'*Scientific Symbols.*'

Light as a Garment of God.

'*Thou coverest Thyself with light as with a garment*' (PSA. civ. 2).

A garment or cloak may be put on for several reasons. *We* wear clothes to conceal what is beneath, because it is not what ought to be seen. But we can imagine another reason for putting on a garment. Suppose a Being so glorious that the sight of Him would dazzle and overpower our feeble sight, then a garment might be put on, less glorious than the Being Himself, on which we could look with awe and admiration indeed, but which would not be too overwhelming in its glory and beauty. Just such a garment as this, I think, is the natural light to the great and glorious Jehovah. We could not look on God Himself and live; but when we see this garment of light, and the marvellous works of Nature which light shows us, we can get some faint ideas of what God is, we can see a little how great the Creator must be, if the works, the mere outskirts and fringes of His clothing, are so magnificent.

But there is yet another reason which may be given for the use of clothing. There are things even in the natural world which cannot be seen of themselves. We only know that they exist by their effects, or by some revelation of them when they come in contact with some other invisible force.

For instance, the two gases which make water can neither of them be seen by our eyes when separated. Yet these invisible gases can be mixed in such a way as to become visible as water.

Now, just what all these wonderful, invisible, natural things are to our bodily eyes, such is a spiritual being to the eyes of our mind or our moral sense. We want something to clothe him or make him manifest. God is a Spirit. How, then, are we to understand and feel what He is? How is He to be shown to the eyes of our minds, this great Invisible, Indivisible, Almighty, Omniscient, Omnipresent God?

'The Only-Begotten of the Father He hath declared Him!' There is our answer. Christ, the Light of the world, is the garment in which the Father clothes Himself, and so reveals Himself to the minds of His creatures. Do not forget that the word 'declare' in the above verse must be also translated 'reveal,' and, of course, you understand that reveal means to 'show' or 'manifest.' So here we have just what we need. Here is the Garment which makes visible to us what otherwise we could not see—the love, the mercy, the long-suffering, the goodness, the holiness, and the countless other glories of our Lord and Father. In Christ God becomes visible to us. We can but look, wonder, and adore.—*F. C. K. W.*

Because Things want the Light they seek the Shade.

Our trust in God partly depends on our sense of darkness and mystery in Him.

'On another plant,' says Mr. Darwin, 'three pairs of tendrils were produced at the same time by three shoots, and all happened to be differently directed. I placed the pot in a box open only on one side, and obliquely facing the light; in two days all six tendrils pointed with unerring truth to the darkest corner of the box, though to do this

each had to bend in a different manner. Six turret-vanes could not have more truly shown the direction of the wind than did these branched tendrils the course of the streams of light which entered the box.'

The reason of this movement of the tendrils away from the light is not at first apparent, but a little thought makes it plain. The tendril is seeking an object to cling to; in the direction from which the light comes there cannot be any object; if an object were there it would obstruct the light. The fact that the light comes freely from that side shows that no object is there, so the tendrils turn in the other direction; the shadow is the sign of the presence of an object to which the tendril may cling; support is nearest on the side where the shadow is. That seems to be the logic of this movement of the tendril. What wonderful wisdom is here!

'But the analogy.' You are thinking, 'How does this prefigure our spiritual relation to God? God is light, and in Him is no darkness at all; and we are saved not by turning away from Him, as the tendrils turn from the light, but by turning to Him.' All this is true, in the sense in which it is spoken; and it may serve to remind us that analogies, like parables, cannot always be made to go upon all fours. Nevertheless, there is a deeper sense in which this analogy does suggest to us that spiritual truth of which we are in search. God *is* light, in one most important view of His nature; He is the source of all truth, and of all beauty, and of all goodness; but it is also true that clouds and darkness are the habitations of His throne. When it is said that in Him is no darkness at all, the word 'darkness' has a moral signification. It is meant that there is in Him no deceit, no insincerity, no malignant hatred. His character is light; but there are many things about His nature that are dark to us, and must be, because He is infinite and we are finite. There are depths of being in Him that our thoughts can never fathom, and it is precisely this transcendent greatness of His that our trust lays hold upon. We want a power to cling to who is not only greater than we are, but whose greatness we cannot compass with our thought. We want a friend who is able to do for us, not only the things that we ask for and think of, but exceeding abundantly above all that we ask or think. A God whom we could comprehend, whose power we could measure, we could not fully trust. And so it is that our faith turns away from the garish light of human wisdom toward the unfathomed depths of Deity.

'I found Him, not in world or sun,
Or eagle's wing, or insect eye;
Nor through the questions men may try,
The pretty cobwebs we have spun.

'If e'er when faith had fallen asleep,
I heard a voice, "Believe no more";
And heard an ever-breaking shore,
That tumbled in the Godless deep,—

'A warmth within the breast would melt
The freezing reason's colder part;
And, like a man in wrath, the heart
Stood up, and answered, "I have felt."

'No, like a child, in doubt and fear;
But that blind clamour made me wise;
Then was I as a child that cries,
And, crying, knows his father near.'

And thus our analogy finds some verification even in this curious movement of the tendrils away from the light and toward the darkness. There is still another point of resemblance here which we may think of for a moment. The truth that it gives us may seem to contradict the one we have just seen, but it does not in reality;

it is only the other side of the same truth. The darkness is a symbol of God's infinity, of the veiling of His nature from our sight. But it is only, let us remember, by the help of shadows that we see. When there is nothing but light there is no vision. Look directly at the sun and you can see nothing. It is when your back is turned to the sun that you see most clearly. There must be some combination of shade with light that we may be able to see anything. And this is one reason why our faith, like the tendrils, turns away from the full light. It turns not only toward the darkness that hides God's infinity, it turns also toward the shadow, because in that something of His nature is visible. The shadow not only conceals, it also discloses.

You cannot conceive of absolute Deity. Your mind is dazzled when you look God in the face, just as your eyes are dazzled when you look the sun in the face. Infinite knowledge, infinite power, self-existence, unconditional being—you cannot grasp these ideas. You must believe that there is such a God; you need such a God to trust in, and so you feel after Him in the darkness, by the outreaching of your faith; but you cannot see Him by the intellectual vision; when you try to gaze upon His perfections you are blinded by the sight. And men have always found it necessary to learn what God is by looking towards the shadow and the types which He has given us. The human nature is a reflection of the Divine; and we can only comprehend God when He is revealed to us in the forms of the human life. This is the Incarnation—it is God in the shadow. Our faith finds something here that we can take hold of and cling to. The adumbration of God in humanity meets the deepest need of the human soul. Thus it is not only toward the darkness that hides the Infinite, but toward the shadows that temper for us the brightness of His glory, that our souls reach forth. And the tendrils seem, after all, to have a lesson for us when they turn away from the light.

Yet, though they seek the shade, they know what it is that they seek, and they are not deceived. 'Knowing,' says Mr. Darwin, 'that the tendrils avoided the light, I gave them a glass tube blackened within, and a well-blackened zinc plate; but they soon recoiled from these objects, with what I can only call disgust, and straightened themselves.' Here we have not a likeness, but a contrast. For the human spirit is not always, like the tendrils of the climbing plant, unerring in its selection of the objects on which it will lay hold. Full often the tendrils of our desire touch and fasten upon that which defiles us; and the faith that ought to bind us fast to God's righteousness and power is entwined about some grovelling superstition or some ensnaring sin. The plant obeys the impulse given to it by the Divine goodness, and obeys it unerringly; but man, to whom the power of choice is given—a power that the plant does not possess—abuses his birthright and clings to the corruptions of flesh and sense.—*Washington Gladden.*

A Legend of the Light.

'*He that loveth darkness hateth light*' (JOHN iii. 19, 20).

There is a rabbinical legend that when light issued from under the throne of God, the Prince of Darkness asked the Creator wherefore He had brought light into existence? God answered that it was in order that he might be driven back to his abode of darkness. The evil one asked that he might see that; and, entering the stream of Light, he saw across time and the world, and beheld the face of the Messiah. Then he fell upon his face and cried, 'This is He

who shall lay low in ruin me and all the inhabitants of hell.'

Light must go with Warmth.

'God is Light'; 'God is Love' (1 JOHN i. 5; iv. 16).

Light is beautiful; it is gladdening to the eye and to the heart; it flies toward us like God's angel from the skies; but light of itself is not enough. It were a poor thing for this earth if the sun gave it only light. Soon it would be clothed in the whiteness of universal snow, relieved only by the azure of glacial ice, and in the cold, clear, dazzling glare, the life of ocean and continent would die. The earth would not cease to be: it would roll on, a fair and beauteous star among the worlds, but no life would stir in its cold magnificence, no voice would break the stillness of its icy solitudes—it would roll on, a splendid sepulchre, through the skies. Light of itself is not enough. Life wants something more than light. No life can be matured apart from warmth. Were God only light, we might be spotless as snow, chaste as crystals, beautiful as blocks of ice; but the best and highest things in our natures would die—there would be no warmth of friendship in our grasp, no pity flowing in tears of sympathy from our eyes, no sacrificing love in our hearts; our minds might become glorious, but our hearts would be empty and dead. And, therefore, inasmuch as a tender, sympathetic heart is higher than a mere scholastic mind; inasmuch as sacrifice is profounder than wisdom, and the Cross sublimer than philosophy—insomuch is the knowledge that 'God is Love' better to us than the knowledge that 'God is Light.' —*Henry Wonnacott.*

We welcome the light. Climb the east, thou bright sun, for thou givest joy to the earth! But beautiful as light is, the earth could not live upon light. Take away all other influences and give the poor earth nothing but light—light, glaring, fierce, cold—let no heat be there, let no genial breath from the south be there, no softened breeze cross the Atlantic—nothing but light, piercing, penetrating light, and the earth would die, the rivers would freeze, the orchards would wither, the corn-fields would become barren, and the ocean would become motionless, and the poor earth, permeated with the bright, piercing light, would pass on in its pilgrimage through space a frozen, dead globe, sending back its cold glare to the surrounding planets. The earth cannot live upon light; human souls cannot live upon secular education. Learn the correct sciences, drink of the learned languages, ascend the highlands of poetry, the regions of metaphysics, the cloud-land of speculative philosophy. Young men, be as enlightened, as grand intellectually, as you please, but look here, your hearts would freeze without religion, your souls would die without God!—*Rev. Thomas Jones.*

The Light of the World.

The recognition of a personal intelligence gives an assured hope to what men call science.

Perhaps you have traversed a forest at midnight, and have painfully and slowly felt out your path among the objects which the darkness seemed to conceal rather than reveal. You have mastered it by slow but sure steps, such as the blind man feels out by exact and reasoning touch. Anon you traverse the same forest by noon. How luminous has it become by the aid of the all-pervading light! Possibly you do not think of the glorious sun from which this light proceeds, but you cannot but know that what was once an obscure thicket, beset with dimness and

shade, is now flooded with the revealing light, and that hope and joy have taken the place of caution and doubt and fear. In like manner does the recognition of a personal Intelligence who may be known by man give an assured hope to what men call 'science.' In this way has it been to its advancing hosts a pillar of fire by night and a cloud by day. The denial of such an Intelligence, or the assertion that He cannot be known, takes from science its hope, because it withdraws from the universe the illumination of personal reason and personal love, which all scientific thinking accepts as possible and rational.—*Noah Porter, D.D.*

Light through Church Windows.

Effects of light depend on receptiveness to light.

You have seen one of the windows of a great church perfectly filled and saturated with sunshine. It might have seemed, to an uninstructed eye, to have the glory in itself. But what really caused the beautiful dazzling brilliance was the combination of two things—the direct incidence of the sun's rays, and the perfect transparency of the window's glass. The window 'shone' because the sun was opposite, and because the window was so made as to be *receptive* of light. *Receive* God's light. Drink in at every pore the rays of the Sun of righteousness.—*C. J. Vaughan, D.D.*

The Dawn as Harbinger of Light.

John Baptist was sent to bear witness of the true Light.

The dawn of morn creeping gradually over the earth—first a long gray streak of light, then a rippling wave of rosy hue, then a broad, glittering band shooting far and wide, certain harbinger of the sun, but for whose yet hidden lustre it had not had being; the first upspringing of the tiny green blade, the outshooting of the little curled-up leaves on the black, dead-looking trees and hedges, heralds of the coming summer; the welcome cloud gathering from the west, gathering and gathering still, to drop down presently in life-giving showers upon a parched country—what are these but illustrations of Him who, though not 'that Light,' was sent to 'bear witness of that Light'?

The Value of Continued, Equable Light.

Happiness is found, not in flashes, but in continuity of pleasant experiences.

The happiness of life consists, like the day, not in single flashes of light, but in one continuous, mild serenity. The most beautiful period of the heart's existence is in this calm, equable light, even although it be only moonshine or twilight. Now, the mind alone can obtain for us this heavenly cheerfulness and peace.—*Richter.*

The Light of Day and Night.

The sun-warmth makes the day the best light.

The night has a thousand eyes,
And the day but one;
Yet the light of the bright world dies,
With the dying sun.

The mind has a thousand eyes,
And the heart but one;
Yet the light of a whole life dies,
When love is done.—*Bourdillon.*

THE MOON.

The Smitings of the Moon.

God defends His people from unknown and unrecognised evils.

In considering the climate of tropical countries, the influence of the moon seems to be entirely overlooked; and surely, if the tides of the ocean are raised from their fathomless bed by lunar power, it is not too much to assert that the tides of the atmosphere are liable to a similar influence. This much is certain, that in the low lands of tropical climates no attentive observer of nature will fail to witness the power exercised by the moon over the seasons, and also on animal and vegetable nature. As regards the latter, it may be stated that there are thirteen springs and thirteen autumns in Demerara in the year, for so many times does the sap of trees ascend to the branches and descend to the roots. For example, the *wallaba* (a resinous tree, common in the Demerara woods, somewhat resembling mahogany), if cut down in the dark, a few days before *the new moon*, is one of the most durable woods in the world for house-building, etc.; in that state, attempt to split it, and with the utmost difficulty it will be riven in the most jagged, unequal manner that can be imagined. Cut down another *wallaba*, that grew within a few yards of the former, *at full moon*, and the tree can be easily split into the finest smooth shingles, of any desired thickness, or into staves for making casks; but if in this state it be applied to house-building it speedily decays. Again, bamboos, as thick as a man's arm, are sometimes used for paling, etc.; if cut *at the dark moon*, they will endure for ten or twelve years; if *at full moon*, they will be rotten in two or three years. Thus it is with most, if not all, of the forest trees.

Of the effects of the moon on animal life very many instances could be cited. I have seen in Africa the newly-littered young perish in a few hours, at the mother's side, if exposed to the rays of the full moon; fish become rapidly putrid; and meat, if left exposed, incurable or unpreservable by salt.

The mariner, heedlessly sleeping on deck, becomes afflicted with *nyctolopia*, or 'night-blindness,' at times the face hideously swollen, if exposed during sleep to the moon's rays; the maniac's paroxysms renewed with fearful vigour at the full and change; and the cold, damp chill of the ague supervening on the ascendency of this apparently mild yet powerful luminary.

Let her influence over this earth be studied; it is more powerful than is generally known (Psa. cxxi. 6).—*Montgomery Martin.*

In the cloudless skies of the East, where the moon shines with such exceeding clearness, its effects upon the human frame have been found most injurious. The inhabitants of these countries are most careful in taking precautionary measures before exposing themselves to its influence. Sleeping much in the open air, they are careful to cover well their heads and faces. It has been proved beyond a doubt that the moon smites as well as the sun, causing blindness for a time, and even the distortion of the features.

Sailors are well aware of this fact; and a naval officer relates that he has often, when sailing between the tropics, seen the commanders of vessels waken up young men who have fallen asleep in the moonlight. Indeed, he witnessed more than once the effects of a

moonstroke, when the mouth was drawn on one side and the sight injured for a time. He was of opinion that, with long exposure, the mind might become seriously affected. It is supposed that patients suffering under fever and other illnesses are affected by this planet, and the natives of India constantly affirm that they will either get better or worse, according to her changes.

It is well known that meat, when exposed to the moonbeams, is quickly tainted. The smiting power of the moon has doubtless led to many of the superstitions respecting it, and in some parts of Ireland to this day the poor people cross themselves at the new or full moon, and say, 'Mayest thou leave us as well as thou hast found us!' —*C. W.*

The Arabs universally believe that the beams of the moon are noxious to the human body, and the Levantines in Egypt have the same opinion; perhaps there is some truth in the assertion. I have seen my Arab boatmen on the Nile frequently attacked with ophthalmia and catarrh, avowedly from this cause; they have found their heads uncovered in the morning, by accident, and in a few hours more they would complain of sore eyes from exposure to the moon. Strange as this may seem, I really believe that there is some influence more than that of common dampness in the nights here, which the Arabs wisely guard against by enveloping their heads in thick blankets.—*Madden.*

The effect of the moonlight on the eyes in this country is singularly injurious. . . . The moon here really strikes and affects the sight, when you sleep exposed to it, much more than the sun, a fact of which I had a very unpleasant proof one night, and took care to guard against it afterwards; indeed, the sight of a person who should sleep with his face exposed at night would soon be utterly impaired or destroyed.—*Carne.*

The Clearness of the Moonlit Sky.

Christ the Light, shining fully forth, pales all other lights.

The presence of the king awes the crowd into silence. When the full moon is in the nightly sky it makes the heavens bare of flying cloud-rack, and all the twinkling stars are lost in the peaceful, solitary splendour. So let delight in God rise in our souls, and lesser lights pale before it—do not cease to be, but add their feebleness, unnoticed, to its radiance.—*A. Maclaren, D.D.*

The Moon a Dead Star.

When the things of Nature have fulfilled one mission, they are always entrusted with another.

The moon is in every part roughened with eminences of different shapes, but they only very rarely group themselves into mountain chains comparable to those of our globe. The highest lunar mountains attain an altitude which surpasses most terrestrial elevations. Generally they do not rise beyond 22,750 feet.

Most of the mountains of our pale companion are of volcanic origin, and its surface has been so shattered by subterranean fires, that in many places the craters are heaped up close beside each other. Probably no star was ever so torn by the fury of volcanoes. These even attain proportions far beyond what is seen on our globe. Some of these lunar craters are four or five leagues in diameter, and the gaping mouth of the volcano of Aristillus, still more prodigious, is ten leagues from one edge to the other. Some regions are so riddled with volcanoes, that their mouths touch. Others surmount lofty summits, and their

crenellated ramparts surround enormous excavations, which pierce deep into the mountains below the level of the plains.

At the present day the volcanoes with which the moon is riddled are quite extinct, and our satellite is really and truly a *dead star*. Evidence of this fact seems to be furnished by the large clefts or furrows which are observed in the surface of this body, and which have sometimes a breadth of more than three-quarters of a mile, and a length of 150 miles. These clefts, according to M. Lecoq de Clermont, are the result of the absolute cooling of the mass of the planet. The rocky and shattered soil of our satellite is perfectly bare; not a blade of grass grows there, not a flower opens. Totally deprived of water and air, life is an impossibility. This dead star has now its ministry to give us light by night, influence the tides, etc.—*F. A. Pouchet, M.D.*

The Airless Moon.

Science is constantly correcting the conclusions reached by imagination.

Among the illusions swept away by modern science was the pleasant fancy that the moon was a habitable globe like the earth, its surface diversified with seas, lakes, continents and islands, and varied forms of vegetation. Theologians and *savants* gravely discussed the probabilities of its being inhabited by a race of sentient beings, with forms and faculties like our own, and even propounded schemes for opening communication with them, in case they existed. One of these was to construct on the broad highlands of Asia a series of geometrical figures on a scale so gigantic as to be visible from our planetary neighbour, on the supposition that the moon people would recognise the object, and immediately construct similar figures in reply! Extravagant and absurd as it may appear in the light of modern knowledge, the establishment of this Terrestrial and Lunar Signal Service Bureau was treated as a feasible scheme, although practical difficulties, which so often keep men from making fools of themselves, stood in the way of actual experiment; but the discussion was kept up at intervals, until it was discovered that if there were people in the moon, they must be able to live without breathing, or eating, or drinking. Then it ceased.

There can be no life without air. Beautiful to the eye of the distant observer, the moon is a sepulchral orb—a world of death and silence. No vegetation clothes its vast plains of stony desolation, traversed by monstrous crevasses, broken by enormous peaks that rise like gigantic tombstones into space; no lovely forms of cloud float in the blackness of its sky. There daytime is only night lighted by a rayless sun. There is no rosy dawn in the morning, no twilight in the evening. The nights are pitch dark. In daytime the solar beams are lost against the jagged ridges, the sharp points of the rocks, or the steep sides of profound abysses; and the eye sees only grotesque shapes relieved against fantastic shadows black as ink, with none of that pleasant gradation and diffusion of light, none of the subtle blending of light and shadow, which make the charm of a terrestrial landscape. A faint conception of the horrors of a lunar day may be formed from an illustration representing a landscape in the moon in the centre of the mountainous regions of Aristarchus. There is no colour, nothing but dead white and black. The rocks reflect passively the light of the sun, the craters and abysses remain wrapped in shade, fantastic peaks rise like phantoms in their glacial cemetery, the stars appear like spots in the blackness

of space. The moon is a dead world; she has no atmosphere.—*Proctor.*

The Transparency of the Moonlit Sky.

There are moods of sky which bring God near to poetic souls.

Moonlight and the first timid trembling of the dawn were by this time blending, and the blendings were brought into a still more exquisite state of unity by a slight silvery mist, motionless and dreamy, that covered the woods and fields, but with a veil of equable transparency. Except the feet of our own horses, which, running on a sandy margin of the road, made but little disturbance, there was no sound abroad. In the clouds, and on the earth, prevailed the same majestic peace; and in spite of all that the villain of a schoolmaster has done for the ruin of our sublimer thoughts, which are the thoughts of our infancy, we still believe in no such nonsense as a limited atmosphere. Whatever we may swear with our false feigning lips, in our faithful hearts we still believe, and must for ever believe, in fields of air traversing the total gulf between earth and the central heavens. Still, in the confidence of children that tread without fear *every* chamber in their father's house, and to whom no door is closed, we, in that Sabbatic vision which sometimes is revealed for an hour upon nights like this, ascend with easy steps from the sorrow-stricken fields of earth upwards to the sandals of God.—*De Quincey.*

The Moon eclipsed when at the Full.

The time of prosperity is the time of moral peril.

The moon is never eclipsed but when it is at the full. Certainly God's people are then in most danger (*Manton*). When all goes well with them in house and field, in basket and in store, then should they look, lest they be full and forget the Lord, and so become eclipsed. For the world to come between us and our Lord is very easy, but very terrible. When all is apparently prosperous as to soul matters, and neither doubt nor fear nor temptation comes in, then also should the heart look well to its bearings, lest at this very moment some evil should interpose between God and the soul, and darkness should be the fearful result.—*C. H. Spurgeon.*

MORNING.

The Fragrance of Early Morning.

Morning is the best time for soul-communings with God.

What a benediction is this fragrance of the early morning! The vernal grass fills the whole atmosphere as with a shower of sweetness. And then the rose-border. What intensity in those odorous buds of the Bon Silene, making the very spirit bound as though a message had reached it from heaven. And the verbena bed is compassed with fitful fragrance. Even the pansies, with their dewy eyes, are ready to rival the violets now. Most especially do the fragrant leaves make this the hour of their choice favours. My rose geranium scarcely needs a finger touch to win her response, and the lemon verbena is freer still with her bounty. Nor must the purple buds of the calycanthus be forgotten. 'Sweet-scented shrub' indeed; for let me hide but a single one of these in some fold of

my dress, and the spices of Araby will float around me till the evening. And this prime hour of fragrance is the hour so many miss upon beds of sloth, never half knowing what a beautiful, marvellous world is around them. Not all the long hours of day can possibly bring back again the charm and blessedness of this, either to the body or to the soul. Yes, truly the same law is found working in the higher sphere. It is in the early morning hour that the unseen is seen, and that the far-off beauty and glory, vanquishing all their vagueness, move down upon us till they stand clear as crystal close over against the soul. Then does that righteousness, which is like the great mountains, stand out distinct in all its length and all its height, with range beyond range, and summit over summit, till in this clear and solemn vision we almost forget that even yet we see but afar off, see but in part. But who can measure the holy elevation of soul that comes from such communing before the day?—*Sarah Smiley.*

NATURE IN GENERAL.

First Impressions of Nature.

The supreme power is a power of benevolence; but that needs to be revealed to us.

It is certain that study of Nature's works opens to us from many quarters the truth that the Divine Overmind and controlling Will is one of benevolence. God's creatures are, for the most part, blessed. But the perfect lesson of the supreme goodness of God must come to us from other sources than Nature. The truth is, Nature, in some of its phases, fills man and lower creatures with terror, and justly so. Storm, tornado, lightning, the wild lashing of sea-waves, floods, fire, hail, and frost —these are in the aggregate benevolent forces; but, alas! to multitudes of individuals they bring suffering and death. We do not wonder that they have raised in the minds of untutored men, and men without a complete revelation of the character of God, the suggestion of hostility and malignity in the character of Deity.

This thought has had, and still has, expression in the deities of pagan nations. Those gods are gods of cruelty and revenge too often, and their unhappy devotees are the victims of terror, which through all their lives they seek to remove by placating the angry powers above and around them. Men who have derived their theology from no source but Nature have personified and deified the sternest and cruellest forces rather than the gentlest and most benevolent. At least, such gods have been most honoured because most feared. To know God as He is, we must turn from Nature to the revealed Word. The Bible supplements the book of creation. When we can read the mighty works of the supreme power as interpreted by words of Hebrew prophets, and the life of the Son of God, then, and then only, can we see the force of the Apostle's title, 'the *blessed* Potentate' (1 Tim. vi. 15, 16).—*H. C. McCook, D.D.*

The Mighty in Nature.

The voices of God to a child.

The sublime is the temple-step of religion, as the stars are of immeasurable space. When what is mighty appears in Nature—a storm, thunder, the starry firmament,

death—then utter the word 'God' before the child. A great misfortune, a great blessing, a great crime, a noble action, are building sites for a child's church.—*J. P. Richter.*

Wordsworth's Conception of Nature.

He added life to the outward world, making it a living being, separate from us.

The term 'nature,' in Wordsworth's use of it, means, sometimes, the nature of man—those inherent and indestructible qualities which are common to the whole race, and which form together that which we call human nature. In the realm of the imagination Wordsworth frequently conceives of this human nature as one person acting as if directly from himself: the male being of the universe to whom Nature—that is, the spirit who informs the outer world—is as the female being of the universe, wedded in love and holy marriage.

But the term he more commonly uses when speaking of human nature is the 'mind of man.' For all the practical purposes of my lectures, I may take the meaning of the term 'nature' to be concerned in Wordsworth's poetry with the world outside of us. In most of the previous poets, as in ordinary talk, it means the outward universe, with its motions and laws—all that we know and feel beyond ourselves, organic and inorganic; and in this sense Wordsworth sometimes uses it. But that would not define his use of the term accurately; for then Nature might be conceived of as dead, or as the image of our own thought. Wordsworth added life to the outward world, and separated it from our thought.

The outward universe lay before the poet's eye and ear. He felt it speak to him through his senses to his soul; and feeling this, he asked, What is it? Who is it that speaks? Is it only the matter of the universe, which by itself is dead? No, he answered; matter is animated by a soul, and it is this soul which thrills to meet me.

'"An *active* principle" subsists
In all things, in all natures, in the stars
Of azure heaven, the unenduring clouds,
In flower and tree, in every pebbly stone
That paves the brooks, the stationary rocks,
The moving waters, and the invisible air,
* * * * * *
From link to link
It circulates, the soul of all the world.'

Now, that which acts lives; and the universe lives as much by its soul as we do by ours.

To this active principle Wordsworth gave personality; that which all shared in was, in fact, one. It was one life, one will, one character, one person; and this personality he called Nature.

To Wordsworth, as he wrote, she took a living form, and became the life-giving spirit of the world. Day by day she built up the universe; it was she who, from her own vast life, gave to everything its special life, a separate soul to each.

'Yet whate'er enjoyments dwell,
In the impenetrable cell
Of the silent heart, which Nature
Furnishes to every creature.'

Each had from Nature not only its own distinct soul and character, but also its own distinct work to do; the elements had their business, 'the stars have tasks, the silent heavens their goings on.'

And not only had each separate thing the gift of a soul from Nature, but whenever a place, such as a lonely dell among the hills, had a special beauty and character of its own, it was by reason of a special soul within it, of a more manifold soul than that which dwelt in a single flower or stone.

'A spirit and pulse of good,
A life and soul to every mode of being
Inseparably linked.'

The thought was still further varied; and the larger divisions of the world of Nature, the whole of the sky, the whole of the earth and of the sea, were gifted with distinct and more complex being.

'The gentleness of Heaven is on the sea:
Listen! the mighty Being is awake,
And doth with His eternal motion make
A sound like thunder everlastingly.'

And further still, the moving powers of Nature, *e.g.*, the wind, when it dances over wood and hill, tossing trees and grass, bearing on its bosom the seeds of earth, becomes the 'over-soul' of the things it touches, adds to them a new pleasure and a new life—a life of reckless sport and jollity.—*Stopford A. Brooke, M.A.*

Nature was before Man.

The science of geology has shown the insignificance of man.

'On earth there is nothing great but man' was the proud aphorism of the Middle Ages. Nature was ignored; landscape-painting was an art unknown; poetry derived all its images from the seething world of humanity; no scenery was admired save cultivated fields and pastoral plains; science was confined entirely to the study of metaphysics; the human mind revolved round itself, and could see nothing but the reflected light of its own glory. In these modern times, on the other hand, Nature occupies the highest position; physical science is more studied than mental science; landscapes form favourite subjects in our galleries of art; the pages of our poets radiate with exuberant imagery derived from Nature, like the rainbow hues that flicker on the neck of a dove; and a love of wild and magnificent mountain scenery—of spots where Nature is all in all and man is nothing—fostered by the facilities of travel, seems the fashion of the day. This Nature-worship of the nineteenth century, however, must be regarded as a transitional, and not as a permanent, phase of modern civilization. Nature should ever serve as the handmaid of humanity; and the world, alike in its grandest and loveliest aspects, ought to be looked upon merely as the setting for the human picture; and I believe that when, by the study of external Nature, a true and solid foundation is laid for philosophy, the human mind will again revert to the study and contemplation of itself as the greatest of Nature's works. In the meantime, however, the excessive Nature-worship of these days must be regarded as a reaction from the unreasonable man-worship of mediæval times. It affords a striking example of those great correctives which exist in the moral, as well as in the physical, world for the removal of errors and abuses, and the readjustment of the balances of truth and rectitude. It was necessary that man should be displaced from the lofty pedestal upon which he had fixed himself for the admiration of the universe. It was necessary that his arrogant claims and proud pretensions should receive a check, and that he should be brought to know his true position in creation. And nothing has operated more beneficially in this respect than the proper understanding of the great truths which the earth reveals—the realization of the humiliating fact that the whole history of the human race is but a single day in the immeasurable cycle of geological changes. Man finds himself, while reading the lessons of geology, shrunk in time, as by the revelations of astronomy he found himself shrunk in space. Not only is this earth, his habitation, dislodged from its assumed centrality of position, and thrust into a corner of creation—a mere atom in the midst of infinite space, a comparatively insignificant member in an in-

numerable family of worlds; but even of this obscure atom itself he is dismayed to find that the whole human race has but a late and precarious tenure, 'a short and terminable lease of an antiquated tenement.' For incalculable ages, previous to man's advent, the earth was tenanted by other forms of life. Thousands of active creatures —whole species and genera—lived and died before he was formed out of the dust of the earth. Nature exhibited her changing forms, her dissolving views of cloud-scenery, and her revolving panoramas of landscape, without a single human being to admire or enjoy them. Not an echo was sweetened by a single note of instructed music. Not an eye glistened with wonder at the strange weird aspects of the carboniferous vegetation. Not an ear was there to catch the solemn roll of the tide, the roar of the volcano, or the gentle sigh of the wind through the forest. So far as man was concerned, it was a world of silence and desolation. The human race is indeed of very recent origin, compared even with the latest of those geological changes with which some scientific men of the present day would fain connect its infancy. In the language of Scripture, 'we are but of yesterday, and know nothing.'

This lesson which the earth teaches, it may be said, is a very sombre and depressing one. True in one sense; but it is also very salutary. Besides, there is consolation mingled with it. The teaching of the earth does not leave man humbled and prostrated. While it casts down his haughty and unwarrantable pretensions, it also enkindles aspirations of the noblest kind. While it shows to him the shortness of his pedigree, it also reveals to him the greatness of his destiny. It declares most distinctly that the present creation exceeds all the prior creations of which the different strata of the earth bear testimony, and that the human race occupies the foremost place among the terrestrial creatures. It teaches, unmistakably, that there has been a gradual course of preparation for the present epoch—that 'all the time-worlds of the past are satellites of the human period.' There are a thousand evidences of this in the nature and arrangement of the earth's materials, so clear and obvious that it is impossible to misunderstand them. The nature of the soil on the surface; the value, abundance, and accessibility of the metals and minerals beneath; the arrangement of the various strata of rock into mountain and valley, river and ocean-bed—all these circumstances, which have had a powerful influence in determining the settlement, the history, and the character of the human race, were not fortuitous—left to the wild, passionate caprices of Nature —but have been subjected to law, and compelled to subserve the interests of humanity. The carboniferous strata themselves, their geographical range, and the mode in which they have been made accessible and workable by volcanic eruptions, clearly evince a controlling power—a designing purpose wisely and benevolently preparing for man's comfortable and useful occupancy of the earth. The destiny of particular nations was predetermined in the earliest geological history of the earth; for almost all the true coal of the world is found in the north temperate zone, precisely in those regions where it is most needed, and where it can be turned to the best advantage as the aliment of industry and civilization. Moreover, as all the previous arrangements of the earth's crust have paved the way for the present arrangement, so have all the previous forms of organization, adapted to these varying conditions, pointed forward to the human race. That there has been a regular order and sequence, not in the nature of things, *but in the plan of the*

Creator, and upon the whole a progressive one, in the animal creation, is admitted by nearly all geologists. Viewing the remarkable facts which have been elicited during the last fifty years, progressively and in the order indicated by Nature itself, from the lowest fossiliferous deposits upwards, we shall find everywhere a succession of creatures rising from lower to higher organizations, not by the law of development, but by the law of substitution. All these point to man as the apex of creation, and the top of the earthly hierarchy. 'All his parts and organs,' says Professor Owen, 'have been sketched out in anticipation in the inferior animals'—in the successive races of creatures that lived and died during the earlier epochs of the earth's history. Step by step the ideal exemplar, the Divine archetype, first embodied in the fishes of the earliest seas, was modified into higher and yet higher forms of life, until at last it was arrayed in that costly vesture of humanity that has been found worthy to clothe the incarnate Redeemer. Thus man becomes 'the centre of the universe of time.' Thus his dignity is restored, or rather dignity is given in place of pride; his history and position become unique; he can claim a noble, if not an endless, genealogy, and assert what no other race can assert—that he is the 'son of Adam, which was the son of God.'—*Hugh Macmillan, LL.D.*

Mysteries in Nature.

Signs and expressions of a Divine will.

Do not understand me at all as saying that there is no mystery about the planet's motions. There is just the one single mystery—gravitation; and it is a very profound one. How it is that an atom of matter can attract another atom, no matter how great the distance, no matter what intervening substance there may be—how it will act upon it, or, at least, behave as if it acted upon it, I do not know, I cannot tell. Whether they are pushed together by means of an intervening ether, or what is the action, I cannot understand. It stands with me along with the fact that when I will that my arm shall rise, it rises. It is inscrutable. All the explanations that have been given of it seem to me merely to darken counsel with words and no understanding. They do not remove the difficulty at all. If I were to say what I really believe, it would be that the motions of the spheres of the material universe stand in some such relation to Him in whom all things exist—the ever-present and omnipotent God—as the motions of my body do to my will; I do not know how, and never expect to know.—*Professor C. A. Young.*

The Neglected Treasures of Nature.

Man is far from being the only object of Divine care.

Man is master. But there is a great deal in this world besides man. Nature takes a thousand darlings to her bosom. Every evening motherly Darkness puts to bed myriads of unnamed children of the sod, of the leaf, of tree, bush, moss, and stone. Every morning she sends again to awaken her brood, and troops them forth to their dewy breakfast. 'The eyes of all wait upon Thee; and Thou givest them their meat in due season. Thou openest Thine hand, and satisfiest the desire of every living thing.' We sometimes get nearer to God in proportion as we get far from men. These neglected treasures of Nature are a book of Divine things, and if we do not read, the Creator does. —*H. W. Beecher.*

The Calm of Nature.

In the quietness of self-control is both strength and dignity.

Nature never fails us; be our sorrows what they may, the sunshine will still have a smile for us, though all the world looks cold: and if earth have not a tie to which our human affections may cling, the fair aspect of the universe is still our rich possession. Nor is this free treasure of every living creature a joy less pure than it is indestructible; for while the teeming glories of earth, and air, and sea, and sky, produce in us a sense of pleasure we seek not to analyze, it does, in fact, proceed from the close connection between the visible creation and the invisible Creator. His goodness shines forth in that beauty, even as in the soul restored to Him by faith. His beauty appears in goodness, the beauty of holiness; and these things prove that the good and beautiful are in some degree synonymous, since the first is, in things inanimate, the originator, or more simply the creator, of the second; in things intellectual or spiritual, the second is the outer garb or expression of the first.

It is not in the broad and fierce manifestations of the elemental energies, not in the clash of the hail nor the drift of the whirlwind, that the highest characters of the sublime are developed. God is not in the earthquake, nor in the fire; but in the still, small voice. They are but the blunt and low faculties of our nature, which can only be addressed through lampblack and lightning. It is in quiet and subdued passages of unobtrusive majesty, the deep, the calm, and the perpetual; that which must be sought ere it is seen, and loved ere it is understood; things which the angels work out for us daily, and yet vary eternally; which are never wanting and never repeated; which are to be found always, yet each found but once; it is through these that the lesson of devotion is chiefly taught, and the blessing of beauty given.—*Ruskin.*

The Quiet and Sameness of Nature.

A night-meditation at Bethlehem.

But there is one feature of the scene which must not be omitted. It is *the quiet order of the elements, and their uninterrupted sameness.* It is like God that they should be so. The night-wind rose among the low hills as it always rose. The stars leapt into their places, one by one, the brightest first, as the darkness of the night increased. The dusky features of the landscape wore the same physiognomy as usual, in the indistinctness of the quiet night. There was a look of unmovedness, of independence, of want of sympathy, in the face of Nature, which was out of harmony with the expectation of the creature, or the near approach of the Creator. The scenery was unconcerned. It was as if Nature stood on one side, and let God pass, and made no obeisance, and altogether had nothing to do with what was going on, as if it was a world by itself, and did not interest itself in the worlds of spirit and of will. Has not this sometimes happened to ourselves in life? When a friend has died in the night, we may have opened the casement and looked out into the clear darkness. Our hearts are full. It seems as if all hearts were in our one heart. We almost dream at that moment we monopolize in our single selves, and in our new sorrow, all the interests on earth. We look out upon earth as if its silence would answer what we are feeling. But the moon is mockingly bright; there is the not unmusical moaning of the night-wind; the birds are restless upon their roosts. Whoever knew them

not so in the moonlight? All is as usual. The lineaments of Nature are expressionless. There is plainly no sympathy there with our sorrows, our fears, our hopes, or our regrets. We look to Nature; but her blank, unresponsive face, happily, yet not without some unexpected rudeness, flings us back on God. There was an earthquake on Calvary, but all is still, careless, uniform, regardless, in the winter-night of Bethlehem. Earth shows herself expressively inanimate, painfully so. It is not the look of death, for that is full of mute disclosures. It is like a fair face, with the mind gone from within. It is below the eyeless beauty of the sculptured marble, a kind of stolid beauty, making the heart heavy that looks upon it. To me there is something quite awful in the silent drifting of the stars over Bethlehem that night.—*F. W. Faber.*

The Kindness of Nature.

Nature can heal, and Nature can soothe.

Men sometimes contrast the severity of what are called 'natural' laws with the mercifulness of God's spiritual kingdom. But to him who looks on the material world as belonging to the Divine order of things just as much as the world of spirit, such a contrast must be very unsatisfactory. It seems to be based on a false interpretation of one side of the universe. There has been a morbid propensity among moralists to dwell on the gloomy side of life. In reality, we find in the operations of material Nature, and in the ordinary course of human existence, indications of a wonderful and Divine kindness. Nature —using the word in a large sense —may be viewed as a most merciful and tender mother.

We do not now speak of the general provision for man's physical wants which the globe exhibits, nor do we dwell on the lavish ministration to his spiritual nature through the senses, though that is very remarkable. From these great and obvious generosities of Nature we turn to others more delicate and hidden. Men speak of material laws as merciless. So in a sense they are. So is a railway train merciless if you put yourself across its tract, but rightly treated it becomes your servant. Just as fast as we understand and obey material law it becomes our friend. But that is not all; it befriends us without waiting for our obedience. Let the body receive an injury less than mortal, and what follows? Before the swiftest foot can bring the physician, Nature has begun her healing work. The physician is at best only her humble assistant. Medical science is learning more and more to trust to the *vis medicatrix Naturæ*—the healing power of Nature. It is she, whom we call stern and merciless, that knits together the broken bone that no artificer on earth could mend. It is she that deftly works out of the system the injurious matter which we in our ignorance have forced upon it. She is not only kind when we obey her: she repairs our mistakes and heals the hurts we have done ourselves. Is not this the very counterpart of what the Divine Physician does for our spirits?

So, again, take an instance from the workings of that larger Nature in which is included the whole course of life and society. Consider the kindness and helpfulness of Time. We speak of him as the destroyer, and picture him with his scythe sweeping away all that man would preserve. But, on the other hand, what a healer and restorer is Time! As we grow older we see nothing more plainly than this—that wounds of the spirit, which to youthful eyes appear incurable, are most gently soothed

and made whole by the passing years. Under the old scars flows again the calm, healthful tide of life. Nowhere more plainly than here is it seen how much better God's ways are than man's thoughts. Under a great loss the heart impetuously cries that it can never be happy again, and perhaps in its desperation says that it wishes never to be comforted. But though angels do not fly down to open the grave and restore the lost, the days and months come as angels with healing in their wings. Under their touch aching regret passes into tender memory; into hands that were empty new joys are softly pressed; and the heart that was like the trees stripped of its leaves and beaten by winter's tempests is clothed again with the green of spring.

Time does indeed take away some things which in this world he never restores or makes good. It would be idle to say that life is a steady progression in happiness. But it is most certain that in the natural course of things a healthy soul grows continually richer until its latest day on earth. Mourning over departed youth as better than anything which comes later is either a mistake or a pitiful confession. Middle life ought to be richer, fuller, better than youth; and later life should be more blessed than middle life. Our most precious possessions are those which are within us, and these should become greater with every year we live. The energy, the freshness, the ardour of youth are good things; but better still are the tempered strength of experience, the self-knowledge and self-control, the gentler temper towards others' faults, the deeper knowledge of others' goodness; the humility, the trustfulness, the mellowness of spirit that years bring to him who lives rightly. If intellectual wisdom were all we got in place of what goes with youth, we might indeed mourn over the exchange. But it is our own fault if, as the years go on, we do not also reach a riper character, a larger love, a serener faith. —*George S. Merriam.*

Nature is Incomplete.

Nature would not satisfy us; it would lead us on to God.

Everything in Nature is incomplete, is hasting forward to the production of something future; and in its incompleteness lies its beauty. Spring is beautiful; and when I see the blossoms blown off by the wind I think of the sons of Merari taking out the pins and their cords. Were spring to remain such, there would be no harvest for the blessing of man. The dawn is beautiful, but its beauty lies in this, that it shineth more and more unto the perfect day. Twilight is beautiful, but its beauty lies in its passing swiftly into night and darkness, bringing on the time of man's repose and the watchmanship of God. Childhood is beautiful, but its beauty consists in its constant changes; every day and every month those who watch children may see changes in them. The cords are lengthened, and the pins gain greater strength, as the child hastes forward into manhood. . . . All love is incomplete in itself, it all points to something beyond itself; the love of man and woman—marriage, at once both symbol and sacrament: symbol of the Divine love to the human creature, and of the soul's love of its Lord. The hearing of beautiful music leaves a longing for somewhat; on the most glorious days, when the sky is bluest, sadness comes over the heart, and a desire for truer peace. The most beautiful book ever written has an incompleteness; we feel that the author felt more than he could express. The sayings of the greatest men of this world all show that they have felt this. Instead of lamenting

over the transient nature of the things of this life, we should be thankful for it. It is of God's loving-kindness and tender mercy that it leads us on—a constant reminder that there are better things beyond. If beauty were not transient, it would be a clog to attach us too firmly to this world. God does not give us the best things now;—we have to take up the cords and the pins of our tents, and move ever onwards to the heavenly and abiding life, in the city that is 'laid four-square,' symbolic of completeness. The glory of Gothic architecture is in its relationship to ourselves, in its incompleteness; something can always be added to it. . . . All changes in life are beautiful, even those which we call decay. There is a beauty in the thin form of the old man: for as we look at each plainly-revealed bone, we think of the 'pillars and the sockets thereof,' and we know that he is about to be unclothed before he can be 'clothed upon' with immortality. Instead of going about mourning, as so many do, over advancing age, and endeavouring to conceal our gray hairs; instead of lamenting that 'we are not the men we used to be,' and repining over sickness, we ought rather to rejoice in these marks of our bodily imperfection. If we felt our religion as deeply as we ought to do, we should look forward 'through the chinks that Time has made' to the future state where all shall be perfected. —*George Dawson.*

How Faith looks at the World.

'Where every prospect pleases, and only man is vile.'

The young man sees all the beauty of God's work, and gazes at the slanting sun. Not sadly; no, most happily. The earth smiles to God, and he knows that God smiles upon His own fair work and sees that it is good; and because he sees God in all that, he, too, smiles with joy. How beautiful is the sunset, that every one may see for nothing, and yet cares so little to see! Compared with it, how poor and tame the best productions of men, which we pay to look at! And sure there were never two sun-settings alike. It is a fresh, new work every evening, arranged by the hand of the great Artist. He sees the hand-working; he sees the new beauties come out gradually each moment, fresh rims of purple to fresh forms of cloud, and he knows that it is God's work done for man, and thanks Him. Ah! if a man could sit still and watch that fair sight, and look down on that fair earth, and know that there was no pollution in it, life were indeed a happy walk to heaven. But he cannot shut his eyes, nay, not his ears even, to the blasphemy with which God's tenderest mercy is received. Even now, as he sits there, he hears loud angry curses coming up from the corn-field; and those who are gathering the gift of a Father's rich, loving hand have no more gratitude in their hearts than to use His name to curse their brothers by.

Nature in the Book of Psalms.

David's earlier psalms indicate quick sensitiveness to impressions of God.

Common to all the psalms of David's earlier life is the peculiar manner of looking upon Nature, so uniform in David's psalms, so unlike more modern descriptive poetry. He can smite out a picture in a phrase, but he does not care to paint landscapes. He feels the deep analogies between man and his dwelling-place, but he does not care to lend to Nature a shadowy life, the reflection of our own. Creation is to him neither a subject for poetical description, nor for scientific examination. It is nothing but the

garment of God, the apocalypse of the heavenly. And common to them all is also the swift transition from the outward facts which reveal God, to the spiritual world, where His presence is, if it were possible, yet more needful, and His operations yet mightier. And common to them all is a certain rush of full thought and joyous power, which is again a characteristic of youthful work, and is unlike the elegiac tenderness and pathos of David's later psalms.—*A. Maclaren, D.D.*

Nature and Man.

'Nature and man can never be dissociated.'

First, with respect to the new heaven and the new earth, what may we not infer from the ascension of Christ in the full integrity of His nature above all heavens with respect to the conversion and transformation and ennobling of this material? The nature and history of His person revealed the relations clearly between heaven and earth, between God and man, between the material and the spiritual. We cannot for a moment look upon the transformation and exaltation of Christ's nature as an isolated fact dissociated from the restitution and exaltation of all things spoken of in His Word. The history of Jesus as the second Adam belongs to, and is interwoven with, the very history of the earth. Man and Nature can never be dissociated. Nature fell with man's fall; Nature rises with man's resurrection; Nature is to be glorified in his glory. They together form but one sphere. Man's body is as integral a part of man's personality as his soul is, for a man is as much destroyed by the destruction of his body as he would be by the destruction of his soul. Man is only man in the integrity of that union, soul and body, and it was with soul and body that Christ ascended to heaven. Man's nature celebrates the marriage of the dust of the earth with the breath of God, and the second Adam as to His nature is like unto the first, the Son of Man but 'with power,' possessing the Spirit of God in unmeasured fulness. The nature with which He rose from the dead and ascended up into heaven was the same nature in which He was crucified, though glorified and swallowed up of life. Must we not say, then, that the body which ascended, in relation to the body which was crucified and laid in the grave, may illustrate the relation of the present heavens and the present earth to the new heavens and the new earth? And, in accordance with this idea, are there not every way most wonderful changes and transformations of which the ascension of Christ's body seems to be the fulfilment and crown, and also the first-fruits? The flower from its imprisoned bed, the insect from its grovelling form, light out of darkness, electricity from ponderable elements, the strange affinities of matter striving to break forth from their captivity, the unerring instincts of the animal life held, as it were, in bondage—all seem to point with prophetic finger to a future deliverance and an ennobled state and condition whilst meekly waiting, but with earnest expectation, with the whole creation for the deliverance and glorious liberty of the sons of God. And the enumeration of those changes and transformations which we have made are only such as are manifested and completed. Are there not others greater and hidden in the slow march of the elementary world in the creation which is going on, if I may so express it, that is the creation which groweth within the sphere of created elements in the deep bowels of the earth, and only revealed by her convulsions in the invisible heights of the heavens and in the

sea-worn cliffs, in the very stars which science discovers to us—changes by the transformation and conversion of this material which must go on in an ever-increasing ratio of progress all silently pointing to the new world—the new heaven, and the new earth, of which Christ's gathered and ascended body must be regarded as only the first-fruits, all together, these changes and transformations pointing His pathway to His throne with whom a thousand years are but as yesterday ?—*John Pulsford.*

Nature is Devout.

Nature teaches man the lesson of worship.

The aspect of Nature is devout. Like the figure of Jesus, she stands with bended head, and hands folded upon the breast. The happiest man is he who learns from Nature the lesson of worship.—*R. W. Emerson.*

God in Nature.

Museums should be regarded as libraries of works of God.

There is behind them, and anterior to their existence, *a thought.* There is a design according to which they were built, which must have been conceived before they were called into existence—otherwise these things could not be related in this general manner. Whenever we study the general relations of animals, we study more than the affinities of beasts. We study the manner in which it has pleased the Creator to express His thoughts in living realities, and that is the value of that study for intellectual man; for while he traces these thoughts as revealed in Nature, he must be conscious that he feels, and attempts—as far as it is possible for the limited mind of man—to analyse the thoughts of the Creator, to approach, if possible, into the counsels that preceded the calling into existence of this world with its inhabitants—and there lies really the moral value of the study of Nature; for it makes us acquainted with the Creator in a manner in which we cannot learn Him otherwise. As the Author of Nature, we must study Him in the revelation of Nature, in that which is living before our eyes.

But there is an argument now brought forward, which is very specious, and about which I will say a few words. Man knows how to modify animals. If he desires it, he has the means of doing it. And every gardener knows how to produce new fruits and vegetables. All these things can be done by men. And the argument is, that Nature has the same mode of procedure, and will accomplish the same objects. Mark the difference. In the one case men act with a purpose, and are watchful of the end. In the other it is accident and chance. Now, we have seen that throughout Nature there are combinations which give evidence of a plan; we have seen that there is an agency at work on a thousand-fold more powerful scale than any man in the farm or garden, but yet it is an agency. It is mind in both cases; and if man can improve his cattle, it is because he has mind, and the more intelligent a farmer is the more successful he will be. But if he leaves the weather and the seasons to make his plans, he will see that Nature in its wild elements will not improve his farm any more than Nature will produce any new race.

And so I say that Nature teaches us everywhere the direct intervention of one intelligent Being—supreme and all-powerful—who exercises a deliberate will, according to a fixed plan; and that we may see in the study of Nature another revelation of Him whom we have learned otherwise to love and adore; and that museums should be no longer considered

as libraries of works of Nature, but as libraries of works of God, in which we may read His thoughts, and become more familiar with Him as the Father of all things. As institutions meant for that purpose, I say that museums should receive the patronage of all civilized nations; and I hope to live long enough to see the time when every school shall have its little museum as it has now its little library.—*Professor Agassiz.*

The Changes of Nature.

Constant change but means ever-varying beauty.

Nature gives to every time and season some beauties of its own, and from morning to night, as from the cradle to the grave, is but a succession of changes, so gentle and easy, that we can scarcely mark their progress.—*C. Dickens.*

The Ever-Newness of Nature.

Childlike souls can find ever fresh delight in God's handiwork.

He who is in harmony with the Great Original must ever find a perennial freshness and inspiration in the contemplation of His works; for with him old passions have passed away, and therefore all beauty has become new. And so we find the religious element inseparably associated with the loftiest art; for the love of Nature is almost identical with that of truth. The greatest poets and artists, scientists and philosophers, the world has produced, were, in the truest and deepest significance of the expression, God-fearing men. The childlike Wordsworth, who amid his voluntary seclusion among the grander and more isolated realms of Nature saw the presence of Omnipotence in everything around him, could thank that human heart by which he lived that the lowliest things of this vast mysterious universe could bring him thoughts and emotions too deep for tears. Such men are children through all their existence; for purity dwells with eternal youth and never can grow old; deep thoughtfulness and simplicity are not antagonistic elements, but grow together like sister-trees in the garden of the mind; and thus it is that we find in men of the loftiest genius, like Newton and Wordsworth, a spirit so thoughtful, so reverent, and so wise, as to remind us of Him who never needed in His experience, though subject to our infirmities, the second birth of the soul; because heaven itself lay around His pure consciousness from the cradle to the grave—the gentle, suffering Saviour and everlasting Child.—*D. R. Williamson.*

The most glorious principle of nature, impressed upon its every object, Life and Death themselves are only other names for *Rejuvenescence;* the history of the world and of its contents, in all their variety and phases, is no more than the history of its operation; the one great poetic idea of the universe, all phenomena and splendour, spiritual as well as material, are but parts and elements of it, illustrating and adorning its different modes. Everywhere, since the first morning, has youth been incessantly bursting forth, and creation beginning afresh. Look at the sculptured pine-apple. Nature in miniature; upon its yellow ripeness ensues a beautiful tufted crown of leaves, promising and beginning the whole history over again, the true phœnix of Creation. The same beautiful onward growth appears conspicuously in several of the New Holland genera of Myrtaceæ, as Melaleuca, Metrosideros, Beaufortia, etc.; and a similar phenomenon in the cones of the larch, from the apex of which occasionally extends a leafy shoot. Everywhere, since the first morning, has youth been

incessantly bursting forth.—*L. H. Grindon.*

We should not only enjoy the beauties of Nature in travelling, but make much of those which come in our way on every-day occasions. Perhaps the short, hasty gazes cast up any day in the midst of business in a dense city, at the heavens, or at a bit of the sun amid buildings—gazes which partake almost more of a sigh than a look—have in them more of intense appreciation of the beauties of Nature than all that has been felt by an equal number of seers enjoying large opportunities of seeing, and having all their time to themselves. Like a prayer offered up in the midst of every-day life, these short, fond gazes at Nature have something inconceivably soothing and beautiful in them.—*Helps.*

Nature's Witness to God.

The argument from man's works to man, is fair when applied to God's works as revealing God.

It is strange that when we speak of a creative mind as the great First Cause our modern masters look on us with clouded brows. We are quite free to recognise the glory of the human mind in discovering physical laws, and free also to recognise the beauty of proportion in the universe—proportion of weight, of measure, of velocity, wherein these laws find their noble and harmonious expression. Though rather grudgingly, we are even allowed to recognise a certain harmony between the mind which suggests and ascertains the existence of these laws, and the external universe wherein they have their embodiment. But if we dare to say that inasmuch as it required an act of mind to discover them, an act of mind to enunciate them, and acts of mind to accept and verify them, so in all reason must it have required an act of mind to conceive them, an act of mind to embody them, whether in stone, or tissue, or solar rays, also an act of mind to erect them into operative laws, and that all these acts must have been ruled by a design —if we say this we are jeered at, and the jeer is called thinking. Nevertheless, we do say it; and while saying it, jeer who may, we feel that every fact in recorded experience cheers us with its amen; for of things unknown there is in all the range of human experience nothing more perfectly unknown than the setting of rules of proportion and methods of procedure without a mind to measure magnitudes and to devise plans, or without a purpose to which those plans have tended.

Finding, then, that our minds have in them a clear correspondence with the rules of proportion and methods of procedure embodied in the mighty works above, beneath, around, and within us—works infinitely greater and infinitely more minute than our powers could produce—we go on to say that all reason tells us that the correspondence between mind and those rules and methods cannot stop with our mind. On their upper surface as well as on their under one they must correspond to mind. The rules of proportion, the methods of procedure, embodied in physical nature and called laws, corresponding, as they do, to our mind, which knows them but in little part, and yet has to mark, learn, and conform to them, must surely correspond also to a mind that knows them all, and knows us, and knows whatsoever remains to us unknown. And by such a mind alone could these rules of proportion and these methods of procedure have been erected into laws governing with iron rule all unconscious agents, while at the same time, in respect of intelligent agents, wondrously serving the double purpose of laying foundations for their dominion over inert Nature, and of limiting

that dominion by impassable bounds.—*William Arthur.*

I would rather now look out on Nature—look, feel, and resign myself to the delight it kindles—than attempt to trace the steps by which this great happiness of the beautiful develops itself in the mind of man. God has built here not only for use or stability. Why should we scruple to call Him the Great Artist as well as the Great Architect? Look! the busy day is ended, and man rests from his work, and that sun that had lit him at his toil—oh, what make you of this splendour in which it sets? Does it not now light up the heaven for his wonder and his adoration?

Shall I not call Him Artist—grandest and most beneficent of artists—Him who placed the moon out yonder—there, in the distant space—and then drew the passing cloud before and under it? He made her orb thus ample, and placed it far off in space, and drew the nearer cloud slowly between us and it. How magnificent it is!

Suppose that to-morrow morning the sun should rise, inscribed across its face in letters brighter than its own light, and such as to be visible throughout the illumined half of the world, with the words, 'Holy! Holy! Holy! Lord God of Hosts, who was, who is, and who is to come.' Let this inscription be made intelligible in all languages, and among all nations. One would think that under that awful light, as it passed over the continents and seas, and from people to people, the dusky tribes of heathendom would quit their idols at once; that in the high marts of civilization, avarice, malice, and dishonesty, serpents writhing colossal in the hollow streets as in caves, would wither to ashes; that literature, politics, and art, on all their frozen hills, would feel the approach of a vernal season beneath this touch of supernatural fire; and that before the slanting rays had passed thrice round the globe, they would have peeled from off the burdened world something of the ulcerous growths of sin, and in time would turn into another channel the course of the dolorous and accursed ages.

To those who see with the secret eyes of science, the sun *is* thus inscribed; and not the sun only, but every natural object—the seas, the mountains, the forest arches, every lowliest violet, the human frame. —*Joseph Cook.*

Economy in Nature.

'There is no waste of power with the Almighty.'

There is an economy in Nature's miracles as well as in those of grace. We are not accustomed to think of frost and ice as affording evidences of benevolent design; on the contrary, we regard them with dread as elements of destruction and death. And yet for beauty and usefulness, for ministering to the corporeal wants and æsthetic tastes of man, they yield to no other objects of Nature. Examine under the microscope one of the flakes of snow that fall—so pure and white from clouds so black—and no lily or snowdrop can be more beautiful than that blossom of cold. It is six-leaved; it radiates on every side in the most exquisite crystalline forms, so ethereal, so spiritual, like the ghost of the flowers that perished in the summer, coming back again from heaven to earth. Ice is but a mass of starry crystals closely compacted together. When the rays of the sun are directed, by means of a lens, into a piece of pure ice, the most wonderful change is produced in its structure, clearly revealing the mode of its formation. Along the line which the concentrated sunlight traverses in the interior of the ice, hundreds of liquid flowers of six petals, sometimes isolated, and sometimes

grouped in bouquets, but all preserving with the utmost distinctness the starry outline, flash back the light like burnished silver, and form a spectacle of novel and entrancing beauty. And what can be lovelier than the glittering jewels with which the hoar-frost bedizens every leaf and spray of the woodland? or the translucent azure of the glacier crevasses with their long pendants of lustrous ice? There are beautiful things in winter as well as in summer; and we need the cold unearthly splendours of the one as much as the glowing living charms of the other to educate our sense of God's greatness in His works. But beauty is everywhere in Nature the flower of utility; and in the realms of frost this quality is most strikingly displayed. The covering of ice which seals up our streams and lakes prevents the water from being frozen to any considerable depth, preserves its inhabitants from destruction, and places it at all times within the reach of man.

The glaciers of Switzerland serve most important purposes in the economy of Nature. They are placed where they are by a wise and benevolent arrangement. They bring down the refreshing coolness of the Alpine summits into the hot and stifling valleys; they repress, in their calm and placid bosoms, the violence of the avalanche and the rage of the torrent; and carry within reach of man, in tamed and measured usefulness, forces which, if allowed to leap suddenly from the mountain-tops at their own fierce will, would convert some of the fairest regions of Europe into waste and howling deserts. From them all the great rivers of the Continent spring; and thus a constant and unfailing supply of water, in summer's drought and winter's frost, is provided for all the uses, commercial and domestic, of the highest civilization. The vapours that fall in the shape of snow on the Alpine peaks are collected and frozen in these gigantic reservoirs, and thus borne gradually and safely down the mountain-sides until they reach a point, often amid green fields and human habitations, where they remain stationary, the supply above and the waste below being exactly equal. At this point a full-bodied arrowy stream, like the Arveiron from the Mer de Glace, caused by the melting of the glacier in the warmer temperature, issues from a cavern in the ice, and flows down the valley, nourishing the meadows along its course. Turbid with mud, ground from the rocks by the glacier, it gradually, as it descends and becomes more tranquil, deposits this mud along its banks, which are thus continually shifting; and year by year new soil and new elements of fertility are imparted as far as the stream extends. The loss of the mountain is the gain of the valley; and from the ruins of the Alps, by this sublime agency, many of the most luxuriant meadows in Switzerland and Italy are formed. All this ought surely to convince us that God 'casteth forth His ice like morsels,' not aimlessly or at random, where it may work ruin and death, but with that gracious care and wise forethought for life and beauty which are so conspicuous in all the physical arrangements of Him whose 'tender mercies are over all His works.'

Yet more. These 'ice morsels' have been powerful instruments in ages past in shaping our earth. They have been, as they still are where they occur, Nature's giant sculptors. The mountain-ranges that were ejected from the burning depths of volcanoes into the freezing cold of the sky were ground down into smooth and flowing outlines by the sliding of glaciers over them. In the Scottish Highlands we can trace, by the unmistakable signs which they have left behind, the presence and operation of ancient glaciers. Our valleys are made

picturesque by their moraine-mounds, our hill-sides are strewn with their gray boulders, and our rocks are smoothed and grooved by their powerful chisels. The soft and rounded contour of our mountains, on which the effects of light and shade at noon are so exquisite, and whose quiet beauty steals into the heart and lifts it up to a region of immortal peace like their own, has been moulded by ice, passing from the high ranges of the interior outwards and seawards ages and ages ago. The glory of Lebanon itself was due to the ice morsels which God once scattered on its summits. The fragrant cedars had their roots in the moraines deposited in the Redisha Valley by glaciers that, under different conditions of climate, once occupied the upper regions of the mountain. Revelations like these, which modern science has made, open up new vistas of marvellous thought in the calm old Bible-subjects, and show to us how, by the most unfavourable means, in the fields of Nature, as in the sphere of human life, the All-Wise brings order out of confusion, and life out of death. Alpine flowers are warmed by the snow; the summer beauty of our hills, and the autumn fertility of our valleys, have been caused by the cold embrace of the glacier; and so by the chill of trial and sorrow are the outlines of the Christian character moulded and beautified. And we who recognise the loving-kindness as well as the power of God in what may seem the harsher and more forbidding agencies of Nature, ought not to be weary and faint in our minds if over our warm human life the same kind, pitying Hand should sometimes cause His snow of disappointment to fall like wool, and cast forth His ice of adversity like morsels, knowing that even by these unlikely means shall ultimately be given to us, too, as to Nature, the beauty of Sharon and the excellency of Carmel.—*Hugh Macmillan, LL.D.*

Religion in the Quiet Things of Nature.

Nature acts directly on the imaginative and spiritual faculties.

There is religion in everything around us—a calm and holy religion in the unbreathing things of Nature, which man would do well to imitate. It is a meek and blessed influence, stealing in, as it were, unawares upon the heart; it comes quietly, and without excitement; it has no terror, no gloom in its approaches; it does not rouse up the passions; it is untrammelled by the creeds, and unshadowed by the superstitions of man; it is fresh from the hands of its Author, glowing from the immediate presence of the Great Spirit, which pervades and quickens it; it is written on the arched sky; it looks out from every star; it is on the sailing cloud, and in the invisible wind; it is among the hills and valleys of the earth, where the shrubless mountain-top pierces the thin atmosphere of eternal winter, or where the mighty forest fluctuates, before the strong wind, with its dark waves of green foliage; it is spread out, like a legible language, upon the broad face of the unsleeping ocean; it is the poetry of Nature; it is this which uplifts the spirit within us, until it is strong enough to overlook the shadows of our place of probation —which breaks, link after link, the chain that binds us to materiality; and which opens to our imagination a world of spiritual beauty and holiness. — *John Ruskin.*

The Debt our Senses owe to Nature.

The mediate and temporary service rendered by Nature to man.

Under the general name of Commodity, I rank all those advantages which our senses owe to Nature. This, of course, is a benefit which is temporary and mediate, not ulti-

mate, like its service to the soul. Yet, although low, it is perfect in its kind, and is the only use of Nature which all men apprehend. The misery of man appears like childish petulance when we explore the steady and prodigal provision that has been made for his support and delight on this green ball which floats him through the heavens. What angels invented these splendid ornaments, these rich conveniences, this ocean of air above, this ocean of water beneath, this firmament of earth between?—this zodiac of lights, this tent of dropping clouds, this striped coat of climates, this fourfold year?

Beasts, fire, water, stones, and corn serve him. The field is at once his floor, his workyard, his playground, his garden, and his bed.

> 'More servants wait on man
> Than he'll take notice of.'

Nature in its ministry to man is not only the material, but is also the process and the result. All the parts incessantly work into each other's hands for the profit of man. The wind sows the seed; the sun evaporates the sea; the wind blows the vapour to the field; the ice, on the other side of the planet, condenses rain on this; the rain feeds the plant; the plant feeds the animal: and thus the endless circulations of the Divine charity nourish man.

The useful arts are reproductions or new combinations by the wit of man, of the same natural benefactors. He no longer waits for favouring gales, but by means of steam he realizes the fable of Æolus's bag, and carries the two-and-thirty winds in the boiler of his boat. To diminish friction, he paves the road with iron bars; and, mounting a coach with a shipload of men, animals, and merchandise behind him, he darts through the country from town to town, like an eagle or a swallow through the air. By the aggregate of these aids, how is the face of the world changed, from the era of Noah to that of Napoleon! The private poor man hath cities, ships, canals, bridges, built for him. He goes to the post-office, and the human race runs on his errands; to the book-shop, and the human race read and write of all that happens for him; to the court-house, and nations repair his wrongs. He sets his house upon the road, and the human race go forth every morning and shovel out the snow, and cut a path for him.

But there is no need of specifying particulars in this class of uses. The catalogue is endless, and the examples so obvious, that I shall leave them to the reader's reflection, with the general remark that this mercenary benefit is one which has respect to a further good. A man is fed, not that he may be fed, but that he may work. —*Ralph Waldo Emerson.*

Natural Laws.

Rightly viewed, the regularity of law is a declaration of the infinite wisdom and forethought of God.

There is something in the contemplation of general laws which powerfully persuades us to merge individual feeling, and to commit ourselves unreservedly to their disposal; while the observations of the calm, energetic regularity of Nature, the immense scale of her operations, and the certainty with which her ends are attained, tend irresistibly to tranquillize and reassure the mind, and render it less accessible to repining, selfish, and turbulent emotions. And this it does, not by debasing our nature into weak compliances and abject submission to circumstance, but by filling us, as from an inward spring, with the sense of nobleness and power which enables us to rise superior to them, by showing us our strength and innate dignity,

and by calling upon us for the exercise of those powers and faculties by which we are susceptible of the comprehension of so much greatness, and the best and noblest benefactors of our species, with whom we hold communion in thoughts, and participate in discoveries which have raised them above their fellow-mortals, and brought them nearer to their Creator.—*Sir John Herschel.*

If natural laws sufficed to produce things, they could and would make those common which are rare, and *vice versâ*. The balance and symmetry of Nature requires that certain things should always be *un*common, and others universal, or nearly so, and this can only be the case under a Divine government of the whole.—*L. H. Grindon.*

Nature has no independent activity, no causality of its own. God is the only independent existence, and He is the Cause of all causes. He alone hath life in Himself. Proximately, the universe and all that it contains is law-governed; but it is at the same time fundamentally and essentially God-governed. Animals and plants, in their vital processes, the external world and all its changes, alike declare a Divine beginning. God it is who displays the manifold lovely phenomena which render the earth, the air, the sea, and their vicissitudes, pictures so vivid of human experience. The tossing of the white-crested waves; the gliding of the clouds before the wind; the daily illumination, and the morning and evening painting of the sky; the glitter of the stars; the rainbow—these and all other such things come of the watchful and benevolent activity of our living Father in the heavens, who is never a mere spectator, much less an indifferent one.

Nature's Appeal to All.

All hear the voice of Nature, but ever varied are the responses Nature receives.

This world of Nature is meant for all. The same sun shines on the evil and the good, and the same rain rains on the just and the unjust. The same ground is under General Pierce and his pig, and the same heavens are over the astrônomer and his dog; and dog and astronomer, pig and president, all live on, live under, live in the same natural world, and the All-Bountiful is Father and Mother to them all—not over-honouring the astronomer, not undervaluing the dog or the swine. And yet what a different world it is to pig and president, to dog and astronomer! To such as look only at the lower shelves, it is a dull, hard, prosy world. To those who reach up to fashion and finery, to the knick-knacks of Nature, it is a dainty show of pretty things, a sort of great Vanity Fair which Mrs. Jezebel and Mr. Absalom are to adorn and make themselves comely in. To others, who see the great use in the power of things, the great loveliness in the beauty of things, the great wisdom in the meaning of things, it is a serious world, very serious; but a lovely world, very lovely; and a Divine world, very Divine—full of God's power, God's wisdom, God's justice, God's beauty, and God's love, running out into the blossoms of the ground and the blossoms of the sky; the whole universe a great manifold flower of God, who holds it in His own right hand.—*Theodore Parker.*

To the undevout Nature is simply a workshop; to the Christian it is a voice; to the scientist who strives, waits, plods and pries, she grudgingly yields up rich knowledge of her wonderful construction and powers. To the saint she opens at once

the inner chamber of her most hallowed mysteries and speaks of her Creator God. But when the saint is also a man of science, there are ten thousand tongues mute to others, with which she whispers the goodness and greatness of the Almighty.—*H. C. McCook, D.D.*

Order of the Cosmos.

'Order is heaven's first law.'

This order stretches far abroad as readily as it operates in one microscopic animalcule, exhibiting order between the earth and other worlds—such order that, though this home of ours is always being hurried sightless along a path nowhere traced, and though sightless globes are rushing on the one hand, and sightless globes rushing on the other, yet do they all find their way, and so perfectly keep time, that the human mind calls their combined action harmony. Finally, the mind sees that order between us and those distant worlds is upheld, not only in respect of the mechanical movements just referred to, but in the sensitive relations of organic life—such order that our corn sprouts in direct dependence on a world distant from ours by millions and tens of millions of miles; and whether water or wind drives the mill that grinds the corn, the water runs and the wind blows immediately under the influence of that other world, which, so far as we know, has within its own bounds no miller waiting to grind, and no eater asking for bread. This order between the inanimate sun and inanimate fields evidently is not ordained to terminate with the fields, but is aimed at a point farther on, where order must be kept up, not only between the two worlds, but between both of them and beings of fragile mould, who can exist only by virtue of complex harmonies being sustained between themselves and the earth below them and the sun above them. Yet such order is actually maintained that, frail as is the foot of a babe, it is set down in restful tranquillity upon a globe that is at the time whirling, rushing, and internally on fire; and though the inlet to the human eye is one of the smallest of openings, and the sun is the largest mass in our system of worlds, so good is the adjustment between these two that, through an opening which a pin's head could not enter, come in upon us noble delights, revelations of all but infinite significance, and almost everything that can be called scientific knowledge. So good is the order that, little competent as seems the inlet of the eye to receive communications from across lapses of blank space so long that a line stretching from here to the sun would fall farther short in an attempt to measure them than would a baby's finger in an attempt to measure an Alp, yet through that inlet are those communications delivered, until, whether in shepherd or astronomer, the eye becomes the meeting-place of many worlds.—*William Arthur.*

The Sabbath Rest of Nature.

'My Father worketh hitherto, and I work.'

My Father is growing grass for the cattle, and ripening grain and fruits for the service of man, all the Sabbath day. His tides flow, his winds blow, and the benign influences of His Spirit never suspend their operation. Jesus has corrected for ever the Jewish notion that the rest which God is said to have entered into at the completion of a certain work in our planet means cessation from work. It means rather satisfaction at the work done. Infinite space is our Father's work-room, in which He is ever forming new worlds and renewing old worlds.

New worlds and new men are but beginnings of an endless series of works. The birth of every human babe is a greater work than the cooling and condensation of the too intense nebular forces, in the formation of new suns and planets. Souls are the worlds of His love. Without intermission He works in their affections and thoughts. Ever and ever He is leading forth new springs and new summers in His sons and daughters. He is even now preparing to suppress and supplant the present form of our nature, by involving a higher form within us. And by-and-by He will evolve what He is now involving. His ceaseless activity will never allow our life to become tame and insipid. The evening of one new order of experiences will always lead to the morning of a new order. The tranquil pause at the termination of an age is the birth-time of new powers for a more glorious age.—*John Pulsford.*

The Oneness of Nature.

A valuable proof of the unity of the Creator.

The forces of Nature are mutually convertible. The forms of Nature have mutual likenesses. The whole universal kingdom is seen in the structure of a grain of sand; the whole vegetable kingdom in the form of a single leaf; the whole animal world in the construction of a single rib. Flowers are transfigured sunbeams; and colour, heat and sound are but modes of molecular motion. That which we find in the whole we find over again in every part. The climates, zones, seasons and products of the whole earth we find epitomized on a single tropical snow mountain; and the whole earth is like two great mountains, set base to base at the equator, with their tops at either end covered with the arctic and antarctic snows. The climates and seasons, with their vegetable and animal productions, were distributed in geological time, as we find them distributed in geographical space. Each element has counterparts of every other element. The sea repeats the mountains and valleys of the earth in its waves, the rivers in its currents, and the trees and flowers in its ocean gardens. Animals resemble plants; plants possess analogies with animals. The globule of blood and the rolling planet are one. Buffon said that there was but one animal; and Faraday expressed his conviction that in the end there will be found but one element with two polarities. Owing to the imperfection and limitation of our powers, we are obliged to deal with fragments of the universe, and to exaggerate their differences. But the more profound and varied our study of the objects of Nature, the more remarkable do we find their resemblances. And we cannot occupy ourselves with the smallest province of science without speedily becoming sensible of its intercommunication with other provinces. The snowflake leads us to the sun. The study of a lichen or moss becomes a key that opens up the great temple of organic light. If we could understand, as Tennyson profoundly says, what a little flower growing in the crevice of a wayside wall is, root and all, and all in all, we should know what God and man are. And the same unbroken gradation or continuity which we trace throughout all the parts and objects of our own world pervades and embraces the whole physical universe—so far, at least, as our knowledge of it at present extends. By the wonderful discoveries of spectrum analysis, we find the same substances in sun, moon and stars which compose our own earth. The imagination of the poet is conversant with the whole, and sees truth in universal relation.

He attains by insight the goal to which all other knowledge is finding its way step by step. And the Christian poet and philosopher, whose eye has been opened, not partially, by the clay of Nature's materials, worked upon by human thought so that he sees men as trees walking, but fully and perfectly, by washing in the fountain opened for sin and uncleanness, whose pure heart sees God in everything, and in God's light sees light—he stands at the shining point where all things converge to one. Wherever he turns his inquiring gaze, he finds 'shade unperceived so softening into shade, and all so forming one harmonious whole,' that not a link is wanting in the chain which unites and reproduces all, from atom to mountain, from microscopic mass to banyan-tree, from monad up to man. And if the unity of the tabernacle proved it to be the work of one designing Mind, surely the unity of this greater tabernacle, this vast cosmos, with its myriads of parts and complications, proves it to be no strange jumbling of chance, no incoherent freak of fortuity, but the work of one intelligent Mind having one glorious object in view.—*Hugh Macmillan, LL.D.*

Nature is a vast temple, down whose glorious aisles there floats the breath of the Divine. Perfection has laid the foundation and built up the stately edifice. On ceiling, arch, pillar and floor we find it—the result of all. Walk here, as on consecrated ground, for we cannot step where God's footsteps are not to be seen. Examine everywhere if the whole is not beautiful as are the parts—beauty without flaw—order without a break—profusion without waste; while immutable law maintains the whole and preserves the harmony unbroken.

But while we love and revere, let us not worship; for beyond and above He dwells who enclosed beauty in a material form for man. Nature is but the outward robe of the thoughts of the Divine, but it is not in itself Divinity. Therefore follow on to know the one great Thought—the life of all, that our life, our thoughts may beat in responsive harmony.—*Louisa Mannering.*

The Heart of Nature.

There is rest for souls in scenes of silence and solitude.

It is very good at times to get away into silence and solitude. To get away from all the noise and struggle of man, with his arts and sciences, and magnificent schemes, so often abortive, and his poor little space of anxious, self-conscious years, and his mixed motives and feverish efforts. To get away beyond all histories, with their sounds of wailing and battle, their stains of sin and of blood; beyond all the philosophies, with their vain attempts to square the circle and reconcile that which can never be reconciled. . . . Back, back to the great serene heart of Nature—a heart beating with primal and exhaustless energy, yet calm and restrained; filled with the rapture and repose of limitless power and victorious attainment. It is good to get back and lie on the warm bosom of the Eternal Mother, the folds of whose garments are the high mountains, whose feet are set in the laughing ocean, and whose life is the life of the world; to lie there, while the soul slips away from the sense of its own paltry joys and sorrows, from the narrow hopes and fears of the individual lot; to be made one with the glorious order of created things, the flesh and spirit no longer conscious of weary fightings and divisions; to dream of the everlasting mysteries of birth and growth, and of the fulness of strength and of the failing of strength, and of decay—and of the

mystery of transmuted force, of life again returning out of death, to begin once more the ceaseless round of existence anew; to dream of the mystery of night and morning, summer and winter, seed-time and harvest, rain and shine, while through all the countless ages the Eternal Wisdom and Goodness broods for ever over the broad, bright land and sea. 'What is man, that Thou art mindful of him?' Get back, back to the Mother of all, and listen—peradventure she may speak to you.—*Lucas Malet.*

The Divine Unity in Nature.

The harmony of Nature implies one creative, ruling Mind.

Those who believe in a Divine unity pervading all Nature, must imply that in the midst of the infinite complexity and variety of the universe there is everywhere to be recognised a grand law and order of Nature—a method, a plan and harmony in the great whole, which must consequently be traceable through all the parts. But whose and whence is this great law? Is it indeed a reality? Are all things fitted to each other, part to part, law to law, force to force, throughout the infinite depths of the microscopic disclosures, throughout the infinite exuberance of Nature's grandest provinces, throughout all space and all duration? Do all things work to meet each other? Is every several life-cell, each organic fibre, moving, tending, developing, making escapes or overtures, as if a separate angel of unerring sympathy and insight, of illimitable plastic skill and power, of creative energy and perfect providence, inhabited, inspired, and actuated it? Is it so that the man of science, who enters into communion with Nature's actual life, and movement, and purpose, seems to see and feel divinities, unrestingly, unweariedly, in silent omnipotence, in infinite diffusion, everywhere at work, so that the reverent inquirer and gazer to whom this wondrous spectacle is unveiled, could almost, in his own pantheistic sense, adopt the invocation of Coleridge, and address the powers he sees at work in such words as these:

'Spirits that hover o'er
The immeasurable fount,
Ebullient with creative Deity!
And ye of plastic power that, interfused,
Roll through the grosser and material mass
In organizing surge! Holies of God!
(And what if monads of the Infinite Mind?)'

Is it so? I ask. Then, what does such real harmony and such universal correspondence and providence as this imply? Surely, we must perforce adopt one of two alternatives. If we refuse to believe in one ruling, organizing, creative Mind, one living, universal Mind and Will and Providence, which works through all, we must endow each separate being, or at least each form of life, with creative energy, illimitable and all-answering sensibility and sympathy, unerring wisdom, and veritable will.—*J. H. Rigg.*

Nature abhors a Vacuum.

Grace ever waits, ready to fill up all needs.

Grace abhors a vacuum as Nature does; and, just as the endless procession of the waves rises up on to the beach, or as the restless network of the moonlight irradiation of the billows stretches all across the darkness of the sea; so that unbroken continuity of strength gives grace for grace according to our need, and as each former supply is expended and used up, God pours Himself into our hearts anew.—*A. Maclaren, D.D.*

Universal Law in Nature.

The 'supernatural' to man is the working of laws previously unapprehended by him.

Everything that occurs in Nature is the result of some law instituted to bring it to pass. No phenomena are in opposition to the laws of Nature, nor are the laws of Nature ever set aside in order to bring about conditions or circumstances that would be more conducive to man's welfare than the operation of the original laws themselves. Even 'miracles' are, no doubt, in strict conformity with the primitive and immutable scheme of Divine government, which has maintained the universe in its integrity and sublime order ever since the time of that sweet aurora, when the 'morning stars sang together, and all the sons of God shouted for joy'; and we call them 'supernatural,' simply because they are effected, not by suspending the laws, but by exhibiting the unaccustomed powers of Nature. For there is a spiritual law within, and thus above, every natural law, and which, being necessarily in perfect harmony with it, may dignify and expand its operation, but can never contradict it. If we feel disposed to regard miracles as works requiring the suspension of the laws of Nature, it is again simply because we do not understand—and in this our present life, probably, cannot so understand—the immensity and fulness of the laws of Nature, nor see how occurrences apparently quite at variance one with another, may yet be in harmony and be quite compatible when viewed by the light of some grand and omnipotent principle which originates and includes both. —*L. H. Grindon.*

Delight in Nature.

Nature is the living garment in which God has robed Himself.

There is a rapture in gazing on this wondrous world. There is a joy in contemplating the manifold forms in which the All-Beautiful has concealed His essence—the living garment in which the Invisible has robed His mysterious loveliness. In every aspect of Nature there is joy: whether it be the purity of virgin morning, or the sombre gray of a day of clouds, or the solemn pomp and majesty of night; whether it be the chaste lines of the crystal, or the waving outline of distant hills, tremulously visible through dim vapours; the minute petals of the fringed daisy, or the overhanging form of mysterious forests. It is a pure delight *to see*. It is true, even literally, that the darkness reveals God. Every morning God draws the curtain of the garish light across His eternity, and we lose the Infinite. We look down on earth instead of up to heaven, on a narrower and more contracted spectacle—that which is examined by the microscope when the telescope is laid aside—smallness instead of vastness.—*F. W. Robertson.*

Sympathy with Nature.

There is peculiar suggestion to spiritual feeling in dawn and in sunset.

Whatever beauty there may result from effects of light on foreground objects, from the dew of the grass, the flash of the cascade, the glitter of the birch trunk, or the fair daylight hues of darker things (and joyfulness there is in all of them), there is yet a light which the eye invariably seeks with a deeper feeling of the beautiful—the light of the declining or breaking day, and the flakes of scarlet cloud burning like watchfires in the green sky of the horizon; a deeper feeling, I say, not perhaps more acute, but having more of spiritual hope and longing, less of animal and present life, more manifest, invariably in those of more serious and determined mind (I use the word serious, not

as being opposed to cheerful, but to trivial and volatile), but, I think, marked and unfailing even in those of the least thoughtful dispositions. I am willing to let it rest on the determination of every reader, whether the pleasure which he has received from these effects of calm and luminous distance be not the most singular and memorable of which he has been conscious; whether all that dazzling in colour, perfect in form, gladdening in expression, be not of evanescent and shallow appealing, when compared with the still small voice of the level twilight behind purple hills, or the scarlet arch of dawn over the dark troublous-edged sea.

Mind and Nature.

'Nature, we find, is ever as is our sensibility.'

On this power, an all-dissolving unity, the emphasis of heaven and earth is laid. Nature is brute, but as this soul quickens it; Nature always the effect, mind the flowing cause. Nature, we find, is ever as is our sensibility; it is hostile to ignorance; plastic, transparent, delightful to knowledge. Mind carries the law; history is the slow and atomic unfolding. All things admit of this extended sense, and the universe, at last, is only prophetic, or, shall we say, symptomatic, of vaster interpretation and results. Nature an enormous system, but in mass and in particle curiously available to the humblest need of the little creature that walks on the earth! The immeasureableness of Nature is not more astounding than his power to gather all her omnipotence into a manageable rod or wedge, bringing it to a hair-point for the eye and hand of the philosopher.

Here stretches out of sight, out of conception even, this vast Nature, daunting, bewildering, but all penetrable, all self-similar—an unbroken unity—and the mind of man is the key to the whole. He finds that the universe, as Newton said, 'was made at one cast'; the mass is like the atom, the same chemistry, gravity, and conditions. The asteroids are the chips of an old star, and a meteoric stone is a chip of an asteroid. As language is in the alphabet, so is entire Nature—the play of all its laws—in one atom. The good wit finds the law from a single observation—the law, and its limitations, and its correspondences—as the farmer finds his cattle by a footprint. 'State the sun, and you state the planets, and conversely.'

Whilst its power is offered to his hand, its laws to his science, not less its beauty speaks to his taste, imagination, and sentiment. Nature is sanative, refining, elevating. How cunningly she hides every wrinkle of her inconceivable antiquity under roses, and violets, and morning dew! Every inch of the mountains is scarred by unimaginable convulsions, yet the new day is purple with the bloom of youth and love. Look out into the July night, and see the broad belt of silver flame which flashes up the half of heaven, fresh and delicate as the bonfires of the meadow-flies. Yet the powers of numbers cannot compute its enormous age—lasting as space and time—embosomed in time and space. And time and space—what are they? Our first problems, which we ponder all our lives through, and leave where we found them, whose out-running immensity, the old Greeks believed, astonished the gods themselves; of whose dizzy vestitures all the worlds of God are a mere dot on the margin; impossible to deny, impossible to believe. Yet the moral element in man counterpoises this dismaying immensity, and bereaves it of terror.—*R. W. Emerson.*

The Might of Nature.

It does not appal us because we believe in infinite goodness.

Why do we not tremble with fear amidst the swiftness and

power of Nature's tremendous agents? It is because we believe in an infinite order—an infinite goodness. It is a marvellous confidence. It is a solemn thing to live as we do—to live thus as children of faith. We recline upon the bosom of this tremendous Nature, where there is power enough within the wave of our hand to tear us ten thousand times in pieces, as confidingly as in the lap of a parent. Our knowledge of things around us is small, but our faith is boundless. To the little child Nature is a stranger, and has some rough points about her: but how soon does he come to look upon her as a mother! See him basking in the sunshine, bathing in the water, running in the fields, with his bright locks floating in the wind: everywhere he feels as if kind arms were around him. He confides in the uniform beneficence of Nature. If he had studied her millions of years he could not be more sure. How knoweth he this so surely? It is because, not you nor I, but God, hath taught that weak and innocent child. 'And thus,' says Chalmers, with equal justness and beauty, 'a truth—the uniformity of Nature, would seem to require Omniscience for its grasp, as co-extensive with all Nature and all history—is deposited by the hand of God in the little cell of a nursling's cogitations.'—*Orville Dewey.*

Nature, for the most part, like the Roman god Janus, is two-faced. When gazing upon one face we see radiant smiles; looking upon the other we behold frowns. From the one face go forth utterances of gladness and beneficence, from the other voices of terror and destruction. To-day we gaze upon the clouds with admiration of their beauty and gratitude for their fruitful showers; to-morrow they gather in black masses that utter terrifying thunders, and flash forth lightnings to destroy. The rains and rivers bring us blessings, but their floods at times blight as with a curse. The winds are our helpful servants, but they beat us with the terrible tornado and desolating storm. The snows greet us with many forms of beauty and beneficence, but they carry in their bosoms the elements of death. Even the sunlight, harbinger of love, source of unnumbered blessings, beats upon the world in the fierceness of a tropical summer, smiting men by day.—*H. C. McCook, D.D.*

Nature and her Children.

'*Nature is the mother of mothers.*'

Her versatility is endless; her offspring are, like her, 'of every kind'; and her works, as well as progeny, are most contradictory and confounding.

Every now and then, awfully wild forces break forth from her, and, following close upon these, the gentlest and loveliest operations. *Here*, mile after mile, we find rocks, not stratified and regular, but lying all loose, and in horrible disorder—witnesses of terrible convulsions, which must have shaken the very globe to its centre. But instantly she is busy at work to clothe her desolations with a garment of beauty. *There* blooms a beautiful flower—one would think it must be as innocent to the taste as it is pleasant to the eye; but no, the essence of that lovely form is a virulent poison. Take it into your system, and it rapidly accomplishes the stages of its progress, from alarm to agony, and from convulsive agonies to the extinction of life. In another place you will see strange, fascinating Nature displaying her delicate green, mossy carpet, very tempting to walk upon, but if you walk there she will swallow you up in her morass. In another latitude you will find a delightful climate, rich verdure,

delicious fruits; but deadly serpents, loathsome vermin, horrible scorpions, are there also. Nature knows nothing about an unmixed good. Not only her trees, but her works and her creatures, are all 'good and evil.'

We are Nature's children. Nature has brought us forth. Nature keeps us alive. But, after treating us to a few more bright summers, she will grind us all to dust again. Are we better than Mother Nature? By no means. We are Nature—children of the common mother. Nature offers no escape to her children. There is no escape *in Nature* for the children of wrath. Faith in Nature is like the poor bird's faith in the snake, which with his eyes fascinates her, until she drops into his mouth.—*John Pulsford.*

The Universal Beauty of Nature.

The charm of Nature is a message concerning God given to man.

For man's eye alone, of earthly creatures, is that which no other eye can take in—the universal beauty of Nature. The azure vault; the snowy islands of cloud in the June heaven, and gleaming cloud-mountain masses of the September sky; the glories of sunset; the woodlands in their delicate spring raiment or gorgeous autumn robes; the purple moors; bowery glades and rocky glens, where torrents pour down their mingled snow and silver; tropical forests; mountain-ranges, with their pastured slopes, rugged peaks and precipices, awful solitudes of snow and ice, rosy with dawn, crimson with sunset, or golden green and silver gray in the dazzling shimmer of noon; the expanse of rich plains, through which wind majestic rivers, whose surface sunshine, shower, moonlight, change of season, deck with versatile charms; the sea, with its ever-shifting moods of peaceful grandeur and awful night; the lavish ornament and infinitely-varied grace of blossom and leaf, bird, beast, and insect, mossy rock and flashing gem—all these revelations of beauty, not strewn at random here and there without concert, but each enhanced by its native setting, all by harmonious blending or vivid contrast heightening one another's effect and swelling the general sum of beauty: all these exist for man alone. Transient to his eye, they are eternal in his memory. Imagination garners the scattered harvest of perishing beauty. Genius gives it immortality. Silently it sinks into our heart, glorifies our thoughts; entwines itself with our affections; inspires and nurtures one of the purest and most elevating of passions—the love of Nature; and clothes with tender dignity and mysterious power the precious memories of earlier days and of national history.

Is there no message in all this for man's reason, as well as for his taste and his emotions? Is beauty a revelation simply of man's capacity to create it by beholding it? Or does not every man who can bring to Nature a painter's eye or a poet's heart, divine in all that glorious vision the thought and handiwork of an infinitely greater Artist and Poet? Natural beauty bears all the tokens of the most elaborate design; and the designed production of beauty so transcendent, ranging through every phase of loveliness from the exquisite refinement of the most delicate ornament to that sublimity in which beauty passes into awe, surely bespeaks a Mind of inconceivable wealth and grandeur.—*E. R. Conder, M.A.*

The Love of Nature.

Love gives to souls a real possession in Nature's scenes.

To me the sky would be no brighter, the air no more exhilarating, the wide-spread view no

more varied or beautiful, if I possessed these rich acres instead of merely having liberty to roam through them. The love of Nature is a precious gift—an endowment inalienable, that we may have and hold with little worldly pelf. In her face is peace; on her bosom is rest. Have we a grief? Let us carry it out to her, and she will bury it, rain gentle rain upon its grave, and hide it under spring flowers. Have we a sordid care? She will soothe its puny fret, and show us how small it is and how unworthy, by the thousand better things that are given us to enjoy. Are we poor? She smiles on us as warmly as on the wealthiest; living, she shuts out no beauty from our patient eyes; dying, she wraps us as closely, folds us as tenderly, as if we came forth from a palace, and counted kin with the proudest of the world. 'A little earth for charity' is our last need and her last dole. There lie we—all low, and all equal, even in men's sight. Perhaps in the eyes of angels there are no such wide distinctions amongst us now as it would seem, though some walk in rags and others go clad in purple; though some labour early, and late take rest; and others, like the lilies of the field, need neither toil nor spin.—*Holme Lee.*

The Serenity of Nature.

Nature keeps on her beneficent ministries, unaffected by the struggles and passions of human lives.

Consider the impassive serenity of Nature through all the struggle and anguish of life. There are times when this serenity becomes dreadful, and maddens men. Is there no pity there, they ask, for the throes that are rending us? Is all hard and impassive throughout the universe? Do the stars everywhere rise and set so calmly over the storm and agony of life? It seems to us terrible that Nature should hold her accustomed order, that flowers should bloom, and stars should shine, and moonlight flood the air, when the Lord, who made, who rules the universe, was dying, in the form of a servant, the death of a slave. We should have watched for the signs of the universal groaning and rending of creation in sympathy with the groans and death-pangs of its Lord. We should have expected the whole framework of Nature to shiver into fragments and to strew the wreck as a pall upon His sepulchre. No; in the place where He was crucified there was a garden. The flowers never lifted their heads more gaily in the sun than on the morning of the crucifixion, the moon never shed a brighter flood of lustre than that which streamed over His grave.

And it is ever thus. It is a part of the deep mystery of Nature and of life. A mother who has watched night long the death-struggles of her darling, who in the morning has gone home, looks bitter reproach at the sun rising so calmly on her agony. The east flashes into rosy splendour, the birds carol their gayest strains, the air is musical with the hum of life, while her heart is breaking, and the night has settled over her inner world. Nature is pitiless, she quickens not a pulse in sympathy with our passion, she hushes not a song in pity for our pain. We may come forth to a new life, we may go down to dark death; she cares not. We may blow thousands of earth's best and bravest into fragments in the storm of battle; she buries them calmly, and next year she reaps her richest harvests from their graves.

And men madden under this indifference. Is it, they ask themselves wildly, the mask of the indifference of God? The pagan sees behind it a malignant demon, mocking at his pain, and pouring contempt upon his life. Sympathy

man pines for. He can bear extremities, if sustained by sympathy and love; but Nature knows no sympathy. Our sadness, our gladness, stir not a pulse, claim not a sigh. She attends our gay occasions with flowers and festal music; she breathes the same music, and scatters the same flowers over our graves.

Let us thank God that it is so. The garden blooms on, the cross has vanished, while the tradition of it has become the most sacred and blessed possession of mankind. The sun shone as calmly on the morrow as on the morning of the crucifixion. The quiet business of Nature goes on, unhasting, unresting; it is untroubled by the tramp of armies, by the overthrow or reconstruction of the greatest empires of the world. And God be praised for it!—pain and storm, strife and anguish, birth and death, are for time; order, beauty, life, are for eternity. The sun shines gaily on the morrow of our anguish, and we writhe under it; but the sun shines on, and we come to delight in it, and we bless the constancy which brings it forth morning by morning, exulting out of its chamber, to prophesy to us of the world where the sunlight is eternal.

And Nature is right. She will not bewail our calamities, as though they were irreparable. She smiles and sings as she re-weaves for us the threads of our broken purposes, or heals the bleeding tendrils of our hearts. Why should Nature weep and moan, and stay her benign and beautiful processes, when she knows that the stroke which we think is crushing us is a benediction? Nature is so constant because God is so constant—so constant in His purposes to transmute suffering into glory, and moan into song. Of this the sunlight and the garden, and the calm procession of the seasons, are His witnesses.—*J. Baldwin Brown.*

The Soothing Influences of Nature.

Nature displays benevolence toward all her productions.

Those who devote themselves to the peaceful study of Nature have but little temptation to launch out upon the tempestuous sea of ambition; they will scarcely be hurried away by the more violent and cruel passions, the ordinary failings of those ardent persons who do not control their conduct; but, pure as the objects of their researches, they will feel for everything about them the same benevolence which they see Nature display towards all her productions.—*Cuvier.*

The Religiousness of Nature.

Christ teaches us to find lessons of trust in a single flower.

It is truly a most Christian exercise to extract a sentiment of piety from the works and the appearances of Nature. It has the authority of the sacred writers upon its side, and even our Saviour Himself gives it the weight and the solemnity of His example: 'Behold the lilies of the field; they toil not, neither do they spin, yet your heavenly Father careth for them.' He expatiates on a single flower, and draws from it the delightful argument of confidence in God. He gives us to see that taste may be combined with piety, and that the same heart may be occupied with all that is serious in the contemplations of religion, and be at the same time alive to the charms and the loveliness of Nature.—*Dr. Chalmers.*

Nature and Manufactures.

Man's skill is spent in using and guiding Nature-forces.

Does Nature nothing for man in manufactures? Are the powers of wind and water, which move our

machinery and assist navigation, nothing? The pressure of our atmosphere and the elasticity of steam, which enable us to work the most stupendous machines—are they not the gifts of Nature?—to say nothing of the effects of the matter of heat in softening and melting metals, of the decomposition of the atmosphere in the process of dyeing and fermentation. There is not a manufacture which can be mentioned in which Nature does not give her assistance to man, and give it, too, generously and gratuitously.—*David Ricardo.*

Nature's Secret.

'*It corresponds with the immortal, the imperishable, the Divine, in man.*'

What is the secret of Nature? What the powerful charm that attracts and surprises when gazing on the varied face of Creation? Can it be defined, explained, or communicated from man to man? Yes, always in a greater degree to those who have already experienced the stirrings of the Divine life, however faintly, and in whatever remote recess of the inner being; but never to the cold, selfish heart, the materialistic mind.

The mountain range, the heights snow-clad and sky-piercing, which rise tier above tier, and fill the thoughtful spirit with overmastering wonder and solemn joy, only tend to depress and sadden the worldly soul which is self-centred, and spends its whole being on the frivolous interests of the passing hour.

The gorgeous sunset glow, the wild sweep of the tempest, the weird influence of the evening shadows, the low moan of the night wind, which by turns awaken in the breast of him to whom Nature can truly minister tender holy memories and aspirations, martial or ecstatic thoughts—leave, as they come and go, the worldly heart, all unchanged, unsoftened, unimpressed, for if such scenes and sounds are felt at all, the fancy it is *alone* that works on them, and the next moment they will be forgotten; while by the spiritual mind all are assimilated and form its nutriment, strengthening, enriching, and instructing it. What greater boon can we confer on our children after leading them to the Christ of Revelation than to cultivate in their young hearts a love of the beautiful and wonderful in Creation?

What a blessing to the nation and the circle to which they belong are large-hearted, loving men and women, with deep intuitions, wide sympathies, and reflective minds! and how can we better develop such in our youth than by placing them early in contact with the lovely and the marvellous in Nature, gently seeking to imbue their young spirits with these glorious influences?

As the flower drinks in the sunlight and the dew, so will the young life open out to receive impressions which, watched and rightly guided, will lead the soul upward step by step to Him by whom all glory and beauty in the worlds of mind and matter exist.

May we not say that the secret of Nature is in its correspondence with the immortal, the imperishable, the Divine in man? Where death reigns—the death of sin and selfishness—Nature is silent, or she appeals *only* to the imagination.

One of our modern thinkers has concluded that prior to man's spiritual illumination and emancipation his nature is dual only, and in fact the opinion is expressed that when our first father fell he lost by sin the spiritual likeness to his holy Creator, and became a twofold being, consisting only of body and soul—that is, the animal existence and the soulish or carnal mind; the nature becomes again tripartite on the reception of Divine light—the man is renewed . . . after the image of Him that

created him, so he understands and enters into God's design, which is to draw man's spirit to a fuller comprehension of His being by the manifold influences of the world in which he breathes and moves.

If this be so, Nature's secret is only revealed in its wondrous magnitude to him who seeks through revelation the Divine illumination. There are spurious spirit-lights, Will-o'-the-wisps, which lead to false ideas of the Creator, and cause no real communication to be established between the human and Divine. To the man, then, who bows his intellect into the dust before the advance of Nature's true Monarch, even before Him who blended with the weakness of man the glory of God, who took for signs and symbols of His spiritual kingdom the winds, the waters, the growth of lilies, and golden ears of corn—to the recipient of the Christ Nature opens wide her arms and heart, and reveals her innermost life, as corresponding with his needs, his desires, his aspirations; he finds her a sure means of access, an ever-open door, through which he can pass into the presence of the Eternal, and obtain ever deeper and deeper revelations of the character of God.—*Laura L. M'Lauchlan Backler.*

Nature's Melody.

The varied voices of Nature blend into ever-soothing harmony.

The gold of the sunset had gilded up the dark pine-tops, and disappeared, like a ring taken slowly from an Æthiop's finger; the whip-poor-will had chanted the first stave of his lament; the bat was abroad; and the screech-owl, like all bad singers, commenced without waiting to be importuned, though we were listening for the nightingale. The air had been all day breathless; but, as the first chill of evening displaced the warm atmosphere of the departed sun, a slight breeze crisped the mirrored bosom of the canal, and then commenced the night anthem of the forest, audible, I would fain believe, in its soothing changes, by the dead tribes whose bones whiten amid the perishing leaves.

First, whisperingly, yet articulately, the suspended and wavering foliage of the birch was touched by the many-fingered wind, and, like a faint prelude, the silver-lined leaves rustled in the low branches; and, with a moment's pause, when you could hear the moving of the vulture's claws upon the bark, as he turned to get his breast to the wind, the increasing breeze swept into the pine-tops, and drew forth from their fringe-like and myriad tassels a low monotone, like the refrain of a far-off dirge; and still, as it murmured (seemingly to you sometimes like the cathedral floor), the blast strengthened and filled, and the rigid leaves of the oak, and the swaying fans and chalices of the magnolia, and the rich cups of the tulip-trees, stirred and answered, with their different voices, like many-toned harps; and when the wind was fully abroad, and every moving thing on the breast of the earth was roused from its daylight repose, the irregular and capricious blast, like a player on an organ of a thousand stops, lulled and strengthened by turns; and from the hiss of the rank grass, low as the whisper of the fairies to the thunder of the impinging and groaning branches of the larch and fir, the anthem went ceaselessly through its changes, and the harmony (though the owl broke in with its scream, and though the overblown monarch of the wood came crushing to the earth) was still perfect, and without a jar. It is strange that there is no sound of Nature out of tune. The roar of the waterfall comes into this anthem of the forest like an accompaniment of bassoons, and the occasional bark

of the wolf, or the scream of the nightbird, or even the deep-throated croak of the frog, is no more discordant than the outburst of an octave flute above the even melody of an orchestra; and it is surprising how the large raindrops, pattering on the leaves, and the small voice of the nightingale (singing, like nothing but himself, best in the darkness), seems an intensitive and a low burden to the general anthem of the earth—as it were, a single voice among instruments.

I had what Wordsworth calls a 'couchant ear' in my youth, and I must tell of another harmony that I learned to love in the wilderness.

There will sometimes come in the spring—say, in May, or whenever the sulphur butterflies are tempted out by the first timorous sunshine—there will come, I say, in that yearning and youth-renewing season, a warm shower at noon. Our tents shall be pitched on the skirts of a forest of young pines, and the evergreen foliage, if it may be so called, shall be a daily refreshment to our eye while watching, with the west wind upon our cheeks, the unclothed branches of the elm. The rain descends softly and warm; but with the sunset the clouds break away, and it grows suddenly cold enough to freeze. The next morning you shall come out with me to a hillside looking upon the south, and lie down with your ear to the earth. The pine-tassels hold, in every four of their fine fingers, a drop of rain, frozen like a pearl, in a long earring, sustained in their loose grasp by the rigidity of the cold. The sun grows warm at ten, and the slight green fingers begin to relax and yield, and by eleven they are all dropping their icy pearls upon the dead leaves, with a murmur through the forest like the swarming o the bees of Hybla. There is not much variety in the music, but it is a pleasant monotone for thought; and if you have a restless fever in your bosom (as I had when I learned to love—it soothed and satisfied then), you may lie down, with a crooked root under your head in the skirts of the forest, and thank heaven for an anodyne to care. And it is better than the voice of your friend, or the song of your lady-love, for it exacts no gratitude, and will not desert you ere the echo dies upon the wind.

Oh, how many of these harmonies there are! how many that we hear! how many that are 'too constant to be heard!' I could go back to my boyhood now, with this thread of recollections, and unsepulture a hoard of simple and long-buried joys, that would bring the blush upon my cheek to think how many senses are dulled since such things could give me pleasure! Is there no 'well of Kanothos' for renewing the youth of the soul; no St. Hillary's cradle; no elixir to cast the slough of heart-sickening and heart-tarnishing custom? Find me an alchymy for *that*, with your alembic and crucible, and you may resolve into dross again your philosopher's stone.—*N. P. Willis.*

The Beauty of Nature's Temple.

In the spiritual world God looks for beauty as well as stability.

Nature's temple is not a hueless, monotonous structure like the pyramids of Egypt. It is richly decorated; it is overlaid with chaste and beautiful ornamentation. Every stone is painted with fair colours, accurately toned, and in perfect keeping. On the top of every pillar is lily-work. Not a rock that peers above the surface of the earth but is clothed with the rainbow tints of moss and lichen, and wreathed with the graceful tenderness of fern and wild-flower. Every mountain is clothed with the variegated verdure of forest and pasture, blending gradually upwards into the

sober gray of crag, and the silvery whiteness of snow, and the quiet blue of the cloud-flecked sky. And when the living hues of plants are absent, there is compensation in the rich colours of the rocks, or in the bright reflections of the heavens. The brilliant crimson of Sinai's granite and sandstone cliffs makes up for their naked sterility; and if the mountain-ranges of Northern Europe are destitute of the emerald verdure of the Alps, they are covered instead with purple light as with a robe, and gather out of the sky at sunrise and twilight hues softer than the plumage of a dove, and more radiant than the petals of rose and violet. Even works of human art are decorated by Nature with a picturesque glory of colour and light, in harmony with her own landscapes. Like a loving mother, she takes back into her bosom the building that man has abandoned, and clothes its garish nakedness with a Joseph's coat of many colours. The castle or the abbey, left untenanted, falls into ruins; but Nature—whose profound peace succeeds all strife of man, and whose passive permanency mocks his false perishing creeds—steps in to claim her reversion; and wherever her soft finger touches, there new beauties spring up and shame the artist's proudest triumphs. His frescoed walls she obliterates with brighter pictures and nobler lessons of wall-flower and pellitory; and over his sculptured arches and leafy capitals she twins her ivy in shapes of living grace and hues of lavish richness, such as no art of man can imitate.

As Nature deals with the materials of her framework, so the Divine Artificer deals with the living materials of His spiritual temple. 'Behold, I will lay thy stones with fair colours,' He says to His Church, afflicted, tempest-tossed, and not comforted. Every stone that is fit to be built into the walls of His holy habitation is richly sculptured and decorated. He leaves none in the meanness and vileness of their natural states. He digs them out of the fearful pit and the miry clay, that they may be chiselled and polished, so as to be ornaments of the structure in which they stand. He makes the Sun of Righteousness to shine upon the dark vapour-cloud of their nature, and thus paints it with the rainbow hues of grace. Black in themselves, He makes them comely in the reflected light of His love. From the moment that the favour of God is restored to them, they are wakened to a new existence and a better principle. Righteousness is imputed to them that sanctification may be wrought out in them. It becomes His task, it becomes theirs, to restore in their hearts His obliterated image; to mould their lives in conformity with the perfect example; to begin the transformation which can be perfected only in eternity.—*Hugh Macmillan, LL.D.*

How beautiful is Nature! the grass and flowers grow in rich luxuriance; the trees are covered with leaves; the soft zephyrs refresh us; the flocks wanton in the pastures; the little lambs declare their joy by a thousand sportive skips, and frisk lightly over the mead. The green grass, tipped with sweet dew, adorns the field. The leaves tremble in the breeze, and the melody of the nightingale rises from yonder bush. Everything is joy, everything inspires love, it reigns on the hills and in the valleys, on the trees and in the groves.

Nature is beautiful even in her least productions. The sportive insects pursue each other in the grass; sometimes lost in the verdure, then rising and showing their gilded wings, dancing in the sunbeam. The butterfly hovers over the clover, flutters its wings,

and seems proud of its charms. The buzzing of a swarm of young bees now meets my ear. See the flowers bending under them! They have gaily flown from their distant home, and dispersed themselves over the fields and gardens, where they collect the honeyed nectar of the flowers, and riot in luxurious sweets and ever-varying yielding charms.

Happy is the man whose life of innocence smoothly flows, embosomed in Nature's sweetest treasures. The creation smiles to him, and joy gilds his glad moments; whether reclining in the evening shade, or brushing with hasty steps the morning dew, Pleasure springs for him from every fountain, every flower yields its charms, and every grove welcomes him to its hallowed shade. For him the wild concerts warble in the air, and his mind, serene as a summer's day, knows no corroding, heart-consuming care; his affections are pure as the untainted breath of morn, sweet as the dew-washed flowers; in the beauties of Nature he sees his God, and to Him devotes his willing soul.—*C. C. Sturm.*

Consistency in Nature.

Discernment of consistency depends on our standpoint.

When we seem to find the common life of the world full of inconsistencies and exceptions, it is simply because we regard the several occurrences from too low a platform of thought. If such wonderful contradictions can be exhibited before our eyes as that of the melted lead burning when it is only heated enough to run like water, and *not* burning when the furnace has done its worst, or best, how readily may we believe that all other things which appear to be inconsistent one with another, are in reality in fine accord; and that exceptions are only varied utterances of some grand and simple ordinance that equally governs the common and the strange? Every department of Nature presents such exceptions; and it is delightful to a reflective and quiet mind to observe that these exceptions, like the sacred miracles, are uniformly charged with some errand of love, or with some new gift from the munificence of the All-good. The comfort and enjoyment, either of mankind, or of some little creature, is always the proximate object; and if the end be not realized, the fault is with the intended recipient.

To begin with the inanimate or inorganic department of Nature. It is well known that all substances which have been heated, as they cool decrease in size, and become of greater specific gravity, or, in other words, a little smaller and a little heavier. Even things that are ordinarily cold become, under the influence of severe frost, a little smaller. The strips of iron that form the path for the wheels of the railway train become shorter when the frost is intense; the pendulum of a clock, in a room where there is no fire, becomes under similar circumstances shorter, and the 'time' is falsified; an iron rod that, while it is red hot, exactly fits an opening, is too small for it when it has cooled. The exception to these usual phenomena is, that water, one of the most valuable substances in Nature, instead of decreasing in volume as it freezes, occupies more room when it has become ice; and instead of becoming heavier as it freezes, is, when in the shape of ice, perceptibly lighter. See how admirably this operates for the advantage of man! Had water been governed by the rule that applies to other substances, in winter, when the thermometer sank to 32 degrees, or 'freezing-point,' the layer of ice formed on the surface would have immediately sunk to the bottom;

another layer would have taken its place, and have similarly sunk to the bottom; and in a little while the whole reservoir would have been changed into a solid mass, which no subsequent summers could have thawed, and the world would soon have become uninhabitable for want of drink. As it is, the water is preserved in its fluid form, and warm enough for use; while the surface offers a playground for boy and man, agreeable in its novelty and in the excitement of the exercise needful to keep the body afloat. Sea-water does not freeze till it is nearly four degrees colder than fresh water needs to be before congealing, thus assisting to keep the ocean open at all seasons.

Mark, in the next place, the curious nature of quicksilver or mercury. A very considerable degree of heat is required to melt every other kind of metal, but mercury becomes fluid with no more heat than is supplied by the atmosphere of England! In the Arctic regions, and wherever else the temperature sinks to 39 degrees, or 71 degrees below freezing-point, mercury is *solid*, resembling a lump of silver, or any other white and shining metal. *There* it needs fire to bring it into the fluid condition; but in our own happy island,

> 'Grace, glorious, and free,
> First flower of the earth, first gem of the sea,

and in all countries of similar and even of harsher climate, so long as the intense rigour of the frigid zones is never experienced, mercury is permanently molten. Hence we can use it for the construction of the thermometer, measuring every delicate change in the warmth of the air, and in the temperature of substances used in the processes of arts and manufactures, which could scarcely be attempted without the aid of this wonderful instrument. Quicksilver is one of the most extraordinary substances in Nature. It supplies one of the deadliest of poisons, and one of the most potent of medicines. It is the delight of children, as its globules roll prettily up and down the tea-tray, chasing one another like themselves in their swift-footed sports, and reflecting every happy little face that peers into their tiny, yet brilliant, mirror. Man sees in it an emblem of the heavenly flock that in this present life is broken into particles innumerable, kept asunder by the dust, the hindrances, the misunderstanding, the infirmities of the life in the body, but which are yet all of one substance and purpose, spherical and bright, in their souls; and which, though the sport of the world, and called by many names —Ephesian and Laodicean, Episcopalian and Independent—shall yet resolve, when assembled by Him who sitteth as the Refiner and Purifier, into glorious and everlasting unity.—*Leo H. Grindon.*

NIGHT.

The Work of Cold Nights.

Trying experiences often follow happy experiences, but they have their own gracious missions.

There is no dew, properly so called, in Palestine, for there is no moisture in the hot summer air to be chilled into dewdrops by the coolness of the night, as in a climate like ours. From May till October rain is unknown, the sun shining with unclouded brightness day after day. The heat becomes intense, the ground hard, and vegetation would perish, but for the

moist west winds that come each night from the sea. The bright skies cause the heat of the day to radiate very quickly into space, so that the nights are as cold as the day is the reverse—a peculiarity of climate from which poor Jacob suffered thousands of years ago. To this coldness of the night air the indispensable watering of all plant life is due. The winds, loaded with moisture, are robbed of it as they pass over the land, the cold air condensing it into drops of water, which fall in a gracious rain of mist on every thirsty blade. In the morning the fog thus created rests like a sea over the plains, and far up the sides of the hills, which raise their heads above it like so many islands. At sunrise, however, the scene speedily changes. By the kindling light the scene is transformed into vast snow-white clouds which presently break into separate masses, and rise up the mountain-sides, to disappear in the blue above, dissipated by the increasing heat. These are 'the morning clouds and the early dew that goeth away,' of which Hosea speaks so touchingly. Anyone standing at sunrise on a vantage-ground in Jerusalem, or on the Mount of Olives, and looking down towards the Dead Sea, must have seen how the masses of billowy vapour, filling the valleys during the night, sway and break up when the light streams on them from over the mountains of Moab; their shape and colour changing each moment before the kindling warmth as they rose from the hollows of the landscape, and then up the slopes of the hills, till they passed in opal or snowy brightness into the upper air, and at last faded into the unclouded sky.

The amount of moisture thus poured on the thirsty vegetation during the night is very great. Tent coverings are often soaked with it as if there had been a heavy rain, and a bright moon frequently creates the striking spectacle of a lunar rainbow.—*Dr. C. Geikie.*

The Work of the Night on the Flowers.

God's work on souls will be seen when the eternal morning dawns.

What do the flowers say to the night? They wave their bells, and exhale their choicest odours, as if they would bribe it to bestow upon them some new charm. In the tender twilight they look wistfully at each other, and say, 'Do you see anything on me?' and when the answer is, 'I see nothing,' they hang their heads and wait sorrowfully for the morning, fearing that they shall bring no beauty to it. Though there is no voice, nor sound, yet the night hears them, and silently through the still air the dews drop down from the sky, and settle on every stem, and bud, and blossom; and when day dawns, at the first rosy glance that the sun sends athwart the fields, ten million jewels glitter, and sparkle, and quiver on the notched edges of every leaf, and along each beaded blade and spire of grass, and spray, and the happy flowers, stirred by the wind, nod, and beckon, and smile to each other, more resplendent in their dewy gems than any dream of the night had imagined.

So many Christians, who in the darkness of this life have longed and laboured for graces, yet sad and fearing, will find themselves covered with glory when the eternal morning dawns, and the light of God's countenance strikes through their earth-gained jewels.—*H. W. Beecher.*

The Average Length of Day and Night.

The virtual equality in men's lives.

The total length of day and night all the year round is the same at the North Pole and at the Equator —half and half. Only, in the one

place, it is half and half for twenty-four hours at a time, and in the other the night lasts through gloomy months of winter, and the day is bright for unbroken weeks of summer. But when you come to add them up at the year's end, the man that shivers in the ice, and the man that pants beneath the beams from the zenith, have had the same length of sunshine and of darkness. It does not matter much at what degrees between the Equator and the Pole you and I live; when the thing comes to be made up, we shall be all pretty much on an equality.—*A. Maclaren, D.D.*

Inconveniences of Night.

Even the things that inconvenience us have their kindly mission to us.

In the autumn the nights continually increase in length; and it cannot be denied that this arrangement is in some respects disagreeable. For although a part of the night is appropriated to strengthen and refresh us by sleep, this very circumstance points out to us the weakness and frailty of our nature. Hence it is that, at the commencement of the night, all our employments are interrupted, not only from want of light, but also from the necessity of repose, and from the animal strength and spirits being exhausted. It is no wonder, therefore, that the hours of the night should appear so long and tedious, especially when we are restless and cannot sleep.

With what impatience does the sick man count the hours, and long for the rising of the sun! Another inconvenience of night is that we are exposed to lose our way and meet with disasters. When the light of the sun is withdrawn, and the shades of night veil the sky, we cannot see where we walk; we are every moment stopped, and make false steps. How many travellers wander in the night-time!—get into bad roads among briars and thorns, bogs and pits, and by falling over precipices meet with instant death! Besides, during the night we are exposed to attacks, either in our own houses or on a journey, by wicked and perverse men: for the darkness of the night is favourable to all sorts of crimes, encourages the disturbers of the public peace, and veils their transgressions from the eyes of men. What renders the nights still further inconvenient is that they are cold: for when the sun is set and his rays are withdrawn, one-half of the globe is deprived of his vivifying heat, as well as of his light, and this renders the long winter's nights very disagreeable. We may add to all this that night, by its regular return, presents us continually with a new emblem of death.—*C. C. Sturm.*

RAIN, RAINBOW, ETC.

Beautiful Rain.

The sense of beauty is borne to us by Nature-forces in all their moods.

Rain . . . . is beautiful when it comes hurried and passionate, fleeing from the stormy wind, hurled like a volley of small musketry against your streaming panes; and the few tarnished gold leaves of the beech-trees are struck down one after one by the bullets. It is beautiful in the midsummer, when it comes in light, soft showers; or more in earnest, accompanied with thunder-music, straight and heavy, when as the poet says:

> 'Rolling as in sleep,
> Low thunders bring the mellow rain.'

It is beautiful when it rains far

away in the distance, the bright sun shining on the mound on which you stand, and only a few guerilla drops heralding the approach of the shower towards you. It is beautiful among leafless trees, in early spring or late autumn, under an avenue, or in a copse, when every long bough and black branch is glittering, strung with trembling diamonds; when the force of the wind and rain being kept from you by the trees and underwood, the gentle sadness and quiet melancholy of the scene can be gathered into your heart. It is beautiful in a town, when you stand at the window and watch the emptying streets; the gutters pour by in a yellow-misted flood; the street becomes a river; and as the sudden gust drives them before it,

> 'Skirmishing drops
> Rush with bright bayonets across the road.'

The window is lined with rows of brilliants, that gradually grow bigger and bigger, and waver and fall, ever supplied by a constant succession of new-comers, like the Scotch at Flodden.—'*The Harvest of a Quiet Eye.*'

Rain on Mown Grass.

The outpourings of Divine grace make failing spiritual life spring up again (Psa. lxxii. 6).

How desolate a spectacle is the mown hay-field, wherein the haymakers have done their work!—the beauty and fragrance of the wild-flower gone, nothing left but pale, sickly, yellow stubble protruding an inch or two above the soil, without grace, or form, or beauty of colour. This picture of desolation is greatly aggravated during a season of drought, when the pitiless sun scorches the shorn field; but how striking the change when a shower of rain comes! As the reviving rain continues, the hay-bristles—the work of the scythe—begin to disappear, and the mown grass puts forth blade and blossom as of old, till at last an aftermath is formed, even more luxurious than was the field in its first fresh, strong growth. But especially is the effect of rain upon mown grass remarkable in the arid soil and climate of Bible lands, where the sun dries up the grass more rapidly into a brown naked waste; but the rain soon restores it to life and beauty, and when the sun shines with its full refulgent glory on the reviving grass, it seems to be the smile of God made visible.—*Hugh Macmillan, LL.D.*

Extraordinary Kinds of Rain.

Science has dispelled the superstitious fears that strange rains used to excite.

Every phenomenon, however natural and useful it may be, is often a cause of terror and dismay to ignorant and superstitious men. We see a proof of this in the rains, which superstition considers as supernatural, and which terrify so many people.

Who does not tremble when he hears of a *shower of blood?* Sometimes, and particularly in summer, there falls a reddish rain, to which this name has been given; or, rather, it is supposed that such a rain has fallen, when after a shower we find drops tinged with a red colour in the fields.

Many believe that such a rain has fallen from the sky, and that it is properly blood. When this is considered, it is no wonder that such rain should be attributed to supernatural causes. There is nothing in it, however, but what is very natural.

For the atmosphere being laden with different substances, and with a multitude of foreign matter, we need not be surprised that the rain sometimes partakes of this mixture, and that its natural colour and qualities are changed.

It may very easily happen that coloured particles may fall with the rain. The wind may raise up, and disperse far and wide, the coloured stamina of different flowers, and even the red excrement of certain butterflies. There are also little red insects on the face of the water, which credulous people may take for blood.

Sometimes, also, a certain viscous humour, produced by fatty, reddish particles, which float in the air, falls with the rain, as happened in Westphalia, and other places, in the year 1764. But so far from there being anything marvellous in this, we may rather, on the contrary, be astonished that these phenomena do not happen more frequently.

It is the same with those *showers of sulphur* which are said to fall often. This rain is not properly sulphur, although it is possible that the atmosphere being filled with sulphureous particles, some may be detached with the drops of rain. But it has been proved by a number of experiments that these showers are no other than the flowers, or coloured seeds, of some plants, or fine sand, or yellowish dust, which the wind raises in some countries, and mingles with the rain. The supposed *showers of wheat* are produced in the same way. When heavy rain falls in those parts where much celandine grows, it lays bare the roots, which are very slender; the little bulbs which adhere to them are separated and scattered about, and these are taken for wheat fallen from above: and superstitious people believe this to be a presage of dearth and famine.

But whence come all those caterpillars with which the gardens and fields are sometimes strewed when a shower of rain has fallen? Nothing can be more natural than this. As the atmosphere contains a multitude of bodies of every kind, it is very likely that both insects and their eggs may be found there. The latter only require a place to be hatched in; consequently when they are brought down with the rain, they stick to the leaves, and then come to life.

That this is possible, the following fact proves, related by writers of the utmost probity.

The rains which fall in Philadelphia during the month of August bring with them insects which, when they stick to the human skin, and are not immediately taken off, bite and produce great itching; and when these little animals happen to fall upon woollen cloth, they stick in it and multiply like moths.—*C. C. Sturm.*

The Explanation of the Rainbow.

To the general effect each drop of rain contributes—an illustration of the force that may lie in the combined action of little things.

Now, a rainbow is a circular spectrum. What are the prisms which have produced it, and how is it produced? The spherical drops of water falling out of the rain-cloud become in fact prisms, within which the rays of light are separated into their primary colours. A ray falls upon the outer surface of the drop, is refracted or broken from the direct line as it passes through, is then reflected from the opposite inner surface back to the convexity nearest to the observer, and, passing out of the drop, is once more refracted, and so falls upon the observer's eye as a single colour of the spectrum. The eye is so placed as to receive but one of the colours from any one drop, but from the other falling drops it receives the remaining colours.

Let us divide these innumerable drops into seven vast army corps. Each corps will include the drops which produce one of the seven primary colours, and the uniform of that corps shall be red, green, blue, or other colour according to

its order. You must see that all the individuals of this army corps will be mustered together in one great line of parade stretching around the sky. For since every ray of any one colour, red, for example, when passing through its rain-drop prism is broken from the direct line at the same angle of refraction, all those rays must occupy the same relative position to the horizon, and so the myriad of red points joined one to another will appear as an extended line before the observer. Next to this line of red will stretch the battle-line of that army corps which wears the orange uniform; and so on through all the seven corps of colours, until at last we shall see the whole united host mustered rank on rank in beautiful and orderly dress parade over the black background of the receding cloud.

Sometimes two distinct bows are visible, one within the other. The inner one is called the primary bow, and is the brighter of the two. The primary bow is due to rays falling on the outer portion of the drops, which suffer two refractions and one reflection before reaching the eye. The secondary bow, which is the fainter of the two, is due to rays falling on the inner portion of the rain-drops, and suffering two refractions and two reflections. In the primary bow the arrangement of the colours is the same as in the solar spectrum; in the secondary bow this order is reversed.—*H. C. McCook, D.D.*

The Rainbow when Rain is Partial.

The cause of the rainbow makes it an assurance to us of the Divine mercy.

When the rain is general, there can be no rainbow; as often, therefore, as we see this beautiful meteor, we may conclude with certainty that we need fear no deluge; for to effect one there must be a violent rain from all parts of the heaven at once. Thus, when the sky is only covered on one side with clouds, and the sun is seen in the other, it is a proof that these gloomy clouds shall be shortly dispersed, and the heavens become serene. Hence it is that a rainbow cannot be seen unless the sun be behind, and the rain before us. In order to the formation of the bow, it is necessary that the sun and the rain should be seen at the same time. If the sky be too bright, no colours can be seen, therefore, where this phenomenon appears, the horizon must be covered with dark clouds. Besides, there can be no coloured bow without the action of the sun, and the refraction of his rays. All these considerations should naturally lead us to pious reflections.—*C. C. Sturm.*

God's Goodness in sending Rain.

'*He sendeth rain on the just and on the unjust*' (MATT. v. 45).

The Orientalism of the Scriptures lurks throughout them like the perfume of flowers; and though Christendom has laid them on her heart these nineteen hundred years, she often admires their beauty without catching all their fragrant force of meaning. Who feels, for example, without an effort of thought, the strength of that comparison where the Divine Teacher likens God's bounty to the falling showers?—'He sendeth rain on the just and on the unjust.' The words strike the ear, but in this moist and watered West of ours convey little but a sense of equitable distribution for the favours of Providence. The rain to us is not so much an object of desire as the sunshine: of the first we are accustomed to receive and expect a rather overwhelming share; the last is far more frequently in our thoughts as something to be longed for, and accordingly it is the earlier

part of the passage, 'He maketh His sun to rise on the evil and upon the good,' which impresses an English mind most forcibly. Drought, indeed, and parched-up pastures, and corn-fields languishing, as they often do, for the refreshing shower, enable us at least to appreciate the second comparison; but to know how it would come home to an Eastern listener, we must remember what rain is in the East. We must picture to ourselves those arid and grassless plains where the simile was spoken; or such a scene as the land of the monsoon rains presents, when the season for their coming is over-due, and the yellow earth sickens with thirst. Slowly at last the heavy clouds, charged with the welcome water, roll up from seaward; the air grows sultry and still; the creatures of the grove and jungle keep their coverts, as if expectant, like the surface of the soil; there is a hush over all things, as though Nature herself were faint; till presently the lightning flashes and the thunder rattles, and down, as if really from heaven and from the hand of God, comes the thick and fresh rain. Then there rises from the ground a cool and penetrating aroma, the scent of the dry soil saturated; the birds and beasts resume their activity; the green leaf and blade shoot as if by magic from what was just now yellow and lifeless stubble, and men go out to their seed-sowing and husbandry. Or transfer imagination to the deck of the drifting ship, or the raft upon which castaways, dying of thirst, are striving to reach the land: when rain falls, and fills the spread sails, and restores life and hope—no matter whether the sufferers are cut-throats or honest men, pirates or traders—must not the verse we have quoted have a meaning which we seldom give to it? Or picture those words recurring to the mind of a traveller or hunter who has stretched himself to die upon a plain all dry and glowing in the sunset, and who starts from his fainting fit in the night to hear the cool drops pattering on the leaves, and in the morning sees the pools brimmed and the streams flowing. Not lightly was that emblem chosen to express the impartial goodness of Heaven, the emblem of the falling rain, which —like all the good gifts of Nature, and unlike man—judges none, but descends for the slave and for his tyrant; for the strong and for the weak; for him with many fields, and for him with one; for man and for beast, sublimely indifferent except to benefit all.—*Daily Telegraph.*

Journeyings of the Raindrops.

Great missions are often entrusted to feeble forces.

Let us follow some of these drops of water on their journeyings, and see what becomes of them, and what are the missions they fulfil. The work of the raindrops is done by means of processes carried on by the mighty but silent 'forces' of Nature.

The drops of water have already done some service in carrying various 'salts,' dissolved by them out of the earth, away into the sea, where they are deposited and used up in various ways. Meantime, the fresh water has mingled with that of the sea, and there awaits the influence of our first giant force, *Heat.* From over ninety-one millions of miles away the 'heat-waves' of the sun have come darting down upon the sea, and are shaking the water-atoms apart at the surface. These they lift up in the shape of invisible water-vapour, whose particles become entangled among the air-atoms above. Besides doing this, the heat-waves, in warming the water, are reflected from it, and so warm the air immediately above it; a

similar effect is produced on land, but there the air is much warmer than it is over the water, because much more heat is reflected from the earth. Thus we have, so far, a warm air filled with water-vapour gained by *evaporation* from the sea. The water so raised is absolutely pure; all the salts are left behind. Water-vapour is also produced when water is boiled in a kettle, only here the process is not quiet, but noisy; evaporation, or rather *ebullition*, does not ensue until a certain point, known as 'boiling-point,' is reached. The vapour inside the kettle is just as invisible as that hanging over the sea—a fact easily proved by boiling water in a closed glass vessel, and observing that the space over the water is quite clear, although it is full of water-vapour.

Very well. The warm air, expanding, becomes lighter and ascends, the water-vapour contained in it, being something like one hundred and thirty times lighter than ordinary air, also helps it to rise; while another layer of drier, heavier air rushes in to fill its place, and to become in turn heated and charged with vapour. Thus a continuous current is set up of descending cold air and ascending warm air, and quietly and invisibly the water all over the world is being lifted up by heat. It is said that some twenty-two feet are lifted yearly from the surface of the Indian Ocean!

Now for the next step in the journey. Imagine layer after layer of water-vapour lifted up from the sea, until an invisible column towers high in the air. The pressure of the upper air being much less than that of the lower atmosphere, the atoms of vapour-laden air can more easily follow their tendency to separate or expand: this expansion implies expenditure of heat, and the air therefore becomes chilled; then it also meets with air much colder than itself, which chills it still more.

Here our second force—*Cold*—has come into action. As Heat produced evaporation, so cold produces *condensation*. Breathe on the window on a cold morning; the 'breath' is chilled by the glass and condensed as drops of water. Do the same in a closed railway carriage; the same effect is seen on the carriage-window. Bring a glass of cold water into a warm room; after awhile the outside becomes covered with a film of moisture—this is the vapour of the room chilled and condensed by the colder glass surface. So is it with the upper air. Its water-vapour is condensed into *clouds*, these are simply masses of water in finely-divided particles, to which Tyndall gives the name of *water-dust*. They rest on a tall, invisible column of vapour reaching from the sea to themselves.

Now, let a cold wind, or one full of water-vapour, come along. It fills the clouds; the water-dust particles are brought closer to one another by our third force, *Cohesion*, forming them into drops; or the load of water-dust becoming too heavy for the air to support, its particles are set free, and Cohesion forms them into drops. In either case they are too weighty to float any longer, and down they come in a shower of *rain* by the action of our fourth force, *Gravitation.—H. W. S. Worsley-Benison.*

A Drop of Rain.

'Everything great is composed of many things that are small.'

Let us contemplate a drop of rain, multiplied rain-drops, and their influence. Few persons have ever taken the trouble to compute how much the fall of a single inch of rain over an extensive region in the sea, or how much the change of even two or three degrees of temperature over a few thousand square miles of its surface, tends to disturb its equilibrium, and con-

sequently to cause an aqueous palpitation that is felt from the equator to the poles. Let us illustrate by an example. The surface of the Atlantic Ocean covers an area of about twenty-five millions of square miles. Now, let us take one-fifth of this area, and suppose a fall of rain one inch deep to take place over it. This rain would weigh three hundred and sixty thousand millions of tons; and the salt which, as water, it held in solution in the sea, and which, when that water was taken up as vapour, was left behind to disturb equilibrium, weighed sixteen millions more of tons, or nearly twice as much as all the ships in the world could carry at a cargo each. It might fall in an hour, or it might fall in a day; but occupy what time it might in falling, this rain is calculated to exert so much force—which is inconceivably great—in disturbing the equilibrium of the ocean. If all the water discharged by the Mississippi River during the year were taken up in one mighty measure and cast into the ocean at one effort, it would not make a greater disturbance in the equilibrium than would the fall of rain supposed. Now, this is for but one-fifth of the Atlantic, and the area of the Atlantic is about one-fifth of the sea area of the world; and the estimated fall of rain was but one inch, whereas the average for the year is sixty inches; but we will assume it for the sea to be no more than thirty inches. In the aggregate and on an average, then, such a disturbance in the equilibrium of the whole ocean, as is here supposed, occurs seven hundred and fifty times a year, or at the rate of once in twelve hours. When we reflect that this mighty work is accomplished by multiplied rain-drops, we cannot but remember the old Latin proverb that 'Everything great is composed of many things which are small.' In further illustration of the same truth are the words of Young, 'Sands form the mountain, moments make the year.'—'*Scientific Symbols.*'

The Universal Sentiment concerning the Rainbow.

It has always been more or less suggestive of covenant between God and man.

'Look upon the rainbow,' says the son of Sirach in the Apocrypha, 'and praise Him that made it. Very beautiful it is in the brightness thereof. It compasseth the heaven about with a glorious circle, and the hands of the Most High have bended it' (Ecclus. xliii. 11, 12). The ancient Greeks and Romans regarded it in the same light. Iris was the goddess of the rainbow, and was represented as the daughter of Thaumas ('wonder') and Electra ('lightning'), and the grand-daughter of ocean and earth. She was the messenger of Jupiter, king of the gods, and of Juno, his queen. She lived among the other deities of Olympus, which she only left for the purpose of conveying Divine commands to mankind, by whom she was looked upon as a guide and adviser. She travelled with the speed of the wind, always from one end of the world to the other, could penetrate to the bottom of the sea, or even to the Styx, the place of the dead. It was her office to charge the clouds with water from lakes and rivers, in order that they might go forth in gentle fertilizing showers. She was represented as a beautiful virgin, with wings of varied hues, clad in robes of bright colours, and riding on a rainbow; at other times with a nimbus on her head, on which the colours of the rainbow were reflected.

By the Germans the rainbow is called Bifröst ('the Living Way') and Asen-brücke ('the Bridge of Asen'). The ancient Hebrews looked upon it as a great band, joining heaven and earth, and

binding them both together, as the Greek *iris* comes from *eiro*, 'to tie or bind.' They made it, therefore, the sign of a covenant, or of a relation of peace between God in heaven and the creature upon the earth. It carried to their minds a thought similar to that of the heavenly stairway or ladder of Jacob's dream, which united the throne of God to the stone pillow upon which the sleeping exile rested his head. It is thus that we are led up to the conclusion that the rainbow diadem of this angel-messenger teaches us that all true angelic ministries to men are dominated by the Divine mercy.—*H. C. McCook, D.D.*

Gentle Showers of Rain.

They who wait for Divine refreshings fully respond to them when they come.

I have come down to my nook beneath the elm-tree, and have been drinking in the new delight (the rain)—for, surely,

> ''Tis one of the charmed days
> When the genius of God doth flow.'

Earth and sky sit gazing each on the other's beauty. The breeze is fluttering more lightly than the butterfly that flits to and fro. There is not a blade of the fresh springing grass that does not seem to say, 'I have been satisfied. I have drunk of the rain of heaven, and I give thanks.' There is a hush of holy rest in the air; the very birds are resting somewhere, save one little humming-bird that comes with its marvellous whir of wings to sip nectar from the fuchsias at my feet. The hum of insects is almost inaudible, for everything alike seems bathed in bliss.

All sweet things ever said or sung of such prime hours as this come flitting through one's memory. And, last of all, there come words that are older than all, that sing themselves over and over to my listening heart, as I look out upon my garden after the rain:

> 'Their soul shall be like a watered garden.
>
> * * * * *
>
> Thou shalt be like a watered garden,
> And like a spring of water,
> Whose waters fail not.'

There are some who make the unwise demand that the visitations of the Spirit to their souls should be overwhelming, sweeping all before them, like tropical tempests. But for refreshment and the quickening of growth there is nothing like the gentle shower. God's best ways are quiet ways; and it is only when the earth has been long parched, and the very springs fail at their sources, that there is sometimes a need to have the great fountains of heaven unsealed, and the rain to descend in torrents.—*Sarah Smiley.*

Winter Rains.

Inconvenient things may have invaluable uses.

However disagreeable and inconvenient rainy weather may appear to us, we must acknowledge that it is sent for wise and kind purposes. The earth, in a manner exhausted by its fruitfulness, requires a renovation of its strength; and in order to this, it is not only necessary that it should rest, but that it should also be sufficiently moistened. The rain waters and revives the dry and thirsty land. The wet soaks into it, and reaches down to the lowest roots of plants. The dry leaves which covered the earth rot and become excellent manure. The heavy winter rains fill the rivers anew, and furnish water for springs and fountains. Nature is never idle. It continues to labour, though its activity is sometimes concealed. The clouds, by continually pouring down rain or snow, prepare for the fertility of the

coming year, and for the riches of summer. And when the heat of the sun restores the dry season, the abundant springs which the winter rains had formed diffuse their waters abroad, refresh the fields and valleys, and adorn them with fresh verdure.

But here, as in all other things, we see the wisest economy. All the vapours and exhalations which daily arise from terrestrial bodies are collected and suspended in the atmosphere, which in due time restores them to the earth, either in the form of small drops, of heavy showers, or in flakes of snow, according to its different necessities; but this is always done with economy, and without suffering liberality to degenerate into prodigality. Everything becomes serviceable: dews, which are always imperceptible to us, light fogs and mists, all contribute to fertilize the earth. But in vain would the vapours rise, in vain would the clouds be formed, if Nature had not provided the winds to shake and disperse them on all hands, to convey them from one place to another, to water the ground where it may require it.

However inconvenient the rains of winter may appear, or the uncomfortable temperature of this season, they are, nevertheless, indispensable; and so also are the dark and gloomy days of our lives. —*C. C. Sturm.*

The Rain on a Macadamised Road.

The laws that preside over the making of roadside rills equally preside over the making of mighty rivers.

Looking at that road, one sees something suggestive of bigger things than rain-drops, and mightier currents than the streams of the pathway. Observe how, between the embedded stones of the road, the water-drops gradually collect to form rills. Note again how the little rills unite to make streams. See how rill joins rill, until quite a respectable current, as to size, runs into the channel of the overflowing gutter. The gutter itself is made and formed by such rills. The road is, indeed, the 'catchment basin' of the rivers, which its gutters represent. If you were to draw a map of that road, its rills, rivulets, and gutters, you would imitate clearly and closely the chart of every big river you know. For, in truth, the biggest river differs only in kind, and not in degree, from the rill in the road. It is fed and nurtured by its streams, exactly as that gutter is fed before your eyes to-day. There is a whole lesson in physical geology spread out before us this rainy day in the shape of that soaking roadway; and from small things at home to great things abroad is but a step which the scientific use of the imagination will bridge over easily enough.

Look again at the rills in the road, and note the work they are accomplishing in the small arena they occupy. For, see how the road is washed bare by the rain, its dust-particles having been swept away to the gutters at the sides. This is the first work of the rill and the river alike. Each cuts out a channel for itself—the river through the land, on a big scale; the rill between the stones, on a small one. Again, each is a carrier and transporter of the débris which it detaches from the land. The sodden and dirty water of the gutters is the result of the sweeping away of the things of the earth by the rills. If you take up a tumbler of that gutter-water, and allow its sediment to settle, you will find it is one half mud. Multiply your one tumbler-ful of such débris by the thousands that have flowed along the roadways to-day, and you may estimate how great must be the amount of solid matter which a rainy day disposes of, in that it

sends all its material first to the rills, then to the gutters, and finally to the brooks and the rivers themselves.

Turn your thoughts next to the rivers of the world. The same action meets your mental gaze that you see in that roadway. The river is an eater-away, an eroder, of the land; and it is likewise a transporter of the materials it steals from the solid earth. Be it slow or be it rapid in its course, its action is essentially the same in character. When you come to multiply the daily wear and tear of the river by its yearly work, the amount of material it is seen to carry down to the sea is found to exceed belief. Think of what the Amazon and the Mississippi and Missouri, the Danube, Volga, Rhine, Rhone, and even our own Thames, must accomplish in this work of earth-wear day by day! Millions of tons of matter are removed from the land, from mountain peak and valley alike, and carried to lake or sea; just as the rills on the road pour their burden into the gutter beyond. There is no cessation to this action. It is perennial, incessant, everlasting, as a world-phenomenon, and will continue until this orb of ours becomes a waterless, dried-up cinder of a globe like the moon itself.

All is not waste in this action of running water. The material torn from the land is not lost to the world; it is only changed in its form and uses. Deposited in lakes and seas by the rivers, it will form the matter from which new rocks will be constructed. Nay, even to-day many a river filling up a lake is a land-maker, just as you see that drain yonder has become choked with the débris of the rills. The Mississippi has for centuries been making new land at its delta out of the débris of the old. To-morrow you may see how the water-borne material has been deposited at the drain-mouth in the road, as it is being laid down everywhere in the world's history by the rivers, that thieve and steal from the land with one hand, and give back their spoil with the other.—*Andrew Wilson, F.R.S.E.*

Rainless Lands.

Natural evils are subject to counteracting forces.

Nature sometimes creates minds which seem independent of circumstances. She also creates other things which appear to be equally so. Take one example. Owing to their geographical position, the central and western regions of South Africa are almost constantly deprived of rain. They contain no flowing streams, and a very little water in the wells. The soil is a soft and light-coloured sand, which reflects the sunlight with a glaring intensity. No fresh breeze cools the air; no passing cloud veils the scorching sky. We should naturally have supposed that regions so scantily supplied with one of the first necessaries of life could be nothing else than wastes and lifeless deserts, and yet, strange to say, they are distinguished for their comparatively abundant vegetation, and their immense development of animal life. The evil produced by want of rain has been counteracted by the admirable foresight of the Creator in providing these arid lands with plants suited to their trying circumstances. The vegetation is eminently local and special. Nothing like it is seen elsewhere on the face of the earth. Nearly all the plants have fibrous roots buried far beneath the ground, beyond the scorching effects of the sun, and are composed of succulent tissues, filled with a deliciously cool and refreshing fluid. They have also thick fleshy leaves, with pores capable of imbibing and retaining moisture from a very dry atmosphere and soil; so that if a

leaf be broken during the greatest drought it shows abundant circulating sap. Nothing can look more unlike the situations in which they are found than these succulent roots, full of fluid, when the surrounding soil is as dry as dust, and the enveloping air seems utterly destitute of moisture; replete with nourishment and life when all within the horizon is desolation and death. They seem to have a special vitality in themselves; and, unlike all other plants, to be independent of circumstances.—'*Scientific Symbols.*'

The Differences in the Colours of the Rainbow.

The sensitiveness to differences in colour or sound varies in individuals.

Why should so many reject the testimony (to spiritual realities)? I often wonder: Are they defective on the spiritual side of their natures? Have they persisted in withholding belief and acceptance until their will-power in that direction has ceased? If so, such men should have little weight as witnesses in any question of religion.

The difference between the blue light at one end of the beautifully-coloured spectrum band and the red at the other is nothing more nor less than a difference almost identical with a difference between a high note and a low note upon the piano. The reason why one end of the spectrum is red and the other blue is that in light, as in sound, we have a system of disturbance or waves: we have long waves and short waves; and what the low notes are to music, the red waves are to light. The dispersion of light, whether effected by refraction or diffraction, is simply the sorting out and arranging in regular succession of the various light tones in order of their wave-lengths.

We can now recognise the strict analogy between the world of sound and the world of light. Ears are tuned to hear different sounds — some people can hear much higher notes than others, and some people can hear much lower notes than others. In the same way some people can see colours to which other people are blind; indeed, the more we go into this matter, and the more complete we make our inquiries, the more striking becomes the analogy between these two classes of phenomena. Is it so indeed? Are there those to whom the beauty of the rainbow is but an empty name? Yes; many of us know such persons. Would it not be a most foolish act to set the 'colour blind' to judge the merits of painting? If a man lack the natural gift of spiritual insight, or have deliberately extinguished his own spiritual vision, is he a trustworthy guide for you or any soul in the most solemn and important of all decisions? I trow not.—*H. C. McCook, D.D.*

The Welcome Man gives to the Rains.

The workings of the Divine Spirit in man's soul are gentle and gracious as the rainfall on the earth.

In the sublime song of Moses, the oldest poem in the world, we have, as the first promise there given by God, these rhythmic words that sound not unlike the falling rain itself:

'My doctrine shall drop as the rain,
My speech shall distil as the dew;
As the small rain upon the tender herb,
And as the showers upon the grass.'
(Deut. xxxii. 2.)

Divine doctrine is then to the soul what the rain is to the earth. Not the most perfect seed in the most propitious soil can ever reach its full development without the rain of heaven; and in proportion to its timely supply will be the

beauty and fertility of the land. The earthly elements, however rich, can never suffice without the heavenly aid; as most surely no soul that is not constantly nourished by the Spirit of God, working through His word and truth, can ever be developed according to the eternal purpose.

Most remarkably is the analogy between the two processes sustained, even in minute modes. It is a wonderful provision, which it is to be feared many have never even thought about, that the rain should fall in globules, and not as the sheet of a cataract. The gentleness with which it mostly falls, so as to bring no harm to the tender herbage, is one of the most perfect of the processes of Nature; while, on the other hand, the time thus allowed for the absorption of drop after drop is usually so adjusted that there is little waste of the treasure.

How I watched the rain as it fell yesterday upon my newly-mown grass! Not a blade was overlooked. All around, with the utmost impartiality, each of its tiny drops stole into its place, steadily, swiftly; and as eagerly the earth received them, so that nowhere the rain stood in little pools. How my thoughts followed them, chasing each other down to the thirsty roots, while life began so visibly to course its upward way! How green it grew with every hour of the still falling rain! and this morning how glowing and brilliant it was in the sunrise, with every blade of grass crowned with a diamond! Even so God does not let loose His truth in overwhelming torrents upon our souls. It is here a little and there a little as His word reaches our hearts. Are they the words of His prophets, or apostles, or, more precious still, the teaching of our Lord Himself? —then each holy word falls softly on the spirit, and there is not a thought, or emotion, or hidden power in our being that does not drink in the refreshment. One after another the revelations of His love, and power, and purpose, and of Himself, follow and follow still, sinking deeper and deeper as we eagerly receive them; and of very necessity every grace is quickened from its deepest root into new vigour of life. Most blessed reality that His doctrine drops as the rain!—*Sarah Smiley.*

The Rainbow.

A messenger of peace to sinful men.

It is a bow of no hostile intention—a bow painted in variegated colours on the disburdened cloud. How vast is the extent! how delicate the texture of that shadowy arch! Elegant its form, and rich its tinctures, but more delightful its sacred significance; while the violet and the rose blush in its beautiful aspect, the olive-branch smiles in its gracious import. It writes, in radiant dyes, what the angels sang in harmonious strains, 'Peace on earth, and goodwill towards men.' It is the stamp of insurance for the continual welfare of this present world, and a comfortable token of a better state and happier kingdom — a kingdom where a rainbow is represented as surrounding the throne to intimate that storms should beat no more, but an eternal and unbounded opening of joy and felicity bloom for ever.—*Fawkes.*

The Mission of Winter Storms.

The severe things of Nature are as important as the gentle ones: and the same is true of the stern things of human experience.

Tempests are the proper means of purifying the atmosphere. Storms are chiefly designed to disperse noxious vapours, and remove them from us. The universe is governed by the same laws as man, who is not improperly called *a little world.* Our health con-

sists, in great measure, in the agitation and mixing of the various humours, which, without this, would soon grow corrupt. The case is the same with respect to the world; that the air may not become injurious, either to the earth or to animal life, it is necessary that it should be continually agitated; and this the winds effect. I do not mean by gentle light winds, but by storms and tempests, which collect vapours from different countries, and, forming one mass of the whole, mix the good and bad together, and thus correct the one by the other.

Storms are also useful at sea. Were it not violently agitated, the stagnation, even of salt water, would produce a degree of putrefaction which would not only become mortal to the innumerable shoals of fish which live in it, but would also be very injurious to those who sail on it. Motion is the soul of universal nature; it preserves everything in order, and prevents destruction. Were the sea itself excepted from the general rule, as it is the common receptacle for all the dregs of the earth, where so many millions of animal and vegetable substances putrefy; were it not continually agitated, its waters would putrefy, and infect everything with their insupportable stench. Motion is as necessary to the sea as the circulation is to the blood of animals; and the other causes, which give it a gentle, uniform, and almost insensible motion, are not sufficient to purify the whole mass. Nothing but storms can produce this effect; and we see what great advantages result from this, not only to men, but also to many millions of other animals.—*C. C. Sturm.*

A Rainbow Suggestion.

The storm and shine that, going together, cause the rainbow, give a picture of the mingled gladness and sorrow of human life.

I was once travelling on a Union Pacific train across the great Western plains, when we were overtaken by a storm. Off to our right the rain descended with such fury that it obscured earth and sky. The ragged margin of the rainfall reached as far as the railway, and beat against the windows of the cars. On the opposite side of the train the sunlight poured through the windows with summer intensity and brightness. The result was that for several miles we sped along under a rainbow. It was indeed a striking picture of the mingled storm and sunshine of this life of ours. At one moment of our pilgrimage there is gladness, at another grief. Nay, in the same moment there will be on the one side the buffeting of care and adversity, and on the other the sweetness of love and success. But above all this commingling of storm and sunshine it should never be forgotten that for every soul there may be, and there should be, that bended bow of God radiant with the promise of a hope whose beginning brightens this life, and whose eternal continuance is the glory of the life immortal.—*H. C. McCook, D.D.*

SNOW, HAIL, FROST, ETC.

The Mission of the Long-lying Snow.

What we think to call adversity is blessing in disguise.

By the term 'snow-beds' I express the covering of snow which, during the winter, remains in greater or less thickness upon the ground. The advantage of these beds or blanketings of snow is in a measure apprehended, but there are few persons who really estimate in full their value to the soil

and to mankind at large. A few facts briefly stated must suffice to uncover this truth. Most of you are familiar with what is known as snow-crust. In our own latitude of Philadelphia it may be occasionally seen in open fields. But in more northern sections, as New England, northern New York, and Canada, a crust forms upon the surface of the snow, and remains during the greater portion of the year. What has formed that crust? 'It is frozen water, to be sure, thawed out from the snow on a bright day.' Such is the common thought. Some portion of the crust may be attributed to this cause, but for the most part it is probably produced by the moisture of the air which is precipitated upon it, precisely as dew is formed upon the cold earth in summer. In other words, whenever the humidity of the atmosphere in contact with the snow is above the point of saturation at the temperature to which the air is cooled by such contact, the superfluous moisture is absorbed by the snow, or condensed and frozen upon its surface. This, of course, adds to the winter supply of water received from the snow by the ground, and no doubt far exceeds the amount which is lost by evaporation from the surface of the snows.

A second fact is to be noted. Snow is of a colour unfavorable to the radiation of heat. It follows that when heavy beds are laid upon the earth, they act precisely as do bed-coverings or clothes to the human body. The warmth of the covered soil is kept within itself. Moreover, to some extent the rays of the sun penetrate the snow even when it is of considerable thickness. From these two facts results a third fact, viz., that the upper, or surface, stratum of the ground, even though it be frozen at the first fall of the snow, is soon thawed out, and does not again fall below the freezing-point during the winter, at least while the snow lasts. In Vermont, for four successive days of one winter, the temperature immediately above the snow was thirteen degrees below zero. Beneath the snow, which was four inches deep, the temperature was nineteen degrees above zero, thus making a difference of forty degrees, showing that the soil beneath the snow-beds was from thirty-two to forty degrees higher than the temperature of the air. The value of this fact in preserving the life and vigour of plants is at once apparent. It is for this reason that in the borders and glades of our American woods and forests violets and other small plants begin to vegetate as soon as the snow has thawed the soil around their roots; and they are not unfrequently found in full flower under two or three feet of snow.

A third fact is now to be considered. The layer of snow lying nearest to the soil, having a heavy bed above it with its enclosing crust, soon begins to melt. This process continues more or less abundantly according to the temperature during the winter. What becomes of the water thus formed? It is slowly imbibed by the vegetable mould, sinks into the under surface of the earth, and finds its way into the springs and streams which are the sources of our creeks and rivers. Very little water runs off in the winter by superficial water-courses, except in rare cases of sudden thaw, and there can be no question that much of the greater part of the snow deposited, in the forests at least, is slowly melted and absorbed by the earth. It is questionable whether the snow in certain latitudes has not as much to do with the fertility of the land, and fulness of springs and water-courses, as the rain. The rains of summer coming with sudden dash run away from the soil faster than the ground can imbibe them; but it is not so with the snow. It lies in beds upon the top of the ground,

and the process of infiltration continues the winter through.—*H. C. McCook, D.D.*

Ice yielding to Sunshine.

In moral work it is more hopeful to melt than to break.

You may hammer ice on an anvil, or bray it in a mortar. What then? It is pounded ice still, except for the little portion melted by heat of percussion, and it will soon all congeal again. Melt it in the sun, and it flows down in sweet water, which mirrors that light which loosed its bonds of cold. So hammer away at unbelief with your logical sledge-hammers, and you will change its shape, perhaps, but it is none the less unbelief because you have ground it to powder. It is a mightier agent that must melt it—the fire of God's love, brought close by a will itself ablaze with the sacred flow.—*A. Maclaren, D.D.*

The Apparent Waste of Beauty in Snowflakes.

True beauty comes out of the faithful fitting to our life-sphere.

The simplest creatures of the Divine Hand, and the minutest details of their structure, are not deemed unworthy of infinite power. Who could have thought these crystals of the snow-storm worthy of such care? Only a snowflake! Is it not a waste of beauty? What unnumbered myriads of them are floating there through the skies! How they blanket the fields; drift in great banks along the fences and railway tracks; fill the ravines in the hills; pack the gorges of the mountain, and lie heaps on heaps upon the highest summits! These flowers of the snow, these gems of the winter storm, God has wrought out with as careful touch as the Victoria Regia, or the twinkling lustre of Venus, the evening star.

Is it your lot in life to labour in wood, or stone, or iron, or paper, or cloth, or other material or fabric? See to it that, in imitation of the infinite Architect and all-wise Artisan, you carry with you to your toil a sense of joy and pride in your labour. Cherish the desire and purpose to do your best for the sake of doing your best, to produce the most perfect work, not simply because it pays, not simply because you are under pecuniary obligations so to do, but because, in the exercise of your noblest manhood and womanhood, you esteem it a part of your life to make your life's products as near perfection as your condition and abilities will allow.—*H. C. McCook, D.D.*

Snowflakes falling Unperceived.

'As the snow gathers together so our habits are formed.'

Like flakes of snow that fall unperceived upon the earth, the seemingly unimportant events of life succeed one another. As the snow gathers together so are our habits formed. No single flake that is added to the pile produces a sensible change; no single action creates, however it may exhibit, a man's character.—*Jeremy Taylor.*

The Protecting Power of Snow.

It covers the vegetables, and protects them from the rigours of the frost, and from the chilling blasts of wintry wind.

Snow is formed of very light vapours, which, being congealed in the atmosphere, fall down afterwards in flakes of different dimensions. In our climates these flakes are often very large, but we are assured that in Lapland the snow is very small, and resembles dry dust. This is doubtless occasioned by the great cold of that country. It is observed that among us the flakes are large in proportion to the degree of cold, and that they become very small when it freezes intensely.

The *whiteness* of this meteor

may be easily accounted for. Snow is extremely thin and light; consequently it has a great multitude of pores which are filled with air; it is, besides, composed of parts more or less close and compact: such a substance does not permit the rays of the sun to pass through, nor does it absorb them; on the contrary, it reflects them with considerable force, and this is what makes it appear white to us. Snow, as it falls, is twenty-four times lighter than water.

Snow has a variety of uses. As the cold of winter is more injurious to the vegetable kingdom than it is to the animal, plants must perish, were they not protected by some covering. God has so ordered it, that the rain which in the summer fell to cool and nourish the plants, should fall in winter under the form of soft wool, which covers the vegetables and protects them from the rigours of the frost, and the chilling blasts of winds. Snow has a certain degree of warmth, but so temperate as not to stifle the grain.—*C. C. Sturm.*

The Crystal Forms of the Snow.

'*Hast thou entered into the treasures of the snow?*' (JOB xxxviii. 22).

The molecules and atoms of all substances, when allowed free play, have a tendency to definite forms called crystals, which are for the most part very beautiful. The familiar confection known as rock candy is simply a mass of crystals of sugar, which has been produced by dissolving the sugar in water, and permitting the water to evaporate. Crystals of alum may be produced in the same way, and are familiar objects in the druggist's windows. Water, indeed, is almost a universal solvent, and there are but few substances that are not to a greater or less degree dissolved by it. The magnificent crystals which we frequently find in the rocks are formed in almost every case by a deposition of mineral substance from a state of solution in water. Many of the large crystals in cabinets of minerals have been unquestionably thousands of years in formation.

Snow is simply the vapour of water in a crystallized form. Indeed, the term 'crystal,' found in most of the European languages, is derived from the Greek (*krustallos*), meaning ice or frozen water, and was subsequently transferred to pure transparent stones cut into seals, which, as was thought, were produced only in the extreme cold of lofty passes of the Alps. The atmosphere is charged with watery vapour to an immense extent, and when the temperature is sufficiently low to freeze this moisture, snow is formed. When produced in calm air, the icy particles build themselves into beautiful stellar shapes, each star possessing six rays. More fully described, snow-crystals are six-pointed stars, or hexagonal plates, which exhibit the greatest variety of beautiful forms, one thousand different kinds having been observed. The flakes vary from seven hundredths of an inch to an inch in diameter, the smallest occurring with low temperatures, and the largest when the temperature approaches thirty-two degrees. If the temperature is a little higher, the snowflakes are partially thawed in passing through the air, and fall as sleet.

Whittier alludes to the geometrical form of the structure of snowflakes in his poem, 'Snow-bound':

> 'In tiny spherule traced with lines
> Of Nature's geometric signs,
> In starry flake, and pellicle,
> All day the hoary meteor fell.'

H. C. McCook, D.D.

Feeble Snow.

'*To them that have no might He increaseth strength*' (ISA. xl. 29).

Surely, of all things that are, snow is the most beautiful and the

most feeble. Born of air-drops, less than the fallen dew, disorganized by a puff of warmth, driven every whither by the least motion of the winds, each particle light and soft, and falling to the earth with such noiseless gentleness that the wings of ten million times ten million make no sound in the air, and the footfall of thrice as many makes no noise upon the ground—what can be more helpless, powerless, and harmless? But not the thunder itself speaks God's power more than this snow. It bears His omnipotence, soft and beautiful as it seems. While it is yet in the air, it is lord of the ocean and the prairies. Ships are blinded by it. It is a white darkness. All harbours are silent under this plushy embargo. The traveller hides. The prairies are given up to its behest, and woe to him that dares to venture against the omnipotence of soft-falling snow upon these trackless wastes! In one night it hides the engineering of a hundred years. It covers down roads, hides bridges, fills up valleys. The plough cannot find its furrows. Towns and villages yield up the earth and obey this white diffusive despot. Then, when it has given the earth a new surface, and changed all vehicles, it submits itself again to the uses of man, and becomes his servant, in its age, whom it ruled and defied in its birth. But, when flake is joined to flake, and the frosts within the soil join their forces to the frosts descended from the clouds, who shall unlock their clasped hands? Who shall disannul their agreement, or who shall dispossess them of their place? Gathered in the mountains, banked and piled till they touch the very clouds again in which once they were born and rocked, how terrible is their cold, and more terrible their stroke, when, slipping, some avalanche comes down the mountain side, the roar and the snow-stroke loud as thunder, and terrible as lightning! God gives to the silent snow a voice, and clothes its innocence and weakness with a power like His own. — *H. W. Beecher.*

The Wonders of the Snow.

Nature is perfect in her smallest details.

Our wonder is still more awakened when we remember what force is put into the creation of every one of these snowflakes. A learned physicist has declared that to produce from the vapour of water a quantity of snowflakes which a child could carry would demand energy competent to gather up the shattered blocks of the largest stone avalanche of the Alps, and pitch them twice the height from which they fell. If a single baby handful requires such force for its creation, what power must have been put forth to produce the thick blanketing of snow that lies upon the northland, from mountain-top to valley, during the winter season? Indeed, this is a very wonderful reflection. Yet it is not the thought of reckless waste that comes to me; not the suggestion that this is but the play of blind Titans, giants of force, throwing away their might in these careless disportings, as little thoughtful of the result of work or play as a group of sporting children. Rather I see in this that infinite exactness in the smallest details of Nature's work which marks the structure of everything, whether organic or inorganic. Here I learn that what is worth doing at all is worth doing well. And it is worth doing well for the sake of well-doing, because perfection is a quality of the noblest mind, and above all is the quality of the infinite Mind, who builds the crystal structure of the snowflake as carefully as He rounds out the proportions of the mightiest sun, and colours the insect, whose painted wing is expanded within

the solitudes of a Brazilian forest, as carefully as He tints the glory of the moon, that shines in the face of all mankind. — *H. C. McCook, D.D.*

Frost Music.

It is hard for souls that love freedom to be 'cribbed, cabined, and confined.'

I was once belated in Canada on a fine winter day, and was riding over the hard snow on the margin of a wide lake, when the most faint and mournful wail that could break a solemn silence seemed to pass through me like a dream. I stopped my horse and listened. For some time I could not satisfy myself whether the music was in the air or in my own brain. I thought of the pine forest, which was not far off; but the tone was not harp-like, and there was not a breath of wind. Then it swelled and approached; and then it seemed to be miles away in a moment; and again it moaned, as if under my very feet. It was, in fact, almost under my feet. It was the voice of the winds imprisoned under the pall of ice suddenly cast over them by the peremptory power of the frost. Nobody there had made air-holes, for the place was a wilderness; and there was no escape for the winds, which must moan on till the spring warmth should release them. They were fastened down in silence; but they would come out with an explosion when, in some still night, after a warm spring day, the ice would blow up, and make a crash and a racket from shore to shore. So I was told at my host's that evening, where I arrived with something of the sensation of a haunted man. It had been some time before the true idea struck me, and meanwhile the rising and falling moan made my very heart thrill again.—'*Once a Week.*'

The Quickly-melting Snow.

An emblem of faithless friendship.

I have stood in my tent-door in the garden of the gods in Colorado, and watched the snow-storm drifting around the summit of Pike's Peak until it had been covered with a white mantle. The flakes accumulated in thick drifts in the deep ravines. On the sudden slopes they lightly bordered the fissures like a delicate lace veil. On the abrupt declivities they showed themselves here and there in brilliant spots. Every deep in the mountain was marked out from afar by the brilliant mould of snow which filled it. This transient snow enveloping the mountain like a veil, which, so far from concealing its form, reveals it in its smallest details, has well been called 'the coquetry of Nature.' The next day, when the summer sun arose, the grand old beacon of the American desert, whose lofty poll had thus been whitened the night before, gradually dropped off his snowy mantle, and stood out in naked, massive proportions against the sky. Such a phenomenon as this might well have been taken as a fitting emblem of the transient nature of human affection, or of any other human beauty, grace, or service. Job appears to have had in his mind the breaking up of the winter snow, when he used the figures given in Job vi.

When the soft south wind blows in the spring, and the heat of the sun acquires fresh fervour, the snows piled upon the mountain slopes, packed within ravines, and spread upon the surface of the streams, begin slowly to dwindle and melt and glide away, until at last they and the mountain torrents, into which they have been merged, are alike extinct. Such is the patriarch's figure of a friendship which, like the snows and snow-fed torrents of a mountain, yields and disappears before the

fierce beating of affliction and poverty.

'To one who is consumed by burning grief
Consideration from a friend is due;
My brothers, as the torrent, have been false,
As winter torrents when they fade away.
The streams were dark by reason of the ice;
The snows within their bosom hid themselves.
When spring-time comes to breathe upon them warmth,
They melt, they dwindle;—summer comes with heat,
And from their channels are the streams extinct.

* * * * *

Thus ye too are become a dried-up brook:
Ye saw my troubles, and ye stood amazed.'

H. C. McCook, D.D.

Beautiful Snow.

God's covering purity can make all things new.

When in the Hebrides, I looked out on a November morning and saw a white world in a pink glow. Between the fir-trees the bay gleamed like a polished mirror, and there was not a cloud in the sky. At ten o'clock I hastened out for a ramble over the hills. Hard frost had immediately succeeded a fall of snow. Nature was in bridal robes: like bridal robes they etherialized her; like bridal robes they gave her a strange, unfamiliar beauty; like bridal robes they were too exquisite for ordinary wear. It was all perfect purity. Where yesterday there was mud, an angel might have walked in white. Where there were little pools to be avoided, one heard a pleasant crackle of ice underneath the snow. The path leading to the moors sparkled as if strewed with diamonds. No speck from smoking chimneys had sullied the snow; no wheels or tread of multitudinous feet could change it into mud. The trees were clothed again, not in green, but in white; not in leaves, but in crystals. The delicate tracery of the beeches, all brought out in white against the blue sky, was peculiarly lovely. The shadows of the trees lay in soft blue upon the snow. Every feathery grass, frond of fern, and withered 'umbel' had its minutest details repeated in the delicate, glittering crust that clung upon it. I gathered a stalk of feathery grass embossed with crystals, and shook it, but not a particle dropped off. I remember when a child being taken to an electroplating establishment, and seeing a branch of holly immersed in a trough of liquid and brought out again silvered. To-day every twig, blade, dead leaf, sprig of withered heather, had been steeped in alabaster, crystal, diamonds, whatever one can think of that is white and glittering. . . . Looking south, a mist clung to the broad white brow of Spena-Vohr, in folds soft as a bride's veil; and this mist, just catching the low sun in its dazzling silver sheen, realized the expression, 'whiter than snow.'—'*Family Treasury.*'

Snow a Trouble to Some, and a Joy to Others.

Our estimates of things greatly depend on the relations in which we stand to them.

It is indeed a beautiful sight when the white flakes tumble through the air, and fall softly, eddying, sporting, rising, and sinking ere they drop upon their final resting-place. It is not an unpleasant sight presented by streets and houses when whitened over with the first clean flakes. They hide away for the moment the foulness of our streets, and all the uncouth, ungraceful, and repulsive objects that so frequently greet our city-environed eyes. The snow may stir a momentary joy in the city maiden's

heart as visions of sleigh ride and toboggan-slide dance through her brain. The schoolboy is filled with enthusiasm as the circling crystals greet his vision through schoolroom windows.

Nevertheless, to the great mass of dwellers within city walls snow is an unmitigated nuisance. It blocks up the tramways, the cable-tracks, the lines of transportation and of business. It becomes trampled and soiled in a little while, and lies along the edges of the pavements in great wind-rows, that day by day grow more unlovely to the eyes as the sweeping machines pile upon them the accumulated filth of the streets. We could easily spare the snow from our city limits. But beyond city walls the farmer and gardener look upon the falling flakes with different feelings. As they come flying through the air, and slowly gather upon fields of grain and meadows of grass, and pack around the roots of growing trees in nursery and orchard, the agriculturist is glad. His farm is not as beautiful to your eyes as in the freshness of the early spring, or the maturity of summer's beauty; but the farmer will tell you that his grain and grass lie snugly beneath the snow through the whole winter, quite protected from the sharp frosts. When the sun gains strength in the spring-time, and the warm currents flow once more through the earth, and the snow is melted and gone, up spring the tender blades. Then, when harvest is over, well-packed hay-mows and granaries heaped with yellow grain tell that the cheerless-looking snow was, after all, a kindly friend to the farmer. It has served the florist quite as well, for underneath its fleecy beds the flower-plants have snugly slept and prepared them for their early spring awakening.

The experience of man asserts it to be true that burdens on the human heart, like snow-beds on the breast of meadow, field, and orchard, prevent radiation of the soul's warmth, retain within the heart the graces and blessings of the spiritual life, save the soul from chilling, and make the nature rich and fertile.—*H. C. McCook, D.D.*

The Formation of Hail.

Nature has forces which seem only destructive, but are really beneficent.

Hail is formed only in summer, and is almost invariably an accompaniment of tornadoes. It is found in one or sometimes two belts outside of the tornado track and parallel to it. If a large hailstone is cut in two, the centre or nucleus is found to be a minute snowball, then comes a ring of clear ice, then a ring of snowball like conglomerate, and so on. This indicates that two different influences following each other in repeated succession have caused the formation. What are those influences?

A tornado or whirlwind may be described as a hollow cone of air in violent spiral motion around its own axis, which is continually moving forward. The walls of moist, warm air are in the highest state of saturation and compression, as well as motion; the centre, or vortex, is comparatively calm. The humid air continually drops into the vortex, and passes under conditions of much diminished pressure. Rapid expansion follows; the temperature is greatly reduced; the moisture condenses and freezes. Thus are formed the little snowball nuclei of the hailstones. Up they go, borne along their spiral road by the gyrations of the tornado. As they mount aloft they are tossed to and fro in all directions by the surging air, aided, perhaps, by electrical attraction. The impinging pellets are kneaded and balled together by regelation. This process continues until the weight of the accumulated masses enables them

to overcome the vortex motions of the air-currents and the attraction of electricity, which is commonly formed under such circumstances, when they break away from the warring elements in which they had their formation, and fall to the earth as hailstones.

But it is possible that, in the wild commotion of those upper regions, these icy drops may not be permitted to fall directly to the ground. They may be caught in their descent upon the edges of some eddy, and whirled in again towards the vortex by the inflowing currents, and once more be borne swiftly aloft into the freezing regions. This process may occur again and again, and several revolutions of ascent and descent be made, before the hailstones are able to fall to the earth. While crossing the region lower down, where they meet the yet unfrozen rain, they receive a coat of solid ice on precisely the same principle that a cold stone pavement will often have an icy surface on a warm winter morning. Thus, alternate coatings of snow and ice are received, and the number of such icy jackets carried by each hailstone indicates the number of revolutions described before they began their headlong descent to the ground.

It has already been intimated that, during the process of hail formation, electricity is usually generated. In fact, hail generally precedes, and sometimes accompanies, thunder and lightning. The sharp, rattling noise of hailstones against each other during a hail-storm is in part probably electrical, and the electricity doubtless has something to do in attracting the minute ice masses to each other. Electricity, however, is not the origin of hail, as has sometimes been supposed, but, rather, electricity and hail are results of the same combination of causes. At all events, the association of thunder and lightning with the hail-storm was observed by the ancient writers, as may readily be seen in the Psalmist's noble description of the tempest (Psa. xviii. 9-14).

The hail teaches the providential interposition of God in human affairs, and the Divine judgment on the ungodly.—*H. C. McCook, D.D.*

The Iceberg in a Swelling Sea.

Christians can bear the buffetings of the sea and storm of life.

An established, experienced, hopeful Christian is, in the world, like an iceberg in a swelling sea. The waves rise and fall. Ships strain, and shiver, and nod on the agitated waters. But the iceberg may be seen from afar receiving the breakers on its snow-white sides, casting them off unmoved, and, where all else is rocking to and fro, standing stable like the everlasting hills. The cause of its steadiness is its depth. Its bulk is bedded in calm water beneath the tumult that rages on the surface. Although, like the ships, it is floating in the water, it receives and throws off the angry waves like the rocks that gird the shore.

Behold the condition and attitude of Christians. They float in the same sea of life with other men, and bear the same buffetings; but they are not driven hither and thither, the sport of wind and water. The wave strikes them, breaks over them, and hisses past in foam; but they remain unmoved. They are not caught by surprise, while they have a slight hold of the surface. The chief part of their being lies deep beyond the reach of their superficial commotions. Their life, 'hid with Christ in God,' bears, without breaking, all the strain of the storm.—*Dr. Arnot.*

The History of a Glacier.

Everything works towards the accomplishment of the mission that Nature has entrusted to it.

One striking form which snow-beds take is that of the glacier. This is the name given to an immense mass of moving snow and ice. The glacier is, in fact, a river of ice, whose sources are the snows that, summer and winter alike, fall upon lofty mountain summits. In process of time the snow becomes hard packed, and by reason of great pressure and alternate thawing and freezing is solidified, so that as it passes gradually into the valley it goes down as a rugged river of frozen snow and ice held within the walls of mountain gorges, as a stream of water runs between its banks.

The melting of the ice on the surface of the glacier produces streams whose course is often broken by crevasses, or deep clefts, down which the water descends, and after being increased by like rivulets, it issues at last as a stream, or creek, or river, from the cavernous mouth of the vault at the termination of the glacier. Thus these strange phenomena of Nature have their origin in the region of perpetual snow, and reach far down into the valley. That of Bossons, which comes from the highest part of Mont Blanc, reaches a point five thousand five hundred feet below the snow-line, where it is embosomed among luxuriant woods, and is almost in contact with the wheat-fields of the Vale of Chamouni.

A curious and interesting career is that of the melted snowflakes. Born high up amid eternal winter, trickling down through the crevasse, along secret springs and channels of the glacier, issuing at last immediately from its dark icy vault into sunlight, amid the fragrance of flowers and sweet-smelling hay-fields, it flows forth among human habitations, to bless and beautify the gardens, meadows, and fields of men. The river Arveiron is born of the Glacier des Bois. Flower-decked Chamouni — sweet Chamouni, whose beauty dwells as a pleasing memory in the mind of every tourist to Switzerland—is a creature of streams of snow-water flowing from the ice-bound channels of glaciers of the Alps.—*H. C. McCook, D.D.*

THE SEASONS—SPRING.

The Coming of Spring.

'Thou renewest the face of the earth' (Psa. civ. 30).

Every spring there is a rejuvenescence of the vegetable kingdom. But although most apparent at this season—showing itself in the tender verdure of green grass, and fresh beauty of bright leaves and blossoms—it is not the work altogether of spring. This magic clothing of dead boughs with foliage, and bare earth with grassy carpets, is not the result of the few sunny days of April in which it comes so suddenly into view. The labour of renovation begins at an earlier period, and the breath of spring only unfolds that which was preparing in silence and secrecy during the dark chill season of winter. For, as Dr. Braun says, 'in proportion as the vegetable world advances in summer and autumn, in shoot and leaf and wood, in flower and fruit, and all the outward manifestations of life, so does it simultaneously retreat into itself in the formation of buds and seed, to prepare the germs of new life. Thus in August we find

in the terminal and lateral buds of the oak, the rudiments of the leaves destined for next summer; in the twin terminal buds of the lilac, not only these, but also the rich thyrse of blossom for the future year, and, strangest of all, in the adder's tongue, a fern which unfolds annually only one leaf and spike, the bud hidden underground in May contains not only the leaf and spike for the next season, but also the rudiments of the leaf and spike for the season after that. Winter puts plants into the deep sleep which allows this rib to be taken out of their side. It prepares for the rejuvenescence of spring. Nature then withdraws into her recesses, and fashions indoors as it were, in the hiding places of her power, the leaf and the blossom, which come out when the summer shines. Nature looks dead in winter because her life is gathered into her heart. She withers the plant down to the root that she may grow it up again fairer and stronger. She calls her family together within her inmost home to prepare them for being scattered abroad upon the face of the earth. And it is curious to notice that the colouring of spring is like the colouring of autumn. The first sprout of the hawthorn hedge is of the same reddish hue as the last withered leaf that clings to the oldest branch. In a rich glossy olive hue the ash tree unfolds its young foliage in April, and sheds its aged foliage in September. The autumnal tints of the oak are prefigured by those of its vernal promise; its leaves come and go out in a crimson blaze. As Nature begins, so she ends; her extremes meet. Each birth is a prophecy of death, and each death a prophecy of birth.—*Hugh Macmillan, LL.D.*

Winter gives Place to Spring.

Every life may be a happy one.

Even if a man make no effort of himself, if he be so neglectful as not to realize the brilliant opportunities permitted to him so fully as he may, still is life crowded with pleasures. When there is shadow, it is because there is sunshine not far off. Its weeds and thorns are known by contrast with surrounding flowers, and though upon many even of the latter there may be raindrops, those that are without are yet more abounding. There are more smiles in the world than there are tears; there is more love than hate, more constancy than forsaking: those that murmur the contrary choose not for thy companions. When the mist rolls away from the mountains, and the landscape stands suddenly revealed, we find that Nature always has beauty for her end. However long and dreary may be the winter, we are always indemnified by the spring—not merely by the enjoyment of it when it comes, but by the anticipation. So with the mists and wintry days of life; while they last they are painful, but their clearing away is glorious, and we find that they are only veils and forerunners of something bright. Nature never forgets her æstivalia, nor Divine love its compensations. 'The common course of things,' says Paley, 'is uniformly in favour of happiness. Happiness is the rule, misery the exception; else would our attention be called to examples of wealth and comfort, instead of disease and want.'—*L. H. Grindon.*

Nature at her Brightest.

God's work in Nature is the best illustration of His work in man.

One great reason why Nature so profoundly interests us is, that the work of God in her is the best illustration and parable of His work in man. The truest, as well as the most interesting, of all sermons on the *new birth*, is the annual renewal of the earth. And whoever fails to see the law by which a warm sky makes the earth to blossom, sing, and bear

fruit, never will understand the regeneration of the soul. Christ kept close to the work of God in Nature, and never went into dry definitions. Man's work upon a tree begins after it is cut down; but God's work ceases in dry timber, carve it as cunningly as you will. One throb of God's life will do more for your soul than all the theology which the human brain has constructed since the world began. Cast away your idols, and muse on the work of God; for the beauty of His work in Nature mirrors the beauty of His work in you. By Nature's beautifulness He makes His appeal, seeking to stir in you the longing to be made beautiful. When you are beholding the glory of the summer earth, what can be more natural than the prayer: Let the beauty of the Lord God develop itself in me!—*John Pulsford.*

Spring Days out of Town.

Spring days seem to give visible form to the song of poets.

It seems almost as if the song of poets came to life upon some spring days, and took visible form, and voice, and being. Rhythm, music, the great flow of their melodies, the secrets of their philosophy, are vibrating all round and about. One seems to learn the meaning of a poem by heart, as one lies on the hillside in the sunshine. A bumble bee buzzes by, and floats away down the slopes over sweet gorse, thrift, wild thyme, rock-roses, violets, and soft green grass. A chorus of piping, whistling, thrilling, chirruping, twittering mounts from all the hedges and copses at our feet; a soft wind from the sea comes blowing into our faces, while the distant sound of the waves washing against the shore down below seems to flow like an accompaniment to the concert of the birds. London is four hours away, the sun is not yet set, and we are still safe on the hill. One tries to climb it, slipping over the smooth turf; it is so smooth that the furze bushes seem gliding over the precipitous sides of the down. As we climb on, the browsing sheep first appear against the clear sky, then comes more yellow gorse, and then at last the sea from the summit of the cliff. It lies quite calm, a pale blue ocean, streaked with straight and solemn lines where the currents flow. The ships seem sailing in the air, for you cannot tell where the horizon finishes or the sky begins. We stand on the edge of the cliff listening to the strange stillness of far-away sounds, to the song of the waves and the birds. All the air is thrilling with the sweet smell of gorse bushes, and vibrating with sunlight. There are no words to tell of such silence, and sweetness, and greatness. Faint scents, faint sounds, wide colours flowing—green, and the tender blue of sea and heaven, and the lilac distance melting on the far-away hills. A sudden awe and wonder comes over one—a thrill of exquisite calm, and gratitude, and comfort, like an unspoken psalm of wonder and praise.—*Richard Jefferies.*

Slow-coming Spring-time.

The process of a soul's regeneration is often slow, and difficult to trace.

In our climate, at least, it is hard to tell where winter ends and spring begins. Who can tell just when spring came? The sun gathered warmth, and the earth gathered verdure. There were fitful days of sunshine and storm. The season oscillated through the months of March and early April, and appeared a score of times as though it would spring forward into the balmy days of May; but as the keen winds blew, swung back again, and reminded us that winter was still lingering. At last, on the little patches of sward that

looked toward the south, we seemed to see a growing tint of green. One morning we looked again, and said to ourselves, 'Surely the plots are brightening! They are looking very green to-day!' Then came a balmy day, when we could swing the windows wide, and let in the first breath of spring to course through chambers and hall, and sweep out the lifeless furnace air from the corners, and freshen the whole house. That was a day, indeed, to make our hearts glad, and fill us with hope of what soon should be. Another day we walked down the street, and glanced over a railing, and there was a crocus peeping its face above the new grass. Another day when we looked there was a dandelion, the bright harbinger of May! Not a fragrant flower, indeed, nor a comely one to the common standard of human taste, but one whose cheerful face is filled with laughter and promise, and of all the flowers of our latitude is best worthy to be embalmed as the happy symbol of Nature's resurrection. Hark! there is the song of a bird! Not the chattering call of the sparrows, whose dusky coats have been familiar on our streets throughout the winter days, but the sweet twitter of a robin, or the whistle of a vireo. Yes, the migratory birds have come back. They are here to stay—the vanguard of the coming host that by-and-by shall fill the trees and sing among the branches. It is spring! Spring has come! When did it come? We do not know. We cannot mark the day. Winter has so gradually shaded into spring that we can only say we know that spring has come because we discern that spring is here.

It is often so with that spiritual change which we call regeneration. There are many Christians who make the most serious mistakes of their lives by erring upon this point. They have been long looking for a decided change somewhere in their spiritual life—a jumping straight out of ungodliness into Christian excellence. Because they cannot lay their finger upon such a time, nor fix with their thought the very day when, and the place where, the new birth came to them, they are full of sorrow; they doubt their change of heart. It is just as though you expected winter to pass into spring by a single convulsion of Nature.—*H. C. McCook, D.D.*

A First Work of the Spring-time.

Human progress demands the removal of effete and worn-out things.

Every season is indebted to that which has gone before. Yet the first labour of the new life of grass is to push away the old and overlying growth. Many trees are obliged to begin the spring by casting off the leaves of the previous year. Thus it was in the moral world at the advent. Christ's first and last adversaries were those who represented the religion of the times. They were the men who were religiously conceited, and who, under the pretence of sanctity of truth, and the venerableness of holy things, refused to let the new growth come on which God appoints to every generation. They were the religious conservatives of that day. Clamorous about the truths of the past, and very ignorant of the truths of the present, they seemed to think that all of God's teachings to this world were already issued, and that *they* were the King's post, in which these teachings, sealed up like letters, were to be conveyed to another generation; and they supposed that their business was that of sacred mail-carriers, te convey unopened and unused the sealed messages of God to those who should come after them. —*H. W. Beecher.*

Spring in Heidelberg.

The loveliness of spring-time in southern countries.

In all climates spring is beautiful. In the south it is intoxicating, and sets a poet beside himself. The birds begin to sing. They utter a few rapturous notes, and then wait for an answer in the silent woods. Those green-coated musicians, the frogs, make a holiday in the neighbouring marshes. They, too, belong to the orchestra of Nature, whose vast theatre is again opened, though the doors have been so long bolted with icicles, and the scenery hung with frost and snow, like cobwebs. This is the prelude which announces the rising of the broad green curtain. Already the grass shoots forth. The waters leap with thrilling pulse through the veins of the earth, the sap through the veins of the plants and trees, and the blood through the veins of man. What a thrill of delight in spring-time! What a joy in being and moving! Men are at work in gardens; and in the air there is an odour of the fresh earth. The leaf buds begin to swell and blush. The white blossoms of the cherry hang upon the boughs like snowflakes; and erelong our next-door neighbours will be completely hidden from us by the dense green foliage. The May flowers open their soft blue eyes. And at night—so cloudless and so still! Not a voice of living thing; not a whisper of leaf or waving bough; not a breath of wind; not a sound upon the earth nor in the air. And overhead bends the blue sky, dewy and soft, and radiant with innumerable stars, like the inverted bell of some blue flower, sprinkled with golden dust, and breathing fragrance. Or if the heavens are overcast, it is no wild storm of wind and rain, but clouds that melt and fall in showers. One does not wish to sleep, but lies awake to hear the pleasant sound of the dropping rain.—*Longfellow.*

The Certainty of Returning Spring.

Christian workers may be comforted and encouraged by the assurance that their winter of seeming deadness will pass into a spring-tide of life.

Have you never looked out upon fields banked with a snowfall a foot or more in depth, and streams bound fast in fetters of ice, and trees shaking their bare branches in the cutting air, and been conscious of a thought somewhat like this: Can it be possible that all these shall change to the verdure and balm of June? It is indeed a marvellous transformation; and yet as surely as winter comes, winter goes. The earth that is hardened like a stone by the frosts shall be mellowed; the roots shall be unloosed from the grasp of the frost king's icy fingers; the frozen streams shall be unlocked, and their fetters cast loose upon the crest of freshets swollen by melting snows; fields and forests shall be clad in verdure, and made vocal with the hum of life; the winter shall be over and gone, spring shall come. Always since the earth began it has been so. Always while the world swings in its orbit it shall be so. Summer and winter, seed time and harvest, shall not fail.

We carry our metaphor into the spiritual realm, and find it here also true that sun and season prevail over all the discouragements, disappointments, and obstacles of the spiritual conflict. The human heart is indeed hard, and lives are often blighted by the frosts of sin. The streams of charity and goodness become bound within the human heart in more than icy fetters, and the soul is barren of beauty and fruitfulness, as are the meadows and woods

in winter. But over all this dreary landscape there floats the promise of a renewed life. Trust that promise, and keep a good heart. The souls around you, who seem so impervious to the gentle influences of the Gospel, to the calls of God which you have sounded so often, summoning them to a new life, they at last—believe it, O discouraged one!—shall experience the blessed change from death unto life. Sin is stronger than winter, and evil habits are mightier bonds than crystals of ice; but God is great, God is omnipotent, and He is able even to the uttermost. They who trust Him shall never be confounded, and He has promised to bless His truth to the deliverance of the sinner's soul.—*H. C. McCook, D.D.*

Spring in Russia.

Nature-moods favour moral reflections.

On the year when I entered the University of Moscow, Easter fell late in April. The weather had been soft, warm, and clear for three days after the wet snow which Karl Ivanitch had been in the habit of calling *the son followed the father*. Not a lump of snow was to be seen in the streets; dirty paste had given place to the wet, shining pavements and rapid rivulets. The last drops were thawing from the roofs in the sun. The buds were swelling on the trees within the enclosures. The path in the courtyard was dry. In the direction of the stable, past the frozen heaps of manure, and between the stones about the porch, the moss-like grass was beginning to turn green. It was that particular period of spring which acts most powerfully upon the soul of man—the clear, full, brilliant, but not hot sun, the brooks and snow-bare places breathing freshness to the air; and the tender blue sky, with its long transparent clouds. I do not know why, but it seems to me that the influence of this first period of birth of the spring is even more powerful and perceptible in a great city—one sees less, but foresees more. I stood by the window through whose double frames the morning sun cast dusty rays of light upon the floor. The fresh perfumed air had already entered and filled the room. From the window the hum of the city and the twittering of the sparrows in the yard were audible.

Every object was brilliantly illuminated; the room had grown cheerful; the light spring breeze fluttered the leaves of my algebra and Nikolai's hair. I approached the window, sat down in it, bent towards the yard, and began to think.

Some new, exceedingly powerful, and pleasant sensation penetrated my soul all at once. The wet earth, through which, here and there, bright green spears of grass with yellow stalks pushed their way; the rivulets, sparkling in the sun, and whirling along little clods of earth and shavings and reddening twigs of syringa with swollen buds which undulate just beneath the window; the anxious twittering of the birds thronging this bush; the blackish hedge wet with the melted snow; but chiefly the damp, fragrant air and cheerful sun—spoke to me intelligibly, clearly, of something new and very beautiful, which, though I cannot reproduce it as it told itself to me, I shall endeavour to repeat as I received it. Everything spoke to me of beauty, happiness, and virtue; said that both were easy and possible to me, that one could not exist without the other, and even that beauty, happiness, and virtue are one and the same. 'How could I fail to understand this? How wicked I was before! How happy I might have been, and how happy I may be in the future!'

I said to myself. 'I must become another man as quickly as possible, this very moment, and begin to live differently.' But in spite of this I still sat for a long time in the window, dreaming and doing nothing. Has it ever happened to you in summer to lie down to sleep during the day-time in gloomy, rainy weather, and, waking up at sunset, to open your eyes, to catch sight through the wide square window, from under the linden shade which swells and beats its stick against the window-sill, of the shady, purpling side of the linden alley, wet with rain, and the damp garden walks, illuminated by the bright, slanting rays; to suddenly catch the sound of merry life among the birds in the garden, and to see the insects which are circling in the window aperture transparent in the sun, and become conscious of the fragrance of the air after rain, and to think, 'How shameful of me to sleep away such an evening!' and then to spring up in haste, in order to go to the garden and rejoice in life? If this has happened to you, then here is a specimen of the powerful feeling which I experienced then.—*Count Tolstoi.*

Spring Thoughts.

Everything in spring-time encourages a meditative mood.

Turn out of the way a little, good scholar, towards yonder high honeysuckle hedge. There we'll sit and sing while this shower falls so gently upon the teeming earth, and gives yet a sweeter smell to the lovely flowers that adorn these verdant meadows. Look! under that broad beech-tree I sat down when I was last this way a-fishing, and the birds in the adjoining grove seemed to have a friendly contention with an echo, whose dead voice seemed to live in a hollow tree near to the brow of that primrose-hill. There I sat, viewing the silver streams glide silently towards their centre—the tempestuous sea—yet sometimes opposed by rugged roots and pebble stones, which broke their waves and turned them into foam. And sometimes I beguiled time by viewing the harmless lambs, some leaping securely in the cool shade, while others sported themselves in the cheerful sun, and saw others craving comfort from the woollen udders of their bleating dams. As I thus sat, these and other sights had so fully possessed my soul with content that I thought, as the poet has so happily expressed it:

'I was for that time lifted above earth,
And possessed joys not promised in my birth.'

As I left this place and entered into the next field, a second pleasure entertained me. It was a handsome milk-maid, that had not yet attained so much age and wisdom as to load her mind with any fears of many things that will never be, as too many men too often do; but she cast away all care, and sang like a nightingale.—*Izaak Walton.*

The Flowers of Mid-May.

God preserves all good and beautiful things, and brings them to view in His time.

What beauty one sees covering the earth in mid-May! The tender leaves, so far as the trees have put them forth, have all the freshness of Easter clothes. The meadows and lawn wear their brightest livery of emerald sward. The yellow, white, and blue flowers spread their brilliant hues over all the landscape, and as they are the first show of spring-tide their beauty has not palled upon our senses, and we welcome them with a thrill of pleasure.

The yellow flowers are not numerous, but there are some. The buttercups nod in rich profusion. The dandelion still lingers, although its sunny face, fresh with the icy breath of March, has been

cheering us for weeks. Just now its stalks are tipped with those graceful globes which at one's touch dissolve into a score of seeds, every one tufted with a cluster of downy ciliæ that float it off upon the breeze over the meadow. An English lady said to me, 'I wonder that you Americans love the dandelion. We think it rather a nasty plant.' Ah, but I do not wonder. Its flower glows with the first breath of spring; its seeds are veritable fairies in gracefulness, and its quaint notched leaves, that warrant its name of lion-tooth (*dent de lion*), mark it at once as noted among the common plants.

White flowers are more plentiful. The dog-eared petals of the Cornus (dogwood) fairly cover the low tree, and show afar off through the woods like a white banner of ancient France. The horse-chestnut, emblem of our 'Buckeye State' (the *Æsculus glabra* is Ohio's plant emblem), lifts erect about its broad leaves tall clustered cones, that remind one of the white pompon on a soldier's hat. The locust-trees have begun to show their pendent bunches of fragrant blossom. There, too, is the snowball bush, well deserving its name, for one might fancy a boy's fistful of snowballs had been stuck upon every twig. The spiræa holds up branches flecked with woollen bloom. The hawthorn's milk-white clusters 'scent the evening gale.' The daisies are not yet plentiful, but you will find them with their white star rays issuing from their hearts of gold; not the 'wee, modest, crimson-tipped flower' of Burns' exquisite poem, but our own bold beauty who loves the sun and society. The wild strawberry nestles close to the bosom of mother earth, with its delicate odour and dainty bloom. The creamy flower of the May apple (*Podophyllum*) hangs on its wax-like stem beneath its broad leaves.

The blue flowers, with their many shades of purple, lavender, violet, are in their glory. The flag waves her banner at the edge of the pond and brook, reminding us that the flowers appear on the water as well as on the earth.

The judas tree, with its pinkish blossoms, shows bright in the leafless clumps of shrubbery. The polonia has put forth its huge clusters of heavy-scented, cup-shaped blossoms, a strange sight; indeed, a great forest-tree decked from top to lowest bough with purple flowers. Yet the stately trunks of the grenadier tulip poplar will soon bear up even a nobler bloom.

Then there is the lilac, sweet, old-fashioned flower, that loves the precinct of home, and rears its lavender blooms above its heart-shaped leaves, filling the air with a fragrance that calls up childhood's days. Shall we forget the violet, the sweet social flower, whose beds and banks furnish exhaustless nosegays for the children's pink fingers? We must name at least one more, the majestic wisteria, the queen of flowering vines, embowering the porch, draping the windows, swinging from the very eaves of the roof, hanging thick with purple bunches as big as grapes of Eshcol. It is a rare sight, worth crossing an ocean to see, as it grows here in our West Philadelphia, decked in its May glory.

No one knows how long flowers have been appearing upon the earth in successive returns of the seasons, but we do know that as often as they may have come back, they came the same as when they left. Spring found them where winter laid them. The sweet fancy of the poet is approved as a veritable fact in the clear light of science:

'But cheerful and unchanged the while
Your first and perfect form ye show,
The same that won Eve's matron smile
In the world's opening glow.' *Keble.*

Pleasant May-time.

Poets help us to read, and to feel, aright Nature's various moods.

'Oh, May, with all thy flowers and thy green,
Right welcome be thou, faire, freshe May.'

Chaucer.

The return of May brings with it associations of that merry England which Chaucer, Spenser, and Shakespeare knew, and of which the chroniclers of popular antiquities have left so pleasant a record. Their report of the national homage which was anciently paid to the spring gives us a cheerful picture of the festive side of English life in those ages.

Possibly the fathers of English poetry, viewing this festive life through the halo of their own rich fancy, have idealized it somewhat. Perhaps, to our critical modern eyes, could we but have glimpse of it, the festival of May, as it was celebrated upon the village green, would be anything but beautiful in its Arcadian simplicity. But if the sober prose of the chroniclers is to be trusted, there must have been a sincere delight in these simple pleasures: for when youths and maidens are moved to go out to the woods in the earliest dawn, to gather hawthorn buds and eglantine:

'For May will have no sluggardy a-night,'

and—

'The season pricketh every gentle heart,
And maketh him out of his sleep to start,'

returning at sunrise laden with the 'flowery spoil,'

'The postes to dight
And the kirk-pillours—eare daylight,'

it argues considerable devotion.

This custom seems to have continued until it was frowned upon as unedifying and unsavoury by the Puritans. Milton, however, who was the noblest of them all, was not to be frowned out of his love of Nature; and we have his own record of the homage which he paid to the

'Flowery May, who from her green lap throws
The yellow cowslip and the pale primrose.'

From Milton's time, until Cowper took us to wander with him in the open field by the banks of the Ouse, the poets of England, with rare exceptions, were poets of the town, not of the country: of the coffee-house and of 'my lady's chamber,' who, if they speak of country ways at all, it is of wholly mythical nymphs and swains, and of impossible shepherds and shepherdesses. They doubtless reflect the English taste of that period; but it is of another England that they speak than that which Chaucer knew: a poorer, and a baser.

At length, God sent Wordsworth to redeem us from our vain conversation, and

'He laid us as we lay at birth,
On the cool flowery lap of earth.'

But since his day clouds have hung thick over Arcadia: the 'manufacturing fury' has been upon us; and the worship of May, which bigotry frowned upon, and debauchery debased, avarice has well-nigh banished altogether; and this garden of England is in danger, on the one hand, of being turned into a cinder-heap, and, on the other, into a railway track.

But as cygnets find out the water, though their nests may be far away from it, so the robust national instinct leads us out into the country whenever opportunity offers.

The preaching of muscular Christianity, our new duties of citizen soldiership, and our enforced national holidays, have done much of late years to drive us out of our factories into the fields. Our wooing of Nature,

however, is somewhat awkward, because our love of her is not yet perfected. Much remains to be done. Meanwhile it is good to see the pale-faced city crowds greedily accepting the truce which some holiday brings to the dreary fight for life, and the weary drudgery of labour, and to watch them spending their brief respite in the cool woods and in the quiet fields.

It is a sight often tempered with melancholy reflections, for those who listen to the 'still, sad music of humanity,' for—

'A holiday of miserable men
Is sadder than a burial day of kings.'

Saddest of all is the thought of the thousands of children in this land, which was once known as Merry England, who scarcely ever see a flower grow, and whose only glimpse of the fields is gained in the annual excursion of the Sunday-school. Modern England, with all its resources of nineteenth-century civilization, in this respect suffers greatly in comparison with those days when—

'Youth's folke now flocken in—everywhere
To gather May-buskets—and smelling brere.'

It is easy to extol the past at the expense of the present, and to 'squeak and gibber of a bygone perfection.' We should be purblind if we thought every age admirable and great except our own. Our own age is great, at least in its patient suffering; of which so much that is noble is yet to be born; but must we not admit, as we try to recall that ancient English festive life, that our present sociology leaves much to be desired?

It may be that we shall never have again the simple love of Nature, or the leisure, of those early days; and never again drink with the ancient zest of those fountains of delight which broke forth in every English valley and hillside; if it be so, the more the pity.

THE STARS.

The Star Mercury.

The herald of the spring-time.

'The sweet influences of Pleiades,' of the stars of spring, nowhere sweeter than among the pine-clad slopes of the hills of Sparta and Arcadia, when the snows of their higher summits, beneath the sunshine of April, fell into fountains, and rose into clouds; and in every ravine was a newly-awakened voice of waters,—soft increase of whisper among its sacred stones; and on every crag its forming and fading veil of radiant cloud; temple above temple of the Divine marble that no tool can pollute nor ruin undermine. And, therefore, beyond this central valley, this great Greek vase of Arcadia, on the 'hollow' mountain, Cyllene, or 'pregnant' mountain, called also 'cold,' because there the vapours rest, and born of the eldest of those stars of spring, that Maia, from whom your own month of May has its name, bringing to you, in the green of her garlands, and the white of her hawthorn, the unrecognised symbols of the pastures, and the wreathed snows of Arcadia, where long ago she was queen of stars: there, first cradled and wrapt in swaddling-clothes; then raised, in a moment of surprise, into his wandering power—is born the shepherd of the clouds, wing-footed and deceiving—blinding the eyes of Argus, escaping from the grasp of Apollo—restless messenger between the highest sky

and topmost earth — 'the herald Mercury, new lighted on a heaven-kissing hill.'—*John Ruskin.*

Stars that have ceased to Exist.

Influences may continue when the source of influence is removed.

Astronomers say we see the light of stars that have ceased to exist. It is so with the influence of many a mother on her child, many a teacher on his pupils. The worker is gone, but the work abides, enlightening, gladdening, and saving the world. Be not weary in doing well; the world reaps a harvest, even if the sower never sees a ripened grain.

The Discovery of a Planet.

Some human experiences can only be explained by assuming Divine influences.

The thought of eternity is in us all—a presentiment and a consciousness; and that universal presentiment itself goes far to establish the reality of the unseen order of things to which it is directed. The great planet that moves on the outmost circle of our system was discovered because that next it wavered in its course in a fashion which was inexplicable, unless some unknown mass was attracting it from across millions of miles of darkling space. And there are 'perturbations in our spirits which cannot be understood, unless from them we may divine that far-off and unseen world, that has power from afar to sway in their orbits the little lives of mortal men.'—*A. Maclaren, D.D.*

The Voices of the Stars.

Voices for God, for duty, and for the higher life.

In the stars we find a voice without speech or language speaking down through the noise and smoke of the dim city, telling of things which are pure and ethereal and peaceful. Of infinity amid what is finite; of calm, amid that which is in endless perturbation; of rest to weary toil; of work, where there are many distractions; of nobility, amid the whirl of manners and low aims; of heaven to the labouring and weeping earth.

Do you say that the necessities of business must make an artificial code of morality, at variance with, and that must supersede, the everlasting principles of right? Has not

> 'The intense, clear, star-sown vault of heaven

a word to say about this? As you emerge from the office and the exchange, and see those eternal watchers, the abysses of black-blue between them, and across this, like a light mist or scarf, the untold billions of the Milky Way, do not flimsy sophistries exhale? Can expedient wrong, profitable for the moment, endure that glittering picture of eternal right and order?

The Sun-controlled Stars.

Both we ourselves, and the shaping of our lives, are in the ordering and keeping of God.

When stars, first created, start forth upon their vast circuits, not knowing their way, if they were conscious and sentient, they might feel hopeless of maintaining their revolutions and orbits, and might despair in the face of coming ages. But, without hands or arms, the sun holds them. Without cords or bands, the Solar King drives them unharnessed on their mighty rounds without a single misstep, and will bring them in the end to their bound, without a single wanderer. And the sun is but a thing, itself driven and held; and shall not He, who created the heavens, and appointed all the stars to their places, and gave the sun his power, be able to hold

you by the attraction of His heart, the strength of His hands, and the omnipotence of His affectionate will?—*H. W. Beecher.*

The Glories of the Star-lit Heavens.

'These are but a part of His ways.'

On a dark, clear night the glories of the stellar depths seem revealed in their fullest splendour. Yet how small a portion is seen! 'These are but a part of God's ways; they utter but a whisper of His glory.' If the eye could gain gradually in light-gathering power, until it attained something like the range of the great gauging telescopes of the Herschels, how utterly would what we see now seem lost in the inconceivable glories thus gradually unfolded! Even the revelations of the telescope, save as they appeal to the mind's eye, would be as nothing to the splendid scene revealed, when within the spaces which now show black between the familiar stars of our constellations, thousands of brilliant orbs would be revealed. The milky luminosity of the Galaxy would be seen aglow with millions of suns, its richer portions blazing so resplendently that no eye could bear to gaze long on the wondrous display. But with every increase of power more and more myriads of stars would break into view, until at last the scene would be unbearable in its splendour. The eye would seek for darkness as for rest. The mind would ask for a scene less oppressive in the magnificence of its inner meaning; for even as seen, wonderful though the display would be, the glorious scene would scarce express the millionth part of its real nature, as recognised by a mind conscious that each point of light was a sun like ours, each sun the centre of a scheme of worlds such as that globe on which we 'live and move and have our being.'

Who shall pretend to picture a scene so glorious? If the electric light could be applied to illumine fifty million lamps over the surface of a black domed vault, and those lamps were here gathered in rich clustering groups, there strewn more sparsely, after the way in which the stars are spread over the vault of heaven, something like the grandeur of the scene which we have imagined would be realised; but no human hands could ever produce such an exhibition of celestial imagery.—*R. A. Proctor.*

Influence of the Stars.

In educational and moral spheres we are indebted to many who are but as stars in the firmament.

It is a startling fact that if the earth were dependent upon the sun alone for heat, it would not keep existence in animal and vegetable life upon its surface. It results from the researches of Pouillet that the stars furnish heat enough in the course of the year to melt a crust of ice seventy feet thick—almost as much as is supplied by the sun. This may appear strange when we consider how immeasurably small must be the amount of heat received from any of these distant bodies. But the surprise vanishes when we remember that the whole firmament is so thickly sown with stars that in some places thousands are crowded together within a space no greater than that occupied by the full moon. We learn from this fact that we are greatly indebted in the physical world to the cumulative operation of small and remote influences. The same truth holds good in the intellectual world. We may, according to our estimate, consider any great mind either before or after Shakespeare as our intellectual sun, and may attribute to his influence the glory of our literature. But upon a closer inspection we shall find that we are deeply indebted to thousands of remote and

modest mental stars, whose united influence has done a work for us far greater than has been adequately recognised. They have shone over gaols and gibbets, over persecuted altars and desecrated houses, and have borne names never known to fame; but because they were stars, their influence has made itself felt, and our intellectual world owes to them as much gratitude as it does to its intellectual sun.—'*Scientific Symbols.*'

The Transit of Venus.

He who is loyal to duty will surely gain his reward.

When the young astronomer Horrocks had made all his arrangements for observing the transit of Venus, and anxiously awaited the critical moment, the church-bell summoned him to worship. What was to be done? If he responded to the bell, the transit might occur in his absence, and thus the grand spectacle would be missed, the great secret lost! After one moment's hesitancy the sense of duty prevailed; the service was celebrated; and, returning to his room, the devout astronomer beheld on the screen the coveted sign of the star. Thus it is with other secrets of the heavens; they are made known to us not when we forsake practical duty for abstract intellectualism, much less when we forsake goodness for libertinism; but when we persist in walking in the path of conscience and duty and worship. Curbing our pride, chastening our impatience, denying our passions, and waiting on God, we shall see light in God's light. 'The secret of the Lord is with them that fear Him; and He will show them His covenant.'—*W. L. Watkinson.*

The Height of the Stars.

'*Behold the height of the stars, how high they are!*' (Job xxii. 12).

'There is something awe-striking, overwhelming, in contemplation of the stars. Their number, magnitudes, distances, orbits, we know not; any multitude our unaided eyes discern is but an instalment of that vaster multitude which the telescope reveals; and of this the heightened and yet again heightened power, bringing to light more and more stars, opens before us a vista unmeasured, incalculable. Knowledge runs apace; and our globe, which once seemed large, is now but a small planet among planets, while not one of our group of planets is large as compared with its central sun; and the sun itself may be no more than a sub-centre, it and all its system coursing but as satellites and sub-satellites around a general centre; and this again—what of this? Is even this remote centre truly central, or is it no more than yet another sub-centre revolving around some point of over-ruling attraction, and swaying with it the harmonious encircling dance of its attendant worlds? Thus while knowledge runs apace, ignorance keeps ahead of knowledge; and all which the deepest students know proves to themselves, yet more convincingly than to others, that much more exists which still they know not. As saints in relation to spiritual wisdom, so sages in relation to intellectual wisdom, eating they yet hunger, and drinking they yet thirst (Ecclus. xxiv. 21).

'Deep only can call to deep; still, we who occupy comparative shallows of intelligence are not wholly debarred from the admiration and delights of noble contemplations. We can marvel over the many tints of the heavenly bodies, ruddy, empurpled, golden, or by contrast pale; we can understand the conclusion, though we cannot follow the process by which analysis of a ray certifies various component elements as existing in the orb which emits it; we can realize mentally how galaxies, which by reason of remoteness present to our eyes a mere modifi-

cation of sky-colour, are truly a host of distinct luminaries; we can long to know more of belts and atmospheres; we can ponder reverently over interstellar spaces so vast as to exhaust the attractive force of suns, and more than suns.' —*Christina G. Rossetti.*

The Unity of the Heavenly Bodies.

There is true underlying unity in Christendom.

It is a fact with which we are familiar from infancy, that all the heavenly bodies, sun, moon, and stars, seem to be set in an azure vault, which, rising high over our heads, curves down to the horizon on every side. This celestial vault above us, with a corresponding one below us, forms a complete sphere, which has been known in all ages as the celestial sphere. True, it is imaginary, but that does not diminish its value as enabling us to form definite ideas of the directions of heavenly bodies from us. Think of it! Those bodies, well-nigh innumerable, are scattered everywhere throughout the stellar space, and yet as the eye looks heavenward they seem smoothed out upon the plane of the celestial arch, and move in groups and constellations of individual stars and suns *as one host* —the mighty host of the heavens of God. Their lines are never broken, their order is never disturbed; but they march on for ever in harmonious line, and unity so perfect, that the expression, 'the music of the spheres,' is rather a fact of science than a figure of poetry.

Thus it is, as it seems to me, not only with individual Christians, but with those groups and constellations known as congregations and churches, when they are looked at with the eye towards the infinite and eternal world. They are all projected upon the celestial sphere as one harmonious host. When we lift our eyes from earth's narrow fields, when our vision rises above men's passions, prejudices and ambitions; when we take the wider range and clearer view which come from those who have eternity in sight; one after another the differences that had seemed to us great are overbridged, and men and churches dwell together in unity.—*H. C. McCook, D.D.*

Stars have no Moral Power.

Yet they become agents to moral beings.

A star is beautiful, but it pours no light into the midnight of a sinful soul. The flower is sweet, but it exudes no balm for the heart's wound. All the odours that ever floated from royal conservatory or princely hanging-gardens, give not so much sweetness as is found in one waft from this Scripture mountain of myrrh and frankincense. All the waters that ever leaped in torrent, or foamed in cascade, or fell in summer shower, or hung in morning dew, give no such coolness to the fevered soul as the smallest drop that ever flashed out from the showering fountains of this Divine Book. Ah! beautiful stars: it is not in guiding us over the seas of our little planet, but out of the dark waters of our own perturbed minds, that we may make to ourselves the most of your significance.

The Midnight Skies.

The starry heavens above should fill us with awe and reverence.

Nature means me and all that is not me. The material universe, the spiritual universe, and 'God within the shadow keeping watch above His own.' Kant, the German philosopher, has said that 'two things filled him with awe: the starry heavens above, the moral law within.' The vastest expression of matter, the sublimest function of spirit. Between these two poles the whole universe of

Nature, including human nature, vibrates.

Everywhere God shines through matter. His voice is in the rolling air; His robe is the sunset sky and the green earth; His path is in the deep waters. The method and order of His purposes are seen in the laws of Nature. Like Moses, with unshod feet, let us draw near to the mystery of Nature.

Beneath the midnight skies the naked eye discerns about six thousand stars; a telescope reveals about twenty millions, and out of range millions more in infinite space—like gold-dust upon the great highways of heaven, rising and falling before God's throne—might be divined. All those stars are white-hot blazing suns. One star, the sun, is the nearest; he is only ninety-one milllions of miles from the earth. The moon looks about as large simply because it is much nearer, only about two hundred and forty thousand miles off. The sun is two hundred and sixty thousand times larger than the earth, and the earth fifty times greater than the moon. The sun lights up its own planets—its light and heat make life possible on their surfaces. Probably all the stars have their planets, are centres of solar systems; but no telescope can reveal these star planets, the distances are too enormous. The nearest fixed star is nineteen billions of miles away. Light goes at a pace of one hundred and eighty-six thousand miles per second, or eight times round the earth between the swing of a clock pendulum. Yet so inconceivably distant are those suns which meet your eye as you look up at the skies, that the ray of light from some of them must have left those stars fifty thousand years ago.

I cannot pause to describe at length the origin of our solar system. A vast fiery vapour has once occupied the space between the sun and all its planets. It cooled into liquid; whirling motion set up in that liquid threw off successive rings, which rolled themselves up, cooling into solid balls. The biggest rings thrown off first are the most distant planets; the smaller ones are nearest the sun. By the laws of centrifugal and centripetal force, these continue revolving round the sun. The last nucleus of the fiery cloud, the sun, is still blazing hot. He keeps up the heat of the planets. How the earth became gradually fit for life of vegetable, reptile, fish, bird, beast, and man, is now one of the common-places of geology. The history of the earth is written in its own crust; we dig into it and so read the past.

Man crowns creation's scale. The heir of all the ages, wonderful as a mechanism—akin to animal and vegetable—related to Nature—in deep sympathy with her—loving animals—rejoicing in forests, wide plains, oceans, skies. Man is sustained by Nature; she clothes him, feeds him, and solaces him with beauty; she is his foster-mother; he lives filled with her 'great glad aboriginal instincts.'

Man is taught by Nature. The discipline has been severe; her fire burned; her water drowned; her rocky soil starved him, but goaded him on to labour. She has yielded herself and her treasures only to the sweat of his brow. Her discipline was his education; he was ruled by her; her laws were inexorable; they crushed him when he opposed them; they blessed him when he obeyed them.

But man also rules Nature. He controls her forces by discovering her secrets. Nothing withstands him. Electricity flashes his thoughts round the world; he wields the fabled darts of Jove in his laboratory; steam-power, chemical and mechanical forces, are his slaves, and do his bidding.

Man, the child, the product of Nature, transcends her. He is greater than the sun and all the

stars. They feel not, know not, aspire not, worship not. The perceiver transcends the perceived that perceives not. Man perceives the material universe which perceives not man; he perceives God who perceives him—from whence he comes and unto whom he shall return. He aspires; he prays.

The secret of true life is to live according to Nature. But *what* Nature—of body, mind, or spirit? Of all three. No one side of Nature can be exclusively cultivated without harm to the other. This might be illustrated at length, and the cultivation of each in proper subordination, the lower to the higher, might then be duly urged. But how, and in what proportion? The family, the social, the political pressure without, proves the solution. We do not live for ourselves. The world needs our bodies, our minds, our affections, our spiritual nature. We must cultivate each, not according to whim, but according to individual endowment and the social demand, unselfishly remembering that because we belong to the head of humanity—Christ—we are members of one another.—*H. R. Haweis, M.A.*

THE SEASONS—SUMMER.

Summer Heat.

Man vainly attempts to resist the workings of the Divine love.

You may shut up your house and exclude *the light;* but, in spite of you, summer *heat* will permeate the roof and the walls, and get inside. So may men shut up their souls against the light of Truth; but to make themselves proof against Love is more than they can do. Love is the sole Omnipotence. The spirit-ocean of God's Love, without let or hindrance, flows into and through the angelic heavens, and is thence propelled down into the souls and bosoms of men. In due time a perfect balance between heavenly and earthly conditions, will be the result of this ceaseless endeavour. All commotions, whether of elements, nations, or churches, should be ascribed to this secret pressure of Heaven on the hearts and minds of men, and thence on the corrupt atmospheres of the earth.—*Dr. John Pulsford.*

The Joy of Summer Sunshine.

There are men who seem to bring the sunshine with them.

I see the sun break in with a triumphal burst of light upon a chamber set with countless jewels, but which has thus far been wholly shut up in the dark. There is a double joy, I think, in the great heart of the sunshine as, almost with a shout that one can hear, it floods the opened chamber with itself. First, it finds new interpretation of itself, it finds itself, as it were, in the new stories of its glory which the jewels tell, as, one by one, they burn under its touch; and, second, it feels every jewel quiver under its fiery hand with the transporting discovery of its own nature. I see a good man, long shut out from human company, come among his brethren. With a leap and burst almost like the sunshine, he casts his solitude behind him, and flings himself into their sympathies and hopes. I let the explanation of it at first rest in the mere unexplained instinct of humanity; but when I come to analyze his motive to its elements, I know that it must be made up of these two impulses—the desire of self-knowledge and the desire of illuminating others, the desire of burning and the desire of shining, which are the two strong, ineradicable passions of the soul. The man goes into the multitude that he may find

himself, and that he may declare them to themselves. All human society which has not these impulses more or less consciously within it is but the herding of animals for the mere fear of being alone, or the mere joy of being together.—*Phillips Brooks.*

The Seasons.

Persistent Nature continues her course unhindered by the interference of man's wilfulness.

The seasons went on, and the world, like a great flower afloat in space, kept opening its thousand blossoms. Hail and sleet were things lost in the distance of the year, stored away in some far-off region of the north, unknown to the summer generation. The butterflies, with wings looking as if all the flower-painters of fairy-land had wiped their brushes upon them in freakful, yet artistic, spots, came forth in the freedom of their wills and the faithful ignorance of their minds. The birds, the poets of the animal creation — what though they never get beyond the lyrical—awake to utter their own joy, and awake like joy in others of God's children. The birds grew silent because their history laid hold upon them, compelling them to turn their words into deeds, and keep eggs warm, and hunt for worms; the butterflies died of old age and delight, the green life of the earth rushed up in corn to be ready for the time of need; the corn grew ripe, and, therefore, weary, hung its head, died, and was laid aside for a life beyond its own. The keen, sharp, cold mornings and nights of autumn came back as they had come so many thousand times before, and made human limbs strong and human hearts sad and longing. Winter would soon be near enough to stretch out her long forefinger once more, and touch, with the first frosty shiver, some little child that loved summer, and shrunk from the cold. — *G. Macdonald, LL.D.*

Summer Glory in the Sky.

The sunshine of summer is a type of the quickening warmth of the love of God.

The secret element of the heavens and the earth, of the sea and of the hills, of the fields and the woods, of the fruit-trees and the flowers, is the Love of God. The love which has its spring in the bosom of God must in the end reach all nations and gladden every human heart. If summer glory reigns in the sky, nothing in the earth can be hidden from the heat and the joy thereof. The tumult and roar of the sea are a terror by night; but under the solar glory they are sublime, and all the inhabitants of the sea move with new agility and are comforted. Under the same glory the fields put on new beauty, and everything that is sown lifts its head and rejoices. And all the trees of the wood throb with new life, and outweave their lovely attire. — *John Pulsford.*

The Summer Sky.

'In the sky the "Great Soul" meets us face to face.'

For inspiration, for beauty, for health and refreshment, for a sense of freedom and the enlargement of the soul, is there anything like the summer sky?—that is, the sky when it is allowed to be sky, and not buried by earth's vapour, nor desecrated by city smoke? Again, for teaching, for sublimest teaching, for pictorial grandeur, for tenderness and for strength, for measurelessness and everlastingness, is there anything like the sky? How it attracts us! draws us all out of doors! how it rewards us! And what wonder, for in the sky the Great Soul meets us face to face, and blends His

Spirit with our spirit. In the morning, the motherly sky kisses our eyelids open, bathes us with her luminous ether, and invigorates us. In the evening, she liquefies soul and body into unity, and tranquillizes us. In the morning, she is vital enough, intense enough to enter into, and flow through, every nerve, every blood globule, every atom. In the evening, she indraws us to a sky within the sky, as to a mother's bosom, while the outer sky becomes a soft awning over and around us.—*John Pulsford.*

The Gladness of Summer.

The soul is dead that fails to respond to the summer of the Divine smile.

Everyone must acknowledge that it is a perfectly delightful Being who reveals Himself in our summer sky, and in the response which the earth makes to the embracing glory. The return of morning; the grassy slopes of the mountains; the flowing river with its verdant bank on either side; the sounding brooks; the trees full of golden sap, in the act of outweaving their leafy blossoming dress; the birds singing in their branches; bread and oil and nectareous fruits coming out of the earth — are objects of contemplation fitted to stir an infinite affection in our hearts. Who can help exclaiming: 'I will be glad in the Lord; my meditation of Him shall be sweet!' The grass and the vine, wild-flowers, flaming poppies in the corn, orange grove and hawthorn bush, are full of soul, and an infinitely beautiful soul. And if I feel not His nearness, and hear not His voice speaking to me out of the living and fragrant loveliness, I must have lost my Divine childhood. The Jesus-Spirit must be dead in me.—*John Pulsford.*

A Summer Shower.

There are tears that are born of gladness.

Nature, like man, sometimes weeps from gladness. It is the joy and tenderness of her heart that seek relief; and these are summer showers. In this instance the vehemence of her emotion was transient, though the tears kept streaming down her cheek for a long time, and gentle sobs and sighs might for some period be distinguished. The oppressive atmosphere had evaporated; the gray sullen tint had disappeared; a soft breeze came dancing up the stream; a glowing light fell upon the woods and waters; the perfume of trees and flowers and herbs floated around. There was a carolling of birds; a hum of happy insects in the air; freshness and stir, and a sense of joyous life, pervaded all things; it seemed that the heart of all creation opened.

THE SUN.

The Glorious Sun.

We inherit now the possessions garnered for us by the sunshine of ages long past.

We are indebted to this generous orb for light by night as well as by day; for warmth within doors as well as without. We are accustomed to speak of the sun's light and heat as forces actually garnered up in the vegetation of ancient epochs. We look upon our coal strata as cellars in which sunbeams have been locked up for unnumbered ages, in order that they might ultimately be re-issued for the benefit of the intelligent tenantry for whom the world was intended. In a certain qualified sense, this is perfectly true; coal is unquestionable invested sunshine. The gentle warmth we draw from our domestic fires, the fiercer

heat which cooks our food or melts our metals, are the product of the sun's energy exercised upon the earth during some of those silent centuries when the globe was in preparation for man. Strolling through a town lit up by innumerable lamps, or whirled along at the heels of a locomotive, it is a pleasant thought that the emanations of suns which rose and set millions of years ago—which rose and set in seeming idleness, and to all appearance in wasted splendour—are now reproduced to enable us to cope with darkness, or to conquer space without moving a muscle. There is something captivating in the thought that the great *rector mundi* was working for us when as yet there was no sign of man—indeed, no promise of his coming—and with quiet, patient labour laying up from day to day those treasures of light and heat which are infinitely more valuable to us than all the gold and diamonds we possess. No one who has studied geological processes can repress a feeling of surprise, perhaps of impatience, at the slow, deliberate step with which Nature ever marches up to her goal. But when we think of the sun toiling in lonely splendour to store our planet with fuel—we had almost said with his own embodied beams—it seems to reconcile us in some degree to the august and awful chronology of the universe. —*British Quarterly Review.*

No Use gazing at the Sun.

God's revelation in Christ is given for our use.

Though the sun is the source and fountain of light, there is little good in gazing at the sun, except to get blinded. No one ever saw the better for looking the sun directly in the face. It is a child's trick: grown-up people know better. We use the light which the sun gives, to see by, and to search into all things—the sun excepted. Him we cannot explore, beyond what he reveals of himself in the light and heat which he sheds upon us, and in the colours by which he is reflected from the earth. There is no searching of the sun: our eyes are too weak. How much less can we search the sun's Creator, before whom the myriads of suns are but as so many cloud-bodies! His revelation of Himself, in His works and in His word, in His Son and in our souls, is more than enough for us. Persons who dare to go, as they say, in a directer way to Himself are like children looking at the sun, who, instead of getting more light and better eyes, get less light and an infatuated eye.—*John Pulsford.*

The Regal Sun.

The sun scatters its blessings wide, without fear or favour.

Look at the sun—the only thing of such power that makes no discriminations and distinctions. I have growing in my garden the portulacca in beds, for the sake of its glowing colour. You know that it is first cousin to purslane, a weed that everybody who undertakes to keep a garden hates. I have hoed it, and pulled it up, and denounced it, and spurned it, and given it to the fire and to the pigs, with maledictions. But I cannot find out that the sun exercises any discrimination between the purslane growing in my garden and the portulacca. I call one flower, and the other weed; but God's sun calls them both flowers. There is the Jamestown weed—'the Jimson weed,' as they call it—beautiful in blossom and odious in odour. But I cannot see that God's sun makes any distinction between this and the choicest plants. I cannot see that the sun is botanical at all. I cannot teach it anything. If I say to the sun: 'This is not the old-fashioned single zinnia,' the

sun says: 'Single zinnia and double zinnia, take as much as you want.' On my place I have fox-grapes, that, running over the wall, and falling down in every direction, are among the most beautiful things that grow; and I have a little vineyard of Delaware grapes, with which I have taken great pains — pinching, pruning, and cultivating them. I want the sun to take notice of my cultivated grapes; but I cannot get him to pay any more attention to them than he does to those fox-grapes. Some things bring more money in the market than others; and I cannot see but that the sun treats them all just alike. My mullein stalks are as well taken care of as my wheat. The sun that pours its rays through the trees, and bathes and nourishes the mighty oak, takes just as much pains with witch-grass, or with the detestable Canada thistles—which, old sinners as they are, stand up among the grass as thick as you sinners stand up among the righteous—as with these. And I take notice that, all through the world, the sun does not bestow its regards exclusively upon houses that are built three stories or five stories high. The Esquimaux hut is shined on as much as the king's palace. The sun makes no distinction between a dwelling ornamented with carved work, and covered with costly material, and a dwelling made of rough slabs, and covered with straw. It does not look upon highness any more than upon lowness; upon breadth any more than upon narrowness; upon culture any more than upon the unrefined conditions of Nature. It goes diffusing itself through the air; and everything, whether it be eagle or vulture, whether it be gorgeous butterfly or buzzing beetle, whether it be that which is escaping from peril to life, or that which is seeking life, is shined upon. The sun bears itself without partiality in infinite abundance and continuity. It is a life-giving stimulus to all things. And it is the emblem of God, of whom it is said: 'He maketh His sun to rise on the evil and on the good, and sendeth rain on the just and on the unjust.'—*H. W. Beecher.*

Sunrise.

The awakening of all life in the returning sunshine.

The rising sun was noble in the cold and warmth of it; peeping down the spread of light, he raised his shoulder heavily over the edge of gray mountain and wavering length of upland. Beneath his gaze the dew-fogs dipped, and crept to the hollow places, then stole away in line and column, holding skirts, and clinging subtlely at the sheltering corners, where rock hung over grassland, while the brave lines of the hills came forth, one beyond another gliding.

Then the woods arose in folds, like drapery of awakened mountains, stately with a depth of awe, and memory of the tempests. Autumn's mellow hand was on them, as they owned, already touched with gold, and red, and olive; and their joy, turned towards the sun, was less to a bridegroom than a father.

Yet before the floating impress of the woods could clear itself, suddenly the gladsome light leaped over hill and valley, casting amber, blue, and purple, and a tint of rich red rose, according to the scene they lit on, and the curtain flung around; yet all alike dispelling fear and the cloven hoof of darkness, all on wings of hope advancing, and proclaiming 'God is here!'

Then life and joy sprang reassured from every crouching hollow; every flower, and bud, and bird had a fluttering sense of them; and all the flashing of God's gaze merged into soft beneficence.

So, perhaps, shall break upon us that eternal morning, when crag and chasm shall be no more, neither hill and valley, nor great unvintaged ocean; when glory shall not scare happiness, neither happiness envy glory; but all things shall arise and shine in the light of the Father's countenance, because itself is risen.—*R. D. Blackmore.*

The Influence of the Sun on the Earth.

A type of the power of the Sun of Righteousness in the soul-sphere.

The sun is a principal cause of most of the phenomena which take place on the earth. He is the constant source of that light which is so plentifully diffused over our globe. This light of the sun is the most subtle fire; it penetrates all bodies, and when in sufficient quantity, it puts all their parts into motion; attenuates, decomposes and dissolves those that are solid; rarefies those that are fluid, and thus adapts them to an infinity of motions. Is it not evident that on these various operations of the sun on bodies all the phenomena, and all the revolutions, of the globe, depend even in the smallest circumstances? When the strength of the sun's light increases, *i.e.*, when his rays fall less obliquely on us, and in a greater quantity on a given space, and continue longer each day, as is the case in summer, all this must necessarily produce the most considerable changes, not only in the atmosphere, but also on the surface of the earth. And when the rays fall more obliquely on a given space, and are consequently weaker, and in less quantity, and, the days being shorter, their action is not prolonged, as is the case in winter, what a change takes place in the earth, and what different phenomena do we observe in the atmosphere! What gradual changes do we perceive, when from the remote sign of Capricorn the sun continues to approach the Equinoctial Line, till in spring the days and nights become equal. And how many new phenomena appear when this luminous and active globe returns in summer from the Tropic of Cancer towards the Line, till the days and nights become again equal in autumn, and the sun removes from our zenith.

It is on the distance of this luminary that all the variations depend which we observe in the vegetation of plants, in the internal constitution of bodies in all climates and in all seasons. Hence each climate and each season has plants and animals peculiar to itself: hence the progress of vegetation is more or less rapid, and the productions of Nature subsist a longer or shorter space of time. But it would be impossible to describe the various effects of the sun on the earth. All the changes and revolutions which take place on our globe have their principle in the influence of the sun; for on him principally the different degrees of heat and cold depend: I say principally, for the nature of the soil, the different combinations which exist in one country more than in another, mountains of a greater or less height, and their different position, may also contribute something towards a country's being more or less cool, and more or less subject to rain, to wind, and to the other variations of the atmosphere. But it is incontestable that these accessory causes are not sufficient to produce the effects which we observe in different places and in different times; for these effects could not exist if the heat of the sun did not act in the manner it does. And were the degrees and manner of its operation changed, the effects also would change in the same proportion.—*C. C. Sturm.*

The Freeness of the Sunshine.

The importance of making personal appropriation of Divine grace.

The sun does not shine for a few trees, and flowers, but for the wide world's joy. The lonely pine on the mountain-top waves its sombre boughs and cries, 'Thou art my sun.' And the little meadow violet lifts its cup of blue, and whispers with its perfumed breath, 'Thou art my sun.' And the grain in a thousand fields rustles in the wind, and makes answer, 'Thou art my sun.' So God sits effulgent in heaven, not for a favoured few, but for the universe of life; and there is no creature so poor or so low that he may not look up with childish confidence and say, 'My Father, Thou art mine.'—*H. W. Beecher.*

Motes in the Sunbeam.

The light of God's love reveals to us our imperfections.

As a beam of sunlight sent through a room will at once reveal numberless motes floating in the air of the room, so a ray of Divine love let into the heart will immediately make visible to us a cloud of imperfections of which we were before entirely unaware.—*B. Wilkinson, F.G.S.*

The Gentleness of the Sunshine.

The gentleness of the Divine dealings with men.

How silent and gentle, though so mighty, is the action of the light!—morning by morning God's great mercy of sunrise steals upon a darkened world in still, slow self-impartation; and the light which has a force that has carried it across gulfs of space that the imagination staggers in trying to conceive, yet falls so gently, that it does not move the petals of the sleeping flowers, nor hurt the lids of an infant's eyes.—*A. Maclaren, D.D.*

The Open Sky.

The lessons of the varying moods of the sky are largely unheeded by men.

It is a strange thing how little in general people know about the sky. Every man, wherever placed, however far from other sources of interest or of beauty, has the open sky above him constantly. The noblest scenes of the earth can be seen and known but by few; it is not intended that man should live always in the midst of them; he injures them by his presence, he ceases to feel them if he be always with them: but the sky is for all; bright as it is, it is not

> 'Too bright, nor good,
> For human Nature's daily food;'

it is fitted in all its functions for the perpetual comfort and exalting of the heart, for the soothing it and purifying it from its dross and dust. And yet we never attend to it, we never make it a subject of thought, but as it has to do with our animal sensations; we look upon all by which it speaks to us more clearly than to brutes, upon all which bears witness to the intention of the Supreme that we are to receive more from the covering vault than the light and the dew which we share with the weed and the worm, only as a succession of meaningless and monotonous accidents, too common and too vain to be worthy of a moment of watchfulness, or a glance of admiration. If in our moments of utter idleness and insipidity we turn to the sky as a last resource, which of its phenomena do we speak of? One says, it has been wet; and another, it has been windy; and another, it has been warm. Who among the whole chattering crowd can tell me of the forms and the precipices of the chain of tall white mountains that girded the horizon at noon yesterday? Who saw the narrow sunbeam that came out of the south, and smote upon their summits until they melted and mouldered away

in a dust of blue rain? Who saw the dance of the dead clouds when the sunlight left them last night, and the west wind blew them before it like withered leaves? All has passed, unregretted as unseen; or if the apathy be ever shaken off, even for an instant, it is only by what is gross, or what is extraordinary.

Are not all natural things, it may be asked, as lovely near as far away? Nay, not so. Look at the clouds, and watch the delicate sculpture of their alabaster sides, and the rounded lustre of their magnificent rolling. They are meant to be beheld far away; they were shaped for their place, high above your head; approach them, and they fuse into vague mists, or whirl away in fierce fragments of thunderous vapour. Look at the crest of the Alp, from the far-away plains over which its light is cast, whence human souls have communion with it by myriads. The child looks up to it in the dawn, and the husbandman in the burden and heat of the day, and the old man in the going down of the sun; and it is to them all as the celestial city on the world's horizon, dyed with the depth of heaven, and clothed with the calm of eternity. There was it set, for holy dominion, by Him who marked for the sun his journey, and bade the moon know her going down. It was built for its place in the far-off sky; approach it, and as the sound of the voice of man dies away about its foundation, and the tide of human life, shallowed upon the vast aërial shore, is at last met by the eternal, 'Here shall thy waves be stayed,' the glory of its aspect fades into blanched fearfulness; its purple walls are rent into grisly rocks; its silver fretwork suddened into wasting snow; the storm-brands of ages are on its breast, the ashes of its own ruin lie solemnly on its white raiment.—*John Ruskin.*

Physical Forces in Sunbeams.

The distribution of plants and animals is regulated by the balance of physical forces in the sunbeam.

In the sunbeam light, heat, and actinism are balanced against each other, and thus are determined those differences of climate which are not influenced by the physical conformation of the earth's surface. It has been proved by well-conducted observations that with variations of latitude there are variations in the relations of these principles. In the temperate regions of the earth the actinic power is active; as we advance to the tropics, where heat increases, the chemical power is weak. In the seasons we detect the same influences at work. Actinism, or chemical power, is greatest in the spring; as the bright light of summer advances, the power of the solar rays to produce any chemical change is diminished; and as we advance to autumn the peculiar heat-rays come more evidently into action.—*Lardner.*

The Mingling of Light and Shade.

There is variety in human experience.

In the physical world there is a constant mingling of light and shadow. We cannot have the beauty of the rainbow without the gloom of the storm-cloud. We cannot gaze upon the majesty and brightness of the full moon without knowing that the dark shadow of the earth is about to invade its radiant disc, and again to effect the gradual extinction of its soothing light. As in the physical world, so is it in human life. What great prosperity ever came to a man without its being attended or followed by some adversity? What great joy ever took possession of a human heart without its being touched and tempered by some degree of sorrow. From the cradle to the grave there are, even in the brightest lives, constantly

recurring alternations of light and shade, of gladness and grief.—*B. Wilkinson, F.G.S.*

Drinking in the Sunbeams.

We need to receive in, not to reflect away, the light of God's grace that falls on us.

When the sunbeams fall upon a mirror, it flashes in the light, just because they do not enter its cold surface. It is a mirror, because it does not drink them up, but flings them back. The contrary is the case with these sentient mirrors of our spirits. In them the light must first sink in before it can ray out. They must first be filled with the glory before the glory can stream forth. They are not so much like a reflecting surface as like a bar of iron, which needs to be heated right down to its obstinate black core before its outer skin glows with the whiteness of a heat that is too hot to sparkle. The sunshine must fall on us, not as it does on some lonely hillside, lighting up the gray stones with a passing gleam that changes nothing, and fades away, leaving the solitude to its sadness; but as it does on some cloud, cradled near its setting, which it drenches and saturates with fire till its cold heart burns, and all its wreaths of vapour are brightness palpable, glorified by the light which lives amidst its mists. So must we have the glory sunk into us before it can be reflected from us.—*A. Maclaren, D.D.*

The Power of Continuous Sunshine.

There are both transient and prolonged manifestations of Divine grace to souls.

The sunlight of a single day brings forth nothing. Such days come in December, in January, and amid the boisterous weeks of February and the tumult of March. But nothing springs up. The tree makes no growth. The light does not enter in. It lies wide abroad, indeed most beautiful, but nothing is created by it; for burnished icicles and frost-drops are the only stems and flowers which come from the slant and cold brightness of the winter's sun.

It is only when, at length, the sun returns from its equatorial pilgrimage, and enters into the earth, and abides within it, that life is awakened. The earth knows his coming. In winter Nature lies as if dead. The sun stretches itself upon it, as did the prophet upon the woman's son, and from every part there is resurrection of root, stem, bud, flower. But none of these things happen to casual and infrequent shining. They are the fruit of indwelling heat. Not till the sun enters in, and abides in the soil, not till days and nights are struck through with warmth, is there life and glory.

If this be so of the lower physical nature, how much more eminently is it true of the human soul, and of its Sun of Righteousness! It is a gladsome thing in toil and trouble, to have a single bright flash from the face of God. But that is not enough. It is not enough for Christian growth, or Christian nourishment, that despondency sometimes hopes, and darkness sometimes smiles into light. A Christian is to be a child of light, and to *dwell* in the light. The whiteness of heavenly robes is the light which they reflect from the face of God. A Christian is to bear *much* fruit. This he cannot unless he abides in summer. For mere relief, even a casual visit of God's grace is potential. But for fruit—much fruit, and ripened fruit—nothing will suffice but the whole summer's sun.—*H. W. Beecher.*

The Cloud and the Sunbeam.

God makes man's sin become the occasion for a display of His power.

It is not the cloudless sky that brings out the whole beauty of

earth and heaven; it needs the cloud to open out the treasures of the sunbeam, and to let men see what is contained even in a single ray, so that that which seems to interrupt the sunshine is the means of revealing it. So with man's sin. It threatened to banish God and goodness from the earth, yet it was the means of bringing him far nearer than before, and of displaying far more of His goodness, something deeper and more wonderful in grace.—*H. Bonar.*

The Paradox of the Sunbeam.

The gentlest, yet mightiest, of Nature forces.

The very greatest of physical paradoxes is the sunbeam. It is the most potent and versatile force we have, and yet it behaves itself like the gentlest and most accommodating. Nothing can fall more softly and more silently upon the earth than the rays of our great luminary—not even the feathery flakes of snow which thread their way through the atmosphere, as if they were too filmy to yield to the demands of gravity like grosser things. The most delicate slip of gold leaf, exposed as a target to the sun's shafts, is not stirred to the extent of a hair, though an infant's faintest sigh would set it into tremulous emotion. The tenderest of human organs—the apple of the eye—though pierced and buffeted each day by thousands of sunbeams, suffers no pain during the process, but rejoices in their sweetness, 'and blesses the useful light.' Yet a few of those rays, insinuating themselves into a mass of iron like the Britannia tubular bridge, will compel the closely knit particles to separate, and will move the whole enormous fabric with as much ease as a giant would stir a straw. The play of those beams upon our sheets of water lifts up layer after layer into the atmosphere, and hoists whole rivers from their beds, only to drop them again in snow upon the hills, or in fattening showers upon the plains. Let the air drink in but a little more sunshine at one place than another, and out of it springs the tempest or the hurricane, which desolates a whole region in its lunatic wrath. The marvel is that a power which is capable of assuming such a diversity of forms, and of producing such stupendous results, should come to us in so gentle, so peaceful, and so unpretentious a guise. It is as great a wonder as if the cannon-balls which were to batter down a fortress danced through the air on their mission of death like motes in the sunbeam, or as if shrapnell shells were bred in the atmosphere, like drops of dew, and demeaned themselves as meekly too, until they exploded.—*British Quarterly Review.*

Sunlight and Physical and Mental Health.

'Where there is sun there is thought.'

One of the greatest observers of human things says: 'Where there is sun there is thought.' All physiology goes to confirm this. Where is the shady side of deep valleys, there is cretinism. Where are cellars and the unsunned sides of narrow streets, there is the degeneracy and weakness of the human race, mind and body equally degenerating. Put the pale withering plant and human being into the sun, and if not too far gone each will recover health and spirit.—*F. Nightingale.*

The Sunny Temperament.

'One sunny person in a household may transform the atmosphere.'

Poetry does not mean only the clothing of beautiful thoughts in harmonious language: it means also the spiritualizing of life, the tingeing every common object with the warm sunshine of sympathy and love. Just as, on rainy days

in London, the slush and grimy mud are swept away and put on one side, so the sunshiny nature will naturally dismiss all mean and sordid thoughts, and turn to what is true and noble and pure, as 'the sunflower turns to the face of its god.' No doubt the sunny temperament is partly natural; yet, like everything else, it can be cultivated and improved. Perhaps such brightness is quite one of the most lovable attributes of human nature, and it does not seem to be more peculiar to men than to women. Little difficulties, small troubles, annoying anxieties, all seem to disappear before the presence of moral sunshine. One sunny person in a household may transform the atmosphere. . . . Gaslight can never emulate sunshine, and if by the stupid arrangements of society the healthy growth of the affections be stunted, morbid outshoots of false feeling and diseased imagination will speedily bestow their unwelcome presence upon us. When our pleasures become pure and healthful our minds will be full of sunshine, for the surest criterion of a sound nature is a capacity for innocent enjoyment. Happiness is a duty as well as a privilege. The most sympathetic and deeply feeling amongst us are those who have suffered and who have overcome. They have learnt the value of the sunshine, and are not as those who have eyes and see not.

Heathen Ideas of Sunrise.

Sunrise is the return of a god.

Sunrise may well have been deemed the return of a god: it is not merely the awakener of the world to life; the whole idea of life is representatively summed up in it, as in a happy and beautiful child descending upon the household as its morning-beam. Thus it is with all knowledge; the wider and higher the laws of nature we can discover, the more admirable and extended is our insight into Nature, and the more of it do we enjoy at any given moment, as, by grasping the stem on which they grow, we secure a whole posy of flowers at once. Far we can never penetrate, yet may every man more deeply than he does. Isis still presents her countenance veiled, as of old; but, while she with disdain rejects the mere dissector and nomenclator who cares only to inspect her as an anatomist, to him who would look upon her with the eyes of a lover she will grant divinest glimpses. That heavenly face is hidden from the world only that rude profanity shall not stare at it: it is in wise encouragement that it should be so; for if, according to the inscription, no mortal may uncover it, we must seek, then, to be immortal. He whose heart faints because discomfited while on earth, is no true disciple at Sais.—*L. H. Grindon.*

Filtering a Sunbeam.

There is such a thing as a harmful criticism of God.

It is possible so to sift or filter a sunbeam as to intercept its heat, and to allow its light to pass unhindered. So it is possible to criticise and analyze the attributes of God in such a way as to cut off from the heart their warmth-giving influence, and to let their cold light only pass into the intellect.—*B. Wilkinson, F.G.S.*

Sunrise among Mountains.

The presence of Christ reflects on the awakened soul some new image of His power and love.

Anyone who has watched a sunrise among mountains will know how the light opens out depths of beauty and life where but lately the eye rested on a cold monotony of gloom or mist. At one moment only the sharp dark outline of the

distant ranges stands out against the rosy sky, and at the next, peak after peak catches the living fire, which then creeps slowly down their rocky slopes, and woods and streams, and meadows and homesteads start out from the dull shadows, and the grass on which we stand sparkles with a thousand dewdrops. Now all this represents in a figure what is the effect of the Presence of Christ in the world, when the eye is opened to see Him. Let the thought of Christ rest on anything about us, great or small, and it will forthwith reflect on the awakened soul some new image of His power and love.—*Brooke Foss Westcott, D.D.*

Sunsets of the Autumn-time.

The many-coloured woods of the year's eventide correspond to the many-coloured clouds of the sunset sky.

At no period of the year are the sunsets so varied and beautiful as in autumn. The brightest tints of Nature's palette are spread lavishly over the calm western sky; and the day dies on a gorgeous pyre of crimson and gold, which lights up the whole firmament with a glory indescribable. Like the sunset of the autumnal day is the sunset of the autumnal season. The many-coloured woods of the year's eventide correspond to the many-coloured clouds of the sunset sky; and as the heavens burst into their brightest hues, and exhibit their loveliest transfigurations when the daylight is fading into the gloom of night, so the year unfolds its richest tints and its fairest charms when it is about to sink into the darkness and desolation of winter. All the glories woven in the loom of the year, and hid by the uniform luxuriance of the spring and summer growth, come out conspicuously into view in the border and fringes of the autumn scenes —just as the diffused white daylight breaks out into chromatic splendour around the edge of a lens. It is said that no ray of the sun's spectrum falls upon a growing plant without giving some account of itself. It may be absorbed for awhile, but it will certainly appear at some future stage of its growth—in some part or organ of its regular series of unfoldings. It may reflect the green ray only while it is in foliage, and absorb all the other colours; but when it flowers the red appears in the blossom, the yellow in the stamens and pistils, and the purple in the fruit. All the rainbow tints which make up the full beam of light manifest themselves successively, or contemporaneously, during the life or death of the plant. The crimson hue that is absent from the foliage and blossom of the strawberry makes its appearance in the luscious fruit; the glory of the sunshine, that seems thrown away throughout the whole of its life upon the dull green sheep-sorrel by the wayside, bursts forth in the scarlet radiance of its decay. Everything gets its own turn and share of the universal beauty and grace sooner or later; and even the parts that are at present uncomely are waiting for a time when their uncomeliness shall put on an unexpected and more abundant loveliness. So it is with the autumnal woods. All through the summer the foliage of the trees gave back to the ardent sun that shone upon them only one monotonous expression. A uniform dull green hue alone responded to his many-coloured allurements, while the lowly flowers returned all his smiles in their varied tints, and showed in their blossoms and fruits how completely they had been changed by their gazing into his own likeness; the lofty trees remained insensible to the wooing of his brightest rays. But now, in their fading, they cast off all their reserve, and show how they had cherished in their hearts

the beauty which they seemed to disdain. His gifts had not been wasted upon them. In the day of their death they brighten with the glories that were absorbed, and remained latent during their fresh green life. They are now changed into his image, and break forth into rainbow loveliness beneath his parting smile.—*Hugh Macmillan, LL.D.*

Sunlight after Storm.

'Contrast heightens effect.'

The noonday sun came slanting down the rocky slopes of La Riccia, and their masses of entangled and tall foliage, whose autumnal tints were mixed with the wet verdure of a thousand evergreens, were penetrated with it as with rain. I cannot call it colour, it was conflagration. Purple, and crimson, and scarlet like the curtains of God's tabernacle, the rejoicing trees sank into the valley in showers of light, every separate leaf quivering with buoyant and burning life; each, as it turned to reflect or to transmit the sunbeam, first a torch and then an emerald. Far up into the recesses of the valley, the green vistas, arched like the hollows of mighty waves of some crystalline sea, with the arbutus flowers dashed along their flanks for foam, and silver flakes of orange spray tossed into the air around them, breaking over the gray walls of rock into a thousand separate stars, fading and kindling alternately as the weak wind lifted and let them fall: every glade of grass burned like the golden floor of heaven, opening in sudden gleams, as the foliage broke and closed above it, as sheet-lighting opens in a cloud at sunset; the motionless masses of dark rock—dark, though flushed with scarlet lichen—casting their quiet shadows across its restless radiance; the fountain underneath them, filling its marble hollow with blue mist and fitful sound; and over all, the multitudinous bars of amber and rose, the sacred clouds that have no darkness, and only exist to illumine, were seen in fathomless intervals, between the solemn and orbed repose of the stone-pines, passing to lose themselves in the last white blending lustre of the measureless line where the Campagna melted into the blaze of the sea.—*John Ruskin.*

A Sun with Three Beams.

God's power in the Gospel is Almighty.

The Thracians had a very significant emblem of the almighty power of God. It was a sun with three beams—one shining upon a sea of ice and dissolving it; another upon a rock and melting it; and a third upon a dead man and putting life into him. What a striking illustration of the power of God in the Gospel! It melts the hardest heart, and raises to a life of righteousness those who were 'dead in trespasses and sins.'

Sundial Figures.

Conscience needs light.

Many persons may be perfectly sincere while engaged in a bad cause; and a man's sincerity, apart from religious principle, will be no test either of his principles or practice. 'The shadow falling upon the sun-dial tells the time of day; but you may take it to an artificial light, and throw from the gnomon upon the figures and lines a shadow that would not index the true time of day. So, unless our conscience acts under the light of God, it is no guide as to our duty.'

God's Word needs the light of God's Spirit.

Let a man at midnight examine a sundial by the brightest of lamps, or the most brilliant moonlight, he will not understand the dial; but let him go by noonday, and

the glorious sun will reveal its working, and all will be clear. The Word of God cannot be understood by the brightest intellect, or most luminous tradition, until the Spirit be given.

The Abiding Vision of the Sunset.

Imagination and memory keep our friends with us who have passed out of our bodily vision.

When, toward the close of some long summer-day, we come suddenly, and, as we think, before his time, upon the broad sun, 'sinking down in his tranquillity' into the unclouded west, we cannot keep our eyes from the great spectacle; and when he is gone, the shadow of him haunts our sight. We see everywhere, upon the spotless heaven, upon the distant mountains, upon the fields, and upon the road at our feet, that dim, strange, changeful image; and if our eyes shut, to recover themselves, we still find in them, like a dying flame, or like a gleam in a dark place, the unmistakable phantom of the mighty orb that has set; and were we to sit down, as we have often done, and try to record by pencil or by pen our impression of that supreme hour, still would *it* be there. We must have patience with our eye; it would not let the impression go: that spot on which the radiant disc was impressed is insensible to all other outward things for a time; its best relief is, to let the eye wander vaguely over earth and sky, and repose itself on the mild shadowy distance. So it is when a great, good, and beloved man departs, who sets, it may be, suddenly, and to us, who know not the times and the seasons, *too soon*. We gaze eagerly at his last hours; and when he is gone, never to rise again on our sight, we see his image wherever we go, and in whatsoever we are engaged; and if we try to record by words our wonder, our sorrow, and our affection, we cannot see to do it; for the 'idea of his life' is for ever coming into our 'study of imagination,' into all our thoughts; and we can do little else than let our mind, in a wise passiveness, hush itself to rest.—*John Brown, M.D.*

Science revealing the Mysteries of the Sun.

Man does but find out some of the marvels of His working who is infinitely greater than His works.

How immeasurably small, what a very speck, does man appear, with all the wonders of his invention, when contrasted with the mighty works of the Creator; and how imperfect is our apprehension, even in the highest flights of poetic imagination, of the boundless depths of space! These reflections naturally suggest themselves in the contemplation of the works of an Almighty Power, and impress the mind with a reverential awe of the great Author of our existence. The great revolution which laid the foundation of modern astronomy, and which, indeed, marks the birth of modern physical science, is chiefly due to three or four distinguished philosophers—Tycho Brahe, Copernicus, Galileo, and Kepler. The sun's spots have been probed, his 'luminous envelopes' counted, his rays analyzed, his portrait taken in various attitudes by the 'photoheliograph,' and his fabled sympathy with the fortunes of the earth conclusively verified. It is magnetism that has supplied this link. Observers have succeeded in tracing magnetic disturbances, which have for their respective periods the solar day, the solar year, and still more remarkably, and until lately unsuspected, solar cycle of about ten of our terrestrial years.—*Fairbairn.*

The Rich Abundance of the Sunlight.

The wealth and freeness of the Divine pity.

If one had art to gather up all the golden sunlight that to day falls wide over all this continent—falling through every silent hour; and all that is dispersed over the whole ocean, flashing from every wave; and all that is poured refulgent over the nothern wastes of ice, and along the whole continent of Europe, and the vast outlying Asia, and torrid Africa: if one could in any wise gather up this immense and incalculable outflow and treasure of sunlight that falls down through the bright hours, and runs in liquid ether about the mountains, and fills all the plains, and sends innumerable rays through every secret place, pouring over and filling every flower, shining down the sides of every blade of grass, resting in glorious humility upon the humblest things—on stick, and stone, and pebble; on the spider's web, the sparrow's nest, the threshold of the young foxes' hole, where they play and warm themselves; that rests on the prisoner's window, that strikes radiant beams through the slave's tear, that puts gold upon the widow's weeds, that plates and roofs the city with burnished gold, and goes on in its wild abundance up and down the earth, shining everywhere and always, since the day of primal creation, without faltering, without stint, without waste or diminution; as full, as fresh, as overflowing to-day as if it were the very first day of its outplay—if one might gather up this boundless, endless, infinite treasure, to measure it, then might he tell the height and depth, and unending glory, of the pity of God! The Light, and the Sun its source, are God's own figures of the immensity and copiousness of His mercy and compassion. (Psa. ciii. 11, 12; Isa. lv. 6-13). —*H. W. Beecher.*

The Source of the Sun's Heat.

The all-sufficiency of the love of Christ.

They tell us that the sun is fed by impact of objects from without, and that the day will come when its furnace-flames shall be quenched into gray ashes. But Christ's love is fed by no contributions from without, and will outlast the burnt-out sun, and gladden the ages of ages for ever.—*A. Maclaren, D.D.*

Response of Flower-bulbs to the Sunshine.

The assimilating power of Christ.

As the flower-bulb, itself without any beauty, is drawn upwards by the ministry of the sun until the leaves and petals of the flower unfold and appear in some of the richest colours of the light, so our souls, encrusted with selfishness and worldliness, when brought under the power of Christ grow up into His image, and reflect upon the world the lovely features of His gracious character.—*B. Wilkinson, F.G.S.*

The Blood-red Ray of the Sun.

Love is the alchemist of the soul.

We are taught annually that the earth, *in* herself, is so much cold, dark, sterile matter; and that the heavens are spirit vitalizing her matter, and making her fruitful. The season of hope returns once more; joy is possible. In the absence of the sun, the dull, heavy laws of matter prevail; in his return, spirit and life prevail; and by their songs the birds lead us into a new heaven and a new earth.

The blood-red ray of the sun quickens universal Nature, makes all creatures happy, and all trees trees of life. This transfiguring ray is not light, but hidden in light, robed in light, and corresponding with the pure fire, or

love, of God, which renews the soul. Love is the alchemist in Nature. Love is the alchemist of the soul. The love of God, operating through the mighty soul of Christ, and the love of God, clothed with the solar element, are one love, differently conditioned. No one who contemplates the effects of solar influence on the plant, and on the bodies and souls of all creatures, can have a doubt of its being a vehicle of love.—*John Pulsford.*

The Constant Motion (Apparent) of the Sun.

The forward movement of human life is never for a moment arrested.

The same equable and constant motion urges the orb of our lives from morning to noon, and from noon to evening. The glory of the dawning day, with its golden clouds and its dewy freshness, its new-awakened hopes and its unworn vigour, climbs by silent, inevitable stages to the hot noon. But its ardours flame but for a moment; only for a moment does the sun poise itself on the meridian line, and the short shadow point to the pole. The inexorable revolution goes on, and in due time come the mists and dying purples of evening, and the blackness of night.—*A. Maclaren, D.D.*

The Power of Sunbeams.

Marvellous is the potency of Divine grace.

If sunbeams are potent enough, in their noiseless operation, to give to our cold and desolate planet a new face, a new robe of beauty, and a new song, what must not God's beams be able to do for the receiving soul? Certainly the response of the dead earth to the influence of the dead sun, magical as that response is, must be a very tame affair compared with the response which living and loving souls give to their living and loving God. Oh, if the soul could lie open to the forthcoming God, as does the bosom of the earth to the forthcoming sun! All our ice would dissolve, and become warm, operative, and full of life; our cold wintry earth would travail with a general birth; the seed which the Son of man has sown therein would be quickened and bring forth fruit, thirty, sixty, and a hundred fold.—*John Pulsford.*

Darkened Sun and Moon.

The splendid shining of sun and moon in Eastern lands makes this an impressive conception (JOEL iii. 15).

The force of this threatening can only be realized as we apprehend the exceeding charm of the sun and moon, especially at evening time, in Eastern countries. Travellers write in ecstasies about it. Gadsby says: 'Nothing could exceed the loveliness of this evening. Indeed, nothing in the world can, I think, equal the sweetness of the mornings and evenings in Nubia. The very act of breathing is a luxury, as though the lungs were enjoying a holiday; and no sense of oppression ever distresses them. I could see to read by moonlight, when the moon was only in the first quarter. The air was calm, the leaves of the trees motionless, and the river rolling down its bed without a ripple. There was no need to call "Silence," for all Nature seemed as if in a trance. If the stillness were in any way interrupted, it was only by some large fish leaping up and causing a splash, or some startled pelican, screaming and moving its position, and then all was again hushed into repose. The moon had an almost phosphoric effect, not only upon the water, but also upon the lofty hills beyond, which again reflected an unspeakable, a thrilling, though dreary grandeur over the vast sandy desert; while every span of the sky, the whole without a cloud or a mist, looked like purple velvet, spangled with

diamonds. Thousands of stars were visible, more than we ever see in England, even during our clearest nights, and each star reflected its image in the unruffled waters; so that we seemed to have the sky both above and below.'

The phantasia at such times is altogether so enrapturing that we doubt the reality of the scene, though gazing full upon it. It is more like a vision, or the effect upon the brain of some powerful opiate, than a living reality. To say it is charming would express but little. It is literally enchanting; it is inexpressible. If we lose the sun, sinking below yon fiery horizon, it is only to find the more lovely moon and her attendant constellations. Gorgeous as the sunset may have been, we soon forget it when we are enveloped in the more placid reflections of the moon.

Great indeed must have been the horror of darkness felt when the stars and moon were darkened after so gloriously shining.

The Sunbeam in the Sick Chamber.

The pleasure the sunshine brings may soothe a sufferer.

Only a little glimmering, dancing ray of light, but on its golden wings what blessings did it not bear! It came to the window of the room where all through the long dreary night the weary sufferer had restlessly tossed to and fro. The hired nurse had carefully closed the shutters to exclude the light of the early morn, and, availing herself of a few moments' rest, had fallen asleep in her chair. But notwithstanding all her precaution, the little sunbeam found one creek where it could peep through, and throw all its soft, shimmering brightness full upon the face of the invalid. The sick woman gave a start of glad surprise, for it had been many weary days since even one ray of the glorious sunlight had fallen upon her vision. She spread out her thin, almost transparent, hands to catch the genial glow, and a faint smile passed over her emaciated face. Silently she feasted upon the golden brightness, as it whispered to her of the great blue arch above, and the earth with its carpet of green, awakening to new life and beauty at its touch; forgetting her pain, she sank into a quiet slumber. And when the physician came, a smile of satisfaction wreathed his lips as he saw the improved state of his patient. Ah! doctor, what all your drugs failed to do, that little golden messenger from heaven accomplished, for it wooed sweet sleep to the eyes that before had refused to close.

The Glorifying Power of the Sunshine.

Christ's presence makes even the uncomely beautiful.

It is wonderful how the sun will make even common things look attractive, even unsightly things look beautiful. An old ruin, consisting only of a few ivy-covered walls and heaps of fallen stones; a rude-looking cottage, with its thatch torn, its windows broken, and its fences half blown down—both these objects I have seen transfigured, made positively attractive, as a few gleams of the sun have fallen upon them, bathing them in its soft and lovely orange light. What the orb of day thus does for natural objects Christ does for them that are willing to receive His influence. Wherever the beams of His truth and love are allowed to shine unhindered, there even the most uncomely characters look beautiful. Faces that have appeared hard and sour, features that by the long buffetings of sin and care have grown anything but sweet and winsome, have yet brightened up into a tender radiance and rich beautifulness as they have stood in the light which the Sun of Righteousness has shed upon them. —*B. Wilkinson, F.G.S.*

The Sun ever Shining.

Christ, the Sun of Righteousness, is ever giving forth His glory.

Our Lord, like a Sun in the new heaven of the race, is constantly giving out His glory; or, in other words, and more fully stated, God our Infinite Father, is giving to us of the ocean of His glory through Him. 'The Glory which Thou gavest Me, I give to them.' The conditions of receiving it are, tenderness of spirit, holiness of desire, singleness of eye.

The work which changes the inner man, and clothes him with ever more glory, is carried on while we look, not at the things which are seen, but rather at those which flesh cannot see. Looking with desire, and taking in, are the same thing. No eye can look at the light without taking in its glory. The trees, the corn, the flowers, look steadfastly to the sun, receive his glory, and are changed from the glory of leaves to the glory of bloom, and from the glory of bloom to the glory of ripe fruit.

Believe that in your inner man there are not only eyes, but myriads of little cells, in which the glory of God can be stored up; and being stored up, will by-and-by clothe you with glory.—*John Pulsford.*

THE WINDS.

The Movements of the Winds.

'*So is everyone that is born of the Spirit*' (JOHN iii. 8).

The mysterious movements of the wind even are no proof of lawlessness. With all their mystery, they are as much determined by law as the succession of the seasons, and the movements of the stars, and but for our limited knowledge, we might anticipate them with equal certainty. So the operations of the Spirit, though shrouded in mystery, are not on that account capricious. He moves in harmony with ordained conditions, and but for our limited knowledge, His movements might certainly be anticipated where the conditions exist. He is a Sovereign in His operations; but He is not a Sovereign who breaks the promise given or implied. Instead of capriciously refusing to work, He works, did we but know it, everywhere. Even the metaphor teaches as much as that — 'The wind bloweth where it listeth;' but where does the wind list to blow, or, rather, where does it not? Where is the spot on the surface of the earth which no breeze ever visits, where the air is for ever still—perfectly still? Not always with the same force does it blow. There is the rush of the tornado and the sighing of the zephyr; the fury which uproots the oak, and the gentleness that scarcely stirs the leaves; the storm which lashes the ocean into foam, and the calm which leaves the lake unruffled. But, more or less, it blows everywhere. The islands of the sea and the far-stretching inland prairies of the West; the African desert, where all is fiery desolation; the Eastern groves, where spices flow out sweetly; the icebergs of the Northern and Southern pole—all are beaten by its boisterous, or fanned by its gentle, breath. Even the atmosphere we are breathing now will soon be circulating in different parts of the world. Thus the very symbol which is supposed to teach that the Spirit works capriciously, might of itself suggest that He never leaves us altogether without His influences, and that while His operations may vary in power at different times and in

different places, no soul that is concerned about its own state is altogether severed from Him.—*W. Landels, D.D.*

Variety of Winds.

Each Nature force has a varied ministry, and precise adaptation to its particular ministry.

There is a great variety of winds. In some places they are constant during the whole year, and always blow in the same direction; in other places they change at particular times, but always according to regular and fixed laws. In the open sea, between the tropics, and some degrees beyond them, there is an *easterly wind*, which continues the whole year without any considerable variation. To the north of the line the wind blows towards the *north-east*, and to the south of the line it blows towards the *south-east*, more or less according to the position of the sun. But this should be understood of the wind that prevails in the open sea; for islands and great continents which are in its way may alter its direction, and cause it to become *north-east* in certain places. In the southern parts of the ocean the wind is generally westerly. The nearer the coast, the more it varies; and it is still more so on land. The constant east wind is chiefly owing to the heat which the sun communicates to our atmosphere. In the Indian Sea there are winds called *monsoons* or *trade-winds*, which blow in the same direction for three or six months together, and then change and blow in the opposite direction for the same length of time. The cause of these winds has not yet been accounted for in a satisfactory manner; but certainly we must look for it in the variations of heat and cold, in the position of the sun, the nature of the soil, the inflammation of meteors, the condensation of the vapours into rain, and other similar circumstances. There are both seas and countries which have winds and calms peculiar to them. In *Egypt* and in the *Persian Gulf* there prevails often during the summer a scorching wind, which prevents respiration and consumes everything. At the *Cape of Good Hope* a cloud is often seen which is called the *Fatal Cloud*, or *Ox Eye;* it is at first very small, but visibly increases, till in a short time a furious tempest proceeds from it, which oversets ships and plunges them into the depth of the sea.

Variable and constant winds, which have no determined duration or direction, prevail over the greater part of the globe. It is true that certain winds may blow more frequently in one place than in another, but this is not at fixed times; and they begin and end without any kind of rule. They vary in proportion to the different causes which derange the equilibrium of the air. Heat and cold, rain and fair weather, straits, capes and promontories, may contribute much to interrupt their course and alter their direction. There are doubtless many other causes of the different modifications and alteration of the air which are as yet unknown.

One thing particularly remarkable, and which always happens in almost every place, is, that a little before sunrise, when the air is perfectly calm and serene, just at the dawn there is a quick easterly breeze, which begins at the approach of the sun, and continues for some time after he is risen. This undoubtedly proceeds from the air being warmed by the rising sun, and being rarefied, it drives the contiguous air easterly; this necessarily produces an east wind, which ceases afterwards in proportion as the air around us becomes warm. For the same reason the east wind must not only precede the sun in the *torrid zone*, but also be much stronger than in

our regions, because the action of the sun is more moderate with us than in the vicinity of the *line*. In the torrid zone the wind blows about constantly from east and west; there a west wind very rarely happens.

We see, then, that the winds are not the effects of chance, to which neither cause nor design can be attributed. In these, as in all other things, the Creator manifests His wisdom and goodness. He has so arranged everything, that the winds blow from time to time, and an absolute calm very rarely occurs. He regulates the motion, strength, and endurance of the winds, and He prescribes the race which they are to run.

Even their variety is very advantageous. When a long drought has caused both plants and animals to droop, a wind from the sea-coast, laden with many vapours, waters the fields and revives Nature. When this design is accomplished, a dry wind proceeds from the east, restores serenity to the air, and brings back fair weather. The north wind brings with it a great number of icy particles, and drives away the noxious vapour of the autumnal air. Lastly, to the keen north wind the south wind succeeds, which, coming from southern climates, impregnates the air with a reviving warmth. By these continual variations fertility and salubrity are maintained on the earth. —*C. C. Sturm.*

The Various Winds—the Doldrums.

Illustrative of times of melancholy.

Seafaring people have, as if by common consent, divided the ocean off into regions, and characterized them according to the winds; *i.e.*, there are the 'trade-wind regions,' the 'variables,' the 'Norse latitudes,' the 'doldrums,' etc. The 'equatorial doldrums,' besides being a region of calms and baffling winds, is a region noted for its rains and clouds, which make it one of the most oppressive and disagreeable places at sea. The emigrant ships from Europe for Australia have to cross it. They are often baffled in it for two or three weeks; then the children and the passengers who are of delicate health suffer most. It is a frightful graveyard on the wayside to that golden land. In crossing the equatorial doldrums the mariner has passed a ring of clouds that encircles the earth. And do not these doldrums illustrate a class of influences to which we are all subject? Are we not all certain in our journey to have days of deep melancholy, when all is dismal, when our hopes are baffled, when we make no progress, and yet have no calm? Then indeed we suffer; and depression clouds the sky of all its light. Take courage, drooping heart, and remember that thou too hast a golden land in view!—'*Scientific Symbols.*'

The Mission of the Storms.

It is well to have our inner evils laid bare to view.

Storms find out our weak places, reveal our vulnerable points. Many a noble-looking tree, whose trunk seems firm as granite, whose branches afford shelter for birds and cattle, and whose leaves, in the tender hues of spring, the rich tints of summer, or the golden glories of autumn, are beautiful to behold, is yet weak and decaying at the core, and its weakness and decay are unsuspected until the storm lays them open to inspection. So we, in the eyes of those about us, and even in our own view, may appear strong in our integrity, and may be showing some attractive points, and doing some useful service, and yet at the same time there may be at work in our hearts

some insidious process of evil, of whose presence we do not even dream until some storm from heaven lays us prostrate, and reveals to our gaze our real inward condition.—*B. Wilkinson, F.G.S.*

Wind-storm in America.

'*He . . . bringeth forth the wind out of His treasures*' (JER. x. 10).

While at Washington I first witnessed the wind-storm, which is common in this country. It is peculiar, sometimes awful. The morning had been hot, and the sky fair; I had been to the Senate, and was now resting and writing in my chamber. Quietly the soft and refreshing breezes went down; a haze came over the sun, so that it shone as behind a gauze curtain. Every noise was stilled, except that of the frog, which was unpleasantly audible. The sky got silently darker, the atmosphere became oppressive, and not a breath of air was felt. Suddenly, in the distance you would see things in commotion; and, while everything was yet quiet about you, you might hear the distant roaring of the wind. Then the cattle run away to their best shelter; then the mother calls on her heedless children; and the housewife flies from story to story to close her windows and shutters against the entrance of the coming foe. Now the dust, taken up in whirlwinds, would come flying along the roads; and then would come the gust of wind, which would make everything tremble, and set the doors, windows and trees flying, creaking, crashing around you. You would expect the torrent to fall and to roll; but no, there was neither rain nor thunder. It was wind, and wind alone; and it wanted nothing to increase its power on the imagination. It raged for a few minutes, and then passed as suddenly away, leaving earth and sky as tranquil and as fair as it found them. It is not easy to account for this very sudden destruction and restoration of an equilibrium in Nature. The phenomena, however, supplies a fine illustration of some striking passages in Holy Scripture.—*Dr. Reed.*

The Feats of the Winds.

The influence of noble ideas, and of pious persons, though silent, has ever effected more for the world than noisy revolution and war.

Without storm or noise the winds in their usual course accomplish surprising feats. All expanses of shifting sand, whether maritime or inland, like the deserts of Africa and Asia, are yearly modified by the agency of wind-drift, the wind carrying the dry sand left by the tides forward and landward beyond the reach of the waters; and where the aërial current blows steadily for some time in one direction, as the trade-winds and monsoons of the tropics, it will carry forward the drifting material in that direction. Hence the gradual entombment of fields, forests, and villages that lie in the course of such progressive sand-waves as on the Biscay seaboard of France, and on the western verge of Egypt. Results like these arise from merely the ordinary operations of wind; its extraordinary operations are manifested in the destructive effects of the hurricane, the whirlwind, and tornado. Gentle as it may seem, the continuous drifting of sand over the surface of hard rocks has been known to wear and polish down their asperities, and even to grind out grooves and furrows like those produced by the motion of glacier ice or the flow of running water. Here, then, we may observe great effects produced without fuss; and we may easily observe, in the phenomena of social life, that there are plenty of illustrations there of the same principle. The whirlwind of revolutions, and hur-

ricane of insurrections, have no doubt produced startling consequences. But the influence of noble ideas, spoken by undemonstrative men, or embalmed in unpretending volumes, and of pious lives lived in seclusion, has produced a far greater effect upon the civilization of the world than all the blustering storms of war raised by kings and factions, and reverberating through history.—'*Scientific Symbols.*'

Poisonous Power of Wind.

Under special conditions things that are usually life-giving may become destructive.

The Samieli is felt in the desert from about the middle of June to September 21. It is experienced with a very violent south-west wind, and on those days when the heat of the sun is the most ardent. It is burning; it comes in gusts, more or less scorching, of more or less duration; each of them, however, even the shortest, exceeds the time that a man can hold his breath. The wind consists in a succession of burning and cool gusts. In the first there is frequently a double degree of heat and impetuosity. The difference between the hot and the cold gusts, according to my observation, is from 7 to 10 degrees. The highest degree of the hot gusts was 73 degrees of Fahrenheit; the temperature in the sun, without the Samieli, having been constantly from 53 degrees to 57 degrees.

I thought I could observe that when this wind blows, a yellowish tinge, inclining to livid, is diffused through the atmosphere, and that, in its most violent periods, the sun becomes of a deep red. Its odour is infectious and sulphurous; it is thick and heavy, and when its heat increases, it almost causes suffocation. It occasions a pretty copious perspiration, partly excited by the uneasiness which one feels, and the difficulty with which one breathes, on account of its fœtid quality. This perspiration appeared to me more dense and viscous than the natural perspiration; the wind itself deposits an unctuous fluid. The better to examine its qualities and its nature, I opened my mouth to inhale it: the palate and throat were instantly parched. It produces the same effect when inhaled through the nostrils, but more slowly. To preserve one's self from it, and keep the respiration more free, it is usual to wrap up the face with a handkerchief. In passing through the tissue it loses a part of its action and of its destructive principle; and, besides, the breath keeps up a degree of humidity, and hinders the burning air from suddenly penetrating into the mouth and lungs. The Arabs, therefore, are accustomed, whatever the heat may be, even in the shade, to wrap the whole body, not excepting the head, in their *mesehlah* (cloak), if they desire to sleep.

The wind causes, in consequence of the rarefaction that attends it, a pretty strong agitation in the blood, and this increased movement soon brings on weakness. It in general produces on man two effects distinctly characterized. It strikes him mortally with a kind of asphyxy, or causes him a great debility. The corpse of a person so suffocated has this peculiarity, that in a few days, or even hours, as some Arabs affirm, the limbs separate at the joints with the slightest effort; so powerful is the action of the poison on the muscular parts, giving an astonishing activity to the progress of putrefaction. Such a corpse is reputed contagious. I know nothing so terrible as this wind: I felt it almost constantly in the desert, bating some interruptions, one of which was for three days and three nights successively. My interpreter, Mr. Rossel, was struck by

it, but escaped death by a discharge of blood. That which confirms what I have said of the separation of the limbs is, that having been struck by this air, I was affected for some weeks with an extreme weakness; and whenever the least warm wind blew on me I felt a great faintness, and perceived in my joints a relaxation of the muscles.

The dangers of this wind are guarded against by inhaling the fumes of good vinegar, and covering the face with a handkerchief. I asked the Arabs if lying down on the ground was a preservative against it; they assured me it was not. I should be inclined myself to think it prejudicial.—'*Russian Nobleman's Travels in Africa.*'

The Vagaries of Cyclones.

The order of Nature is often as difficult to trace as the order of providence, but it is always there.

Mr. Reginald Bolton sends to the *Engineer*, from New York, some interesting notes on the eccentricities of tornadoes. Their effects, he says, show such vagaries of speed and power that any recorded incident tending to indicate either becomes of interest. In the occurrences of July 13 at Redwing, near St. Paul, Minnesota, some remarkable feats were performed by the storm centre. Before reaching the lake where it overturned the ill-fated steamer *Seawing*, causing a loss of over one hundred lives, according to the testimony of those who witnessed the storm, it first gathered in the vicinity of Snail Lake, several miles to the north-west of Lake Gervais, and something like eight miles from St. Paul. It proceeded slowly in its general movement, and first began its work of destruction about three miles from the Schurmeir and Good cottages by demolishing a barn and several windmills. After this it seemed to bound into the air, striking the earth again near the hamlet of Little Canada, where the first serious damage was done. Again it skipped a space of about a mile, and was again lowered to the earth and resumed its work of destruction, its fury culminating near the shore of Lake Gervais. Once again the storm seemed to rebound into the air, only to strike the earth a half-mile further on, where the ruins of the Gaetzke place and the bruised inmates were left to bear witness to its relentless power. Here its force seemed to be spent, and as it proceeded eastward it assumed simply the nature of a high wind, accompanied by a thunderstorm. Hail as large as medium-sized olives was one of the features of the storm at White Bear. As illustrating the force of the wind, an iron pump and about 25 feet of iron pipe were torn from a well in front of the Good residence, twisted and bent almost double, and deposited 50 yards from the well. On the edge of the water is a pile of boards covered with turf lifted from a swamp 200 feet away, and strewn all about are pieces of furniture, harness, books, stoves, vehicles, and even locks broken from doors. Nothing remains of an ice-house belonging to Mr. Good but a pile of crushed ice. Wells and cellars are filled to the top with building débris, and in Mr. Schurmeir's cellar lie the mangled remains of a horse, alive when found, but later killed to stop his terrible sufferings. The ground about these houses has the appearance, from a distance, of having been gone over with a plough, while from this point on to Mr. Gaetzke's trees are blown down in vast numbers and the crops demolished. In fact, nothing was left undone by the wind which would serve to make the havoc complete. George Miller, teller of the First National Bank, was carried 40 feet and landed with such violent force as to produce almost instant death. His wife

was carried some distance, and found with serious injuries buried under the wreck. Mrs. J. H. Schurmeir, Rev. Mr. Pfaefle, and Charles Schurmeir were evidently hurled into the lake, where they were drowned, as their bodies could not be found among the débris. J. H. Schurmeir, Hub Schurmeir and wife, and the female servant, were carried a short distance and landed under some trees.

THE SEASONS—WINTER.

Winter Misunderstood.

It is easier to trace the desolation wrought by forceful things than the beneficent ministry that underlies the desolation.

At home winter is a terrible despot; but, like the wild Goths which he nurtured, he becomes more civilized as he travels south. Like a travelled man of the world, he adapts himself to the countries in which he sojourns. Ice, which is misery at Labrador, is luxury at Naples. In our country we know winter only in his mild and fanciful moods. In England he is artist and adorner. He brightens the bloom on the cheeks of girls, he breathes the quaintest forests on our bedroom windows; he beards cottage eaves with icicles; he makes the lake a floor on which the skater may disport himself; he fires the south-west with sober sunsets; he gives star and planet a metallic lustre. But with all these pleasant qualities and obliging graces, he wears here, as at home, the old heart. Have you not seen him in our own streets pinch cruelly a poor child scantily clad? Do we not know how he maltreats the desolate widow and the unemployed artisan? Do we not hear of him in savage mood killing outright some homeless wretch whom he has discovered asleep on stairs or in deserted cellars? Here, as I have said, he is partially civilized, but at home he is a despot; there he piles the iceberg that sails southward to crush ships; there he pinches the starved wolf; there he makes the Esquimaux shiver through all his furs. And the Arctic voyagers whom he takes prisoner and locks up in his immeasurable dungeons of snow and ice, *they* know what a Giant Despair he is; and friends at home who wait and wait, and to whom no news ever comes, know it too.

There is one more good thing about winter—he brings Christmas. Through the bleak December the thought of the coming festival is pleasant—like the reflection of a fire on our faces. We taste the cake before it is baked, and when it is actually before us we find that it is none the worse for the fond handling of imagination. Christmas Day is the pleasantest day in the whole year. On that day we think tenderly of distant friends. We strive to forgive injuries — to close accounts with ourselves and the world—to begin the new year with a white leaf, and a trust that the chapter of life about to be commenced will contain more notable entries, a fairer sprinkling of good actions, and that the handwriting will contain fewer erasures made in blushes, and fewer ugly blots, than any of the earlier ones. And to make Christmas perfect, the ground should be covered and the trees draped with snow; the bleak world outside should make us enjoy all the more keenly the comforts we possess; and, above all, it should make us remember the poor and the needy—for a charitable deed is the best close of any chapter of our lives, and the best promise,

too, for the record about to be begun.

We are accustomed to consider winter the grave of the year, but it is not so in reality. The stripped trees, the mute birds, the disconsolate gardens, the frosty ground, are only apparent cessations of Nature's activities. Winter is a pause in music, but during the pause the musicians are privately tuning their strings, so that they may be prepared for the coming outburst. When the curtain falls on one piece at the theatre, the people are busy behind the scenes making arrangements for that which is to follow. Winter is such a pause, such a fallen curtain. Under ground, beneath snow and frost, next spring and summer are secretly getting ready. The roses, which young ladies will gather six months hence for hair or bosom, are already in hand. In Nature there is no such thing as paralysis. Everything flows into the other, as movement into movement in graceful dances; Nature's colours blend in imperceptible gradation; all her notes are sequacious. I go out to my garden and notice that when the last leaves have fallen off my lilac and currant bushes—like a performer at the side-wings waiting his turn to come on, the new buds are all ready. To-day I beheld great knobs of buds on a horse-chestnut of mine, liquored over with an oily exudation which glittered in the sunlight. In my plants the life, which in June and July was exuberant in blossom and odour, has withdrawn to the root, where it lies *perdue*, taking counsel with itself regarding the course of action to be adopted next season. The spring of next year is at present under ground, and the first snows will hardly have melted till it will peep out timorously in snowdrops; then, bolder grown, crocuses will hold up their coloured lamps; then, by fine gradations, the floral year will reach its noon, the rose; then, by fine gradations, it will die in a sunset of hollyhocks and tiger-lilies; and so we come again to withered leaves and falling snows. —*Alexander Smith.*

The Mission of Winter to Plants.

Sorrow and adversity have their places of service.

The cold and snow of winter are as essential to the health and vigour of some forms of vegetable life as the sunshine and warmth of summer. There are many plants which, instead of flowering if it were always summer, would die. So it would seem that a certain proportion of trial and sorrow are necessary to the growth and perfection of some Christian graces. We should miss many of the finer traits of spiritual character if we were left without the modifying and mellowing influences of adversity and trouble.—*B. Wilkinson, F.G.S.*

To get the beautiful flower of the velvet cockscomb it is necessary to keep it awhile in a large pot in the warm greenhouse; but to force it to send out flower rather than leaf it must be taken out of the greenhouse, confined in a small pot, and left for a time out in the cold.

Winter Floods in Hill Countries.

Their dwellings are in grievous peril who build in the line of the winter floods (MATT. vii. 26, 27).

The surrounding scenery may have suggested this illustration. As in all hilly countries, the streams of Galilee rush down the torrent-beds during the winter and early spring, sweep all before them, overflow their banks, and leave beds of alluvial deposit on either

side. When summer comes their waters fail, and what had seemed a goodly river is then a tract covered with débris of stones and sand. A stranger coming to build might be attracted by the ready-prepared level surface of the sand. It would be easier to build there instead of working upon the hard and rugged rock. But the people of the land would know and mock the folly of such a builder, and he would pass into a by-word of reproach. On such a house the winter torrent had swept down in its fury, and the storms had raged, and then the fair fabric, on which time and money had been expended, had given way, and fallen into a heap of ruin.—*Plumptre.*

The Analogies of the Seasons.

'The growth of the year has analogies with the development of the intellect and affections.'

By virtue of the primitive relations which so wonderfully link the spiritual and the material, the growth of the year has precisely the same analogies with the development of the intellect and affections, as with the history of the body. Winter answers to their germ - stage, summer to their flowers, autumn to their maturity. Hence the elegant and familiar metaphors by which the first buddings of the intellect and affections are called their *Spring*. The Greek poets not infrequently put autumn, in like manner, for ripened intelligence and wisdom, as Æschylus, in his tragedy of the Suppliants (998, 1015). Gifted with the sight of these fine analogies, few things are more delightful to the accomplished mind than to note the early primrose and anemone, the wood-sorrel, and the young, uncurling ferns. It sees in them, and in all delicate buds, the pictorial counterparts of its own first steps—images of the pretty little flowers of fancy and affection put forth from the heart of a child. The same circumstances originate an important part of the pleasure with which the mind regards the verdure of trees newly-leafed, the activities and the music of birds, and the thousand other fair conditions of the year in its adolescence. It sees reflected in them its own felt progress. In that perfect sea of rich poetry, 'Festus,' both the physical and spiritual symbolism of the year are given in a single passage :

'We women have four seasons, like the year :
Our Spring is in our lightsome, girlish days,
When the heart laughs within us for sheer joy ;
Summer is when we love and are beloved ;
Autumn when some young thing, with tiny hands,
And rosy cheeks, and flossy, tendrilled locks,
Is wantoning about us day and night ;
And Winter is when those we loved have perished,
For the heart ices then.
Some miss one season, some another ; this
Shall have them early ; and that, late.'

L. H. Grindon.

INANIMATE NATURE: II.—THINGS ON THE EARTH.

FLOWERS, GRASS, MOSSES, WEEDS, PLANTS, GARDENS, ETC.

Sermons in Flowers.

Sensitive souls can learn from all God's handiwork.

How much we make of flowers! How much we mean by them! They are the language of the affections. They are the language of God's affection to us; they are the language of our affection to God, and to each other. Wherever affection overflows and triumphs, there are flowers. At births we express our welcome by flowers. At marriages we signify the warmth of our congratulations by flowers. And at deaths we express our unutterable sympathy by flowers. Flowers are very Divine, and very human. We find them about us as soon as we arrive. We celebrate every festival in their presence. With the breath of them about us we leave the world; and the flowers of Paradise await our waking.

By flowers everywhere, God says to us: 'My heart is yours!' All that love can do for you will be done. Flowers, ever new and more wonderful flowers, will spring about us, from God to eternity; and by the same flowers we shall speak the unutterable to one another. . . . Even Holy Scripture tells us that they preach very heavenly sermons to those who have ears to hear. Hear these sermons: i. Be content as we are, and you shall be peaceful as we are. ii. Yield to God's operations as we do, and your souls shall be beautiful as we are. iii. Look up to God as we do, and you shall be fragrant as we are. iv. Be modest under all your virtues, as we are, and children and angels shall love you as they do us. v. Live without care and covetousness, as we do, and God's blessing shall be at your root, as it is at ours. Such is the wonderfulness of the works of God, that simplicities hide great mysteries. A flower pleases a child, as though it were meant for nothing more; yet that same flower is a wonder and a puzzle to the philosopher; to the poet it is a cup of inspiration, and to the saint it is a holy and comforting sermon.—*John Pulsford.*

Flowers are the sweetest things that God ever made and forgot to put a soul into.—*H. W. Beecher.*

Smoothness of Grass.

Lowly agencies are at work in Nature.

When we behold a wide turf-covered expanse, we should remember that its smoothness, on which so much of its beauty depends, is mainly due to all the inequalities having been slowly levelled by worms. It is a marvellous reflection that the whole of the superficial mould over any

such expanse has passed, and will pass again every few years, through the bodies of worms. The plough is one of the most ancient and most valuable of man's inventions; but long before man existed the land was, in fact, regularly ploughed by earthworms. It may be doubted whether there are many other animals which have played so important a part in the history of the world as have these lowly-organized creatures. Some other animals, however, still more lowly organized — namely, corals, —have done far more conspicuous work in having constructed innumerable reefs and islands in the great oceans; but these are almost confined to the tropical zones.—*Charles Darwin.*

The Heliotropism of Plants.

The flowers turn to the sun as do the souls of men to God.

Most plants will bend to the light if they are placed, say, in a room whereof one aspect is dark, and the other open and bright. At the foundation of a plant's relations to light, to heat, or to any of the other conditions of its life, there lies, of course, the fact that it contains living matter, or protoplasm. We are given too much to regard plants as purely vegetative and half-living things, so to speak. We do not remember, until science forcibly reminds us of the fact, that the plants form one of the two great divisions of the living world, and that they rank equally with animals in at least possessing the matter of life. This habit of turning to the light, then, we may regard as truly a part of the plant's own nature, as is that of taking its own and appropriate food.

In truth, it is light which, with the plant as with the animal, rules and regulates most of the ways of life. Deprived of light, the whole constitution of the living being is altered. Its nutrition fails it; its frame grows weak; its energies droop. There is a much closer analogy between the blanched leaves of a green plant grown in a cellar, and the pale face of a child bred in the slums, than we might at first sight be inclined to suppose.

There are certain plants—notably climbers—which do not exhibit for the sun the stable affection of most plants. Tendrils, whereby many of these plants climb, are not influenced by the light. Were it so, they would tend to move away from the support to which they cling. The 'wisteria' is an excellent illustration of a plant which, itself a climber by means of twining, winds itself regularly round its support without apparently regarding the light at all. Of the 'morning glory' the same fact is true. But we do not know all when we make these bare assertions about the non-sensitiveness of tendrils and climbers to the light. If we watch a young climbing plant when it has just begun existence, and when it has raised its first leaf-buds and stem above the ground, we see that it is as sensitive to the light — as 'heliotropic,' in other words—as any other plant.

Later on, when the climbing habit develops, this sensitiveness is lost. It has exchanged its early and primitive tendency—the universal habit of turning to the light — for another habit which better suits its new and acquired existence. Climbing, in other words, is incompatible with the constant desire to press forward to the light.—*Dr. Andrew Wilson.*

The Stems of Plants.

Illustrating the power of adjusting our ways to our circumstances.

Nothing is more variable than the appearance of the stem in vegetables and trees. The form,

size, and direction of the stem are beautifully adapted to the part which each plant has to take in the vast vegetable population which covers and adorns the globe. Plants which require to live in a pure and often-renewed air have a straight stem, either robust or slender, according to their individual habit. Where they require a moist and denser atmosphere, when they have to creep along the ground, or to glide among the brambles, the stems are usually long, flexible, and trailing. If they have to float in the air, supporting themselves by plants of more robust growth, or to hang suspended from forest trees, in graceful festoons and light garlands, they are provided with flexible, slender, and pliant stems, which enabled them to embrace with their tendrils the trunks of trees or shrubs. Thus Nature fashions the outward forms of plants according to the part which they are intended to fill, and according to the functions which have been allotted to them. —'*Scientific Symbols.*'

Flowers—the Forget-Me-Not.

Names of flowers preserve interesting associations.

The Forget-me-not was at first the Germander Speedwell; its blossoms, falling off and flying away as soon as gathered, gave emblematic force to the name. Under this form it was known in the days of chivalry as the 'flower of souvenance,' and was embroidered by ladies on the collars of the knights, a fact still recalled by its German title *Ehren-preis*, prize of honour. Two hundred years ago we find the name applied to the ground pine, *Ajugachamœpitys*, whose nauseous taste, once realized, can never be forgotten, Finally, it was seized by the river Myosotis, and forthwith sprang up the charming legend, created obviously to suit its latest identification, how that, while two lovers loitered by a lake, the maiden saw and coveted the bright blue flowers, the knight plunged in to get them; but, unable to regain the shore, had yet agility to fling them into his lady's lap, and then with a last devoted look, and the words 'forget me not,' sank below the waves for ever. —*Rev. W. Tuckwell.*

The Nectary of a Flower.

Objects in Nature are fitted for a new purpose by becoming unfitted for their primary purpose.

The nectary of a flower is regarded by scientific botanists as a degenerated stamen: that is, a stamen that no longer serves its original object in helping to propagate the plant; and yet, strange to say, in its altered form this nectary or degenerate stamen secretes a sweet liquid which attracts bees and other insects, by whose entrance into the flower the pollen-dust is scattered and carried from one blossom to another. In this way the nectary helps to fertilize the plant more effectually, and fulfils in a more admirable manner its part in the economy of the flower, than if it had retained its original form and function. It serves even higher purposes than those which belong to the plant itself; it looks to the wants of other orders of life beyond and above its own. It feeds the insect world; the bee fills its comb, and thus stores up nourishment for itself during the idle winter, from the sweet golden tears which it secretes. Nay, more: the nectary ministers to the wants and luxuries of man himself—the lord of creation—and supplies one of those pleasant gratifications of the senses which God did not disdain to commend when He spoke of the Land of Promise as a land flowing with milk and honey.

Is it not thus a wonderful

thought that we owe all our honey to the abortion or degeneration of an indispensable part of a flower —to the frustration of the original purpose for which that part was created? The mind must be callous indeed which does not recognise in this one of the most remarkable illustrations of Nature's compensatory arrangements.

And is not the spiritual lesson which it teaches most instructive? God acts in the moral world as He does in the natural. His judgments are sweeter than honey and the honeycomb . . . out of the dead form of some rampant evil that has destroyed much good He produces abundant sweetness to satisfy the immortal cravings of our nature.—*Hugh Macmillan, D.D.*

Natural Selection in Flowers.

What we choose depends on our cultured affinities.

Flowers, we are told, are rendered fertile, that is, capable of reproducing their species, chiefly by the agency of insects. The bee gliding from flower to flower bears the golden powder called pollen, which adheres to its thighs, from the anther of one blossom, to leave it on the stigma of another. In flowers, as in all other forms of life, crossing the species matures their magnitude, vigour, and loveliness. Recent experiments show that when 'cross-fertilized' by means of insects, they attain the greatest perfection; while self-fertilization tends to stunt their growth. It has been proved that a convolvulus self-fertilized only attains a height of five feet, whereas one that has been cross-fertilized will rise to seven feet and a half. It has been noticed in like manner as to night-blooming plants, which, though generally pale and colourless, have frequently a powerful perfume, that their rich fragrance is due to the same cause. They are chiefly rendered fertile by certain moths, whose active time is after dark, and who 'have a sense of odour fully as delicate as that of bees, and, like bees, are fond of honey.'

In a lecture of Sir John Lubbock's a striking distinction is noted in regard to this operation between beautiful and hideous plants. Bees, it would appear, delight in pleasant odours and bright colours, and invariably choose those plants which give pleasure to man. If we watch the course of these insects on their visit to a garden, we shall observe them settling upon the rose, the lily, the lavender, and all other similar agreeable flowers of brilliant hues or sweet scent. In marked contrast with this is the conduct of flies, which always show a preference for livid yellow or dingy red plants, and those which possess an unpleasant smell. The bee is a creature of fine and sensitive tastes. The fly is 'a species of insectoid vulture,' naturally turning to such vegetable food as resembles carrion. Let two plates be placed on a lawn, at a little distance apart, the one containing that ill-scented underground fungus, the stink-horn, and the other a handful of moss roses, and this difference will be immediately discerned. The foul-odoured and unsightly fungus will soon be covered with flies, while the bees will resort to the plate of roses. To this love of bees for fine colours and fragrant perfumes we are indebted for our choicest flowers. For by taking the pollen dust of some conspicuous flower to the stigma of another, they have by this union produced the seed of a still richer variety. Thus, age after age, many blossoms have been growing increasingly beautiful. On the other hand, strange to say, through a similar process, a progress in the opposite direction has taken place in those plants which are frequented by flies, and

their unwholesome and repulsive qualities have become intensified.

So it is with the two great classes into which all mankind may be divided—the men of this world, and the men of the next. While the purified affections of the one centre continually on 'whatsoever things are honest, whatsoever things are just, whatsoever things are pure, whatsoever things are lovely, whatsoever things are of good report,' so the earthward and vile affections of the other fasten on corruption. Not more surely does the laborious bee fly from one beautiful flower to another, than does the Christian seek of set purpose all that is fairest, sweetest and best on earth. His prayer is that of David, 'Teach me good taste,' and if there be any virtue, and if there be any praise, he thinks on these things. Not more surely does the fly affect the livid, poisonous and foul-scented flowers, than does the sinner, putting bitter for sweet, and evil for good, find all his delight in earth's impurities, 'the filthiness of flesh and spirit.' And may we not extend this parable still further? Keble, attributing the charm which attaches to flowers to their retaining their primal beauty amid a world marred by sin, very sweetly sings:

'Relics ye are of Eden's bowers,
As pure, as fragrant, and as fair,
As when ye crowned the sunshine hours
Of happy wanderers there.'

But science, we have seen, teaches us to believe that flowers of the purer kind are now really far finer, more fragrant, and fairer than they were even when first scattered by the hand of God amid the glades of Eden. Just as the bees, in thus going from one bright blossom to another, have been the means of greatly adding to the wealth and beauty of the floral world, so do the righteous, by affecting all that is good, render Christian society increasingly fair and delightful. The wicked, on the other hand, spread and intensify the corruptions and evils to which they constantly turn. In this way, by the very principles of natural selection, the world at large is growing with each age further from God, and riper for judgment, and even weighed in the balance of science, more obnoxious to the Divine wrath. Thus both good and evil cannot but be progressive.—*Rev. James Neil, M.A.*

The Wonders of Fertilization in Plants.

The vegetable life can adjust and adapt itself to meet all surrounding conditions; and so can the spiritual life.

Sometimes it is not the flower only, but the whole plant, which has to be modified in order that the pollen may reach its destination, as is shown by the following instance:

The *Vallisneria spiralis* is a water weed, a native of quiet pools and ponds in South Europe, which may sometimes be seen in England growing in the fresh-water aquarium. It has long thin leaves, many of which reach from the root to the top of the water. Its flowers are *diœcious* (in two houses), *i.e.*, the stamens and pistils not only grow on different flowers, as in the hazel, vegetable marrow, etc., but on different plants, as in the willows, etc. The pistillate flowers are purple; they are provided with long thin stalks which spring from the root-stock, and are curiously curled like a corkscrew. The staminate flowers grow in bunches, something like catkins, on short straight stalks, also springing from the root-stock, and each bunch is enveloped by a large white bract,

which prevents it from being hurt by the water.

Now comes the difficulty. We have two flowers, both at the bottom of a pond—the one contains pollen, the other the pistil needing the pollen. How is one to get to the other? We find in the case of the cucumber, where the pistils and stamens are only on different *flowers*, that no seeds are set unless winds or insects do the business of pollen-carriers. But winds cannot blow, nor honey-eating insects live, under the water. Perhaps you will think that fishes are pressed into the service, and in some way persuaded to carry the pollen on their noses. This would, however, be useless, as the pollen would instantly be washed off any stigmatic surface, and, besides, it is spoilt by being wetted. The solution of the puzzle is this: As soon as the pistillate flower is ready to blossom, its curious corkscrew stem suddenly elongates, uncurling just enough to take it to the top of the water, where it opens, and lies lazily floating about. When the stamens on the other plant are ripe for bursting, the short stalk on which they grow snaps off, and they, still wrapped round by their bract, being lighter than water, slowly rise, till they too have come to the top, when they emerge from their covering. When once there, all difficulty is over; they either themselves come in contact with the pistillate flowers in the course of their floatings, or their pollen is carried by the insects which are now able to visit them. When the seed is set, and the flower begins to wither, its stalk screws itself up again, and carries the seed down to the place where it is eventually to be sown. This story would be difficult to believe, were not every seedling Vallisneria spiralis that ever grew a proof of it. — *Frances Anna Kitchener.*

The Growth of a Plant.

'All human affairs follow Nature's great analogue, the growth of vegetation.'

There are three periods of growth in every plant. The first, and slowest, is the invisible growth by the root; the second, and much accelerated, is the visible growth by the stem; but when root and stem have gathered their forces, there comes the third period, in which the plant quickly flashes into blossom and rushes into fruit.

The beginnings of moral enterprises in this world are never to be measured by any apparent growth. The root is always concealed by the very soil which gives it life, and in which it spreads and hides. Then comes the middle period, in which it contends with opposing elements, but grows by the very things that would destroy it, as plants do by the winds that would prostrate them. At length comes the sudden ripeness and the full success, and he who is called in at the final moment deems this success his own. He is but the reaper, and not the labourer. Other men sowed and tilled, and he but enters into their labours. Before the time of Christ the world grew by the root; since that time until now it has grown by the stem; but ten thousand swelling buds of promise and of prophecy do now declare the time near at hand for flowers and fruits. Henceforth the world makes haste.—*H. W. Beecher.*

The Envy of a Bed of Moss.

Those in lowly places can often do better service than they can estimate.

In a deep hollow, in the heart of a forest, grew a bed of moss. It was thick and soft as a velvet carpet, and its structure was more wonderful and curious than that of the finest carpet ever woven by the hand of man. But the traveller

never stooped to see the miracles of beauty hidden in it, but hurried on to the sunshine and bloom beyond. And the moss sighed: 'Ah, for the beauty of the grove, and the rosy glow of flowers! The foot tramples me, but the eye regards me not!' One evening, just as the last golden rays of sunset lighted up the tree-tops, a pale and weary man came slowly through the forest. It was Jesus returning from the wilderness after His forty days of fasting and temptation. His feet were blistered with wandering over the burning sand, and were torn and bleeding from the briars of the wood. When He came upon the bed of moss, and felt its soft coolness on His wounded feet, He paused, and spake a blessing on this gift of His Father's hand. 'Little plant,' He said, 'fret not because thou art unheeded by the careless eye. Bear thy lot with patience. Thou hast done good to Me, and the Father will remember thee.' Scarcely had the words passed His lips, when out of the bosom of the moss budded a lovely rose. Its hue was like the glow in the western sky after the sun had set, and the veil of tender moss which half concealed, also increased its beauty. 'Moss rose,' said the Saviour, 'spread thou into all lands, and become to men the sweetest emblem of humility!' The despised moss had softened the Redeemer's earthly pain—had kissed His sore and wounded feet. It was for this it had such sweet reward. Oh, poor and lowly one! keep thy heart soft and tender; be like the moss when trodden on. Then, be sure, the time of thy roses is at hand.—*Paxton Hood.*

Wild Roses.

Interesting because of their historical associations.

Far back in the ages, when the Romans came to England, they sent a message over to Italy saying that the newly-discovered country was 'a land of roses.' Now, the rose is England's national flower, and mingles its colours with purple of thistle and green of shamrock in the royal coat of arms, emblematic of the union of the countries; but years ago it took, in the form of red and white roses, the meaning of war and bloodshed between two 'houses' as nearly related to each other as red and white roses themselves, and the York and Lancaster variety, with its mingled red and white petals, afterwards told of the ending of animosity and the union of the houses.

Only recently, by the vote of the children, the rose has been taken as the emblematic flower for the State of New York.

The rose has held an honoured place in many nations. The Pope used to give a golden rose to any king whom he desired to honour; he gave one to both Henry VI. and Henry VII. The rose was the special favourite of Mahomet, the prophet of the East; it has been a sacred emblem for centuries in the Romish Church; the Persians have their feasts of roses, lasting as long as the flowers are in bloom; perhaps the greatest honour conferred on the rose was when grand old Martin Luther had the image of one cut on his seal, and used that seal for stamping his letters and documents.

Roses have even been used in payment of rent. Lord Brougham used to possess a castle named High Head in virtue of 'the service of a red rose rendered annually at Carlisle.' The hips or fruits of dog rose are used as a vehicle for sundry kinds of physic, and their pulp is a cooling remedy often given to children, and in cases of low fever. In China no banquet is perfect without its dish of cooked roses, forming a kind of *ragoût;* but the salt so freely mixed with them renders the dish a somewhat unpalatable one to our taste. In

Queen Elizabeth's days the hips were used as dessert; preserves and tarts were often made from them. Then the rose furnishes us with the costly perfume, 'attar of roses,' which Louis XVI. was wont to affect, and we are told that 4,000 pounds of roses yielded only seventeen ounces of this volatile oil.—*H. W. S. Worsley-Benison.*

Flowers—the Violet.

A type of persons whose sweetness of disposition is unaffected by either sorrow or joy.

Most persons are considerably affected by the circumstances which surround them, and their disposition is either soured or sweetened by their influence. But there are some few who are born with a sweet disposition, which seems an indestructible essence. It is not developed by good fortune, or destroyed by adversity. They are like the violet, which, as a literal fact, all the culture of the world has never been able to improve, and which is as lovely and sweet-scented in the wild bank and in the wood as in the most splendid borders of palace gardens. —'*Scientific Symbols.*'

Myths attaching to Flowers.

Our imaginative associations with flowers carry helpful influences.

The tea-plant sprung from the self-mutilation of a Buddhist saint. He had sworn never to sleep; and once, worn out by prayer and toil, he broke his vow. Waking, he cut off his eyelids and flung them on the ground; from their blood as it sank into the soil grew the herb whose infusion should be for ever a specific against sleepiness.

The pasque-flower, *anemone pulsatilla*, a native in the fields near Royston, is there supposed to have grown from the blood of the Danes slain in battle. The same idea attaches in Wiltshire to the danewort, or dwarf elder, *sambucus ebulus;* though at the High Cross on Watling Street near Leicester it is recorded as having been planted by the Romans for a preservation against dropsy. The lily of the valley grew from the bloody combat of St. Leonard with the Dragon; the striped York and Lancaster rose, now, alas! all but extinct, appeared in a field where corpses were buried after Towton fight. In like manner roses covered the plain

'Where Rowland brave, and Olivier,
And every paladin and peer
On Roncesvalles died;'

and marigolds owe their existence to the life-blood of the Indians slain in Mexico by the Spaniards. We read how a Christian maid about to be martyred prayed to Christ, and from the burning brands around her grew red roses, white roses from the unkindled wood. We remember, too, how heavenly roses, red and white, filled the bosom of Elizabeth of Hungary, and were sent from Paradise to Theophilus by the Virgin Martyr Dorothea.

'You entreated
That when she came into that blessed garden,
Whither she knew she went, and where, now happy,
She feeds upon all joy, she would send to you
Some of that garden's fruit and flowers; which here,
To have her promise saved, are brought by me.'

In Hindu legend, the rose, originally white, was stained red with the blood of Siva when wounded by Kamadesa; as in Greek romance through nectar spilt by Cupid. From the tomb of Tansein, chief musician at the court of Akbar Khan, sprang a tree whose leaves when chewed gave incomparable melody to the voice.

For the geranium we must thank Mohammed. Having washed his

shirt while on a journey, he spread it over a mallow to dry, and the mallow was converted into a geranium. From the unpolluted flesh of poor Ophelia violets were to spring. The idea is spiritualized by Keble in his lines on Lady Heathcote's death :

> 'Happier thoughts
> Spring like unbidden violets from the sod,
> Where patiently thou tak'st
> Thy sweet and sure repose.'

Rev. W. Tuckwell.

A Rescued Bulb.

'The lust of other things may enter in and choke the word' (MATT. xiii.).

These Easter lily bulbs were the gift of a dear friend. I planted them in two rows, seventeen in all, to form a background for the other varieties. Two years after I saw one in the row nearest the fence, falling short. I gave it a little extra care, dug about it, and enriched it a little more. Still it pined. At last its leaves grew sallow, and then they fell off altogether. It was indeed time to investigate the cause. So I dug carefully down, searching for grubs, for mole-tracks, for all-thought-of enemies. None of these were there. At last I found the bulb, sound, but shrunken, held fast captive in the meshes of another life. A wild clematis had sprung up at an adjacent post, and I had allowed it to remain that it might trail its dark-green leaves and wealth of bloom along the somewhat unsightly fence. But, though not shading the lily, or apparently crowding it above, the roots below had crept along instinctively to the richer soil around it, and at last encircled the bulb. There were the multitudinous golden fibres, each only a slender thread, but counting as they must have done by thousands, and all of them closing round and round the struggling bulb, until at last it was choked.

I never shall forget my thought as I held that little rescued bulb in my hands. It seemed almost to grow into a human heart that had come to me for help, and asked me why it could not have the life of joy and blessed service that so many others have. And I made the sad answer that my Saviour did: 'The lust of other things has entered in and choked the Word.' . . . My clematis was not a weed —not even when it did this deadly work of sapping all sustenance from my lily. It was only a good thing grown wanton, and by its rampant growth stopping all growth in *a far better thing.* I could not hesitate for a moment to tear it from its place.—*Sarah Smiley.*

Sudden Appearances of Plants.

Nature abhors a vacuum. There may be life in souls which special circumstances may unfold.

It appears to be a law of Nature, that wherever the ground is freshly turned up and not planted by man, vegetation of some kind shall take immediate possession of the vacant space; and if seeds should be there lying dormant, they start up into life with meteor-like rapidity. A few years since the tenant of some meadows by the side of the river Teme at Powick, three miles from Worcester, threw up an embankment to keep out the water of the river when freshets occurred. The next year the new embankment was covered by a most profuse growth of *Cardamine impaticus* all along it. But what perhaps is most remarkable is, that these armies of plants were unable to maintain themselves and keep their position, but gradually disappeared. Not a single plant can now be seen on the embankment, or on the river-side near it.

Not long since a hedge was cleared away from the roadside near Worcester, where only a few of the common 'jack by the hedge' (*Alliaria officinalis*) usually presented themselves. The next season the whole line of the hedge, where the soil had been upturned, bristled with hundreds of the plant from end to end, forming a brilliant white line when in flower. But this profusion was only of one year's duration. In like manner it has been a matter of observation that when underwood is cut down in coppices, the next season the ground, open to the influences of the sun, produces a crowd of plants that in the dense shade of the woodland were unable to appear. The local orchid, *Epipactis ensifolia* (sword-leaved helleborine), grows in Wyre Forest, though rather rarely in most years. But when the underwood, after seven years' growth, has been cut down, the following year the helleborine springs up in great quantities. As the underwood grows up the orchis disappears, not to be found again in any quantity until the next fall of underwood comes round. In fact, it is obvious to everyday notice, that any spot of ground where the soil has been turned up, and unattended to, is soon covered by an enormous crop of common plants, often of one species only. It used to be said that Nature abhors a vacuum, and certainly, as regards vegetation, Nature will not allow a vacant spot to remain long without giving it clothing of some sort, though careless whether increased beauty be the result. Old neglected garden-ground that has remained untouched for some years, when redug or turned over, will cause flowers to spring up that had remained dormant for an indeterminate time; and it still remains undecided how long seeds may remain in the soil without vegetating.—*Edwin Lees, F.R.S.*

The Sea-Reed.

Insignificant things may be entrusted with a supremely important defensive mission.

Protective influences may be apparently insignificant, yet in reality mighty. There is a grassy-looking weed that grows among the sand near the seashore. It is so coarse in substance that even hardy cattle turn from it with disdain. Yet this sea-reed (*Arundo arenaria*) as it is called, performs such useful service to man that its presence in this particular situation cannot be deemed less than Providential. Many low-lying coastlands require to be defended not only from the sea, but also from the sand cast ashore by the waves. This loose sand gradually accumulates, is driven hither and thither by every gale of wind, and has a tendency to encroach upon the fertile fields and convert them into desert wastes. The threatened danger is averted by this humble weed, and the slightest consideration of its habits demonstrates that it was specially created for the purpose. While most plants instinctively seek out the richest soils, this one prefers the driest sands. The gritty storms so often raging round, which would destroy the tender organization of other plants, beat harmlessly against the flinty coverings of this hardy reed. In striking its roots into the sand, it binds the loose particles together; and as its sapless-looking tufts rise above the surface, they arrest the stony current as it drifts along, and consolidate it into little mounds. In process of time these are piled up into the well-known hillocks by the growth and decay of countless generations of tufts. Such sand-hills are common in various parts of Britain where the coast is low; but they are seen on a more extensive scale in the rugged 'dunes,' which stretch in almost unbroken succession along the shores of Holland. Not only do they intercept

the devastating progress of the sand, but they likewise form the stoutest bulwark against the encroachments of the sea.—'*Scientific Symbols.*'

The Blasting of the Cereals.

Typifying the moral evils that blast society.

A species of very destructive blasting is known to the farmer under the name of *bunt*, and to the botanist as *Ustilago fœtida*, on account of the intolerable odour which it exhales. It is one of the most common diseases to which wheat is subject. Scarcely a field is free from its attacks; and in favourable circumstances it spreads widely and proves very destructive. It confines its ravages entirely to the grain. Externally the infected ear presents no abnormal appearance. There is no black dust, no stunted growth or malformation by which the presence of the insidious foe may be recognised. On the contrary, the infected ears continue growing, and appear even plumper and of a richer and darker green than the sound ones. The very stigmata of the flowers remain unaltered to the last. Stealthily and secretly the process of poisoning is accomplished; and not, in many cases, till the harvest is reaped and the wheat ground for flour, is the discovery made by the odour and colour that the produce is unfit for human food. Under this external mask of health all fecundation is rendered impossible; there is no development of the parts of fructification; no embryo whatever can be detected; the whole interior of the seed when broken and bruised is found to be filled with a black fetid powder, which contains on chemical analysis an acrid oil, putrid gluten, charcoal, phosphoric acid, phosphate of ammonia, and magnesia, but no traces of starch, the essential ingredient in human food. Certain sections of society are blasted by a moral depravity which this 'bunt' typifies. Externally, the persons affected appear to be as honourable and respectable as the best of the world. Sometimes, indeed, they appear to be the most Christian of the Christian. But there is no germ of moral goodness in them. Under the mask of social propriety there is moral blackness. The infection of their wickedness rapidly speads all around them. Yet it is often neither seen nor suspected by the ordinary observer. But when the preacher of the Gospel goes forth to 'gather in his sheaves,' the disappointing discovery is made that there is no moral harvest to be rejoiced over, but a disheartening spectacle of moral waste and worthlessness to be deplored.—'*Scientific Symbols.*'

A Field of Turnips.

Christian apprehension depends on our being placed at the right angle.

I was walking with a friend through a field of turnips, which were running to seed; the stalks being covered with leaves which made them look like flowers. A patch of blue sky was above the field, and as I looked the leaves were at such an angle that they reflected the deep-blue rays; and the field was not a common turnip-field, but an expanse of beautiful blue flower. Thus, in Christian life, so much depends on our being placed at the right angle for reflecting the rays of God.—*Henry Simon.*

Ripe Fruit.

The end of a long and patient process.

Ripe fruit, which is the immutable promise and purpose of God, is the end of a *patient* process. After a long and trying pause young spring, like a hope of God, returns; but the end is not yet. It is the season of new breath, new motion, and new birth.

Everything is astir under the new, universal excitement. The earth, like a bride, puts on her beautiful attire. She blooms and sings. But bloom and song are not the end. They are but stages towards the end. By her beauty and music she announces the exquisite end towards which she is moving. She will not pause until she has produced her fruit, nor then until her fruit is full-orbed and mellow. She reckons nothing less than *ripe fruit* to be her fitting crown. Nothing less will satisfy God. 'Thou crownest the year with Thy goodness.'—*John Pulsford.*

Misreading the Mission of the Flowers.

Man's doctrine has often been made to mar God's truth.

I once held a disputation with a man who told me that the flowers were all cursed with the 'ground,' since the rebellion of our first parents in Paradise; and that it was a sinful weakness to take delight in creatures on whose head rested the anathema of heaven. I have often wondered since—for this was twenty years ago—whether that 'eminently pious' man really believed what he professed; so that, when he looked upon a cursed violet, or anemone, or moss-rose bud, or upon a doubly-cursed carnation, cultivated by art and man's device, he saw little 'vessels of wrath,' and was veritably unable to receive the impression of innocence and beauty which they make on all other beholders. How hateful is the hard doctrinal superstition which thus throws a cloud over Nature, and blights with its mist of darkness all the brightness of the world! —*Edward White.*

The Wild Ivy.

Mischievous growths in character must be dealt with at their roots.

'Man's corrupt nature has been compared to a wild fig-tree, or to ivy growing upon a wall, of which you may cut off the body, boughs, sprigs, and branches, yet still there will be something that will be sprouting out again until the wall be digged down' (Manton).

When we think that we have fairly done with sin, it suddenly sprouts again, and seems as vigorous as ever. As it is said of a tree, 'at the scent of water it will bud,' so is it true of our corrupt nature, at the first opportunity it will shoot forth. Vain-glorious professors have talked of their being free from all likelihood of sinning, but experienced believers in the depth of their hearts are made to feel the evil of their nature, and therefore they walk humbly with God, and cry to Him to keep them from evil. Often does it happen that the boaster is tripped up by the enemy whom he thought to be dead and buried, while the watchful, careful Christian is preserved in the midst of fiercest temptations, and enabled to maintain his integrity. We may well believe in the vitality of evil when we see how it survives the efforts of grace; and yet the Lord Jesus can and will destroy it, root and branch, and we shall for ever adore Him when this marvellous work is accomplished. — *C. H. Spurgeon.*

The Clinging Ivy.

Our dependence on Christ is the secret of our growth in spiritual character.

We are like ivy, which cannot grow or stand alone, but requires something to lean on and cling to. You may put ivy plants into the ground, and expend not a little labour and pains in trying to train them into graceful and luxuriant growths, but if there is nothing for them to lay hold upon, all your toil will be so much energy wasted. But plant them against an old wall, or at the foot of a tree, and you may leave them to take care of themselves. They will soon climb up the wall, or twine them-

selves round the tree, forcing their shoots into every crevice, attaching their tendrils tenaciously to every tiny protuberance, and presenting erelong a strength and a beauty which neither the suns of summer can wither, nor the snows of winter kill. Our possibility of growth into spiritual comeliness and vigour depends upon the extent to which we cease our dependence on ourselves, and cleave by faith and love to Christ. 'Without Me,' says He, or, perhaps, more exactly, 'Apart from Me, ye can do nothing.' No amount of effort, either on our own part, or on the part of others, will avail to make us what, according to the Divine idea, we ought to be. Such effort will only end in a miserable failure, unless, along with it, there is that true and full reliance on Christ which will unite us to Him, which will make us, in fact, indissolubly one with Him.—*B. Wilkinson, F.G.S.*

Roots in Dry Ground.

Sometimes absolutely everything depends on the root.

The root of plants growing in a dry ground is the most important part of their structure. It lies at the basis of, and involves the whole plant. The whole growth of a lily, for instance, lies folded up within its bulb. Its leaves and blossoms are only a development, a revelation of what is in the root, only a manifestation of the fragrance and beauty—the spotless purity and attractive grace—that are hidden within the apparently dry and unsightly scales of the root. And so Christ lies at the basis of, and involves the whole spiritual life. It is assuredly the most precious, as it is the most distinguishing, feature of the Christian religion, that it places the foundation of eternal life in living relations with a living Person, rather than in the profession of a creed or the practice of a duty; that under it the believer is rooted and built up in Him.—*Hugh Macmillan, LL.D.*

Gardens are dependent on the Seasons.

Man's wisdom and skill never can remove his dependence on the Higher Power.

Even when a gardener is devoted to his work, as well as learned and skilful in it, there are seasons when he will labour well-nigh in vain. Even in the worst times, indeed, he will make his garden do better, and yield more, than the man who has neither his knowledge nor his skill. But still, there are times when even the best and wisest of men will fail. The rain, the wind, the frost, the electrical conditions of the atmosphere—any one of them, or all of them combined, may defeat his best endeavours. And if these occasional defeats remind him that, after all, he is dependent on a Wisdom and a Power higher than his own, they are of the gravest moral value to him; for even a gardener is apt, I suppose, to slip into the persuasion that he owes more to his art and skill than to the beneficent and growth-giving will of God, and is all the better for being reminded, by the element of uncertainty which enters into his calculations, that he owes far more to God than to any wisdom of his own. He will be slow to believe, however, that his defeats and disappointments are the result of a Divine caprice. He is sure that he owes what success he gains to his knowledge of natural laws, and his skill in availing himself of them. And he will, therefore, be disposed to think that, if he knew more of those laws, and was more prompt and skilful in adapting himself to them, he would escape the defeats he suffers. That is to say, he knows that he owes his general success to God, who works

with him through the laws of Nature; and hence, when he fails, he does not at once or readily conclude that God is against him, that the Divine will is bent on his ruin or discomfiture; he, rather, concludes that the will of God is always a good and beneficent will, but that as yet he knows too little of it to get all the benefit from it he might.—*S. Cox, D.D.*

A Fragrant Flower.

Humility.

'Tis a fair and fragrant flower; in its appearance modest, in its situation low and hidden; it doth not flaunt its beauties to every vulgar eye, or throw its odours upon every passing gale; 'tis unknown to the earthly botanist, it discovers itself only to the spiritual searcher; neither does he find it among those gay and gaudy tribes of flowers with which the generality are so easily captivated, but in some obscure and unfrequented spot, where the prints of human footsteps are rarely seen. But whenever he finds it, he is sure to behold its bosom opened to the Sun of Righteousness, receiving new sweets in perpetual succession from his exhaustless store.—*Caspipini.*

The Sensitive Plant.

Sympathy makes us quickly respond to the troubles or the needs of others.

Sympathy, as Edmund Burke has well said, may be considered as a sort of substitution, by which we are put into the place of another man, and affected in many respects as he is affected. And by the operation of the law of sympathy, Coleridge declares that all powerful souls have kindred with each other. But no words of description can convey so good an idea of this mystic power, and of its workings, as we may obtain by looking at its emblem, the *Mimosa sensitiva*—the sensitive plant. As a friend feels for a friend, so each of its leaves seems to feel for each other. Who that knows, who that has seen it, has not also remarked the strange sensibility of its leaves? The slightest touch suffices to make its folioles close upon their support, the petiolar twigs upon the common petiole, and the common petiole upon the stem. If we wound the extreme end of one foliole, the others immediately approach in succession, like friends who come to share in suffering or death. The irritation is not local, but communicates from circle to circle in the various elements of a leaf, and propagates itself from one leaf to another, like sympathy in an association of true friends. The more vigorous the sensitive plant is in its habit, the more susceptible is it; for sympathy everywhere (unlike sentimentality) is always most powerful in the noblest organizations.—'*Scientific Symbols.*'

The Mistletoe Bough.

An illustration of persons who live on other people.

I have before me a piece of an apple-tree's branch. It has been cut through dexterously enough, and the relations of a sprig of mistletoe which has attached itself to the bough are rendered clear and distinct. The mistletoe is not merely a lodger on the apple; it is a boarder likewise. Like certain dissatisfied tenants nowadays, it insists on holding to its landlord, while it declines to pay rent in any shape or form. Into the substance of the apple-tree, the parasite has dipped its sucking roots, and a whole array of these roots is seen in my section, serving to drink up into the mistletoe plant the sap which the apple-tree has made and elaborated for its own use. There is no intermingling here of parasite and prey. It is an attachment pure and simple for pur-

poses of lodgment and food.—*Dr. Andrew Wilson.*

Mistletoe has a long legendary history. We meet with it in Scandinavian mythology. Balder the Good, the Apollo or Day-god of the Norsemen, beloved by gods and men, dreamed that he was about to die. His mother, Frigga, or Freya (whose name is still retained in our Friday), exacted an oath from all created things that they would do her son no harm. Fire, water, birds, beasts, insects, diseases, poisons, iron, stone, and earth, all gave the promise. One little harmless thing she passed over, as too young and weak to do Balder any harm—a plant of mistletoe growing on an old oak. Loki, the Spirit of Evil, who hated Balder, found out this fact; and on one occasion, when Balder was amusing the gods on the plain of Asgard, by letting them hurl stones, iron, and all kinds of missiles at him, and showing his immunity from harm, Loki, having cut the mistletoe, placed it in the hand of Hödur, a blind god, guided his arm towards Balder, and Hödur, throwing the plant at the Day-god, it pierced him, and he fell lifeless. 'Thus fell Balder the Good by the bough of the uncharmed mistletoe.'

Probably to this legend mistletoe owes the sacred character it has borne ever since. It formed an important part in the history of Gaul, and is still used in Normandy when wishing a happy new year. The ancient Britons held the plant in great reverence, especially when found on oak, which was, of all trees, the most venerated. They used to cut it at their new year's day festival, held on the sixth day of the moon, and as near to March 10 as the age of the moon allowed. Great ceremony was used, the plant being cut with a golden hook, and caught, on falling, in a white cloth; amid prayers and hymns the 'heaven-born plant' was distributed in twigs to the people as a relic for the new year, a remedy against poisons, a panacea for diseases, and a talisman against witchcraft and the devil.—*H. W. S. Worsley-Benison.*

Vital Action in Plants.

There are signs of conscious volition and spontaneous energy in the vegetable world.

Few plants are without a regular diurnal movement, which may be traced by close attention. The point of a raspberry stem will sweep round a complete circle in the morning, reversing its course in the afternoon. Cabbage-leaves rise through the night and fall through the day. The *Trifolium subterraneum* of Southern and Central England sends its stalk slowly down and buries the flower-head in the ground. The stamens of a berberry touched at the base with a pin, jerk themselves irritably forward against the pistil. The short stamens of the Grass of Parnassus lengthen out when the pollen is ripe, apply it to the clustering stigma, bend back to form a kind of coronet, and shed their useless pollen cases. The sensitive plant shrinks from a touch or a threatening gesture, responding more actively to children than to adults, to a vigorous and healthy, than to a feeble and exhausted person. Under the influence of ether and chloroform it becomes indifferent to assault and handling. The telegraph plant of India, *Desmodium gyrans*, raises and depresses its leaflets with a continual circular motion. Other tropical plants, as the *Hedysarum* and the *Colocasia*, shiver intermittently without apparent cause. The compass plant, *Silphium laciniatum*, always turns the plane of its leaf towards the magnetic meridian. The sunflower, motionless and belying its name in England, in America

follows the sun. Our own microscopic Oscillatareæ, common in damp and mossy ground, creep, recede, wave, and curl with regular but unaccountable meanderings. The Diatomaceæ of the ditches, exquisite skeletons of flint clothed with vegetable tissue, swim rhythmically by admitting or expelling from their frames tiny jets of water. The water-soldier rises from the muddy bottom to the surface of a pond that it may expand its blooms, sinking again so soon as they are withered. The sacred *Nymphæa Lotus* of the Nile closes its flower-cups at sunset and sinks below the water, emerging and expanding them at sunrise—

'Those virgin lilies all the night
Bathing their beauties in the lake,
That they may rise more fresh and bright,
When their beloved sun's awake.'

Rev. W. Tuckwell.

Wayside Flowers.

Likened to Scripture passages for abundance, and illustrating the prodigality of God.

I think Scripture passages are like wayside flowers. We have seen them all our lives, and therefore do not know or feel their beauty. Or they are like the beautiful creations of art that are in old cathedrals, covered by the dirt and moss of ages. Men go by them and do not know that they have passed forms that gave expression to the thoughts of ancient masters. No man cares for them or cleans them, until by-and-by some enthusiastic Ruskin comes along and does it, and then 'tis seen that the things which all their life long they have thought homely are beautiful beyond description.

What an idea of God's prodigality must have been in Paul's mind when he thus struggled to express himself: 'Unto Him who is able to do for you exceeding abundantly more than we can ask or think'! And this was his view of his Master's character when he was in prison, and when, apparently, affairs with the Church were desperate. This view he held up in the sky for Christians to steer by. Such abundance belonged to God, and God was theirs. Abundance is a relative word. A shepherd would not consider that abundance for him which might be so for a wayfarer. What would be abundance for a nomad would not do for the supply of the settled farmer; and the farmer's abundance would be a scant portion for the merchant. A petty prince of a German province would require far more than the abundance of the merchant to support his state; yet what would make his coronet resplendent would be but a trifle in that of the Russian Czar. When from these we look up to heaven, and try to imagine what that can be which Infinity names abundance—'more than ye ask or think'—we are bewildered, and give up in despair. In the hours when the Spirit wafts our souls upward as the wind sometimes lifts a bird, aiding its flight, we wish, and think, and ask such things as afterwards we wonder how we dared to mention; we cannot believe ourselves that we ever soared so high as we yet are conscious of having done. When the heart yearns for ourselves, or for others, we ask such blessings as we almost fear are presumptuous. But even a mother's heart, deep as the eternal wells, when in her closet she kneels amid the sound of groans and the plashing of falling tears, to pray for her wandering child; even the prayers of martyrs, in their utmost agony, when their words swept like the Amazon, and were yet but bubbles on the sea of feeling that was beneath, were shallow and poverty-struck compared to what He will give to each one who loves Him.

Why, look at the beginning; when a child is sent to earth, what preparation of soft quilted fabric, of all delicate and curiously-wrought garments, scented with sweetest perfumes, is made for the little pilgrim of love! But what is all this to the expense and lavish outfit of earth, the cradle of man's infancy? See how its furniture is wrought. One fragrant bank, could he in his whole lifetime produce such a one, would render an artist immortal. God has quilted the earth with beauty, and combed the hair of ten million flowers and reeds over its verdant banks. No emperor's child was ever rocked in such a cradle.—*H. W. Beecher.*

Vegetable Life finding Various Expression.

The one Divine life in creation is infinitely productive.

As is the creature or the organ that receives the vitality, such is the effect brought about. If one kind of straw receive the vitality, the result will be wheat; through another kind of straw barley will be ultimated; and through yet another kind of straw it will form the strawberry. Through the veins of that tree the living virtue will become an apple, and through the other tree it will form a peach or a lemon, as the case may be. One and the self-same spirit moving through the frame of a bird will become both song and nest-building wisdom. The life of vegetation, the life of the animal kingdom, and the life of man and angel, is one life; but it is infinitely rich in potency and infinitely productive.—*John Pulsford.*

Mummy Plants.

Good deeds are the flowers of human life, and the law of heredity is operative upon them.

There is a fact incidental to the discovery of the mummies with which few of the public are acquainted: they have afforded botanists the opportunity to compare the plant-life of the Mosaic period with the plant-life of this day. Within the mummy-wrappings have been found no less than fifty-nine species. Some of these are represented by the fruits employed as offerings to the dead, others by the flowers and leaves made into garlands, and the remainder by the branches on which the body was laid out during or after embalmment, and which were enclosed with the offerings within the linen wrappings that enveloped the mummy. These plant-remains were hermetically sealed within the wrappings, and thus have been preserved with scarcely any change. By placing the plants in warm water, a series of specimens was obtained which, although gathered four thousand years ago, are as satisfactory for the purposes of science as any collected at the present day. These specimens consequently supply means for the closest examination and comparison with their living representatives. The colours of the flowers are still present—even the most evanescent, such as the violet or the larkspur, and knapweed, and the scarlet of the poppy. The chlorophyl remains in the leaves, and the sugar in the pulp of the raisins. It is difficult (says Mr. Carruthers, of the British Museum), without actual inspection of the specimens of plants employed as garlands, to realize the wonderful condition of preservation in which they are. Those specimens consequently supply means for the closest examination and comparison with their living representatives. Thus examined and compared, their absolute identity with the present indigenous forms of the species represented is demonstrated in the clearest manner. With scarce an exception, the most learned botanists have not been able to detect any

peculiarity in the living plants which is absent in those obtained from the tombs. Thus through four thousand years, since Seti I. decreed the slaughter of the Hebrew babes, and the daughter of Pharaoh, Thermuthis, preserved the infant Moses from the waters of the Nile, these flowers and vines, trees and plants of Egypt, have fallen with every winter's decay, and at the coming of spring have appeared on the earth again, bearing the same form, features, and colour that they carried to their season-sleep.—*H. C. McCook, D.D.*

An Explosive Plant.

A type of some persons who appear attractive, and prove disappointing.

There is a hot-house plant, *Pilea allitrichoides*, of tender, brittle, and juicy aspect, which looks as if it would be good to eat in a cooling salad, but which is really of so explosive a temperament that it might fairly be called the pistol-plant. When near flowering, and with its tiny buds ready to open, if the plant is either dipped in water, or abundantly watered, each bud will explode successively, keeping up a mimic Sebastopol bombardment, sending forth a puff of gunpowder smoke, or a little cloud of dusty pollen, as its stamens suddenly start forth to take their place and form a cross. Some charming acquaintances, whose appearances promise us great pleasure, turn out to be as explosive and delusive as this useless plant.—'*Scientific Symbols.*'

Fairy Rings.

Things round which superstitions gather can be scientifically explained.

One more superstition belongs to this class, the belief in fairy rings, due to the law which governs the fructification and development of fungi. Dung of bird or cattle falls upon the ground; a mushroom grows; from its mycelium or spawn springs a crop of fungi which exhaust the soil of carbon, nitrogen, phosphorus, potash, storing them in its own substance. The spawn extends centrifugally, and a fresh crop springs at a distance from the centre; and so the growth proceeds in a yearly enlarging circle. The grasses within the ring avail themselves of the manure offered by the decomposition of the rich older mycelium, and the coarsest and rankest species gain the victory and grow. These soon exhaust the richness, leaving poor soil and herbage, and so we get the phenomenon of a ring of strong coarse grass, annually extending, with fungi on its outer margin, and its interior poor and barren.—*Rev. W. Tuckwell.*

The Mountain Saxifrage.

The power of Nature's pure and beautiful creations to lift the soul above the mean things of conventional life.

The loveliest of the whole tribe of saxifrages which grow on our Highland mountains is the purple one, and fortunately it is as common as it is beautiful. It grows in the barest and bleakest spots on the mountains of England and Wales, as well as those of the Highlands, creeping in dense straggling tufts of hard wiry foliage over the arid soil, profusely covered with large purple blossoms, presenting an appearance somewhat similar to, but much finer than, the common thyme. It makes itself so conspicuous by its brilliancy that it cannot fail to be noticed by everyone who ascends the loftier hills in the appropriate season. It is the *avant courier* of the alpine plants, the primrose, so to speak, of the mountains, blooming in the blustering days of early April, often opening its rosy blooms in the midst of large masses of snow.

And well is it entitled to lead the bright array of Flora's children, which, following the march of the sun, bloom and fade, one after the other, from April to October, and keep the desolate hills continually garlanded with beauty. It is impossible to imagine anything fairer than a combination of the soft curving lines of the pure unsullied snow, with the purple blooms rising from its cold embrace, and shedding over it the rosy reflected light of their own loveliness. I remember being greatly struck with its beauty several years ago in a lonely corrie far up the sides of Ben Cruachan. That was a little verdant oasis hid amid the surrounding barrenness like a violet among its leaves—one of the sweetest spots that ever filled the soul of a weary, careworn man with yearning for a long repose; walled round and sheltered from the winds by a wild chaos of mountain ridges, animated by the gurgling of many a white alpine rill descending from the cliffs, carpeted with the softest and mossiest turf, richly embroidered with rare mountain flowers, with a very blaze of purple saxifrage. I saw it on a bright, quiet summer afternoon, when the lights and shades of the setting sun brought out each retiring beauty to the best advantage. It was just such a picture as disposes one to think with wonder of all the petty meannesses and ambitions of conventional life. We feel the insignificance of wealth, and the worthlessness of fame, when brought face to face with the purity and beauty of Nature in such a spot. How trifling are the incidents which in such a scene arrest the attention and fix themselves indelibly in the mind, to be recalled long afterwards, perhaps in the crowded city and in the press of business, when the graver matters of everyday life that have intervened are utterly forgotten!—*Hugh Macmillan, LL.D.*

Tiny Water-Weeds.

Illustrating the beneficent mission entrusted to unsightly things.

Often, when gazing upon some lovely rural scene, the eye rests on a pool of water covered with a mass of unsightly green scum, that looks like a foul blot on the otherwise fair prospect. It would be the desire of many to sweep this scum away, and clear the landscape of such a painful disfigurement. But suppose this were done, the most fatal consequences might follow. In the stagnant water below there are poisons which, if allowed to escape, might well involve the whole country-side in pestilence, and destroy entire villages. That unsightly green scum, which is a collection of tiny water-weeds shaped like threads, is playing a most beneficial part in the economy of Nature, for it is taking up into itself all those deadly poisons exuding below, and breathing forth in their place life-giving oxygen. In like manner, we verily believe, in the moral world, in all the ways of God, things that now look to many like blots and blemishes will appear in the clearer light and knowledge of eternity as so many merciful provisions, which the corruption of our nature has rendered necessary, and which have played an all-important part in the plans of Divine wisdom and goodness.—*Rev. James Neil, M.A.*

The Woodruff (a Vernal Grass).

Some men we only estimate aright when they have passed from mortal scenes.

While most of the members of the vegetable kingdom give out such odour as they may have power to give *during life*, the vernal grass, the woodruff, and others, are not fragrant till they have been torn away from their roots, and have begun to get dry. The rose, the lilac, the daphne, and the

acacia pour forth their perfume as a part of their day's duty. The woodruff, that holds up handfuls of little white crosses in the pleasant woods and shady glens, yields no scent till its life has ebbed—beautiful emblem of those who delight us while they live out of the serene abundance of their kindly hearts, but whose richer value we only begin to know when they are gone away, and of whose white souls we then say inwardly, 'He being dead, yet speaketh.' So the hay-field that rolls like sea-waves is scentless when we pass it uncut; we hear the measured swish of the scythe, death lays each green head low, and odour rises like mist.—*L. H. Grindon.*

The Rhododendron a Thermometer.

The religious life is quickly responsive to all changes of atmosphere and surroundings.

There are few persons who would see, on first scrutiny in the *Rhododendron maximum*, a complete thermometer. There have been for the last five years several very large specimens of this shrub close by our dining-room windows, and, by protracted observations, by various members of the family, they have been so infallible in showing the temperature of the atmosphere, that the thermometer, which hung without the door, became in some measure useless, unless we wished to ascertain to a degree the state of the air. When the weather is cold, and the thermometer about zero, the leaves are rolled so tightly together that it seems almost impossible for them again to become unrolled, at the same time they are turned nearly black; and the expansion as the weather moderates is so gradual that, by the degrees of their colour and shape, a person is enabled to form a pretty accurate opinion of the weather; and when mild, the leaves assume a light and very rich green.—*American Agriculturist.*

The Jordan Reed.

A remarkable union of real strength and apparent weakness (MATT. xi. 7).

There is first a lateral trunk lying on the water and half submerged. This is sometimes as thick as a man's body, and from its lower side hang innumerable string-like roots, from 3 to 5 feet long, and of a deep purple colour. On the upper surface of the trunks the stems grow alternately in oblique rows; their thickness at the junction is often 4 inches, and their height 15 feet, gracefully tapering until at the top is a little round knob, with long, thin, brown, wire-like hairs, 18 inches long, which rise, and then re-curving, hang about it in a thyrsus-shaped head. The stem, when dead, becomes dark brown in colour, and when dry it is extremely light; indeed, for its strength and texture, it is the lightest substance I know of.—'*Rob Roy on the Jordan.*'

The Poison of the Bamboo.

Evil forces may lurk in the most simple and innocent things.

The natives of Java use the poison against their enemies, and obtain it by cutting the bamboo at a joint, and detaching from the saucer-shaped cavity, formed by the grass at such portions, some small black filaments, which are covered with almost imperceptible needles. The filaments constitute the venom, against which no remedy has been found to act. When swallowed, instead of passing to the stomach, they appear to catch in the throat, and work their way to the respiratory organs, where they immediately produce a violent cough, followed by inflammation of the lungs. The poison, tried upon dogs, produces loss of appetite, severe cough, burning thirst, and gradual emaciation. The animal froths at the

mouth, and finally dies by suffocation as if under the influence of a deleterious gas.—'*Strait Times*,' *a Singapore Journal.*

Pansy and Gladiolus.

Different kinds of persons need different kinds of treatment at the hands of the Divine Gardener.

One year I sowed some choice imported pansy-seed of assorted varieties. They were all carefully marked, and their first bloom watched for most eagerly. Unhappily they had been planted that year near the roots of a tree that sapped their growth, while it also shut out the sunshine. As one after another the feeble flowers appeared, they proved all alike—the old common sort. I waited till all had bloomed—tricolours all of them, instead of the variety of twelve which I had planted. Suspecting the cause, I had them all transplanted to a rich soil and open sunshine, and arrested all further bloom until autumn by nipping the buds. Then at last they were true to their type. There was the creamy white, the golden yellow, the heavenly blue, the deep velvety purple with its crimped border, and other tints and shades which cannot be described, but which once seen can never be forgotten. I foresee some wonderful developments in commonplace lives, when once the Chief Gardener transplants us from this poor soil, and the sapped and shaded spaces of earth, to the heavenly Paradise.

And here I mention an exactly opposite instance in which it was riches, and not poverty, that proved the hindrance. One winter a friend gave me some choice gladiolus bulbs, which I planted with special care, enriching them to the utmost. What was my chagrin to find, as the tall spikes began to open, that I had only the almost worthless red and yellow sorts. I confided my trouble to the florist to whose skill and learning I owe so much—a former gardener of the then King of Prussia—and he readily explained the failure: they had reverted.—*Sarah Smiley.*

The Malagasy Tangena Plant.

Society applies tests which are as worthless and unreasonable as the test of tangena poison.

Man frequently satisfies himself that he has come to an accurate conclusion merely because on the application of what he considers an infallible test he discovers a particular anticipated result. Often enough the test is utterly fallacious. Take an example. The tanghin, or tangena, is the only plant of its genus, and is confined to Madagascar. Its poisonous seed is esteemed by the natives an infallible criterion of guilt or innocence. After being pounded, a small piece is swallowed by the supposed criminal. If he be cursed with a strong stomach, which retains the poison, he speedily dies, and is held guilty; if his feeble digestion rejects it, he necessarily escapes, and his innocence is considered proven. Now, it is obvious to any educated mind that innocence and guilt are in no way disclosed by this process. Yet inasmuch as it has been accepted as a test, its results are unquestioned. And there are numberless instances in which English society consents to be governed by the results of tests, simply because those tests are generally accepted. Again and again it becomes important to inquire whether, supposing your test does disclose a given result, that test is really as infallible as you deem it to be? Many will be found to be only 'tanghin' tests, and as such utterly fallacious.—'*Scientific Symbols.*'

The Andromeda.

Those in distressing circumstances should hopefully wait for better times.

The Andromeda, found somewhat rarely in English peat-bogs, owes its name to the delicate fancy of Linnæus, who discovered it blooming lonely on a barren isle, like the daughter of Cepheus chained to her sea-washed cliff. 'As I contemplated it I could not help thinking of Andromeda, as described by the poets—a virgin of most exquisite beauty, and unrivalled charms. The plant is always fixed in some turfy hillock in the midst of the swamps, as Andromeda herself was chained to a rock in the sea, which bathed her feet, as the fresh water bathes the root of the plant. As the distressed virgin cast down her blushing face through excessive affliction, so does the rosy-coloured flower hang its head, growing paler and paler, till it withers away. At length comes Perseus in the shape of summer, dries up the surrounding water, and destroys the monster, rendering the damsel a fruitful mother, who then carries her head erect.'—*Rev. W. Tuckwell.*

Tropical Orchids.

An illustration of the work of charity.

Deep in tropical forests, the very home of this order of flowers, grow large orchids of wondrous beauty. These plants are laden with blossoms famous for their splendid size and hue, and their resemblance to all manner of beautiful natural objects. They form the very crown of floral beauty, not only for richness of texture and variety of form, but also for the surpassing skill with which their soft but brilliant tints are blended. Many appear like large and glittering butterflies hovering around the highest boughs. One magnificent flower is like a stately swan, and the upper lip of another bears such a close resemblance to a descending dove, that the people of Panama call it 'Spirito Sancto,' or Holy Ghost flower. The long, floating, delicate roots of these orchids are thrust out, not into earth, but into mid-air, from the impure vapours of which they draw their nourishment. They live seated on the trunks of huge decaying trees. Since decomposition proceeds very rapidly in this hot region, the dying giants of the forest would, if left alone, fill the air with foul and poisonous gases. But the orchid, as it swings in rich festoons over the rotting boughs, covers the deformity of the tree with the mantle of its own loveliness, absorbs all the foul exhalations, and, as in the case of vanilla, turns them into the perfume of its own sweet flowers. Charity is this beautiful orchis. 'Above all things have fervent charity amongst yourselves, for charity shall cover the multitude of sins.' Charity spreads the mantle of tender and invincible love over human frailty and corruption. It clears away those harsh suspicions, evil thoughts, and cruel slanders that, like noxious vapours, poison the moral atmosphere. It breathes forth in their place the pleasantness of good wishes, merciful judgments, and compassionate sympathy, for 'charity thinketh no evil,' 'beareth all things, believeth all things, hopeth all things.' Thus 'love completely covereth all sins.' In this cold world of ours it is known only as a rare exotic. Its native home is in a brighter land. It issues from the throne of God, and fills with its fragrant beauty the realms of glory.—*Rev. James Neil, M.A.*

Minute Floral Splendours.

All God's works are perfect in adaptation to their ends.

Pictures of the Wellingtonia of California, and the Eucalyptus of

Australia, of which a single specimen had in eighteen years attained a girth of a hundred feet, formed an introduction to a study of the Desmids, one of which occupies the one sixty millionth of a cubic inch. And yet in each of those specks all the living action which belonged to the monarch of the forest had taken place. There lay enwrapped in them, just as much as in the Eucalyptus, all the mystery of life. They had observed the manner in which Nature unfolded her floral beauty in the summer-time, but he had found nothing to compare with the grace of growth of some of the minuter forms of vegetable life. No mathematics could express the ratio between one of the *Noctilucæ* and the mammoth, or the Wellingtonia, yet even they were giants in comparison with some of the still smaller-forms of life. And every one of them had its mission, every one of them did its work accurately and thoroughly, and each was as important to them in its own direction as many larger animals. Every one had all the mysterious functions of life. They changed the dead matter in which they lived into their own vital substance. After describing the smallest forms of life at present known, the lecturer said the organisms revealed by his present lenses might be as far from the ultimately minute as the creatures known a hundred years ago were from those which were to-day within our knowledge. And he would again remind them, the smallest being was as concurrently adapted to its sphere as the eagle or the whale, and was, equally with the largest living things, composed of many elements. How did those elements combine to make those little instruments? How minute must be the ultimate atoms of those substances! How did they acquire their properties? No voice from out the mystery had ever yet efficiently replied. They speculated for answers, but

'Our little systems have their day—
They have their day, and cease to be;
They are but broken lights of Thee,
And Thou, O Lord, art more than they.'

Notes from a Botany Lecture.

The Wood-sorrel.

A type of the sensitiveness of the spiritually-minded.

A beautiful flower—the wood-sorrel—grows among the trees in the sylvan scenes of England. It has shining green leaves, and transparent bells with white veins. When it is gathered roughly, or the evening dew falls, or the clouds begin to rain, its foliage closes and droops; but when the air is bright and calm, it unfolds all its loveliness. Like this sensitive flower, spirituality of mind, when touched by the rough hand of sin, or the cold dew of worldliness, or the noisy rain of strife, hides itself in the quiet of devout meditation; but when it feels the influence of sunny and serene piety, it expands in the beauty of holiness—the moral image of God. —*Wright.*

Flowers—the Primrose.

First flowers bring messages from God.

Poetry is 'the impassioned expression that is on the face of science.' To illustrate it still further: you are walking in the woods, and you find the first primrose of the year. You feel almost as if you had found a child. You know in yourself that you have found a new beauty and a new joy, though you have seen it a thousand times before. It is a primrose—a little flower that looks at me, thinks itself into my heart, and gives me a pleasure distinct in itself, and which I feel I could not do without. The impassioned expression on the face of this little

outspread flower is its childhood; it means trust, consciousness of protection, faith and hope. Science, in the person of the botanist, comes after you and pulls it to pieces to see its construction, and delights the intellect; but science itself is dead, and kills what it touches. The flower exists not for it, but for the expression on its face, which is its poetry—that expression which you feel to mean a living thing; that expression which makes you feel that this flower is, as it were, just growing out of the heart of God. The intellect itself is but the scaffolding for the uprearing of the spiritual nature.—*Geo. Macdonald.*

Flowers—the Snowdrop.

Humility may mean strength and fruitfulness.

Philosophy teaches us that when the little snowdrop, which in our garden walks we see raising its beautiful head at the 'singing of birds,' to remind us that 'the winter is past and gone,' was created, the whole mass of the earth, from pole to pole, and from circumference to centre, must have been taken into account and weighed, in order that the proper degree of strength might be given to its tiny fibres.

Botanists tell us that the constitution of this plant is such as to require that, at a certain stage of its growth, the stalk should bend, and the flower should bow its head, that an operation may take place which is necessary, in order that the herb should produce seed after its kind; and that after this fecundation its vegetable health requires that it should lift its head again, and stand erect. Now, if the mass of the earth had been greater or less, the force of gravity would have been different; in that case the strength of fibre in the snowdrop, as it is, would have been too much or too little; the plant could not bow or raise its head at the right time, fecundation could not take place, and its family would have become extinct with the first individual that was planted, because its 'seed' would not have been 'in itself,' and therefore it could not have reproduced itself, and its creation would have been a failure.—*Maury's 'Physical Geography of the Sea.'*

The fructification of the snowdrop depends, if I may say so, on the modesty in it—as elsewhere, the usual associate of purity—with which, shrinking from its own boldness, it hangs its beautiful head. Let it lift its head with the pride of a lily, and this herald of spring perishes from the face of the earth, like the race of a childless man. But God has provided against such an event. Wonderful and instructive, as teaching us how the greatest and smallest things in providence have often mutual and important connections, this vast globe and that little flower, in regard to their weight, have been calculated the one so to suit the other, that its bells are, and must be, pendant. Drawn downward by the force of gravity, they assume a position without which they had produced no fruit, yet one which they had not assumed, had our planet been no larger than Mars or Mercury. See thus how God takes care of a humble flower! how much more of you and of your families, O ye of little faith!—*Dr. Guthrie.*

Lichens.

Lowly creatures, yet the most honoured of the earth-children.

In one sense the humblest, in another they are the most honoured of the earth-children. Unfading as motionless, the worm frets them not, and the autumn wastes them not. Strong in lowliness, they neither blanch in heat nor pine in frost. To them, slow-fingered, constant-hearted, is en-

trusted the weaving of the dark, eternal tapestries of the hills; to them, slow-pencilled, iris-dyed, the tender framing of their endless imagery. Sharing the stillness of the unimpassioned rock, they share also its endurance; and while the winds of departing spring scatter the white hawthorn blossom like drifted snow, and summer dims on the parched meadow the drooping of its cowslip-gold, far above, among the mountains, the silver lichen-spots rest, star-like, on the stone; and the gathering orange-stain upon the edge of yonder western peak reflects the sunsets of a thousand years.

The Japanese Lily.

The inspiration of a high standard.

How much of our success depends upon a high standard! How many wretched gardens and forlorn plants can be seen everywhere, simply because their possessors do not know their possibilities. It were well to know our shortcoming, even at the cost of much humbling.

A few years since, in this same bed, my first Japan lilies bloomed. One tall stem bore two magnificent golden-banded flowers, by far the finest I had ever seen. I was that very morning setting out on a journey to my twin brothers, and this seemed a peculiarly fitting offering for them. A detention on the way took me to the house of a dear friend who I knew would fully appreciate them. The whole household was summoned, and were in ecstasies of admiration, when last of all entered the son who had just returned from Japan, who sat down very coolly to tell me how often he had seen such lilies growing by the side of a moat at Yokohama, and fully twice the size of mine. Mine, of course, dwindled accordingly in all our admiring eyes. Had I not heard that, I should have been extremely satisfied; but having heard it, mine have grown finer every succeeding year. I know the standard now.—*Sarah Smiley.*

First Spring Flowers.

We feel the spring before we see it.

A friend has brought me to church this morning an offering, a country offering, snowdrops and violets, creatures of the light; scentless purity touched with green; sweet colour and sweeter fragrance. We feel the spring before we see it, and so, when the heart feels an entry within itself of the pacifying word, the word of light, the heart itself shall be a garden abounding in creatures of light.—*Rev. T. T. Lynch.*

The Night-blooming Cereus.

They have a noble mission to whom it is given to shine in the darkness.

Most flowers seek the glare of day, and look their fairest in the light, where every eye can see, while those that blow after sunset are generally unattractive in colour and form. There is a glorious exception to this rule in the flower of the night-blooming *cereus*. It is one of the most magnificent to be found in the vegetable kingdom. The stem of this cactus, which appears by day slender, leafless, and dry, is adorned by night with a flower which has been thus described: 'The calyx when expanded is about a foot in diameter, of a splendid yellow within, and a dark brown without; the petals are many, and of a pure white; and the great number of recurved stamina, surrounding the style in the centre of the flower, make a grand appearance, to which may be added the fine scent which perfumes the air to a considerable distance. When darkness wraps the world in its sable mantle, and folds the petals of the countless floral tribes, this *cereus*, as you

keep patient vigil, slowly expands, and a little before midnight fully displays its wondrous beauty. Emblem of Christ, whose glory shines secretly amid the darkness of Nature's night, all unnoticed and uncomprehended by the sleeping world, but passing fair to eyes that wait and keep watch to behold 'the chiefest among ten thousand,' the altogether lovely.—*Rev. James Neil, M.A.*

The Lilies.

'Consider the lilies of the field' (MATT. vi. 28).

Here, in this text, though ordinarily taken to signify that statuesque and peerless flower dedicated in the South of Europe to the Virgin Mary, and thence named the Madonna lily, and the Annunciation lily; employed, too, by those tasteful craftswomen who work 'illuminated texts,' crosses, and scrolls; here, though the common white lily of English gardens may be included, the invitation is really and truly to look round upon the whole of the sweet fantasy of living vegetable nature in the pride of its bloom, and mark how Solomon still fails before its smallest and simplest thing. If the behest falls vacantly when we have only the primrose or the cowslip; if to the eyes of one's heart it does not embosom the bluebell of the woodland and the autumnal heather on the mountain, the Madonna lily, so far as it illustrates Divine teaching, might just as well never open in its white bells, might just as well never have been created. How lovable and voiceful in the light of this beautiful text becomes even that sweet and familiar little flower-star of the English greensward, its mound of gold set round with milk-white rays! How lovable, too, the scented May-blossom that dapples the hedgerows, and the twice-blooming woodbine, with its fragrant coronals of amber and pink! These are lilies as truly as the Virgin's, and if they do not seem so to us, the text may just as well be left unread.—*Leo H. Grindon.*

Buds in Winter, Flowers in Summer.

The promise of the heavenly life.

In every deep aspiration, in every wrestling effort, in every strong endeavour of the spiritual man, Paul saw the heavenly nature breaking through the earthly, waiting only the last stroke of death to shine out in full lustre, when the crosses shall be changed to crowns, and the scars of conflict shall become trophies of victory. Just as the flowers that will open in beauty beneath the sunshine of summer are folded in the dark buds which are beaten and tossed in the winter winds; just as the strength of will, and fire of feeling, and power of vision of the man are hidden in the child, so the heavenly life is within us now; and, because it is there, it is possible for us to reach the full-formed image of the heavenly.—*E. L. Hull, B.A.*

Mummy Corn.

The lasting power of that which has life in it.

Seed corn is found in a mummy case. The poor form beneath the painted lid is brown and hard, and more than half of it gone to pungent powder, and the man that once lived has faded utterly; but the handful of seed has its mysterious life in it, and when it is sown, in due time the green blade pushes above English soil, as it would have done under the shadow of the Pyramids four thousand years ago, and its produce waves in a hundred harvest-fields to-day.—*A. Maclaren, D.D.*

A Restless Plant.

No persons try patience and temper more than the fidgety and restless.

There are individuals and plants which are in a state of unceasing restlessness. The individual is best known by the name of fidget. He or she (for a woman is quite as often a fidget as a man is) exists in a perpetual fuss, and the work of life is a meaningless series of uninterrupted movements, whose end and object no human being can see. The activity is not strong and progressive, but consists in nervous fuss for the sake of fuss. The fidget never accomplishes anything as the result of all this restless motion. Yet this does not deter the creature from working out its fussy destiny. Alteration of the habit is utterly impossible. The fidget is a fidget by nature, as the *Desmodium gyræus* is a jerker by nature. Those who are acquainted with this very remarkable Bengal plant will have noticed that the lateral or very small folioles are almost always in motion, executing little jerks somewhat analogous to the movements of the seconds of a watch. One of the folioles rises, and the other descends at the same time, and with a corresponding pace. When the first begins to descend, the other begins to rise. The large or terminal folioles move also, inclining now to the right, now to the left, but by a continuous and very slow movement as compared with that of the lateral folioles. This singular mechanism endures throughout the life of the plant. It jerks itself day and night, through drought and humidity. The warmer and more humid the day, the more lively are its movements, as are also those of the dyspeptic fidget. The movements of both occur spontaneously and without any apparent cause. In India the plant has been known to make sixty jerks in the minute. The number of worries the human fidget can perform in a given time has never yet been accurately computed, the patience of man being quite unequal to the task of accurate computation. But general experience puts the approximate number very high indeed; particularly in the case of the female fidget, who, when settled even in the most comfortable circumstances, has been known, in one single day, to display her peculiarities to such an extent that the beholder, in utter dizziness and bewilderment, has been compelled to leave the spot. Happy is the man who is able to do so without having any necessity ever to return to it!—'*Scientific Symbols.*'

The Enemy of the Hollyhock.

There are evil influences which bear special relation to particular dispositions.

The good old English hollyhock —long the glory of our cottage gardens in the warm autumnal days — is just now in a bad way, and in many districts seems likely to give up the struggle for existence. Its enemy is the puccinia, a virulent little fungus, bred it is supposed, in the leaves and stems of the familiar marsh mallow and kindred plants, and thence sent abroad to prey upon the hollyhock leaves, its favourite nourishment. Small raised spots, at first reddish brown, and afterwards becoming darker, are the indications of the attack under which the foliage quickly perishes, and the lofty spikes with their handsome blossoms of every shade of brilliant colour fade and droop. Some persons have recommended a systematic destruction of the mallow; but as there are about seven hundred species of the mallow family, this would probably be of little more avail than invoking maledictions upon the ship which

some twenty years since first brought from South America a spore or two of this pestilent little growth to increase and multiply on European soil. There seems no doubt that this enemy of our gardens entered through a Spanish port about 1868, lurking mayhap in a bale of cotton, for it was first remarked in Spain in the year following that date. It was not till 1873 that it was seen in England, and simultaneously in France and Germany. Since then it has spread enormously. Three or four years ago its fury appeared to be abating; but the signs have proved to be fallacious, and now complaints of the puccinia are coming from far and wide.

Flowers always at their Best.

Religion should be our everyday adornment.

As flowers never put on their best clothes for Sunday, but wear their spotless raiment, and exhale their odour every day, so let your Christian life, free from stain, ever give forth the fragrance of the love of God.—*H. W. Beecher.*

The Rose of Jericho.

A remarkable illustration of adaptation to varying conditions.

The 'heath in the wilderness' of Jer. xlviii. 6 probably refers to a species of plant growing in lonely desert places in the South of Palestine, which bears some resemblance to our common heather, especially to those dry stumps over which fire has passed, and which have been bleached by exposure to the weather. This plant is called *Anastatica*, but it is more familiarly known as the rose of Jericho. . . . The Crusaders used to bring it home from the Holy Land, and some superstitious tales are told of it; as, for example, that it first burst into blossom on Christmas Eve to welcome the birth of the heavenly Babe, and paid its tribute of honour to the resurrection of the Redeemer by continuing in flower till Easter morn. But its own true history is stranger even than these fables. The spots where it is found are moistened with water during the rainy season, but in the hot summer they are dried up, and become baked by the heat almost as hard as a brick. Rain seldom falls in the South of Palestine; months frequently pass away without a shower, or a cloud as big as a man's hand; the sky above is like brass, and the earth beneath as iron; and all the channels of the streams and rills are dry and white as the roads. Now what becomes of the rose of Jericho? . . . God, whose tender mercies are over all His works, . . . has furnished it with a remarkable provision by which it escapes from the dreadful consequences of drought. Whenever all the water within reach of its roots is exhausted, and it can get no more, it sheds its leaves, gathers all its branches together, and rolls itself up into an irregular elastic ball. And thus packed up in a travelling bag, composed of its own framework, like the fairies of old that were said to go from place to place in chariots of nutshells, it awaits patiently till the wind of the desert begins to blow. It is then speedily uprooted, rolls easily over the surface, and is driven to and fro through the desert. For days, and sometimes even weeks, it is whirled about from place to place, but it suffers no injury. The life is still strong in it, and all its tender and vital parts are gathered safely into the middle, protected by the branches that close over them like a network. It looks a dry, unsightly thing in this state. But at last it is carried to the brink of a stream, to some little oasis or spot of moisture; and no sooner does it feel the scent of water than it begins slowly to unfold its branches, to stretch down its roots

into the moist soil, and to expand its tiny flowers in the genial atmosphere. It grows on that spot until it, too, becomes a dry and parched land, and then it rolls itself up in a ball, is again uprooted by the winds, and carried to a moist place, where it again unfolds itself and grows. It repeats this strange process of migration until its seeds are perfected and ready to be shed in a suitable place for their growth, when it finally dies. And though its withered branches continue for many years to curl and expand, according to the state of the atmosphere, this is no longer a vital, but a mechanical process.—*Hugh Macmillan, LL.D.*

Tares among Mummy Wheat.

'Let both grow together.' Evil, as well as good, is a constant quantity.

As far back as the thought of science can go upon the sure roadway of observation, it declares it to be true that the tares and the goodly grain have sprung up and grown together. The same weeds that trouble the tillers of the soil in Egypt to-day were the pests of their ancestors in those old times of which we are often speaking, forty or fifty centuries ago. Grains of barley and wheat are of frequent occurrence in the tombs. M. Mariette found barley in a grave of the fifth dynasty, at Sakhara, five thousand four hundred years old. The fields of barley then were infested by a weed known as the spiny medick (*Medicago denticulata*). Another of the Egyptian tares found among the mummies is the charlock (*Sinapis arvensis*, var. *Allionii*), better known among us as the wild mustard. It infests the flax crop; and there is scarcely a field in Egypt where it may not be found to-day, and often in such quantities that its yellow flowers, just before the flax comes into bloom, present the appearance of a crop of mustard. Thus the vigour of evil, tested by its endurance, is quite equal to that of good.

It is not a pleasant reflection for us that evil influences, like those tares of ancient Egypt and the weeds that grow among our garden plants, have staying qualities quite as vigorous as those of lovely flowers and useful plants. But it is a wholesome thought, and one which should never drop away from our minds, for it points to a fact which we are daily called upon to face, and upon which, in all our efforts to overcome evil in our own hearts and subdue sin in the world, we should calculate with unfailing accuracy. The evil and the good, the tares and the wheat, the flowers and the weeds, shall grow together until the day of judgment. We must not relax our vigilance in watching, and our diligence in labouring, to preserve the world from the incoming and growth of those hurtful principles which thwart all holy effort, and must surely destroy those over whom they obtain the power.—*H. C. McCook, D.D.*

Severity with the Rose.

Afflictions do but express the Divine wisdom and love.

It is said that gardeners sometimes, when they would bring a rose to richer flowering, deprive it for a season of light and moisture. Silent and dark it stands, dropping one fading leaf after another, and seeming to go down patiently to death. But when every leaf is dropped, and the plant stands stripped to the uttermost, a new life is even then working in the buds, from which shall spring a tender foliage and a brighter wealth of flowers. So, often, in celestial gardening, every leaf of earthly joy must drop before a new and Divine bloom visits the soul.—*Mrs. Beecher Stowe.*

Flowers—the Gorse.

The scheme for the perpetual renewal of this flower is an effective illustration of design in Nature.

Notice how the pod in gorse, which has to ripen its ovules into seeds, is protected. First of all, it has the hairy sepals covering all the rest of the flower, and shielding it from the rain; then the large upper petal for a roof to send the rain off when the flower opens; then the wings, keeping the keel, or boat, tight; then the boat itself, with its down-covered edge, keeping out the wet and the insects; lastly, the filament-tube, holding it close and safe when the boat falls away. Then the pod itself is covered with hairs; these shield it, when the tube withers and the pod is left to shift for itself, until it is fully ripe and ready to burst and scatter its seeds, which it does with the crackling noise that may be heard on a still day, when the sun is high in the heavens, by anyone who stands for a few moments among the furze-bushes.

Very intricate is the construction of the gorse-blossom. Truly wondrous is the means God has contrived for the perpetual renewal of this exquisite flower; and this is only one of the myriad ways in which He ministers to our joy and pleasure in the kingdom of the flowers. Many are the delights of an hour spent on the breezy down on an August day; not the least of these is to stand still and see

'The heath and the threat'ning
Loud bees with the yellow thighs,
And, twinkling out of the golden furze,
The marvellous butterflies.'

H. W. S. Worsley-Benison.

March Buds.

The sin of wanting to keep religion as our secret.

I think I heard a conversation in the leaves this morning, as I came to church. The buds that had lain all winter in their wrappings, as under roofs and blankets, were beginning to say to each other, 'Is it not March? Is it not time for us to unfold ourselves, and expand our leaves in fragrance to the air?'

But one tiny bud answered, 'I can never unfold to the sun and the air these dear little leaves that have lain so long in my bosom. I could not bear such publicity. I must keep their fragrance still.' And the sun and the wind laughed; for they knew that when they should shine and blow upon the bud, and fill up and swell those tiny leaves, it would open from the necessity of its nature, and that when they were swimming in a bath of solar light, they would give out their odour unconsciously to every breeze.

So many a heart says, 'I could not bear to have my sweet buds of feeling exposed, through profession of Christianity, to the gaze of the world. I will keep them safely hid in my bosom, and be a Christian in secret.' But when the winds of heaven blow upon them, and the sun of God's love shines, they will become vocal, and must needs give themselves expression.—*H. W. Beecher.*

God's Work in the Seeds.

The vast possibilities of a seed suggest what Almighty grace can do in human souls.

And for ourselves personally, for the renewal and perfecting of our natures, let us put ourselves as naturally and simply into the hands of God, as we put our seed into the ground. If He adds His Spirit to sown corn and multiplies it, will He not much more add His Spirit to the natural souls of His children, and change them into heavenly souls? A beam of His Spirit causes the solitary and dying wheat-corn to spring up in beauty, and for one grain there are infolded in the pockets of the ears

sixty, and even hundredfold increase. If God's Spirit works so wonderfully in the ground, how will He work in the living ground of our souls? Are there vast possibilities in a vegetable grain? What, then, are the possibilities of our spirits, which are the offspring of God?—*John Pulsford.*

Fibres of the Grass.

The superabundance of God's provisions.

The little lawn beside the strawberry bed, turned brown there, and green toward the house-shadow, holds how many myriad grass-blades? Here they are all matted together, long, and dragging each other down. Part them, and beneath them are still more, overhung and hidden. The fibres are intertangled, woven in an endless basket-work and chaos of green and dried threads. A blamable profusion this; a fifth as many would be enough; altogether a wilful waste here. As for these insects that spring out of it as I press the grass, a hundredth part of them would suffice. The American crab-tree is a snowy mountain in spring; the flakes of bloom, when they fall, cover the grass with a film—a bushel of bloom, which the wind takes and scatters afar. The extravagance is sublime. The two little cherry-trees are as wasteful: they throw away handfuls of flowers; but in the meadows the careless spendthrift ways of grass and flower and all things are not to be expressed. Seeds by the hundred million float with absolute indifference on the air. The oak has a hundred thousand more leaves than necessary, and never hides a single acorn. Nothing utilitarian—everything on a scale of splendid waste. Such noble, broadcast, open-armed waste is delicious to behold. Never was there such a lying proverb as, 'Enough is as good as a feast.' Give me the feast; give me squandered millions of seeds, luxurious carpets of petals, green mountains of oak leaves. The greater the waste, the greater the enjoyment—the nearer the approach to real life. Casuistry is of no avail; the fact is obvious. Nature flings treasures abroad, puffs them with open lips along every breeze, piles up lavish layers of them in the free open air, packs countless numbers together in the needles of a fir-tree. Prodigality and superfluity are stamped on everything she does. The ear of wheat returns a hundredfold the grain from which it grew. The surface of the earth offers to us far more than we consume. The grains, the seeds, the fruits, the animals, the abounding products are beyond the power of all the human race to devour. They can, too, be multiplied a thousandfold. There is no natural lack. Whenever there is lack among us, it is from artificial causes, which intelligence should remove.—*Richard Jefferies.*

Structure of the Grass.

The simplest things provide proofs of a designing Mind.

The structure of the grass of the fields exhibits everywhere interesting proofs of design. The root, in proportion to its size, is more fibrous and tenacious than that of any other plant. In some instances it is so vital that, like Hercules' Hydra, the more it is hacked and cut, the faster it spreads itself; and it runs so extensively, each joint sending up a new shoot, that it encloses a considerable space of soil. In this way the grass clusters closely together, and covers the ground as with a carpet; while in the absence of blossoms, which are often prevented from forming by the cropping of animals, the budding roots propagate the plant, so that the effect of grazing pasture-lands is always to increase

the vegetation laterally, and make the verdure more compact. The stem or culm is hollow, provided at intervals with knots, and invested, as if by some mysterious process of electrotype, with a thin coating of flint. It is constructed in this manner so as to combine the utmost strength with its light and elegant form; and so efficient are these mechanical appliances, that it rarely gives way under the force of the most violent winds, unless when heavy and long-continued rains lay it prostrate, and beat upon it until its elasticity is destroyed. The leaves next exhibit an adaptation to circumstances no less remarkable. They are spear-shaped, and strongly ribbed with threads of flinty fibre, thus forming wedges admirably fitted for forcing their way with least resistance through the soil; they are long, narrow, alternate, and sheathing the stem for a considerable distance, in order to present as small a surface and give as light a hold as possible to the winds. They are destitute of branches, so as to qualify them for growing together in masses without suffering from want of air and light—the whole stem being succulent and covered with spiracles or air-holes, thus acting as lungs along with the leaves. And last of all, the flower is a perfect miracle of design. It is produced from the upper sheath, which encloses it altogether when young; it is disposed in simple or branching heads, each head consisting of two or more chaffy scales, inserted the one above the other, like the plates of a steel cuirass. From each of these scales three slender white threads hang out, crowned with yellow dusty knobs, playing freely about in every breeze. These little threads or stamens are of the most vital importance, for without their agency the ears of corn would not fill with the nutritious grain, and they are exposed to a thousand casualties. Upon how slender a thread, then, does human life—sustained by bread—hang! Upwards of three hundred genera, and more than five thousand different species, of grass exist in the world. But though presenting so many varieties, the typical character is singularly strong in them all; the whole appearance, the general air, the manner of growth, the peculiarities of structure, are in each species so similar, that no class of plants can be so easily identified. The Creator has repeated the same pattern more frequently in the grass tribe than in any other order of vegetation, as if in admiration of its grace and simplicity. Its exquisite perfection enables us to see some deeper aspect of the Divine character than the mere intelligence of a contriver; enables us to see God's care for helplessness and lowliness; His care for beauty as an end, and not as a mere means. It impresses us with the perfect wisdom of an Infinite Spirit, and not with the limited agency of a finite mind. It displays intellect as well as intelligence, purpose as well as design, character as well as contrivance, personality as well as law. In studying it we seem to get within the veil behind which the Creator works in secret; we come in contact, as it were, with His mind and heart; we see Him who is the Invisible. Stand on the green sward, and each blade of grass whispers to the inner ear, 'Take thy shoes from off thy feet, for the place whereon thou standest is holy ground'; and the response of every devout spirit must be, 'Surely the Lord is in this place, and I knew it not.'—*Hugh Macmillan, LL.D.*

A Flower is only Perfectly Beautiful for a Moment.

There is a flowering instant in the garden of the soul.

Each bud flowers but once, and each flower has but its minute of

perfect beauty; so in the garden of the soul each feeling has, as it were, its flowering instant, its one and only moment of expansive grace and radiant kingship. Each star passes but once in the night through the meridian over our heads and shines there but an instant; so in the heaven of the mind each thought touches its zenith but once, and in that moment all its brilliancy and all its greatness culminate. Artist, poet, or thinker, if you want to fix and immortalize your ideas or your feelings, seize them at this precise and fleeting moment, for it is their highest point. Before it you have but vague outlines or dim presentiments of them. After it you will have only weakened reminiscence or powerless regret; that moment is the moment of your ideal.—'*Amiel's Journal.*'

Paradise.

The charm of Eden could be almost re-won if we chose.

For what can we conceive of the first Eden which we might not yet win back if we chose? It was a place full of flowers, we say. Well, the flowers are always striving to grow wherever we suffer them; and the fairer the closer. There may, indeed, have been a fall of flowers, as a fall of man; but assuredly creatures such as we are can now fancy nothing lovelier than roses and lilies, which would grow for us side by side, leaf overlapping leaf, till the earth was white and red with them, if we cared to have it so. And Paradise was full of pleasant shades and fruitful avenues. Well, what hinders us from covering as much of the world as we like with pleasant shade, and pure blossom, and goodly fruit? Who forbids its valleys to be covered over with corn till they laugh and sing? Who prevents its dark forests, ghostly and uninhabitable, from being changed into infinite orchards, wreathing the hills with frail-florelled snow, far away to the half-lighted horizon of April, and flushing the face of all the autumnal earth with glow of clustered food? But Paradise was a place of peace, we say, and all the animals were gentle servants to us. Well, the world would yet be a place of peace if we were all peacemakers, and gentle service should we have of its creatures if we gave them gentle mastery. But so long as we make sport of slaying a bird and beast, so long as we choose to contend rather with our fellows than with our faults, and make battle-fields of our meadows instead of pastures—so long, truly, the flaming sword will still turn every way, and the gates of Eden remain barred close enough till we have sheathed the sharper flame of our own passions, and broken down the closer gates of our own hearts.—*John Ruskin.*

The Humble Moss.

Both beauty and use may be found in insignificant things.

And there, at our feet, and woven amidst the grass, is its lowly friend and companion the humble moss. Unseen by the common eye, or, if seen, idly regarded in the passing glance as a blot of dirty gray, or a patch of common green, it threads its way by the lonely path, wreathes as with emerald the chalice of the mountain spring, weaves a soft covering on the dinted rock, and fringes with its soft beauty the wayside well. Let the indifferent pass it by, all unconscious of the pleasures they miss; but if you would have your soul filled with thankful reverence and adoration to God for His wondrous love in providing such exquisite beauty for us, stop for a moment and consider that moss. If you would see its beauties aright, it will be

worth your while to kneel beside it—it is almost too sacred and fragile for uprooting—and gaze long and lovingly into its starred tracery of deep emerald and rubied bloom. What fringes of gold! What spikes of amber! What interlacing of delicate fibres, as if the hands of fairy Mab and her elfin train had woven it all in porphyry and silk of a thousand hues from designs conceived in Paradise! And yet, amidst its exquisite and subtle beauty, how humble and pathetic is its mission to men! A gentle covering for scars of Time; a vision of simple grace for the weary heart; a soft pillow for the head of the tired child; and a tender coverlet for the grave of our beloved dead! In contemplating the matchless beauty of this humble plant, and the infinite charm of its pathetic mission to men, we cannot but feel that surely, if ever Wordsworth was permitted to pierce with poet's eye the veil of Nature, and see into the mystery of the unseen beyond, it was when he wrote the lines:

> 'To me the meanest flower that blows can give
> Thoughts that do often lie too deep for tears.'

Alexander Lamont.

The Independence of the Mosses.

He who has in him the life of God can find materials for the culturing of that life anywhere, and everywhere.

The benignant soul possesses a vital energy and an ubiquity which resemble the moss. It matters not to the healthy action of the mosses' functions whether the surrounding air be stagnant or in motion, for we find them on the mountain-top amid howling winds and driving storms, and in the calm, silent, secluded wood, where hardly a breeze penetrates to ruffle their leaves. The range of flowering-plants is circumscribed by conditions of light, temperature, elevation above the sea, geological character of the district, and various other physical causes; but the wonderful vital energy with which the mosses are endowed, enables them to resist the most unfavourable influences, to grow freely and luxuriantly even in the bleakest circumstances, and to acclimatize themselves, without changing their character, in any region of the earth, and every kind of situation upon its surface. They symbolize the benignant soul. It is found in connection with every form of religion, and where there is no form of religion at all. In the fierceness of a world's persecution it maintains its place, yet graces the humble, secluded paths of private life. It is found in men of all colours and climes, and, in various forms, dwells wherever there is suffering which needs solacing, or calamities which demand heroism.—'*Scientific Symbols.*'

The Trouble of the Little Weeds.

The supreme anxiety in moral culture is the treatment of little evils.

I do not find my chief trouble with the large or clearly defined weeds of the loose soil. I am most discomfited by the little straggling leaves here and there in the green sward, on the hillside, where I do not aim to keep it closely shaven. Some of them are so weak as not to give a stem for leverage. The yarrow, with its crimps and curls, looks even pretty for a time, till you become aware of its spreading far and wide, and growing coarse withal. The plantain too—well, who knows but there may be a grain of truth in the old tradition that spares it for the sake of the toads, those busy welcome helpers of your toil, the weeders of the insect world; at any rate, the birds will delight

to peck its seeds; but at last the 'muchness' of it becomes the question. And then the chickweed that begs permission to hide itself under your tall caladiums, and creep modestly under the eaves of the cottage—it seems too small to make an enemy of. And then the sorrel; why, you have to deal with it almost leaf by leaf. However, I have learned at last a better way for that. I discovered that its acid shoots were the natural and necessary expression of a sour soil, and that in this case it did not suffice to battle with the roots. So I had the ashes of my wood fire carefully sifted over every spot where it grew, and the sorrel has ceased to spring up, giving place to the sweet grass. — *Sarah Smiley.*

The Dull Stalk and the Lovely Flower.

The glorious spiritual body may be forming within the material body, though we are unable to trace its development.

If any of you are at a loss to conceive how this very different human body, this exquisite (spiritual) body, can be formed in, and come forth from, the earthly body, let me beg them to consider how a glorious flower is formed within, and comes forth from, a dull stalk, and how heavenly blossom comes out of dark, woody branches. What wood is drier than the vine-stock? Yet rivers of wine annually come forth from those dry stocks. To me it seems the *very likeliest thing* that there should be a future angel-son and daughter, forming within, and getting ready to come forth from, every earthly son and daughter of God.

The sun's virtue, within the most unlikely shell lying on the ocean's bed, forms a lovely pearl; and forms veins of silver and gold in the dark earth; so the God of all virtue and glory is forming a more electric, more vital human body, within the present opaque form.—*John Pulsford.*

Fungus causing Heat in Damp Hay.

Watch against the conditions that develop evil growths.

The celebrated Breslau botanist, Professor Cohn, recently proved, by a series of exhaustive experiments, that the heating of masses of damp hay to a temperature resulting in spontaneous combustion is caused by fungus. He first examined the thermogenous action of the *Aspergillus fumigatus*, a plant having an evil reputation for causing illness, and which occasions the heating of sprouting barley. Through the breathing of the small germ—that is to say, through the combustion of the starch and other coal-hydrates, which are changed by diastatic fermentation into maltose and dextrine—an increase of temperature to about forty degrees C. follows, when the germs become stiff and heated, a condition in which they soon die. A heating of the germs to over sixty degrees C. takes place only when the fermentation activity of the *Aspergillus fumigatus* sets in, and this exhibits its highest development and action in a temperature above blood heat, in which state it rapidly consumes the coal-hydrates. Of all the actions of the fungus, and these are of an extremely manifold character, this action of the *Aspergillus fumigatus* is probably one of the most singular.

Rush-bearing at Grasmere.

Lingering customs keep up pleasant associations.

Since the poet Gray was compelled to turn back from Borrowdale by the awfulness of the impending heights, the lakes have become well known to English

travellers, and no one who visits them fails to spend at least an hour or two at Grasmere. Its green lake, its flashing streams, and encircling mountains, full of ever-changing beauty, as cloud and sun pass over them, its little village dropt straight, as it were, into 'the holy silence of the hills,' form a scene not easily to be forgotten. We were fortunate enough to be present last Saturday at Grasmere during a rustic festival, which added still further to the beauty of the place. It was the 'rush-bearing.' As we chanced upon it we were half inclined to believe that it was a relic of some old Scandinavian flower-festival—some survival, perhaps, of the worship of Ceres; but it appears to be of a much simpler and more modern origin. 'Our fathers,' says the hymn written for the occasion,

> 'To the house of God,
> As yet a building rude,
> Bore offerings from the flowery sod,
> And fragrant rushes strew'd' —

a species of flooring which must have had its disagreeables, especially if, as this custom of 'rush-bearing' seems to indicate, the rushes were only changed once a year. Now, however, that the floor of the church is, as the rector said in his subsequent discourse, paved with 'comfortable and warm flag-stones' — somewhat endearing and excessive epithets; for (to borrow an expression from Isabella) 'that paleness' would scarcely 'warm *my* grave' — the old and necessary habit of providing rushes once a year has passed into this pretty and suggestive ceremony, and the day which is annually fixed for its observance is that of St. Oswald, the founder of the church. The pretty churchyard lies on the banks of the rushing Rothay, and suggests no feelings of sorrow or death to the passer-by, so that it seemed quite natural to find a bunch of flowers on each grassy mound—tokens, as it were, of continued intercourse between the living and the dead. The peaceful pantheism of Wordsworth, which refused to recognise a break in the chain of Nature, was brooding over the scene, and justified his own immortality as he lay there in his grave. It had, as 'an acute observer' in the guide-book says, 'cordially cleared up.' Light and shadow were chasing each other over the mountain background, while the foliage in the foreground took a deeper green as the sun descended behind the hills. 'Clopin-clopant' went the bells. Merrily the children dropped into their places behind the low semicircular wall that divided the churchyard from the road, bearing in their hands crosses of flowers and rushes, most of them from two to two and a half feet in height; and before the clock struck six at least one hundred children had assembled, and made with their offerings a beautiful palisade of flowers. The gentry and neighbours assembled, and some commented on each tribute, while others chatted on things mundane. Some were in the 'via sacra,' others meditating on trifles. Even 'old John Peel' stepped over from Troutbeck, and lent his services to a military band of zealous but somewhat unskilful performers; while the stern, square old church tower protested that the way to heaven was not always strewn with flowers. The children now went two and two through the town, bearing their crosses in their hands and headed by the band, returning to a simple service in the church, after which, we believe, they received sixpence and a piece of gingerbread. Somebody, however, said that their reward was sixpence *or* a piece of gingerbread, while pessimists declared that the children always chose the gingerbread in preference to the sixpence, which says very little

for the children, or a good deal for the gingerbread. We must confess we were charmed with this simple rite, and did not agree with the lady who remarked that 'she preferred something more ecclesiastical.'

Poppy-Seed.

'No plant in Nature is more remarkable than the poppy.'

Special examples of the growth of long-buried seeds upon newly turned-up soil are easy to cite. Some of the most extraordinary are those where poppies are the subject. No plant in Nature is more remarkable than the poppy. Humble in its growth, its juice is one of the most powerful sedatives known to medicine; while the essence of that juice, called *morphia*, is one of the most powerful of vegetable poisons. At night the flowers close in a peculiarly elegant manner—sleeping as if lulled by their own lethean balm; the petals, instead of being laid smooth and flat in the bud, as happens with almost every other flower, are squeezed and crumpled together, so that they never become perfectly straight; and when they expand, they do so with such force as to thrust off the green chalice that encircled them as a cradle. Every capsule, or 'poppy-head,' contains hundreds of minute seeds, which are beautifully chased upon the outside, so as to form exquisite objects for the microscope, without which the embossing cannot be seen; and lastly, these seeds, when they fall upon the ground, seem indestructible. They only spring up, however, and form new poppy-plants when the earth which contains them is lightly disturbed. Trodden in, so that the earth is compacted, and elbow-room, as it were, denied to them, they lie without any effort to grow. Of course, under such circumstances, they cannot be stimulated by the threefold essentials—sunshine, air, and moisture. There is little doubt that within these last few years, and probably this very last summer, crops of the wild crimson poppy of our own country have sprung up from seeds which were ripened at that remote period in the history of the fragment of Europe we now call Britain, when no portion of it was occupied by human beings. The geological character of the surface and subjacent layers shows that thousands of years must have rolled away since the parents of these poppies flaunted their gay apparel in the sunshine; and but for the accidental disruption of the soil that contained them, they would apparently have retained their growing power for ages to come.—*Leo H. Grindon.*

The Sleep of Plants.

Nature needs her resting times as well as man.

Walking through the decorated fields of summer, before the scythe of the mower has laid their sweet crowds low, or along the paths of some well-trimmed garden, rich with the floral spoils of many distant lands, and noting the cups and chalices of their thousand blossoms, as they drink the tender warmth of the sunshine, we naturally imagine that the condition of a flower, whether wild in the country, or forming part of the elegant and cultivated company of the parterre, is to remain, after once expanded, like the Electric Telegraph Office, 'open always.' Our ideas rest, as in all other matters, upon what we happen to behold at the moment; and this partial truth is believed to be the whole, and this temporary condition—for it really is no more—the prolonged and the abiding one; the abiding one, that is to say, until the flower shall have worn out its little lease of life, and petal and stamen, calyx and honey-bag, alike dissolve and are lost in the bosom of Mother Earth, from which

all things come, and to which all return.

Flowers ordinarily are *not* 'open always'; those of many of the largest and most important classes of plants close as regularly as day changes to night, remaining shut during the hours of darkness, and reopening their lovely petals when sunshine returns. The fascinating and innumerably various phenomena of their morning expansion and twilight folding are the illustrations, in part, of what botanists term the Sleep of Plants. Similar phenomena occur in connection with the leaves, and together they form one of the most beautiful displays in Nature of the Divine benevolence as shown in little things.

Fungi and Parasites.

The perils of prosperity.

In moist and liberal summers, the wheat is often covered with fungi and parasitic plants; and it has to be put through smutting-machines, that it may be cleansed and made ready for grinding into flour. So men in prosperity often have fungi and parasitic plants growing on almost every faculty; and then, to purify them, God puts them through trials which are like smutting-machines to the wheat. The best thing which can happen to such men is a trouble that will *bolt* (sift) them.—*H. W. Beecher.*

Fungi as Dainty Feeders.

The character of a man may be revealed by the food he prefers.

The fungi, as a rule, have no such development of parts into roots, leaves, and the like, as the plants have, and all their tissues are built up of cells only. No fibres exist in them. They are soft-bodied plants, such as we know the mushroom to be. Yet this is not all, as regards our fungi. Taking them in their simplest phases, we find the essential part of each fungus to exist as thread-like branching filaments, which constitute the so-called *mycelium.* This is, in truth, the fungus proper, and most of the duties of life pertaining to nutrition, and so forth, are discharged by these creeping threads.

These latter, again, are white in colour. They possess no green substance, and be it noted that the presence or absence of green makes all the difference in the world to a plant. For when it does possess green matter, it can feed upon the materials it derives from earth and air—the water, carbonic acid gas, ammonia, and minerals, which form the food of green plants at large. When, on the contrary, a plant has no green hue, it demands ready-made food in the shape of living matter. So that our fungi are daintier feeders in a way than their higher green neighbours. They subsist upon matter once living, but now dead and decaying, while they sometimes feed upon living matter in its vital condition. Roughly, we might divide our fungi into those which feed on decomposing organic matter (*e.g.*, our mushrooms), and those which exist on actually living bodies. These last are as much parasites as are the animals which lodge (and often board also) on other animals.—*Dr. Andrew Wilson, F.R.S.E.*

Flowers in Poetry.

Flowers are Nature's poems.

Do you ever wonder why the poets talk so much about flowers? Did you ever hear of a poet who did not talk about them? Don't you think a poem which, for the sake of being original, should leave them out, would be like those verses where the letter *a* or *e*, or some other, is omitted? No; they will bloom over and over again in poems in the summer fields, to the end of time, always old and always new. Why should we be more tired of repeating ourselves

than the spring be tired of blossoms or the night of stars? Look at Nature. She never wearies of saying over her floral paternoster. In the crevices of cyclopean walls, in the dust where men lie—dust also, on the mounds that bury huge cities, the Birs Nimroud and the Babel heap—still that same sweet prayer and benediction. The Amen of Nature is always a flower. —*O. W. Holmes.*

A Flower is more than Stalk and Petals.

The poet-soul keeps up hope for the future, however dark the present may be.

There is so much for us yet to come, so much to be gathered and enjoyed; not for you or me now, but for our race, who will ultimately use this magical secret for their happiness. Earth holds secrets enough to give them the life of the fabled immortals. My heart is fixed firm and stable in the belief that ultimately the sunshine and the summer, the flowers and the azure sky, shall become, as it were, interwoven into man's existence. He shall take from all their beauty and enjoy their glory. Hence it is that a flower is to me so much more than stalk and petals. When I look in the glass I see that every line in my face means pessimism, but, in spite of my face—that is my experience—I remain an optimist. Time, with an unsteady hand, has etched thin crooked lines, and, deepening the hollows, has cast the original expression into shadow. Pain and sorrow flow over us with little ceasing, as the sea-hoofs beat on the beach. Let us not look at ourselves, but onwards, and take strength from the leaf and the signs of the field. He is indeed despicable who cannot look onwards to the ideal life of man. Not to do so is to deny our birthright of mind.—*Richard Jefferies.*

Mosses.

The first mercy of the earth, and its last.

Meek creatures! The first mercy of the earth, veiling with hushed softness its dintless rocks; creatures full of pity, covering with strange and tender honour the scarred disgrace of ruin, laying quiet finger on the trembling stones to teach them rest. No words that I know of will say what these mosses are. None are delicate enough, none perfect enough, none rich enough. How is one to tell of the rounded bosses of furred and beaming green, the starred divisions of rubied bloom, fine-filmed, as if the rock-spirits could spin porphyry as we do glass; the traceries of intricate silver, and fringes of amber, lustrous, arborescent, burnished through every fibre into fitful brightness and glossy traverses of silken change, yet all subdued and pensive, and framed for simplest, sweetest offices of grace? They will not be gathered, like the flowers, for chaplet or love-token; but of these the wild bird will make its nest, and the wearied child his pillow. And as the earth's first mercy, so they are its last gift to us; when all other service is vain, from plant and tree, the soft mosses and gray lichen take up their watch by the headstone. The woods, the blossoms, the gift-bearing grasses, have done their parts for a time; but these do service for ever. Trees for the builder's yard, flowers for the bride's chamber, corn for the granary, moss for the grave.—*John Ruskin.*

Fungus in Dark Cellars.

To judge things fairly we must put them out into the light.

Often men of the world appear to make a very favourable show, and seem, to the sad discouragement of some of the Lord's people, to

be bright and prosperous. The reason is that sin is abroad, and has wrapped the world in the impenetrable gloom of a long night. On account of this it is hard to distinguish clearly the true character and position of all that surrounds us. In some dark wine cellars you are lost in admiration of the brilliant shining of a myriad lights of dazzling brightness. The cellars are wreathed with sparkling gems, and rich festoons of starry scintillation hang around the vaulted roof. The light is not strong enough to show the defilements of the place, but sufficient, when one has been for some time from the day, to make the whole spot gleam like an enchanted palace. Let in, however, a single ray of the sun, and you see that what you so much admired is only a foul unsightly fungus that clings to the mouldy and discoloured wall. And so with all who seem fair and bright in a world at enmity with God. Like the Psalmist, in that experience of which he tells, when tempted to be 'envious at the foolish,' we must bring these gay and careless ones into the light of the sanctuary. In that light we shall behold them in their true colours.—*Rev. James Neil, M.A.*

Beauty of the Grass.

God's care in ministering to the taste of His creatures.

No proof of the Creator's care in ministering to the higher tastes and capacities of man is more striking than the abounding and universal beauty of the grass. How dull and uninteresting would the earth be without its soft, bright verdure! In every landscape it is the most conspicuous object, the ground-colour on which Nature embroiders her varied patterns, and from the midst of which the gay hues of flowers come forth in greater brilliancy, by the force of contrast, to arrest the admiring gaze. What can be lovelier than the meadows in May? The eye that has lately looked out on the cold plain of snow or the leafless tree, gazes with delight upon the 'tender grass springing out of the earth in the clear shining after rain,' so richly, delicately, transparently green. And when the season advances, and the grass twinkles in the warm air, and the daisies in thousands open their round innocent eyes in wonder among it, and the buttercups spread over it their cloth of gold, and the bright sunbeams and the light-footed shadows of the fleecy clouds overhead chase each other in little rippling waves over its surface, like smiles and thoughts over a human face—it seems as if a larger and a brighter feeling of life came with the lovely spectacle, and as if every tiny spear of grass bore the admiring spirit upon it from the decays of earth nearer to the glory and the fulness of heaven. No sight can be fairer than a woodland nook, or a forest glade with the tall untrodden grass in its dewy freshness, waving under the trees, intermingled with palmy clusters of fern-leaves, and tipped on the top, like billows that break into foam, with snowy wild-flowers; or those round fairy knolls, whose pillowy softness invites the dreamer to repose in the noonday heat, and which offer themselves in mammary tenderness to feed the rabbit and the wild deer. Beautiful is the grass when it covers the decaying thatch of the cottage, making it look more like a natural object than a work of man; tender it is when it lays its rich carpet beside the threshold of the poor, to soften unconsciously the heavy footfall of toil, and refresh the weary eye of care, and remind the lowliest, by its mute appeal, of their share in Nature's feast of simple gladness.

Nowhere is the beauty of the grass seen to so much advantage as in our own country. Its exquisite verdure makes the pastoral landscapes of Britain among the loveliest spots of earth. The grass in Palestine, owing to the dryness of the soil and the heat of the climate, is neither universal nor perennial. In some few favoured spots, where the air is moist and the sun shaded by trees, it grows in rich profusion, and forms a continuous sward. We are told that there was 'much grass' in the district east of the lake, where the miracle of the loaves and fishes was performed, and that the compassionate Saviour made the weary and hungry multitude sit down on it. It fills up the groundwork of the beautiful scenic pictures of Lebanon and Galilee; it springs up in the lifeless deserts of Judæa to the music and the sparkle of the desert fountain. But in general the face of the country is but thinly clad with it. The bright showers and sunbeams of spring stimulate it into rapid growth; but in the scorching glare of summer it speedily withers, leaving the fields brown, and the hills bare and desolate. And hence most of the images derived from it in Scripture are sad and melancholy, and speak more of human vanity and decay than human hope and lifefulness. Every traveller admits that an English meadow in May is a far lovelier sight than the lily-covered slopes of Tabor, or the oleander-wreathed shores of Gennesaret. The exuberant vegetation of the last does not sufficiently hide the cracked and parched soil, and forms but a poor substitute for a bright elastic carpet of silken grass, such as covers our lawns and fields from summer to summer in perennial luxuriance. The eye soon tires of flaunting flowers, but it never wearies of the modest livery of the grass. The simple verdure is earth's chosen robe, the household dress of our common mother, and none else becomes her half so well.

Look at each single plant, and you will find that the beauty of the mass is still more strikingly displayed in the individual. The finest ribbon of man's manufacture cannot for a moment be compared in richness and transparency of texture to its blades. How graceful is the tall waving culm or stem, with its knotted joints! How light and airy are its silvery and purple panicles, so modest and sober that few would suspect them to be blossoms at all. How delicately fashioned is each part of the bearded plume! A model of symmetry, elegance, and strength is each little spear of grass that pierces the sod and shimmers in the sunshine. Though formed to be cropped by the beasts of the field, and trodden under foot of man; though 'to-day in the field and to-morrow cast into the oven,' there is as much skill expended in its construction as in the palm-tree, destined to last for centuries, and lifting its head securely above the ravages of man and beast. Ask the skilful artist to construct for you a plant which will bear uninjured the summer's heat and the winter's frost; which will rise elastic from the heavy footstep and the cumbrous snow-wreath; which will speedily reform the parts that have been broken off or injured; which will wave with the wind, and stand upright under the rain and hail; which will unite elegance with strength, slenderness with beauty, and eminent usefulness with all; and how vain and abortive would be his attempts! And yet all these opposite qualities unite in the lowly grass, which covers with countless facsimiles of itself a single acre of meadow, and fit it admirably for the purposes which it serves and the circumstances in which it grows.—*Hugh Macmillan, LL.D.*

The Vine that trails, and the Vine that clings.

Souls thrive that grow up clinging to the Cross.

The vine which trails along the ground, and twines its tendrils round any rubbish which it may come upon, is sure to be trodden underfoot. If it lift itself from the earth, and fling its clasping rings round the shaft of the Cross, its stem will not be bruised, and its clusters will be heavier and sweeter. The tendrils which anchor it to the rubbish-heap are the same as those which clasp it to the Cross.—*A. Maclaren, D.D.*

The Fight with Weeds.

Our fight with evil is like a guerilla warfare.

When I first saw this spot, there was growing beneath the oak-trees, upon the hillside, a large compact clump of elder. This was cut down with the briers and burned in our bonfire. In preparing the soil for grass, not only was this spot ploughed up, but in the change of level was much more deeply covered, so that I little thought of seeing the elders again. Greatly to my surprise, they were soon up, feet in height. They appeared even to relish their own ashes, and throve under all the persecution I could devise. 'Very hard to get rid of,' said an old farmer. 'You will have to dig up the whole spot again; there is no other way. Not a single root must be left in the ground.' So to work he went with a strong spade; but on reaching the difficulty, not an inch could he strike the spade into those tough and crowded roots. 'A pickaxe will do it,' suggested another workman; 'and it stands to reason that if you take that, and go through them inch by inch, there'll soon be an end of them.' 'Capital,' I answered; 'the very thing to be done.' And so having watched the success of the first few strokes, I withdrew. But I was soon summoned from my study. The workman was in great perplexity. He could not help hitting and hacking the huge roots of the oaks. In fact the two had often become so twisted together as to be inseparable, and in not a few cases indistinguishable. Of course the pickaxe process was stopped, and all advice was now exhausted.

Of course it was not long before another clump of elder reared its defiant head. It now occurred to me that under all these difficulties, the only practicable plan was this—so soon as a shoot was up high enough to reveal its real nature, and with strength enough to furnish a good grip to the hand, it should be seized fast, and a sharp knife thrust far down by its side, cutting it off as much below the surface as possible. I said to myself, I know that it is a law of all such life, that it can only be maintained finally by growth in the air and light. *I can worry them to death.*

No sentinel at his post ever watched more closely for an enemy than did I. It was a huge satisfaction to take this almost desperate case into my own hands, and to run my keen blade far down till I could bring up inches of the white root-stalk. Of course the next shoot had to start much lower down, and from a somewhat exhausted root. They were slower and slower in reappearing, and more and more feeble, though still they held out with a perseverance worthy of a better cause. But I made no truce with them. Instant execution was the unvarying sentence. Now, I suppose, they are quite exterminated; none at least have appeared for the last two years. After discovering for myself this slow but successful process, I had the pleasure of reading it in the agricultural column of my newspaper. The process was styled 'suffocation.'—*Sarah Smiley.*

The Divine in Plant and Tree.

The spiritually-minded find the spiritual in material Nature.

The series of blooming and fragrant plants which adorn and bless the earth, together with our fruiting plants, bushes, and trees, are the Spirit of God unfolding Himself, in visions of loveliness, to our mortal eyes. God 'so clothes the earth,' and He always puts *Himself* into what He clothes. Consider these two things: the force of His love, and the beauty of His nature. Because of the force of His love, He must express or manifest Himself; and because of the beauty of His character, His manifestation is an enchantment.

If Nature is not spiritual to you, it is because you are not spiritual. If you do not find the breath of Jesus in the balmy air, and in the odours of the garden, it is because His breath is too little in you. If you find not God in the meadow and in the growing corn, it is because you go to the fields *without Him*. David used to find God in the fields. And Jesus found more of His Father, and found Himself nearer to His Father, in the fields than in the temple.

Nature has an utterly Divine mode of speech: her words are woven into delicious unities of form, into living trees and bushes, whose fire glows forth in roses and peach-bloom. Again, she weaves her speech into singing larks and honey-bees; and the crown of all her ineffable word-speaking is man and woman. If you lay sacrilegious hands on Nature's forms, destroying them and dissecting them, you will never hear her Divine speech; broken bits of your own ignorance will be your only wisdom.—*John Pulsford.*

The Blossom and the Fruit.

This life is the bud of eternity.

You have seen the tiny blossom of the fruit-trees opening in early spring. After basking a few days in the sun it fades and falls. A germ is left behind on the branch, but it is scarcely discernible among the leaves. It is a green speck that can hardly be felt between your fingers. If a hungry man should pluck and eat it, the morsel would not satisfy; the germ as to present use is a sapless, tasteless nothing. Grasped now as your object and end, it is the most worthless of all things, but left and cherished as the germ of fruit, it is the most precious.

This life is the bud of eternity; if plucked and used as the portion of the soul, that soul will be empty now and empty for ever. But while thus abused it is worthless; rightly used it is beyond all price. Here is generated, cherished, ripened, the life that will never die.—*William Arnot.*

Choking the Weeds.

Vigorous growth of good will check the growth of evil.

The way to destroy ill weeds is to plant good herbs that are contrary (Manton). We have all heard of weeds choking the wheat; if we were wise we should learn from our enemy, and endeavour to choke the weeds by the wheat. Preoccupation of mind is a great safeguard from temptation. Fill a bushel with corn, and you will keep out the chaff; have the heart stored with holy things, and the vanities of the world will not so readily obtain a lodging-place.

Herein is wisdom in the training of children. Plant the mind early with the truths of God's word, and error and folly will, in a measure, be forestalled. The false will soon spring up if we do not early occupy the mind with the true. He who said that he did not wish to prejudice his boy's mind by teaching him to pray, soon discovered that the devil was not so scrupulous, for his boy soon learned to swear. It is well to

prejudice a field in favour of wheat at the first opportunity.—*C. H. Spurgeon.*

Influences Hostile to Fungi.

Good is always an active force against evil.

Light, indispensable to the well-being of all other plants, is hostile to the growth of fungi. Wherever the sun shines brightly mould will not appear, or, at all events, flourish. It is essentially one of the unfruitful works of darkness. Hence those dwellings where the direct sunlight is excluded are peculiarly exposed to its attacks. However clean the locality, and comfortable the external appearance of a house, if the windows are small and the ceilings low, and little light be admitted, this morbid vegetable growth will make its appearance, and by its rapid spread indicate very plainly that what is favourable to its development is most depressing and devitalizing to its inmates. Eastern houses, especially, owing to the jealous seclusion in which the occupiers live, and the heat and glare of the climate, are constructed to admit as little light as possible, and therefore we may well suppose that their shaded rooms would be injurious to health, and favourable to the growth of leprous moulds. God said, 'Let there be light,' and He said it for a wise and beneficent purpose; for purifying the atmosphere as well as beautifying the earth. It helps on the life of the world; it is an essential condition of animated nature; it is the best and cheapest of Nature's tonics, and wherever it is prevented from exerting its benign influence, the body is weakened, the atmosphere is vitiated, the dwelling becomes the scene of disease and decay, and the dark haunt of noxious vegetation.

Perfumes are also injurious to fungi. It is a remarkable circumstance that mouldiness is effectually prevented, at least during its incipient stages, by almost any fragrant substance. It is well known that books will not become mouldy in the neighbourhood of Russia leather, nor any substance if placed within the influence of some essential oil. Turpentine, Canada balsam, tar, and other resinous substances, have not unfrequently proved effective when administered as remedies in diseases of vegetable origin. Cholera has never visited the extensive pine-forests of Norway and Sweden; and in the district of the Spey, in Scotland, where there are great woods of pine and fir, diphtheria—which is supposed to be caused by the development of fungoid germs—is altogether unknown. It is for this reason, probably, that cedar-wood occupies so prominent a place in the list of articles to be used in disinfecting the leprosy of the house. 'And he shall cleanse the house with the blood of the bird, and with the running water, and with the living bird, and with the cedar-wood, and with the hyssop, and with the scarlet; but he shall let go the living bird out of the city into the open fields, and make an atonement for the house, and it shall be clean.' Though the articles of purification here enumerated were employed on account of their typical or symbolical significance, yet it does not follow from this that there was not a real fitness in the nature of things, in the various applications. The resinous fragrance of the cedar-wood, in cases where there was only a slight mouldiness in the house, would act as a deodorizing agent, apart altogether from its typical purport or spiritual efficacy. It is important to notice that light and free circulation of air, as symbolized by the living bird let loose into the free sunlit sky, and sweet and healthy perfumes arising from

thorough cleanliness, as symbolized by the hyssop, the running water, and the cedar-wood, form the rational basis of the spiritual typology of the ceremony; and all this is not without profound significance to us upon whom the ends of the world are come.

The minute regulations for inspecting and cleansing those houses where symptoms of leprosy appeared, indicate how complete was the sanitary system under which the ancient Israelites lived. God considered no part of their domestic and social economy, however humble, beneath His notice. Cleanliness in person, in dress, in dwellings, and in all outward appointments, was enforced by statutes of a peculiarly solemn character. All these ceremonial enactments were, in the first instance, intended for sanitary purposes. God had respect to the physical health and well-being of His people. He wished them to be patterns of purity, models of beauty, their bodies to be perfectly developed in the midst of the most favourable circumstances; and therefore the most admirable arrangements were made for securing cleanly, orderly, and healthy habitations. In this respect the ancient Jews were far in advance of us.—*Hugh Macmillan, LL.D.*

Vegetation only on the Surface of the Earth.

At its surface earth ministers to man through a veil of strange intermediate being.

What infinite wonderfulness there is in this vegetation, considered, as indeed it is, the means by which the earth becomes the companion of man—his friend and teacher! In the condition which we have traced in its rocks, there could only be seen the preparation for his existence, the characters which enable him to live on it safely, and to work with it easily, in all these it has been inanimate and passive; but vegetation is to it as imperfect soil, given to meet the soul of man. The earth in its depths must remain dead and cold, incapable, except of slow crystalline change; but at its surface, which human beings look upon and deal with, it ministers to them through a veil of strange intermediate being; which breathes, but has no voice; moves, but cannot leave its appointed place; passes through life without consciousness, to death without bitterness; wears the beauty of youth without its passion; and declines to the weakness of age without its regret.—*John Ruskin.*

The Scent of Clover.

Evidences of truth come to us in unexpected ways.

When yet fifty miles from land I scented the clover growing in the fields of New England. Some of my fellow-passengers were incredulous because *they* could not smell it—a very common way of reaching conclusions in matters of infinitely greater importance—when all at once a highly competent witness appeared in the box. She was literally *in a box* at the side of the ship. This was the cow which had given us milk all the way. She put her head out of the box and snuffed the gale with great enjoyment. And in an hour more their own senses bore witness that she and I were right.—*A. Raleigh, D.D.*

Quickened and Ripened Seeds are virtually Immortal.

Those who are quickened by Christ, and sanctified by the Spirit, never die.

Properly ripened seeds, if placed in certain conditions, are literally *immortal.* That is to say, they are capable of retaining their growing power indefinitely; not merely for a few centuries, but for thou-

sands of years—how long, indeed, no man can say. The earthly crust of our planet appears to be stocked in every part with seeds that have been produced in years gone by, scattered upon the surface, and subsequently covered up with soil. Whenever the ground is disturbed, either by the plough or by the spade of the railway excavator, or for any purpose which causes its depths to be overturned, that portion which was many feet below being thrown to the surface, and exposed to the air, the sunbeams, and the moisture of dew and rain, immediately there springs up a crop of young plants, certainly not originating in seeds only just then brought from neighbouring fields, and as certainly from seeds that have been lying in the soil for ages. How they came to be covered up is easy to conceive when we see with our own eyes what is done by wintry floods and the sweeping down of great masses of earth and soil, which accumulate often to a considerable depth, and are no doubt similarly charged with seeds that, after waiting their turn, will some day grow. For it is a clearly established fact that no seed can germinate or begin to sprout unless it have the threefold influence in direct operation upon it of warmth, moisture, and the atmosphere. Let it be shut in from the access of these and it lies passive, giving no sign of life or growth, and incapable of doing so.—'*Scientific Symbols.*'

The Habit of Curvature in Plants.

We can often get over a difficulty by going round it.

There is another point in connection with the bending of plants to the sun. In all plants—which, as a rule, are less active than animals—the one great means and mode of altering their states is by the production of curvatures in their parts. This curvature we see when the tendril or the stem clasps the support in the case of a climber. We behold it equally well when we see a sensitive plant droop its leaves, or a moving plant swing its foliage right and left with an almost continuous oscillation.—*Dr. Andrew Wilson.*

Making Roots.

The importance of hidden soul-culture.

The first year of my flower-garden, after the planting of my geranium bed, I noticed a strange lack of growth; and as weeks even passed with scarcely a new leaf, while a bed in a neighbouring garden grew rapidly, I hastened to my unfailing adviser, the florist. 'What are my geraniums about? they do not grow at all.' With a half-amused look he answered, 'They are doing the best thing they can do—*they are making roots.* You will see by-and-by.' And I did indeed see.

And would that I might pass on that answer to every Christian educator and trainer of souls—'Making roots!' Do you see to it that souls do that?—that the deep underlying principles, the healthy impulses and receptivities, and the cogent restraints of conscience, are secured first of all? Do you look after the roots of faith before the works that will follow? Do you watch, as precious beyond all price, the forming of those little tender working roots of love, through which all future enriching must come? Do you seek to multiply roots? For only thus can we find deliverance from that short-lived devotedness, and intermittent interest in good works, that are so prevalent.—*Sarah Smiley.*

The Mystery of Plants.

Possibly what we call the frailties of human character are largely dependent on circumstances and surroundings.

Wonderful is the mystery of plants—a mystery not yet revealed

to us. We do not know why the rose-bush has thorns, or why, the older it grows, the less thorny it becomes. But we may connect a moral meaning with such changes. For instance, he whom you censure, might he not be better were he not in his present unfavourable condition, but in yours? — *T. T. Lynch.*

Plants differing on Mountain and in Valley.

Mountain plants are survivals, and illustrate the permanence of species.

The plants growing at the present day on the Scottish mountains are not only different from those found in the valleys at their base, but they are also much older. They are the surviving relics of what constituted for many ages the sole flora of Europe, when Europe consisted only of islands scattered at distant intervals over a wide waste of waters bristling with icebergs and icefloes. How suggestive of marvellous reflection is the thought that these flowers, so fragile that the least rude breath of wind might break them, and so delicate that they fade with the first scorching heat of August, have existed in their lonely and isolated stations on the Highland hills from a time so remote that, in comparison with it, the antiquity of recorded time is but as yesterday; have survived all the vast cosmical changes which elevated them, along with the hills upon which they grew, to the clouds, converted the bed of a mighty ocean into a fertile continent, peopled it with new races of plants and animals, and prepared a scene for the habitation of man! Only a few hundred individual plants of each species—in some instances only a few tufts here and there—are to be found on the different mountains; and yet these little colonies, prevented by barriers of climate and soil from spreading themselves beyond their native spots, have gone on season after season for thousands of ages, renewing their foliage and putting forth their blossoms, though beaten by the storms, scorched by the sunshine, and buried by the Alpine snows, scathless and vigorous while all else was changing around. It is one of the most striking and convincing examples within the whole range of natural history, of the permanency of species.—*Hugh Macmillan, LL.D.*

A Dangerous Plant.

Each man must discover for himself what particular things are temptations to him.

Among the evil growths in my garden, there is one which I dare not lay a hand upon. The slightest touch of it, or even approach to it, would cause me weeks of suffering, unless an antidote were promptly applied. I watch with wonder the labourer, for whom I send when a sprout of it appears, as he handles it with the utmost impunity—a power which few possess. Of course there is nothing about its appearance that denotes a poison; that it is such is simply a matter of knowledge, or, lacking that, of most painful experience.

Nothing, however, has been more helpful to me in the solution of some of the painful problems of life. There are certain errors, both in doctrine and practice, which, judging from mere appearance, are no more harmful than others, but the least approach to which is perilous to the soul. That such has been their practical working in the lives of others ought to satisfy us, without presumptuously proving it, by our own added experience. That a few singularly constituted souls escape unharmed does not affect the general law.

In dealing with all such poisonous plants, and here the analogy is very plain, exactness of knowledge is of the utmost importance. To an untaught or careless eye, this poison-ivy (*Rhus*

toxicodendron) might easily pass for the Virginia creeper. I have often mistaken it for a moment, as I caught sight of a leaf or two only. One point is decisive; the creeper has five leaflets, the poison-ivy only three. But having one such certainty, it is sufficient.—*Sarah Smiley.*

Wayside Flowers.

We lose by our indifference to things familiar.

Many passages of the Scripture are like hundreds of wayside flowers, which for months and years are unnoticed by us, simply because we have been accustomed from our childhood to see them without stooping to pluck or to examine them. Many of the homeliest flowers would appear transcendently beautiful if we would take the trouble to study them minutely, to magnify their parts, and to bring out their constituent elements. And so we were taught to read the Bible so early, in the family and in the village school; and we have so often walked along the chapters that we have beaten a dusty path in them, and some of their most precious and beautiful things are neither precious nor beautiful to us, simply because we look *at* them, and not *into* them.—*H. W. Beecher.*

A Lesson from the Roses.

They are complete in themselves. There is no 'time' for them.

Man is timid and apologetic; he is no longer upright; he dares not say, 'I think,' 'I am,' but quotes some saint or sage. He is ashamed before the blade of grass or the blowing rose. These roses under my window make no reference to former roses, or to better ones; they are for what they are, they exist for God to-day. There is no time for them. There is simply the rose; it is perfect in every moment of its existence. Before a leaf-bud has burst, its whole life acts; in the leafless root there is no less; in the full-blown flower there is no more. Its nature is satisfied, and it satisfies Nature in all moments alike. But man postpones, or remembers; he does not live in the present, but with reverted eye laments the past, or, heedless of the riches that surround him, stands on tiptoe to foresee the future. He cannot be happy and strong until he, too, lives with Nature in the present, above time.

This should be plain enough. Yet see what strong intellects dare not yet hear—God Himself, unless He speak the phraseology of, I know not what David, or Jeremiah, or Paul. We shall not always set so great a price on a few texts or a few lives. We are like children who repeat by rote the sentences of grandames and tutors, and, as they grow older, of the men of character and talents they chance to see—painfully recollecting the exact words they spoke; afterwards, when they come into the point of view which those had who uttered these sayings, they understand them, and are willing to let the words go—for at any time they can use words as good when occasion comes. If we live truly, we shall see truly. It is as easy for the strong man to be strong as it is for the weak to be weak. When we have new perception we shall gladly disburden the memory of its hoarded treasures as old rubbish. When a man lives with God, his voice shall be as sweet as the murmur of the brook and the rustle of the corn.—*R. W. Emerson.*

Flowers belong to the Age of Man.

God's goodness is seen in the provision of the flowers.

Methinks, if there were no other proofs in the world of God's good-

ness, the flowers would supply them in abundance. Answer it to thyself, poor soul, that doubtest of His love, that darest not trust the voice in thine own heart telling thee that thy Father in heaven is *all* which that heart can adore. Why has He made these flowers? Why does He send to thee these *little* joys, as gentle and unnoticed often as a mother's kiss upon a sleeping child? There is not, it would seem, a conceivable reason to be given for the existence of flowers (at least for their beauty and perfume), other than the intention to provide for a man a pure and most delicate pleasure. Geologists tell us that in the earlier epochs there are few traces of flowers, such as there were being small, and probably of the secondary colours, mere vessels for the ripening of the seeds.—*Miss F. P. Cobbe.*

The Stonecrop.

Soul-strength depends on the sources of the soul's nourishment.

Christians should be like that bright familiar genus of flowers that are to be met with on the weather-worn sides and summits of old habitations—the stonecrop, so called from the situations they usually adopt on the wall or roof. These plants can thrive in the most barren spots, where others could not possibly exist. A little chink in the mortar of house tiles, or in the rock boulders of sandy hills, will give them room to live and flourish, and expand their star-like blossoms, which, in most of our eleven British species, are yellow, but are in some instances white and purple. Notwithstanding their dry and unfavourable surroundings, their vitality is very great. So exceedingly tenacious are they of life, that collectors of these plants have even found them growing between the sheets of absorbent paper, where they have lain for a long time under considerable pressure. Indeed, it is necessary to kill them by immersion in boiling water before they can be effectively dried. All this family of flowers 'have very fleshy, juicy stems and foliage; hence they are enabled to retain a quantity of moisture during drought, and in places so dry that little is yielded to their roots by the soil. Plants of this kind imbibe moisture readily through their leaves, and part with it slowly, and are thus fitted for sandy deserts, or walls, or rocky places.' In a word, they draw their nourishment, not from below, but from above; not from the damps of earth, but from the dews of heaven! Be like this flower, my brother, ever ready to receive, and slow to part with, heavenly influences, and thou, too, mayest flourish even out of the ruins of earth! Beautifully has its voice to thee been expressed in verse:

'There from his rocky pulpit, I heard cry
The stone-crop: "See how loose to earth I grow,
And draw my juicy nurture from the sky.
So draw not thou, fond man, thy root too low,
But loosely clinging here, from God's supernal sphere
Draw life's unearthly food — catch heaven's undying glow."'

Rev. James Neil, M.A.

Insignificance of the Grass-blade.

On weak things God is wont to put more abundant honour.

Gather a single blade of grass, and examine for a minute quietly its narrow, sword-shaped strip of fluted green. Nothing, as it seems, there of notable goodness or beauty. A very little strength, and a very little tallness, and a few delicate long lines meeting in a point—not a perfect point, neither, but blunt and unfinished, by no means a creditable, or apparently much

cared-for, example of Nature's workmanship, made only to be trodden on to-day, and to-morrow to be cast into the oven—and a little pale and hollow stalk, feeble and flaccid, leading down to the dull fibres of roots. And yet, think of it well, and judge whether, of all the gorgeous flowers that beam in summer air, and all strong and goodly trees, pleasant to the eyes or good for food, stately palm and pine, strong ash and oak, scented citron, burdened vine — there be any by man so deeply loved, by God so richly graced, as that narrow point of feeble green. And well does it fulfil its mission. Consider what we owe merely to the meadow grass, and the covering of the dark ground by that glorious enamel, by the companies of those soft and countless and peaceful spears. The fields! Follow forth, but for a little time, the thoughts of all that we ought to recognise in these words. All spring and summer is in them—the walks by silent, scented paths; the rest in noonday heat; the joy of herds and flocks; the power of all shepherd life and meditation; the life of sunlight upon the world falling in emerald streaks, and falling in soft blue shadows where else it would have struck upon the dark mould or scorching dust. Pastures beside the pacing brooks, soft banks, and knolls of lowly hills, thymy slopes of down, overlooked by the blue line of lifted sea, crisp lawns—all dim with early dew, or smooth in evening warmth of barred sunshine, dinted by happy feet, and softening in their fall the sound of happy voices—all these are summed up in those simple words; and these are not all. We may not measure to the full the depth of this heavenly gift in our own land, though still, as we think of it longer, the infinite of that meadow-sweetness, Shakespeare's peculiar joy, would open on us more and more — yet we have it but in part. Go out in the spring-time among the meadows that slope from the shores of the Swiss lakes to the roots of the lower mountains. There, mingled with the taller gentians and the white narcissus, the grass grows deep and free; and, as you follow the winding mountain paths, beneath arching boughs all veiled with blossom—paths that for ever droop and rise over the green banks and mounds, sweeping down in scented undulation steep to the blue water, studded here and there with new-mown heaps, filling all the air with fainter sweetness — look up towards the higher hills, where the waves of everlasting green roll silently into their long inlets among the shadows of the pines, and we may, perhaps, at last know the meaning of those quiet words of the 147th Psalm: 'He maketh grass to grow upon the mountains.'—*John Ruskin.*

The Scattering of Seeds.

Man's heart is always dropping influences for good and evil, which may be found again after many days.

Like a plant in the tropics which all the year round is bearing flowers and ripening seeds, and letting them fly, so the heart is always shaking off memories and dropping associations. And as the wind which serves to prostrate a plant is only a sower coming forth to sow its seeds, planting some of them in rock crevices, some by river courses, some among mossy stones, some under warm hedges, and some in garden and open field, so it is with our experiences of life, that sway and bow us, either with joy or sorrow. They plant everything about us with heart seeds. Thus a house becomes sacred. Every room has a thousand memories; every door and window is clustered with associations. And when, after long

years, we go back to the house of our infancy, faces look out upon us, and an invisible multitude stand in gate and portal to welcome us, and we hear airy voices speaking again the old words of our childhood. Every man has a silent and solitary literature written by his heart upon the tables of stone in Nature, and next to God's finger, a man's heart writes the most memorable things. —*H. W. Beecher.*

The Mignonette.

Good service is better than good looks.

Poor little mignonette! dost thou know that thou hadst been called a weed but for thy surpassing sweetness; but that, having that, thou art indeed a flower, and needst never have a fear that thou wilt be forgotten? Fashion, that fickle mistress of ceremonies, guards even the entrance to a flower-garden, and now and then strangely frowns upon her old favourites. But thou hast a lifelong passport granted thee. And what a mission is thine, hiding thyself in any little corner, ready to conceal the failure of anything else, never pushing to the front, but purifying the very atmosphere, they tell us; meeting any stray malarial whiffs, and even as a soft answer turneth away wrath, sending them on their way disarmed of all their power to harm. So, lest from yonder valley some such foul breath should wander, I have set thee as a guard beneath my window.—*Sarah Smiley.*

The Purple Orchis.

A type of the Christian, who is ever moving toward heaven, his home.

The early purple orchis of our English meadows may be seen every year to throw out a new bulb, or tubercule, always on the side towards the south, by means of which it changes its position, and little by little constantly advances in that direction. While one tubercule is dying, another is being formed, and the stem rises each spring-time from a point between the two. Thus it may be observed steadily travelling to the bright home of this family of flowers in the tropics—the cloudless land of sun. Just so the soul that has heaven for its home patiently grows heavenward, and each year throws out thither, as it were, new roots of holy affections. It grows in grace, growing up 'into Him in all things, which is the Head, even Christ.' It journeys slowly, it may be, but steadily onward to the land of its rest, where Jesus, the Sun of Righteousness, shines in unclouded glory.—*Rev. James Neil, M.A.*

Fresh-water Algæ.

The most striking illustration of the infinite resources of creative power.

There is a peculiar charm about the fresh-water algæ, derived from the nature of the element in which they live. Aquatic plants of all kinds are more interesting than land plants. Water is so bright, so pure, so transparent, so fit an emblem of that spiritual element in which our souls should bathe and be strengthened, from which they should drink and be satisfied. It is a perpetual baptism of refreshment to the mind and senses; it idealizes every object in it and around it; the commonest and most vulgar scenes reflected in its clear mirror are pictorial and romantic. It is ever varying in its unity, so that the eye never wearies in gazing upon it. All these associations invest the confervæ which flourish in it with a peculiar nameless interest, independent of their own mysteries of structure and function. They mingle, like vegetable lotos-eaters, with the snow-white chalices and broad velvet leaves of the lilies, in the tranquil shallows of the moorland lake; and, with

the golden hues of the sunset, and the rosy blush of the heather-hills around, create a scene of enchantment in the clear pellucid depths. Their dishevelled tresses toss wildly in the foamy rapids of the waterfall, whose misty spray rises to freshen all the scenery around, and whose 'sound of many waters' fills the mind with a feeling of animated delight and bounding vivacity. They float in long, graceful wreaths in the streamlet, wherever it clothes a jutting mass of rock with gemmed and sparkling folds of liquid drapery. They lie like motionless clouds in the blue depths of the tranquil linn, that just ripples for pleasure as it murmurs to itself a sinless secret hidden for ever in its heart. They fringe the pebbly sides of the river, whose deep bulging fulness flows on unceasingly, ever diffusing freshness through the green pastures which it gladdens, and beneath the drooping willows and alders that gratefully murmur over it. They luxuriate in the cold clear springs, which form a feature of the most exquisite beauty in the bleak Alpine scenery, gushing up in exposed and rocky spots, and gurgling down the sides of the hills through beds of the softest and most beautiful moss; not the verdant velvet which covers with a short curling nap the ancient rock and the gray old tree, but long slender plumes waving under the water, and assuming through its mirror a tinge of the brightest golden green. In gathering or admiring these humble plants in such romantic situations, a sense of the beauty of the Greek mythology is awakened in the heart, more vivid and real than is experienced in other circumstances. It seems easy to believe, in quiet, far-off scenes where a solitary coot sailing on the water is a considerable interruption to the solitude, and where the link that binds us to the common busy earth is broken and dropped, that the dryads are still hiding among the trees around, and the nymphs gazing upon their own reflected beauty in the limpid waves. The filaments of the confervæ, lying deeper in the fountain than one's own image, look like the green hair of the naiads; and it requires but little exercise of the imagination to fill up the exquisite forms with their zones of rainbow drops and robes of filmy water-moss, and the beautiful, pure, passionless faces of the invisible bathers to whom the flowing, luxuriant tresses belong.

By the fresh-water confervæ we are brought to the very boundaries of the inscrutable, into those arcana of Nature where life, 'reduced to its simplest expression, seems invested with a deeper and more thrilling mystery.' They are the very lowest in the scale of vegetation, and approximate so closely to certain animals, both in form and in vital functions, that the best naturalists are unable to draw the line of distinction between their simplest species and the humblest animal organisms, or, indeed, to determine whether they possess vitality or not. They confound and neutralize the old arbitrary definitions of the three kingdoms of Nature. Neither the power of voluntary motion nor the faculty of sensation can be called the characteristic by which they are separated from animals; nor can mere appearance or ostensible mode of production be regarded as sufficient to distinguish them from minerals. All we can say regarding them, and regarding the animals with which they form connecting links, and into which some even say they are transmuted, being animals at one period of their lives, and vegetables at another, is merely that the two lines or systems of life seem to start, as it were, from a common point at the base; the inferior forms bearing a certain similarity to each other in struc-

ture and functions, which gradually disappears as we ascend the scale of development; while at the summit we behold those vast differences which distinguish an elephant from a palm-tree.

In this class of plants, minute and obscure although they are, the infinite resources of creative power are, perhaps, more clearly and overwhelmingly revealed to our perceptions, than in even the highest orders of the vegetable kingdom. The most unwearied research, continued for centuries, has not yet assigned limits to that amazing variety, which is their most remarkable feature, numbering as they do species that baffle classification, and within which a still more astounding variety of individual types are to be found.—*Hugh Macmillan, LL.D.*

Pot-bound Stocks.

It may be that prolonged life on earth is not possible, because it would put limitations on the soul's further growth.

This morning I found that all the German stocks in my flower-bed were at last in bloom, but, alas! fully half of them were *single*. So I turned to my reserve in the pots. They had been transferred once to pots of a larger size, but in the press of cares further transfer was neglected. They had been faithfully watered, but I had given them no attention myself. So now I found a sad failure. Compared with the others, set out so long ago, they were mere pigmies. Soon exhausting all the soil, the little roots searching round and round for food, found themselves thwarted at every turn by the hard walls of the earthen pot; and finally, after crowding it full of hungry fibres, they could do nothing but stand still. As I turned them carefully out of the pots, there was nothing to be seen save a thickly matted mass of dingy white roots. The plants were alive, but not one of them in bloom, or even in bud. They were, as the gardeners say, *pot-bound.—Sarah Smiley.*

Difficulty of rearing Tropical Plants.

Christian graces flourish but imperfectly in earthly climes.

As you may give to a man in the temperate or frigid zones the seeds of some tropical plant, that may, perhaps, grow and put forth some pale leaves and ineffectual blossoms, which yet will scarcely be worthy to be called leafage and flowerage, as compared with the broad, smooth foliage and glowing brightness that the same seeds would evolve planted in their natural soil; so here into our hands, wanderers in inclement climes, God puts what I may call the exotic seeds—the knowledge of His love in Christ—and we tend them; and, blessed be His name! they do grow beneath our cloudy skies, and amidst our long winters. But when we come to that higher house where these be planted, they shall flourish in a beauty and luxuriance undreamed of before.—*A. Maclaren, D.D.*

The Root of a Plant.

However uncomely, the root is essential to the life and growth of the plant.

The root is a rough and often very unsightly part of a plant. Its colour is unpleasing, and its form ungainly, yet it plays an all-important part in the economy of the plant's life. You may pluck off the bright flowers and leaves one by one till all is stripped bare, and it will still survive; but the root is essential to its life: injure or remove it, and the plant perishes. Again, the oxygen, the life-sustaining element of the air, given off by the various members of the vegetable kingdom, comes entirely from the stem and the leaves, the green parts of the plant, the more beauti-

ful flowers and fruit only exhaling poisonous carbon.

So it is with the body mystical of Christ, 'the church of the First-born,' and its members in particular. Very cogently the Apostle Paul reasons of this one of the ways of God in his first letter to the Corinthians. After showing the dependence of Christians one upon another, under the apt illustration of the mutual sympathy and support afforded by different limbs of a body, he proceeds to further develop the idea. 'Nay,' he says, 'much more: those members of the body which seem to be more feeble are necessary; and those members of the body which we think to be less honourable, upon these we bestow more abundant honour; and our uncomely parts have more abundant comeliness. For our comely parts have no need; but God hath tempered the body together, having given more abundant honour to that part which lacked.' Often God brings a rough, uncouth Luther to far more distinction than a refined Erasmus, and exalts Bunyan the tinker above the most polished of his pious contemporaries. The 'uncomely parts' have more honour, for it is God's method of working to place more honour upon them, and make them of more use. It is very humbling to pride, especially spiritual pride, but it is His way, who will have 'no flesh to glory before Him.'—*Rev. James Neil, M.A.*

A Message in the Grass, etc.

Everything has a voice for sensitive souls.

Not a blade of grass but has a story to tell, not a heart but has its romance, not a life which does not hide a secret which is either its thorn or its spur. Everywhere grief, hope, comedy, tragedy; even under the petrifaction of old age, as in the twisted forms of fossils, we may discover the agitations and tortures of youth. This thought is the magic wand of poets and of preachers; it strips the scales from our fleshly eyes, and gives us a clear view into human life; it opens to the ear a world of unknown melodies, and makes us understand the thousand languages of Nature. Thwarted love makes a man polyglot, and grief transforms him into a diviner and sorcerer.—'*Amiel's Journal.*'

The beauty of all beautiful places says: *God has been here.* But the life in the lowliest living thing—in the tiniest moss which puts forth a fresh green stem to-day—in the little leaf which has burst the gummy casing in which it was encased yesterday, and flutters in the air and sun to-day, with the crumples of its long winter packing not yet fluttered out of it—in the trembling snowdrop, which a touch can crush, but which all the weight of the inanimate earth could not keep from bursting up into the sunshine—*life* in its lowliest development says, not God *has been* here, but God *is here;* not only 'The Master's hand has been on us: do you not see the perfection of His work?' but 'The life of the Life-giver is breathing through us: do you not feel the joy of His presence?' And that seems to me to go much deeper into the heart. —*Kitty Trevelyan.*

The Bias of a Prairie Flower.

Everything has its own particular mission.

We are told that in the prairies of South America there grows a flower that always inclines in the same direction. The traveller may lose his way while crossing one of those prairies, and he may have neither compass nor chart by which to steer his course; but, turning to this lowly flower, he will find a guide on which he can implicitly rely; for no matter how heavily the rains may descend, or

how violently the winds may blow, its leaves and petals invariably droop towards the north. If, whilst we live, we subserve a purpose analogous to that of this humble flower, we shall not have lived in vain. If we live to God, if we turn to Him in faith, and love, and prayer, and service, as the prairie-flower turns toward the north, some seeing our good works, our comely life, will be led to 'glorify our Father who is in heaven.'—*B. Wilkinson, F.G.S.*

The Mission of the Grass.

To minister to the thousandfold needs of the creatures and of man.

Have you ever studied closely one spike of grass—that dainty little spear of fluted green? If you have, then you have had your reward, and we venture to predict that, in the study of Nature, you will yet graduate in higher things. Think for a few moments of the comprehensive mission of this lowly herb, the grass, and the contemplation will draw out your mind to fine issues in the way of insight into the sweet mission and beauties of Nature. It is the delicate fringe of the footpath, and covers the meadows with the glory of its perfect enamel. It is the soft and healthful bed of the lamb through the brief starry summer night, the joy of flocks and herds, and the soft carpet for the tender little foot of the cottar's child. Without it this fair earth of ours would be a desolation of flinty rock and profitless sand. And when we are at last laid beside our dear ones who have gone before us, in the old churchyard, the lowly and tender grass, more constant to us than ever, shall cover us with its tender folds, and shall dwell with us through storm and shine.—*Alexander Lamont.*

Bulbous Plants.

Representing singular forms of growth.

The bulb is intermediate in character between the root and the seed. Its scales form a case to protect the embryo plant in winter; and it contains a store of nourishment which, as in the case of the cultivated hyacinth, may enable the plants to grow and blossom, though the root descend only into pure water. The nature of the bulb, the mode of development of a bulbous plant, and the whole progress of the plant, from its state of hibernation within the compass of the bulb to its stage of flowering and seeding, are all alluded to in the Divine injunction—'Consider the lilies of the field, *how they grow*' (Matt. vi. 28).

The disciples were not counselled merely to mark and admire the beauties of the lily, in the full glory of its summer display, but to consider the wondrous development of so much beauty from a scaly bulb, having no beauty in itself, and without any power of growth, save what it had derived from its Creator. The earthly glories wherewith Solomon was surrounded, being derived from external, and not from natural, sources, were not to be compared to the native graces of the lily.—*Gorrie.*

Barley.

In some religions treated as an emblem of chastity.

The association of barley with ideas of chastity is found in other countries and religions. It has been suggested that the association is due to the threatening aspect of the awns (*arista*) of the barley. They stand out as if they were guarding the grain, and as saying to all, 'Touch not.'

In Herodotus' account of the Hyperboreans he represents their women as sending gifts to Delos, wrapped in barley straw. Virgins had been employed originally to carry the gifts, but, as some of these died by the way, the inhabitants of the extreme north bound their offerings up in the straw of

the plant that was emblematic of chastity, and had them carried by the intervening nations from the north to Delos. The women of Thrace likewise offered gifts of barley straw to Royal Diana, the goddess of the chase.

A Peculiar Tropical Grass.

Soaring heavenwards.

There is a grass, a kind of millet, the stems of which are seen to shoot up in the tropical forests of India. They are scarcely thicker than a stout straw, and seem but poor, weak, insignificant things amongst the grand forms and gorgeous beauty of the surrounding growth. But watch them, and you will see that with great rapidity and strength they continue to rise up higher and higher. Presently they reach the boughs of vast trees, but pushing their leaves aside, they pass onward and upward. Now they have mounted over the summit of the highest branches, and there, above all the trees of the forest, they spread their flowers like some rich meadow far in the upper air. Is not this a striking figure of the follower of Christ? Judged by the world's standard they do indeed appear poor and weak in comparison with the pomp and show around them. There is often little of outward beauty or strength to mark their earthly way. Their flowers cannot flourish nor their fruits ripen in the fields below. Truly their 'conversation' (that is, their daily walk) 'is in heaven.' With wondrous power, despite all obstacles, they pursue their upward way, soaring over the heads of their fellow-men; in affections placed higher, in aims more exalted, and in a loftier moral elevation, and earth left behind, they rise to enjoy 'spiritual blessings in heavenly places in Christ.'—*Rev. James Neil, M.A.*

A Neglected Pansy.

He who does well, and shows energy and enterprise, in some small and out-of-the-way sphere, will be sure to get his larger opportunity by-and-by

I was looking over my little lawn, one spring, in search of small weeds, when I saw a few tiny ovate leaves, I scarcely knew of what, but certainly not grass or clover, and therefore doomed. My knife was passing rapidly to its root, when I saw suddenly among those leaves a flower, but such a flower! A pansy! but surely the sorriest pansy that ever struggled into existence. A stray seed had been lodged in the close turf, and had succeeded in this small way. I was smitten at once with admiration for its bravery; its fidelity too. Cast out, trodden under foot, among aliens, with no kind recognition, with little to help it, and with very much to hinder it, still it would do its best to be true to its calling, and was still a pansy. It could not look very bright, nor be very graceful, and yet it had done its utmost. 'It shall live,' I said; 'forlorn as it is, it shall have a chance now.' And so looking hither and thither for a new home for it, I set it down, finally, in the rich soil of my rose border. Before that summer ended it had won the admiration of all who saw it. Not one of all my high-bred pansies equalled this.

I am sure that little pansy had a special mission in this world, and I long for it to speak to others as it has spoken to me—to be ever of a good courage, and to accept all such straitness as may come through circumstances over which we have no control, and to bear with a meek heart all that may come to us through the misunderstanding, or even the malice, of others, saying only, softly:

'When obstacles and trials seem
Like prison-walls to be,
I do the little I can do,
And leave the rest to Thee!'

In the lack of all human recognition, surely the Lord knoweth them that are His. He will never mistake their littleness so as to cast them away, and His great heart of love will go out to them, till He has done for them exceeding abundantly above all that they ask or think.—*Sarah Smiley.*

Honour put on the Odd Pieces of a Flower.

God is ever making up to men for what seem to be their deficiencies.

As a rule, it is flowers with irregular blossoms departing from the law of symmetry that have a nectary; and it is a curious circumstance that where there is a part of a blossom which differs from the other parts in form or size, it is the *odd piece* that has the richest colour on it. It is the odd piece, for instance, in the blossom of the common pansy that has the brilliant streaked eye, while the regular petals are of a uniform colour. We see in this the visible finger of God making up to the part of the blossom which He has made singular for its want of symmetry, giving more honour to that which lacked it. And how true is this law in the higher life of man! It is not the symmetrical life—all prosperity and outward joy and success—that has the honeyed sweetness of heaven stored up in it, and the beauty of heaven reflected upon it, but the life that is repressed and made singular by want and woe. There is no blossom of human life, however fair and flourishing, that does not indicate some imperfection. There is some part or other that has failed to reach its ideal, whose purpose has been frustrated. . . . And yet God can convert that privation or loss into a means of greater blessedness, as He converts the degenerate stamen of a flower into a nectary. He can give us honey out of the severest disappointment; and from the very frustration of our fondest hope produce what is sweeter than the honeycomb.—*Hugh Macmillan, D.D.*

Overdoing Weeding.

There is something to be done in character besides destroying ill things.

Surely it is a great deal to avoid wrong-doing; but what would you account that husbandry to be worth which succeeded only in keeping down weeds? A man goes on ploughing and ploughing, harrowing and harrowing, hoeing and hoeing; and he rejoices, as July comes on, saying, 'There is not a weed on my farm—*not a weed.*' Round and round he goes, looking into every corner, and under every hedge, to spy out any weeds that may have been left; and he says, 'Not one weed shall grow on this farm.' But where is thy corn, O farmer? 'I have no corn.' Where is thy wheat? 'I have no wheat.' Where are thy fruits? 'I have no fruits.' What hast thou? 'No *weeds!*' How many there are who are circumspect, and are in earnest, but whose whole care is only not to speak a wrong word, and not to speak a word in the wrong place! The result is that they succeed in doing nothing. They violate no propriety, but they are living negative instead of positive lives.—*H. W. Beecher.*

Meadows and Marshes.

Illustrating the sins of the righteous, and of the ungodly.

'Meadows may be occasionally flooded, but the marshes are drowned by the tide at every return thereof' (Manton). There is all this difference between the sins of the righteous and those of the ungodly. Surprised by temptation, true saints are flooded with a passing outburst of sin; but the wicked delight in transgression and live in it as their element. The saint in his errors is a star under

a cloud, but the sinner is darkness itself. The gracious may fall into iniquity, but the graceless run into it, wallow in it, and again and again return to it.—*C. H. Spurgeon.*

Thistles.

Illustrating the swift and easy spreading of evil.

In Australia there are leagues on leagues covered and rendered useless by stubborn, gigantic, impenetrable thistles, and it is well known that all sprang from one single thistle brought over by a Scotchman, and planted in his garden. It is even thus that the tares of evil-doing spread, and, as the proverb says, 'Nettle seed needs no planting.'—*Archdeacon Farrar.*

The Glory of the Grass.

Humility and cheerfulness are noble characteristics of service.

Observe that the peculiar characters of the grass which adapt it especially for the service of man are its apparent *humility* and *cheerfulness*. Its humility is that it seems created only for lowest service, appointed to be trodden on and fed upon. Its cheerfulness is that it seems to exult under all kinds of violence and suffering. You till it, and it is stronger the next day; you mow it, and it multiplies its shoots, as if it were grateful; you tread upon it, and it only sends up richer perfume. Spring comes, and it rejoices with all the earth, glowing with variegated flame of flowers, waving in the soft depth of fruitful strength. Winter comes, and though it will not mock its fellow-plants by growing then, it will not pine and mourn, and turn colourless or leafless as they. It is always green; and is only the brighter for the hoar-frost.—*John Ruskin.*

Grass on Graves.

The resurrection of the dead.

Grass forms the beautiful covering of the grave, wreathing it like a laurel crown, with its interlacing roots, drawing down to the darkness and the solitude the warm bright sunshine and the soft dews of heaven. At the close of autumn, when the grass has been cut and lies withered upon these quiet, forgotten resting-places of the dead, a melancholy breeze wails over it; but, in the bright days of spring, the doctrine of the Resurrection is preached to us in the bursting of the bright, transparent blades, telling us that our deeds have not perished, and that the human seed that is sown in the furrows of God's acre shall one day rise up to blossom in newness of life throughout an eternal spring. —*Hugh Macmillan, LL.D.*

Buds open in Response to the Sun.

Some human hearts yield very slowly to Divine influences.

There are no buds which can open without the sun, but there is a great difference in the time it takes them to unfold. Some have their outer petals so closely wrapped and glued together, that there must be many days of warm shining before they begin to expand; and others there are which make haste to get out of the ground, and almost as soon as they are buds, they are blossoms. So is it with human hearts. Some are so cold and impervious that it seems as though God's Spirit never could reach them, and others there are which open to its first influences.—*H. W. Beecher.*

The Tallness of Weeds.

A type of the rankness of evil in the moral world.

With what care must the weeds be watched! How close they con-

trive to grow to the very roots of the plants! What skill is sometimes needed to hold firm the flower while drawing away the weed! And how rapidly weeds always grow! I sometimes wonder *why*. It surely is not their advantage as natives of the soil, for the majority of them are as truly exotic as our flowers. But in my seed-boxes I can almost tell a weed from its tallness alone. Was it that God saw fit to set such a type in Nature of the rankness of evil in the moral world? I can but think so. — *Sarah Smiley.*

Fresh Flowers.

Illustrating the beneficence of the Creator.

He has not only adapted the earth to bring forth the nutritious grain for the support of life, and the rich and mellow fruits to regale the palate, but has bedecked the fields with flowers of beautiful and varied colours to please the eye and refresh with their odours. We had almost termed these the luxuries of His providence. He might have sustained our natures without them; but had He withheld them, of what a source of pleasure had we been deprived! God made the mountains, and in them we behold the exhibition of His majesty; He made the flowers, and in them we see His condescending goodness. Look at them in all their diversity of conformation, in all the delicacy of their tints, and in the sweetness of their fragrance; look at them displaying their beauties in the woods, by the gurgling brook, over the broad prairie, and you hear them proclaim:

'The hand that made us is Divine.'

Nay, they speak in more tender accents to man of the love of that Divine Being who would thus attract the thoughts of His inconsiderate and rebellious creatures. Sweet flowers! I had rather gaze on you than on all the gorgeous trappings of the royal court; I had rather court your acquaintance than that of earthly princes. Chaste and beautiful companions, in your society I avert my eyes from the vicious indulgences pursued by others, and think of Him that formed you. My beautiful ornaments! less costly, but more valued than the fantastic trinkets of the jeweller. In my window, in my garden, on my table, ever welcome; your bloom reminding me of the Paradise above, and even your falling leaf bringing to mind the wholesome remembrance that from this scene of things I am passing away. Bring me flowers, fresh flowers, to be admired and loved for their Maker's sake, to awaken within me a source of innocent delight. When I see the eyes of the young kindle with pleasure whilst gazing upon these lovely objects, I pray that such tastes may never be supplanted by grosser ones; and when I behold the aged taking pleasure in them, I am thankful that their rough experience of the world has not rendered them so obdurate as to quench this delicate sensibility.—*Presbyterian.*

Flowers on a morning table are specially suitable to the time. They look like the happy wakening of the creation; they bring the perfumes of the breath of Nature into your room; they seem the representations and embodiments of the very smiles of your home, the graces of its good-morrow—proofs that some intellectual beauty is in ourselves or those about us; some house Aurora (if we are so lucky as to have such a companion), helping to strew our life with sweets, or in ourselves some masculine mildness not unworthy to possess such a companion, or unlikely to gain her.—*Leigh Hunt.*

The Feeding Mission of Roots.

Christ, as our Root, turns our associations into nourishment for our soul's life.

One purpose which the root serves in the economy of vegetation is to feed the plant. Through the spongioles of the root the plant imbibes from the soil in which it is placed the needful sap by which it is sustained; and in this simple way the whole important and complicated processes are carried on, by which crude soil is converted into the needful constituents of vegetable matter. For this purpose the root possesses certain structural peculiarities adapting it to its special functions. The tuberous or bulbous root of a dry ground is provided with a store of nourishment for the support of the plant that is to spring from it. Just as there is provision made for the growth of the germ in the starchy contents of the seed, until it has attained an independent existence, so there is provision made in the nutritive tissue of the bulb or tuber for the support of the plant which it produces. So long as there is nourishment in the root, the plant can draw it out; and in this Root of Jesse there is an infinite and inexhaustible fulness. Possessing Him, we possess all things; for if we be Christ's, all things are ours —the world, and life, and death, things present and things to come; 'all are yours,' saith the Apostle, 'for ye are Christ's, and Christ is God's.' — *Hugh Macmillan, LL.D.*

Latent Germs.

Old truths may slumber long, and be revived suddenly.

Germs of life may remain dormant for incalculable periods where least expected. Certain soils, by exposure to the sun's rays, or by aid of peculiar manures, will produce plants when no pre-existent root or germ could rationally be supposed to exist; and peculiar and long-intervening seasons will give birth to insects from causes not to be divined. In like manner germs of thought hidden in old phrases, old institutions, old books, or forgotten biographies, spring into vigorous activity, to the astonishment of mankind, when the conditions of human affairs happen to be propitious for their development. The germinal principle of a revolution may slumber for many a century in an unsuspected proposition.

A Million Spears of Grass.

The value of many commonplace goodnesses.

Do not be troubled because you have not great virtues. God made a million spears of grass where He made one tree. The earth is fringed and carpeted, not with forests, but with grasses. Only have enough of little virtues and common fidelities, and you need not mourn because you are neither a hero nor a saint.—*H. W. Beecher.*

Gardens.

Garden associations tend to nourish meditative piety.

A garden is a great day-dream. It is my book of moral philosophy, my hymn-book, my code of divinity. I do not perhaps believe, with Cowley, that during the great civil war no husbandman was ever rebel to his king; but this I will hazard, that no real lover or cultivator of a garden can pass his days in observing the wonderful processes of Nature and be a rebel to his God. The intimate knowledge which it promotes of that Nature, pouring her bounties forth with such a full and unwithdrawing hand, covering the earth with odours, fruits, and flocks—no one can feel this and be such a rebel. The thoughts that this

kindles are sublime, and so absorbing as to require abstraction.—'*Life of R. Ward.*'

The Sternness of Life.

Life is an arena, not a pleasure-garden.

Life, at first, may seem gay and brilliant, a place for recreation or profit or pleasure, but we very soon find out that it is a sand-strewn wrestling-ground. Many flowers cannot grow where are the feet of the runner, and the strife of the combatants. The first thing done to make an arena for wrestlers is to take away the turf and the daisies, then to beat the soil down hard and flat. And so our lives get flattened, stripped of their beauty and their fragrance, because they are not meant to be gardens, they are meant to be wrestling-grounds.—*A. Maclaren, D.D.*

The Weedless Grass Lawn.

The work of sanctification will always prove a continuous work.

When I was about to sow the grass-seed, there was no small stir in many circles as to the nature of sanctification. There were not a few who claimed that it should be at once both instantaneous and entire, and an often-quoted phrase was this, 'the eradication of the roots of evil.' The analogy of Nature can never be positive proof of any point of doctrine; still, it often more than illustrates, and in this case it very strikingly confirmed, the teaching of Holy Scripture. There was indeed a definite day when I purposed to have a weedless lawn, and not only purposed, but with the utmost care had it prepared, enriched, and sown. Certainly not a weed was there, and as the purest seed that it was possible to obtain was sown, all seemed hopeful. Soft showers followed, and I watched with delight the shooting of the tiny blades. All looked prosperous. Here and there, indeed, some other suspicious-looking growth was visible, but the grass would surely outgrow it. So I was busy hither and thither, till one day my friend from the cottage over yonder was passing and saluted me facetiously. 'What a fine crop of lamb's quarters!' I was startled. Yes, there were weeds indeed, and my friends were even having some sport over it. But where did they come from? Were they in the soil? In the fertilizers? In the seed? Perhaps in all. At any rate, there they were, and the wiser question was, What can now be done? After all, I said, this can soon be set right. No weed is so easy to pull up, and there shall soon be an end of this. So they vanished. But, alas! many a bare spot was left, and in a short time instead of the green grass spreading, what was this I saw? Purslane! Roman wormwood! sorrel! thistles!—a whole army of weeds. Still I persevered. I had them mown down. With my own hands I pulled them up. As often as the soft showers loosened the long roots, I went forth with my basket and counted the slain by thousands. But always before another shower a thousand more had sprung up. Moreover, when all that I think were originally there had developed and disappeared, the winds drifted in the foul seed from the roadside. The tall ox-eyed daisy and dandelion came in battalions. So I saw that it was a question of unceasing vigilance, and have patiently continued weeding and weeding still these seven years.—*Sarah Smiley.*

Beauty in Unsightly Things.

The Spirit of God works everywhere alike, and everywhere it glorifies.

The careful observer will find the universal spirit of beauty sometimes as aptly and richly repre-

sented in the productions of corruption and decay as in the more admired products of the vegetable kingdom. The very commonest fungi, which grow in the darkest and dreariest spots, are invested with a beauty not absolutely essential to the part which they perform in the operations of Nature, or to the efficiency of the organs, whether of absorption or reproduction, with which they are furnished. The fructification of one is a most graceful umbrella, adorned with varied, delicately-shaded hues, and with exquisitely carved veils, fringes, and gills; that of another presents the most beautifully sculptured ivory pores and sinuosities, or richly-coloured tubes or spikes. One species looks like a ruby cup; another is embossed with stars; while the leaves and the grasses of the woods and fields often form niduses for some of the loveliest and strangest forms, which our Creator has scattered over the earth with lavish hand to delight the intelligent and observing eye. There is not in Nature a more picturesque object to the painter, or a more interesting study to the botanist, than the old decaying stump of a tree in some lonely unvisited haunt of a shady ancestral wood, where the soil, enriched by the organic contributions of centuries, is bursting into life through every crevice and in every inch. Such a stump, as Wordsworth beautifully says of the mountain, is 'familiar with forgotten years.' It is long since the tall massive oak which it supported has been removed by the axe, leaving a gap which the encroaching trees around strive in vain to conceal; and Nature has kindly smoothed away the traces of man's harsh treatment, and brought it back to perish on its own bosom. Every sunbeam and raindrop that descended upon it, while crumbling it more, increased its picturesqueness, and while depriving it of its own life, helped to develop upon it other forms of life lower in the scale, until now, it not only adds to the air of antique mystery which pervades the scene, but peoples it with all the fantastic tenantry of Shakespeare's fairy land. In one corner may be observed a cluster of elegant pearl-like mushrooms, wee elfin-looking things, with long, black stalks, and white wheel-like heads; in another the corky leaves of a thelephora closely pressed to the wood, with shell-like patterns, and colours as beautifully and dimly shaded on its surface as in a misty rainbow; here the soft, viscid, flesh-like knobs of the *Tremella sarcoides*, resembling tiny teats, or the wrinkled, quaking, gelatinous mass of the witches' butter, looking more like a frothy exudation from the stump itself than a plant; there a spathularia protruded from a wide, mouth-like gap, like an old woman's tongue, frightening away every young rustic—full of the adventures and transformations of the seven champions of Christendom—from plucking it off, lest the owner, a metamorphosed witch, perhaps, should return in proper person to demand her unruly member, and inflict a proportionate punishment; in the middle of the squared top, covered with the minute scurf-like germs of unknown plants, are clustered the beautiful round vermillion balls of the lycagula, or wolf's milk, which, when bruised, exude a dark, grumous liquor like clotted blood; while springing from the crevices of the bark, near the ground, the *Agaricus necator* overtops the rest, with its zoned and olive-coloured cap and dusky stem, distilling, when broken or injured, a blood-like fluid, as though it were a sensitive creature, thus reminding one of Dante's terrific picture of the living forest in the infernal regions. All these, with a score of other curious microscopic plants, hiding themselves from the superficial observer, but revealing themselves

openly to a close and minute scrutiny—cup-lichens and trailing green mosses, and slimy green dust-like confervæ, surrounded perhaps with a border of dock-leaves or a fringe of palmy ferns—invest the aged stump with a nameless charm in the estimation of all true lovers of the picturesque. And returning from the woods and the fields to the retirement of our own homes, we find that there are forms and living things to be seen there as beautiful, interesting, and suggestive of curious thought, as any we have seen in the wider field of Nature out-of-doors. If we examine under the microscope the green or gray covering which spreads over damp walls, or envelops a piece of stale bread or fruit in a cupboard, or creams over the surface of preserves, what a wonderful scene of beauty suddenly unfolds itself like a miracle to our view! Thousands of plumy trees and feathery fern-like plants rear themselves up in every conceivable attitude, and all so delicate and transparent that the minute seeds are seen lodged in the interior of their stems; luxuriant forests, draperied with pendent parasites, and milk-white mosses enveloping the ground, and clothing old, rotten-looking stumps with beauty, all busy in the fulfilment of their offices, lengthening and swelling, and falling and scattering their minute seeds in little white clouds up and down upon the surrounding air. He who is privileged to feast his eyes on such a beautiful and instructive spectacle as this, must deeply feel, with the eloquent Ruskin, that 'the Spirit of God works everywhere alike, covering all lonely places with an equal glory, using the same pencil, and outpouring the same splendour in the obscurest nooks, in spots foolishly deemed waste, and amongst the simplest and humblest organisms, as well as in the star-strewn spaces of heaven, and amongst the capable witnesses of His working.'—*Hugh Macmillan, LL.D.*

Rare Exotics.

Spirituality is a tender, delicate plant.

The more supernatural things are, the more we need diligence to preserve them. A strange plant (an exotic) requires more care than a native of the soil. Worldly desires, like nettles, breed of their own accord; but spiritual desires need a great deal of cultivating (Manton). The more spiritual the duty, the sooner the soul wearies of it. An illustration of this is seen in the case of Moses, whose hands grew weary in prayer, while we never read that Joshua's hands hung down in fight. Spirituality is a tender plant, and without great care it soon flags, while sin needs neither hoeing nor watering, but will spring up in the dark, and flourish even amid the wintry frosts of trouble. The fair flower of grace is, however, so precious that God Himself has promised to tend it. What must be the value of that plant of which the Lord hath said, 'I will water it every moment; lest any hurt it, I will keep it night and day'! No spiritual grace will thrive if we neglect it.—*C. H. Spurgeon.*

A Singular Australian Plant.

Convincing evidence of design in Creation.

A gentleman who had discarded the thought of Deity from his mind, while travelling in Australia, was led in a remarkable way to a belief in His existence. His own account of it is as follows: Journeying on a day as close and sultry as can well be imagined, I became, after some hours' travel, so weary, that at length I cast myself down beneath the most shady tree I could find, unable to hold out any longer, and determined to await the cool of the evening. As I lay

thus, after some time I saw the seed-stem of a little plant, close before me, move in the slightest degree several times, each time accompanying the motion with a single low, sharp sound, like the tick of a watch. Interested to discover the connection between the motion and the sound, I leaned over and examined it. It was a small plant, with a short and more than proportionably thick flower-stem, having a single seed-pod at the extremity. The seed-pod was an oblate spheroid, not much larger than a garden pea; but it was composed of a number of sections, which, shrinking as it ripened, separated themselves from one another; and finally, each section detached itself at the bottom of the stalk, which ran right through to the upper side, and sprang out nearly straightening itself, so that eventually, when all the sections had extended themselves, it would be something like an open umbrella. But to the extremity of each of these sections, before it sprang out, on the inside, was attached a single small round seed, which was cast, by the spring of the section to which it belonged, to a considerable distance. I struck the stem lightly, and thus artificially expedited the process of disjunction, and found that the seeds were thrown out upwards of two feet. On paying close attention to the plant itself, I observed that its stem was so stiff that the wind could have no power to sway it to and fro, and thus scatter the seed; so low, likewise, that amidst the surrounding grass the wind would scarcely ever reach it in force sufficient to carry the seed away; and lastly, that it was placed in the midst of leaves all spreading upwards and outwards in a funnel form from the root, so that if the seed were not cast beyond them, they would catch and carry it back again to the bosom of the plant itself. The disadvantage then was threefold, and so complete in the whole as to bar this little fraction of nature from the performance of one of its grand generic offices, that of properly depositing its seeds. Nothing could relieve it but some mechanical contrivance. And here was that mechanical contrivance; and not only was it a contrivance in itself, but there was design and adaptation in fixing the very juncture of its operations. The seed should not be thrown off till it was ripe; and till it was so ripe that its very reservoir began to separate into fragments, this mechanical contrivance could not act. The completion of the ripening process was the condition on which the contrivance for scattering the seed depended for coming into action. It was an instance of design and contrivance so indisputable that there was no leaving it to be accounted for in any way but by the agency of a God.—*Dr. Leifchild.*

Tares and Wheat.

A revealing time will surely come, and may be patiently waited for.

There are two beautiful similitudes in the 'Shepherd of Hermes,' to the following effect: The seer is shown, in the first, a number of trees, all which, while it is winter, are alike without their leaves, and seeming, therefore, to him all alike dead; and he is told that as the dry and the green trees are not distinguishable from one another in the winter, while all alike are leafless and bare, so neither in the present age are the just from sinners. In the second, he is again shown the trees, but now some of them are putting forth leaves, while others are still remaining bare: Thus shall it be in the future age, which for the just shall be a summer, and they shall be declared openly, while their hidden life shall then manifest itself; but for the sinners it shall still be winter, and they,

remaining without leaf or fruit, shall, as dry wood, be cut down for the burning. — *Archbishop Trench.*

Flowers in Large Pots.

Truth is best provided according to the capacity to receive it.

In my inexperienced days I said, 'Surely the more soil, and the larger pot, the better.' 'No,' said the florist, 'give them no more than they can use; the rest simply sours.' So I find it; and only when they have thus appropriated all their nourishment do I give them more. And as often as I thus transfer them do I ponder those words of wisdom: 'I have yet many things to say unto you, but ye cannot bear them now.' 'And with many such parables spake He the word unto them, as they were able to hear it.' Healthy growth, however slow, is my own aim; and very sure I am that hot-house forcing is not the way of our far-seeing, patient Lord.—*Sarah Smiley.*

Every Flower aims at Perfection.

As to every leaf and every flower there is an ideal to which the growth of the plant is constantly urging, so there is an ideal to every human being — a perfect form in which it might appear, were every defect removed and every characteristic excellence stimulated to the highest point. Once in an age, God sends to some of us a friend who loves in us, *not* a false imagining, an unreal character, but, looking through all the rubbish of our imperfections, loves in us the Divine ideal of our nature—loves, not the man that we are, but the angel that we may be. Such friends seem inspired by a Divine gift of prophecy—like the mother of St. Augustine who, in the midst of the wayward, reckless youth of her son, beheld him in a vision standing clothed in white, a ministering priest at the right hand of God — as he has stood for long ages since. Could a mysterious foresight unveil to us the resurrection form of the friends with whom we daily walk, compassed about with mortal infirmity, we should follow them with faith and reverence through all the disguises of human faults and weaknesses, 'waiting for the manifestation of the sons of God.' —*Harriet Beecher Stowe.*

The Feelings of Flowers.

Perfumes are the feelings of flowers.

Perfumes are the feelings of flowers, and as the human heart in the night-time, imagining itself alone and unwatched, beats with a fuller pulse, so seems it as if the flowers, in musing modesty, await the mantling eventide ere they give themselves up wholly to feeling, and breathe forth their sweetest odours. Flow forth, ye perfumes of my heart, and seek beyond the mountains the dear one of your dreams! She is already laid down to sleep; at her feet kneel angels, and when she smiles in sleep 'tis a prayer which the angels echo. In her bosom lies heaven, with all its bliss; and when she breathes, my heart, in the distance, trembles. Behind the silken lashes of her eyelids, the sun has gone down; and when she opens them again, then it is day, and the birds sing, and the cowbells tinkle, and the hills glisten in their emerald garments, and I shoulder my knapsack and go on my way.

Creepers in a Neglected Garden.

Souls will try to get some object, other than God, to cling to.

Just as in a neglected garden you may see the poor creepers

making shift to sustain themselves as best they can—one convolvulus twisting round another, and both draggling on the ground; a clematis leaning on the door, which will by-and-by open and let the whole mass fall down; a vine or a passion flower wreathing round a prop, which all the way chafes and cuts it—so in this fallen world it is mournful to see the efforts which human souls are making to get some sufficient object to lean upon and twine round.—*Dr. J. Hamilton.*

Blight on Sickly Plants.

It is important to keep the soul in health, if we would resist the attacks of spiritual disease.

When blight or mildew comes to a garden, the plants that suffer first and most are those which have been badly cared for, and are, in consequence, weak and sickly. It is not often that hardy and vigorous plants are attacked or injured. If we fail to use the means which are needful for sustaining our souls in spiritual health and soundness, we shall be very liable to the blighting influences of evil. It is only by being careful to maintain a vigorous spiritual life that we can hope to keep ourselves 'unspotted from the world.' —*B. Wilkinson, F.G.S.*

Fading Flowers.

Flowers of earth are as frail as they are fair.

'The flowers which grow in earth's garden wither in our hands while we smell at them' (Manton). They are as frail as they are fair. They grow out of the dust, and to the dust must they return. As Herbert says:

> 'Their root is ever in the grave,
> And they must die.'

How speedy is their withering! They are gathered by the hand, and laid before us, and they wilt, and become sickly, fainting, decaying objects. At the very longest their lives smile through a day or two, and all is over.

The flowers of the field are children's adornments. See how the little ones garland themselves, and fashion chaplets with the buttercups and daisies. Earth's loveliest joys are good child's play; but, my soul, thou hast to act a nobler part: seek thou the bliss which fadeth not away. Turn thou to God, thine exceeding joy, and then if thy years be multiplied upon earth thou shalt have a lifelong possession, or if thou be caught away suddenly, thou shalt carry with thee in thy bosom the rosebud of a life which will open to perfection in the land where fading and withering are things unknown.—*C. H. Spurgeon.*

Mosses.

Illustrating the mastery of adverse circumstances.

Mosses, as a rule, grow in very exposed situations and amid the most primitive conditions. They come into contact directly with the severe forces of the inorganic world, having often no mediator between them and the naked hardness of the rock and the rigid inhospitalities of the sky. They belong to inclement seasons and climates, being mostly in perfection during the winter months; and although they are found in all parts of the world, some of the largest and loveliest species growing in the deep shades of tropical and subtropical forests, yet, as a class, their maximum exists in the north temperate and polar regions, where the skies are always gray and cold, and the mists and rains in which they luxuriate are almost constantly present. To such delicate places, especially when lit up with the mimic sunshine of the primrose, and in the deeper shades the pale moonlight of the sorrel and the anemone, they impart no small

share of that tender pathetic beauty to the landscape which in northern lands comes home with irresistible power to the heart. They form the first film of verdure that gathers over the newly-formed soil, and cover with a veil of delicate beauty the ravages made by the storm and the glacier on the mountain peak. They afford a striking proof how Nature loves to do gentle things even in her most savage moods. I have seen the track of a winter avalanche which had mown down great pines as if they had been blades of grass, lined with the softest and greenest moss, and the dry bed of an old torrent that had cleft the side of a hill from top to bottom, and scattered destruction in its path, spread over with a rich velvet carpet of the same beautiful material, out of which grew myriads of forget-me-nots, whose brilliant petals waving in the breeze, and flashing in the sunlight, looking like a little blue stream that had come direct from the sky, perpetuated the memory of the sparkle and murmur of the vanished water. In carrying on their beneficent ministry of repairing the gaunt ruins, and healing the severe wounds of Nature, mosses encounter unprotected the pitiless violence of the elements, the bitter cold and the scorching heat, the drenching rain and the arid drought. And like a desert spring that supplies the wants of every creature that comes to it, but is obliged to resort to heaven for its own supply, so the moss that shelters and blesses objects higher in the scale of life than itself, is dependent for its support entirely on the influences of the sky. Rooted in the clayey soil or on the bare rock, it extracts its nourishment solely from the viewless air, weaving the sunbeams and the dews into tissues that are hardly less delicate and exquisite in their golden radiance and transparent purity. It gathers about its tiny roots the grains of rock which its slow attrition has worn away, and the particles of white dust which the wind has whirled to its bleak home; and over these spoils from the mineral kingdom it raises its soft silken cushions, and lays the green foundation upon which flowers and trees may afterwards build their beautiful and complicated structures.—*Hugh Macmillan, LL.D.*

The Image in the Fern Branch.

The believer carries within the image of his Divine Lord.

Of all plants that flourish in the wild garden of the woods and commons, you will surely not find one more curious and beautiful than the fern. But it is not its curiosity nor its beauty which is so noteworthy as a characteristic it possesses in common with many, if not most other, plants and trees. Break one branch from off the stem, and observe how precisely it will bear the leading features of the whole plant; you hold in your hand a complete fern, but of smaller dimensions. Strip off, then, one feathery spray from the branch, and there is still a complete bush, bearing all the marks of the parent tree. Pull off the spray, one little sprout of green, and still you have a fern-bush in miniature.

Is it not written, Christian, that He whom thou servest is the Head, and His people are the members; that He is the true vine, and His people are the branches? Perhaps it may be found that the Church of Christ bears Christ's image, not as the body only, but as individuals; and that as a single leaf bears the likeness of the branch, and the branch the likeness of the tree, so a single member of the Church bears the image of the whole Church, and the whole Church the image of Christ. Thus, then, Christ is the tree, the Church is a branch, the Christian congregation or family is a spray, and the disciple of Jesus is a leaf.—*Old Humphrey.*

Plants in the Sinaitic Desert.

Some have but a brief lifetime in which to grow, blossom, and seed.

Every here and there are small pools of water, due to the retentive nature of the marly soil, and near them bright, showy little plants of different kinds were blossoming, evidently thriving, in spite of the burning heat. But a short life have these plants of the desert; for so soon as the moisture evaporates and the soil dries, and that it does quickly, the sun rapidly frizzles up every flowering plant, until the leaves and stalks become as dry as snuff. Hence the space of time allotted to a herb in the Sinaitic desert to attain its full growth, blossom, and seed is remarkably short.—*J. K. Lord.*

Eatable Earth, and the Nardoo Plant.

Things may appear to satisfy which do not really nourish (Isa. lv. 2).

M. Stanislas Julien has sent to the Academy of Sciences, at Paris, specimens of a peculiar mineral substance, from the province of Kiang-Si, in China, on which, in times of famine, the inhabitants have been said to be able to support themselves as a nutriment. It has a disagreeable taste, and produces dryness in the mouth: the idea of its being, in reality, nutritious is altogether a mistake; it produces disease, and ultimately death, but is, nevertheless, used by the natives, mixed with flour, and is even esteemed by them.

In the analysis which he has made of this earth, M. Payen has found fifty per cent. of silex, and a certain quantity of magnesia and alumina. It contains also a little organic matter, which has a remarkable aromatic odour, and a slight taste like pepper; this yielded, on analysis, a very small quantity of azote. M. Payen thinks this earth might be useful for manure, and that in this respect it would be interesting to study its composition.

A strange plant, called the *nardoo*, closely allied to the fern tribe, grows in the deserts of Central Australia. A peculiarly melancholy interest is connected with it, owing to the fact that its seeds formed for months together almost the sole food of the party of explorers who a few years ago crossed the Continent. The *nardoo* satisfied their hunger; it produced a pleasant feeling of comfort and repletion. The natives were accustomed to eat it in the absence of their usual roots and fruits, not only without injury, but actually with positive benefits to their health. And yet day after day King and his friends became weaker and more emaciated upon this diet. Their flesh wasted from their bones, their strength was reduced to an infant's feebleness, and they could only crawl painfully a mile or two a day. At last, when nearing the bourne of their hopes, they perished one by one of starvation, a solitary survivor being found in the last extremity under a tree, where he had laid him down to die, by a party sent out in search of the missing expedition. When analyzed, the *nardoo* bread was ascertained to be destitute of certain nutritious elements indispensable to the support of a European, though an Australian savage might for awhile find it beneficial as an alterative. And thus it happened that these poor unfortunate Englishmen perished of starvation even while feeding fully day by day upon food that served to satisfy their hunger. Is it not precisely so in the experience of those who are seeking and finding their portion in earthly things? They are contented with it, and yet their hunger is in reality unappeased. Their desires are crowned, and yet they are actually perishing of want. God gives them their request, but

sends leanness into their souls.—*Hugh Macmillan, LL.D.*

The Chemical Elements in Sugar.

Life can triumph over the chemical affinities of matter.

The article sugar, for example, is a vegetable product, and is constituted by the union of carbon, oxygen, and hydrogen. But no chemist can unite these three elements, and produce the substance called sugar. He can decompose sugar, and show what elements are in it, but he cannot invert the process; for the elements have no law of union in themselves, of which he can avail himself. He can unite hydrogen and oxygen, and produce water; he can unite oxygen, nitrogen, and potash, and produce saltpetre. But no one of all the vegetable substances can he produce. Lignin, tannin, acids, oils, perfumes, poisons, nutritive and healing products—not one of these can he compose by his utmost art. The *life-power* of the beet, the maple, the sugar-cane, coming down upon the refractory atoms, imposes a chemistry upon them they have not themselves, and so contributes to our comfort this article of sugar. And just so it is that by a kind of sorcery in lives, all the immense products necessary to our building, clothing, and feeding proceses are prepared. The poor chemist follows after, and, trying his hand upon matter, is able to produce no one of them. It is as if there were some spell upon things, which he cannot understand; or as if the lives had power to set matter whirling by their magic touch, and were showing him their freaks of skill to mock his perplexity. Colours blush out that he cannot make, odours fly whose secret he cannot guess. Substances are grown which he could as easily create a world as make. All his experiments show him that the science he delights in makes him master only of the chemistry of death, and he gives up in despair. The *lives* that swarm about him are all so many chemists, wiser, every one, and mightier, in a sense, than he.—*Horace Bushnell, D.D.*

A Plant beneath an Oak.

What seems to be overwhelming may prove a hopeful removal of hindrances.

There is a little plant, small and stunted, growing under the shade of a broad spreading oak, and this little plant values the shade which covers it, and greatly does it esteem the quiet rest which its noble friend affords. Once upon a time there comes along the woodman, and with his sharp axe he fells the oak. The plant weeps, and cries: 'My shelter is gone; every rough wind will blow upon me!' 'No,' says the angel of the flower; 'now will the sun get at thee, now will the shower fall on thee in more copious abundance than before; now thy stunted form shall spring up into loveliness, and thy flower, which could never have expanded itself to perfection, shall now laugh in the sunshine, and men shall say, How greatly hath this plant increased, how glorious hath become its beauty through the removal of that which was its shade and delight!'—*C. H. Spurgeon.*

A Floral Clock.

Man may guide his way by careful observation of Nature.

Many flowers close their petals at nearly definite periods of the day, and others open them at particular times of the morning; and there are many that appear to act independently of the stimulus of light, since they do not expand for several hours after the sun has risen. Perhaps they require the atmosphere to be well aired. There are many more, indeed, that open in the *night-time*—suggesting comparison with the birds that are

nearly silent during the day, and only open their sweet throats for carols in the darkness. These have their counterparts also in moths and other insects that only fly by night, so that there is nothing anomalous or unnatural in it. It cannot, indeed, be *un*natural, for their behaviour is quite as much a part of the custom and method of nature as that of the flowers that expand with the song of the lark, or that of the birds that chant over the 'morning glories' (flowers of different kinds of convolvulus, all of which open at daybreak), or that of the butterflies that flirt their deep-dyed wings on the bosom of the rose. So exact are the times of opening and closing, that a 'floral clock' may be contrived by anyone who will take the trouble to collect together in a garden such flowers as are suitable, and plant them in lineal or circular order. Linnæus contrived such a flower-clock in his garden at Upsala, and others have been made in our own country.—*Leo H. Grindon.*

A Tongan Custom.

The flower of youth and beauty should be consecrated to God.

The young women of Tonga (South Sea Islands) gather flowers very early in the morning, and twine them into ornamental wreaths for their relatives and friends. They are taken while the dew is on them, because at that early period they retain their fragrance longest. So should the flowers of youth and beauty be early gathered for the honour of Him who gave them being, as they will then retain longest through life the sweetness of their early days.

The Rice Plant.

Illustrates the benefit of affliction.

The rice plant is said to grow with wonderful rapidity in the rainy season, that it may keep its head ever above the waters rising around it; even so the troubles that beset the Christian are designed to elevate his character.—*A. L. O. E.*

Cryptogamous Plants.

The unspoken things of the heart God knows.

A great deal of our heart-life is cryptogamous — mosses, and inconspicuous blooms hidden in the grass, thoughtlets, the *intents* of the heart. We are hardly aware of this life; but as God sees in winter all the flowers which are yet sleeping beneath the soil, so He sees all the hidden feelings of our hearts. He knows every root, and what will spring from it; and comprehends its intents, which are yet but germs; as well as its thoughts, which have already blossomed.—*H. W. Beecher.*

Curiosities of Plant Life.

Use and beauty are blended in the vegetable world.

The Papaw Tree.—Sometimes we meet a man whose character is as beautiful as his versatile abilities are useful. We are amazed almost at the many different ways in which our admiration is challenged by the variety of his valuable works and accomplishments, and the diversity of uses to which his great powers may be applied. He reminds one of that native tree of South America, the papaw. Its splendid appearance resembles the palm. But it has more than mere beauty of form. It is embellished with luxuriant yellow fruit; and this fruit, besides being savoury and aromatic, has many extremely remarkable properties. Its milky juice exhales, when burnt, an ammoniacal odour, and chemical analysis has recognised therein the presence of *fibrine.* Mix some of this juice in water, plunge into the mixture fresh hard meat, and in a few minutes it will become exquisitely tender. The

very exhalations of the tree operate in the same manner, and the inhabitants of the regions where it flourishes suspend to its branches such meat and poultry as they wish to soften. Wondrous combination of beauty and utility!—*Arthur Mangin—'Desert World.'*

A Curious Mimosa.—A morbid little plant was on exhibition at the Jubilee Flower Show in Vienna. It is so extremely meteorometric that it not only moves if touched, but will close its leaves forty-eight hours in advance of any change in the weather. It seems to be the most catholic of barometers, not only foretelling rain and winds, storms and 'set fair,' but earthquakes and other subterranean movements. In short, the new mimosa is so accomplished a vegetable, that one learns with some disappointment that it fails to forecast a fall in the Rentes, while its pinnules display not the faintest agitation on the eve of the most warlike of Russo-Austrian rumours. The plant is to be bought for six pounds. A very ordinary barometer will cost some pounds, so it really seems that the owner is parting with his plant at an absurdly low figure.

A Laughing Plant.—A 'laughing plant' grows in Arabia, with seeds producing effects like those of laughing-gas. The flowers are of a bright yellow, and the seed-pods are soft and woolly, while the seeds resemble black beans, and only two or three grow in a pod. The natives dry and pulverize them, and the powder, if taken in small doses, makes the severest person behave like a circus clown or a madman; for he will dance, sing and laugh, and cut the most fantastic capers, and be in an uproariously ridiculous condition for about an hour. When the excitement ceases, the exhausted exhibitor of these antics falls asleep, and when he awakes he has not the slightest remembrance of his frisky doings.

A Flower that changes its Colours.—A wonderful flower has been discovered in the Isthmus of Tehuantepec. Its chief peculiarity is the habit of changing its colours during the day. In the morning it is white; when the sun is at its zenith it is red, and at night it is blue. The red, white and blue flower grows on a tree about the size of a guava-tree, and only at noon does it give out any perfume.

Plants never die.

One form of the plant does but pass into another form.

The seed is only a twofold leaf rolled tightly together. The growth of the plant is only the unfolding more and more of that twofold leaf. In the bulb of the lily the future blossom may be discerned. And what is a blossom but simply the transformation of the foliage to suit it for its new functions. The petal of a rose is just its green leaf altered in texture, colour, and form, to fit it for a higher ministry; and the eye of the naturalist recognises at once the identity of type that exists between them. In like manner the life to come will only be the unfolding of the seed of the plant — the blossom of the life that now is.

A plant never wholly dies. It always reserves some representative part from which fresh life and beauty may be evolved. Thus the resurrection of spring is only the renewal of an old form from the citadel of seed, or embryo, or bulb, into which its life retired. And what is regarded as death is not total destruction, but the reduction of an organism to its primitive germ — the retiring of life into a smaller compass; compressing or coiling itself up in the seed or embryo for a new effort, and bursting forth again in all the

old exuberance under the stimulus of sunshine and shower. Death is but the pause or resting-stage of the highest and essential part of an organism, that it may start anew. It is the discarding of some of the forms in which life is clothed; but the life itself is never wholly unclothed, never wholly perishes, never gives way for a single instant. Life is the true reality in death, the immortal germ that survives all its ravages, and perpetuates itself indefinitely in new forms.—*Hugh Macmillan, LL.D.*

Poison in Plants.

A suggestion of the poison in man which the heat of affliction disarms.

Human nature is very much like some elements of vegetation. In tapioca, one of the most harmless of foods, there is one of the most deadly of all poisons; but the poison is of such a volatile nature, that when it is subjected to heat it escapes, and leaves only the nutriment of the starch. I think that the heart of man originally is full of poison, but that when it is tried by affliction, little by little, the poison, the rancour, the virus exhales, and leaves all the rest wholesome indeed.—*H. W. Beecher.*

The Fern upon the Old Oak-Tree.

The aged and wise delight to help the young and simple to be their best.

The oak seems to take pride in holding the fern in its giant arms. The fern shows us how the grandest thing may be enriched by the simplest; just as the truly great among men, gifted with the might of wisdom, and able to pour forth in unbroken streams music that makes our very soul come up and sit listening in our ears—still delight to be clasped by the sweet tendrils of simple hearts, to watch and help their strivings after the amiable and the true, to listen to their innocent songs, and to bless them with their bountiful protection.—*Leo H. Grindon.*

Pot-bound Plants.

Some men and women thrive all the better for being placed in limited circumstances.

I may as well admit that some, the *amaryllis vallota* is a striking example, will not bloom at all unless pot-bound. I lost years in finding that out. It passes my comprehension even now; but I accept the fact, and with it another, that there are some human beings so peculiarly constituted as to accomplish most in a very limited range of thought and action. As to the family of bulbs in general, they remind me of those large-hearted Christians who, never being straitened in themselves, seem able to triumph over all straitness in their surroundings.—*Sarah Smiley.*

Flowers—The South American Orchids.

Souls thrive according to the food on which they feed.

I was studying, not long since, with an admiration too great for speech, a most exquisite flower—one of the large family of South American orchids—specimens of which, it may be, you have seen. If so, you remember the surprise with which you marked the peculiarity of the plant, in that it draws its sustenance, not from the ground, but from the air and sunlight. This one had its stem thrust into a knife-cleft in a block of wood, simply for the sake of a spot on which to be, and was thus suspended in mid-air, and growing thence, the plant, by reason of the nourishment the sunlight and air had brought it, drawing nothing from the ground, which it did not touch at all, had grown out in curious twining branches, thickly set with leaves,

and covered with a flower wonderful for form and beauty. Broad petals, cream and purple tinted, stood to either side, wing-shaped and spread like the pinions of a dove as though for flight, and in the midst of a folded cup-like form, that held within it clustering dewy beads of moisture, glistening as gems, while under these flamed colours stolen from the setting sun; and of the whole, the measuring circle was large as a man's hand. So beautiful was this flower of the light and air —a life ethereal, spurning the grosser particles of earth. And so, I thought, is it with this spiritual life of ours, this life redeemed by the precious blood of Christ. It, too, must spurn the ground. It, too, must draw its powers of living growth and beauty, not from corruptible things of earth, nor seek alliance with them; but, lifted far above, must dwell in the sunlight of Christ's face, and breathe the atmosphere of heaven; while the more it turns itself to the brightness of that sun, and the more it quaffs of that reviving breath, the fairer shall its beauties be, and purer every joy.—*S. H. C.*

Flowers—The 'Devil's Bit' Scabious.

An illustration of those who leave work unfinished.

In the heathery turf you will often find a plant chiefly remarkable for its peculiar roots; from the main stem down to the minutest fibre you will find them all abruptly terminate, as if shorn or bitten off; and the silly superstition of the country people is, that once on a time it was a plant of singular potency for healing all sorts of maladies, and therefore the great enemy of man in his malignity bit off the roots in which its virtues resided. An emblem this of many people, all whose good works terminate abruptly, and are left off unfinished, the devil frustrating their efficacy by cutting off their ends.—*Dr. James Hamilton.*

Water-Lilies.

Their form, colour, and habits are suggestive of sensitive purity and modesty.

The water-lilies never grow in foul water, and always prefer that which is in steady though slow movement, loving especially the little bays along the edges, where they can spread their broad leaves upon the surface undisturbed, and expand their argent cups, brimming with golden stamens, to the light of the sun. Towards evening they close their petals in a kind of sleep, and during the period of their highest life, which is that of the preparation of the seed that is to renew the plant, they not only close, but sink below the surface of the stream. In many kinds the odour is rich and delicate, and some kinds yield eatable seeds. The Egyptian lotus bore a rose-coloured flower, but that does not interfere with the beautiful concordance of these plants with the idea of truth and chastity, rather does it confirm the correspondence. Clear and moving water, broad and elegant leaves, pure white or rose-coloured flowers, odour, modesty of life, withdrawal in times of darkness—how beautifully all these characteristics of the water-lily and the lotus combine to show us what they signify in the language of Nature!—*Leo H. Grindon.*

Flowers on Mountains are Fragrant.

They may be sweet who dwell in the hills of communion with God, high above earth mists.

Sweet-smelling flowers, as a class, are found in greatest abundance in mountain regions. A large proportion of the plants growing on the high pasturages of

the Alps are possessed of aromatic as well as medicinal properties. On the Scottish mountains there are several odorous plants, such as the Alpine forget-me-not, blooming amid mists and clouds on the highest summits, and breathing from its lovely blue flowers a rich perfume. On the Andes we have the Peruvian heliotrope, whose purple eyes turn ever towards the sun, and give out an odour so sweet and ravishing that the Indians regard it as a mystic spell that opens to them the gates of the spirit world. On the Sikkim Himalayas, the tiny *Rhododendron nivale*, which grows at a loftier elevation than any other shrub in the world, scents the air with its perfumed foliage, when the weather is genial. In the highest zone of the Peak of Teneriffe, far above the clouds, amid the fierce drought and unmigated glare of that arid region, there grows a wonderful bush, found nowhere else in the world—a specious of broom, called by the natives *Retama*. It is a dull, dingy-looking plant in autumn, harmonizing with the dreary desolation around; but in spring it bursts out into a rich profusion of milk-white blossoms, and fills all the atmosphere with its delicious odour. Beehives are brought up to it by the peasants from the valleys; and there for a few weeks the bees revel on the nectar, and yield a highly prized and fragrant honey. Mount Hybla, in Sicily, is covered with an immense abundance of odoriferous flowers of all sorts; and Hymettus, a mountain in Attica, has always been celebrated in classic song for the quantity and excellence of its honey, gathered by the bees from the fragrant plants that luxuriate there. The costly spikenard of Scripture is obtained from a curious shaggy-stemmed plant called *Nardo-stachys Jatamansi*, a kind of valerian, growing on the lofty mountains in India, between the Ganges and the Jumna, some of which are for six months covered with snow.—*Hugh Macmillan, LL.D.*

Eastern Pleasure in Perfumes.

Sanitary conditions may explain the love and use of strong scents.

When the master of the house desires specially to honour his guests, he offers them fumes of incense before the indispensable coffee and pipes are brought in. The perfume usually employed is the 'lignum aloes,' a small bit of which is dropped upon burning coals in a little chafing-dish of silver or gold filigree, sometimes adorned with precious stones; the fumes escape through the perforated cover. This is simply set in some part of the room, or it is presented to each guest to inhale in turn, an embroidered handkerchief being thrown over his head, which he himself removes when satisfied. Sprinkling with rose-water frequently precedes the offering of incense. The vessel employed is a small bottle, with a long narrow neck, perforated at the end, and is usually made to match the censer in material and workmanship. A little rose-water is poured upon the hands of each guest, who passes them over his face, head, and beard, after which comes the incense, whose fumes cling the more tenaciously to a damp surface. In acknowledging this attention, each guest exclaims, 'Elhamd ulillah' (Thanks be to God)! Rose-water is in general use on festive occasions, and is freely sprinkled upon a passing bridal party.—*Van Lennep.*

Beaten Spices.

Graces gain their chiefest fragrancy in hard times.

Spices are most fragrant when burnt and bruised; so have saving graces their chiefest fragrancy in

hard times (Manton). Herein lies one of the benefits of affliction: it fetches out latent sweetness and light. Certain herbs yield no smell till they are trodden on, and certain characters do not reveal their excellence till they are tried. The developing power of affliction is very great — faith, patience, resignation, endurance, and steadfastness are by far the best seen when put to the test by adversity, pain, and temptation. God has created nothing in vain in the new creation any more than in the old, hence one of the sweet necessities of trial is to bring forth and use those precious graces which else had been unemployed. God is not glorified by unused graces, for these lie hidden, and bring Him no honour; may we not, therefore, rejoice in tribulation, because it fetches out our secret powers, and enables us to give glory to the Lord whom we love? Yes, blessed be the pestle which bruises us, and the mortar in which we lie to be beaten into fragrance.—*C. H. Spurgeon.*

The Love of Flowers.

Deep-rooted in most human hearts is the love of flowers.

How is it that so deeply rooted in most human hearts there is a love of flowers? If we sought illustrations of this widely-diffused sentiment, we should not go to the costly conservatory and magnificent parterre of the nobleman or the wealthy merchant, nor, perhaps, even to the pretty little plot of garden-ground which the artisan or the city clerk tends so affectionately the half-hour before breakfast in the morning, or the last hour in the summer evening twilight; but we would rather go to the little flower-shop, neatly trimmed out, in the painfully crowded streets of St. Giles's or Spitalfields, whence the poor lone widow obtains her small flower-pot for her dull window-sill, with the quaint reflection of the Hermit of Clavernook, 'You see, sir, if we can't go to Natur', we must bring Natur' to us.' Enter London by train through almost any of its suburbs, and you look down upon many a poor window rejoicing in its two or three flowers. What a lovely sight to the eye is a French flower-market! This is an institution in almost every French town, and who patronizes it? Oh, no doubt, the rich; there are magnificent bouquets for the épergne in the dining-room or for the fair hand at the opera; but you follow any poor woman on her way through the markets of Paris, and you will find that, after she has laid in her store of culinary comestibles, she almost invariably winds up with two or three modest and cheap little flowerets to shed their fragrance over the table—their sanctity over the home. Walk round the Palais Royal, look up to the high roofs and to the balustrades round their attic windows, and see how those to whom it is almost a journey to travel up or down those weary flights of stairs contrive to make their garden in the air, and to give a little colour and fragrance to their lives by the nasturtiums and carnations growing there.

Charles Dickens, in 'Our Mutual Friend,' describes some such little garden-scene in the east-end of London, where Riah, the Jew, breathes the more pleasant air in his garden on the house-top. The poor and the unhappy seem to turn so naturally to flowers. A traveller tells us how he landed and spent some time on a little lonely island in the waste of the remote and melancholy sea, and there he saw, within a small enclosure, a gentleman in flowered dressing-gown and green slippers, his head bound round with a crimson handkerchief, industriously tending his flowers, turning up the soil and wielding his watering-pot. Who was it? It was the great Napoleon on St. Helena. The man who had

played such havoc amongst the thrones and dynasties of Europe was thus engaged in passing the hours of life away, and, perhaps, a little cheating melancholy and despair by ministering to a flower.

Our readers will not sympathize much, we fancy, with Leigh Hunt when, in his pleasant book, 'The Town,' he unites together, as two of the charms for the poor denizens of dark cities, the wandering hand-organ, bringing music to the poor, and the florist, suggesting thoughts of tranquillity and contentment. It is in the same spirit that flowers shed such a charm over sick-rooms. Mrs. Hemans was probably not far from the end of her sombre life-journey when she wrote concerning flowers in a room of sickness:

'God hath purified my spirit's eye,
And in the folds of this consummate [rose
I read bright prophecies.'

And then she goes on, in language too lengthy for us to quote, to speak of the flower by the bed of sickness as expressing the hope and the suggestion of the land of everlasting spring.

If we were making a chronicle of floral fancies, we should find the volumes of this most graceful of our English poetesses full of charming lines; the temperament of Mrs. Hemans especially constituted her the poetess of the flowers. Her sex has given to our country greater poets in thought and imagination, but among them she was a kind of sensitive plant—a kind of mimosa in verse—an aspen-tree in the world of letters, so that not only did flowers in all their varieties touch her, but her nature seemed to respond to their subtle and inner qualities. It was quite easy to her to conceive a dial of flowers, after the well-known Eastern idea:

''Twas a lovely thought to mark the hours,
As they floated in light away,
By the opening and the folding flowers,
That laugh to the summer's day.
Oh! let us live, so that flower by flower,
Shutting in turn, may leave
A lingerer still for the sunset hour,
A charm for the shaded eve.'

Certainly the affluence of flowers is wonderful; apparently, if we may say so, infinite as the Hand which has strewn them abroad so lavishly. The surface of our earth is thickly strewn with starry nooks secreting in lovely solitudes a wealth of flowers.

'Bright they bloom, and do not shrink
By the eddying river brink,
Where the birds fly down to drink.

'Soft they colour mountains steep,
Safe beyond the farthest leap
Of the nimble mountain sheep.

'Lonely to the crag they cling,
Where the surge is echoing,
And the sea-bird prunes its wing.

'Thick they cluster by the side
Of hot roads, all dusty dried,
Smiling sweetly, open-eyed.

'Tenderly they bow their head
Over graves where lie the dead,
And soft raining tears are shed.'

Paxton Hood.

Plants of Dry Ground.

'*He shall grow up before him as a tender plant, and as a root out of a dry ground.*'

There is usually a very intimate connection between a plant and the circumstances in which it grows. Modifications of specific character are produced by varieties of soil; and the wide difference between a wild flower or fruit, and a garden flower or fruit, is entirely owing to the difference between rich cultivated soil and the poor untilled soil of Nature. The plants of a dry ground, however, are less dependent upon the nature of their soil than others; they receive from it, in most cases, mere mechanical support and room to expand in, while their means of growth are derived entirely from the atmosphere. Looking at the emblem of the text in this light, we may

in the first place suppose the 'dry ground' here to mean that *humanity out of which Christ sprang*. There are many who regard Jesus as the natural product of humanity — the highest development of human nature, the blossom, so to speak, of mankind. But we look upon Him as a Divine germ planted in this wilderness, a Divine Being attaching Himself to men, wearing their nature, dwelling in their world, but still not of them —as distinct from humanity as the living root is distinct from the dry ground in which it grows. The soil of humanity is indeed dry ground. Sin has dried up its life, its fertility, turned its moisture into summer's drought, and reduced it to perpetual barrenness. The garden of the Lord has become a desert, a dry and parched land wherein there are no waters. Every virtue pleasing in the sight of God has faded and disappeared from off it, and instead thorns and briars have sprung up. Such a desolate and sinful soil, scathed by God's curse, could no more have produced the Saviour—He was holy, harmless, undefiled, and separate from sinners—than the thirsty sands of Sahara could produce the rich verdure of the riverside, or the frozen wastes of the Pole could nourish the luxuriant vegetation of the tropics. By the law of natural development, mankind could never have given birth to a character in every way so exceptional as that of Christ. The degenerate plant of human nature could never have produced the 'true vine.' It is true, indeed, that a few individuals have ever and anon emerged from the dark chaos of fallen humanity, and exhibited a high type of intellectual and moral worth; but such individuals have been completely identified with the human race, and have shared in its sins and infirmities. In Jesus, on the contrary, there was a remarkable remoteness and separateness from men. His life ran parallel with man's, but it was never on the same low level; man's life was to His what the asymptote is to the hyperbole which it can never meet, however nearly it may seem to approach. He was indeed born of a woman; He grew from infancy to manhood; He assisted His reputed father in the trade of a carpenter; and passed in and out among His countrymen, to the eye of sense, as a Nazarene, like any other. And yet there was a mysterious something which from the very first separated Him from the human race, and set Him apart as a peculiar being. He proved by His words and deeds, and the whole mode of His life, that He had a higher origin than the human, and more transcendent affinities than those of this world—that He was from heaven while dwelling on earth; a being above mortality while in it; a being separate from sinners while united to them by the closest ties of blood relationship and the profoundest human sympathies. 'He lived out in the mould of human conduct and feeling the perfections of God.' He was independent of worldly circumstances, and superior to worldly conventionalities. He had no joys on earth save those He brought with Him from heaven. He was alone, without sympathy, for no one could understand Him; without help, for no mortal aid could reach the necessities of His case. Like a desert well, He was for ever imparting what no one could give Him back, slaking the thirst of others, while compelled to quench His own in the fountain of life which is with God within the veil. He brought everything from above; He got nothing from below. He was indeed a Divine scion from a worn-out, sinful, effete human stock—a living root out of a dry, exhausted ground, receiving from mankind a body and a nature in which to carry out the work of redemption; but deriving all His life and beauty and fruitfulness

from the dews and the sunshine of heaven. — *Hugh Macmillan, LL.D.*

Hymn to the Flowers.

Their mission is both to give pleasure, to teach truth, and to inspire to nobler, purer things.

Day-stars! that ope your eyes with man, to twinkle
From rainbow galaxies of earth's creation,
And dewdrops on her lonely altar sprinkle
As a libation:

Ye matin worshippers! who, bending lowly
Before the up-risen sun, God's lidless eye,
Throw from your chalices a sweet and holy
Incense on high.

Ye bright mosaics! that, with storied beauty,
The floor of Nature's temple tessellate,
What numerous emblems of instructive duty
Your forms create!

'Neath cloistered boughs, each floral bell that swingeth,
And tolls its perfume on the passing air,
Makes Sabbath in the fields, and ever ringeth
A call to prayer.

Not to the domes, where crumbling arch and column
Attest the feebleness of mortal hand,
But to that fane, most catholic and solemn,
Which God hath planned.

To that cathedral, boundless as our wonder,
Whose quenchless lamps the sun and moon supply;
Its choir the winds and waves—its organ thunder,—
Its dome the sky.

There, as in solitude and shade I wander,
Through the green aisles, or stretched upon the sod,
Awed by the silence, reverently ponder
The ways of God.

Your voiceless lips, O flowers! are living preachers,
Each cup a pulpit, every leaf a book,
Supplying to my fancy numerous teachers
From loneliest nook.

Floral apostles! that, in dewy splendour,
'Weep without woe, and blush without a crime,'
Oh! may I deeply learn, and ne'er surrender
Your lore sublime!

'Thou wert not, Solomon! in all thy glory,
Arrayed,' the lilies cry, 'in robes like ours;
How vain your grandeur! ah, how transitory
Are human flowers!'

In the sweet-scented pictures, heavenly Artist!
With which Thou paintest Nature's wide-spread hall,
What a delightful lesson Thou impartest
Of love to all!

Not useless are ye, flowers! though made for pleasure:
Blooming o'er field and wave, by day and night,
From every source your sanction bids me treasure
Harmless delight.

Ephemeral sages! what instructors hoary
For such a world of thought could furnish scope?
Each fading calyx a *memento mori*,
Yet fount of hope.

Posthumous glories! angel-like collection!
Upraised from seed or bulb interred in earth,
Ye are to me a type of resurrection,
And second birth.

Were I, O God! in churchless lands remaining,
Far from all voice of teachers and divines,
My soul would find, in flowers of Thy ordaining,
Priests, sermons, shrines.

H. Smith.

Everything after its Kind.

Man cannot force a single thing into disobedience to the laws under which it is put by its Creator.

Man may destroy a plant, but he is powerless to force it into disobedience to the laws given by their common Creator. 'If,' says one, 'he would employ it for his use, he must pay attention to its wants and ways, and bow his own proud will to the humblest grass at his feet. Man may forcibly obstruct the path of a growing twig, but it turns quietly aside, and moves patiently and irresistibly on its appointed way.' Do what he may, turf will not grow in the tropics, nor the palm bear its fruit in a cold climate. Rice refuses to thrive out of watery swamps, or cotton to form its fleece of snowy fibres where the rain can reach them. Some of the handsomest flowers in the world, and, stranger still, some of the most juicy and succulent plants with which we are acquainted, adorn the arid and desolate sands of the Cape of Good Hope, and will not flourish elsewhere. If you twist the branch of a tree so as to turn the under surface of its leaves towards the sky, in a very little while all those leaves will turn down, and assume their appointed position. This process will be performed sooner or later, according to the heat of the sun and the flexibility of the leaves, but none the less it will surely take place. You cannot induce the sorrowful tree of India to bloom by day, or cause it to cease all the year round from loading the night air with the rich perfume of its orange-like flowers. The philosopher need not go far to find the secret of this. The Psalmist declares it when, speaking of universal Nature, he traces the true cause of its immutable order. God, he says, 'hath established them for ever and ever; He hath made a degree which shall not pass'; or, as it is in the Prayer-Book version, 'hath given them a law which shall not be broken.' Truly is it said in another Psalm, 'They continue this day according to Thine ordinances, for all are Thy servants.' Wilful man may dare to defy his Maker, and set at nought His wise and merciful commands, but not so all Nature besides. Well indeed is it for us that His other works have not erred after the pattern of our rebellion; that seed-time and harvest, cold and heat, summer and winter, day and night, with all their accompanying provision, have not ceased. To the precepts imposed upon vegetation when first called into being on creation's third day, it still yields implicit submission, and the tenderest plant will die rather than transgress. What an awful contrast to this is the conduct of man, God's noblest work, endowed with reason and a never-dying soul, yet too often ruining his health, wasting and destroying his mental powers, defiling his immortal spirit, and, in a word, madly endeavouring to frustrate every purpose for which he was framed. — *Rev. James Neil, M.A.*

Vegetable Perfumes.

The human period is the principal epoch of fragrant plants.

Of all man's sources of enjoyment, none display more clearly

the bountifulness of God than the fragrant odours of Nature. The world might have been made entirely scentless, and yet every essential purpose have been fulfilled. The vegetable kingdom, which is the great storehouse of perfumes, might have performed all its functions, and yet not a single plant exhaled an agreeable odour. Fragrance seems so wholly superfluous and accidental, that we cannot but infer that it was imparted to the objects which possess it, not for their own sakes, but for our gratification. We regard it as a peculiar blessing, sent to us directly from the hand of our heavenly Father; and we are the more confirmed in this idea by the fact that the human period is the principal epoch of fragrant plants. Geologists inform us that all the eras of the earth's history previous to the Upper Miocene were destitute of perfumes. Forests of club-mosses and ferns hid in their sombre bosom no bright-eyed floweret, and shed from their verdant boughs no scented richness on the passing breeze. Palms and cycads, though ushering in the dawn of a brighter floral day, produced no perfume-breathing blossoms. It is only when we come to the periods immediately antecedent to the human that we meet with an odoriferous flora. God placed man in a sweet-scented garden as his home. He adorned it with labiate flowers, modest in form and sober in hue, but exhaling a rich aromatic fragrance at every pore. And so widely and lavishly did He distribute this class of plants over the globe, that at the present day in the South of Europe they form one-nineteenth part of the flora; in the tropics one twenty-sixth; and even on the chill plains of Lapland, out of every thirty-five plants, one is a sweet-smelling labiate. In our own country, the tribe is peculiarly abundant and highly prized. Basil, marjoram, and lavender, balm and mint, rosemary and thyme, are dear to every heart, and are as fragrant as their own leaves with the sweetest poetry of rural life. Banished now from the garden to make room for rich and rare exotics, they still linger in romantic, old-fashioned places, and are carefully cultivated by the cottager in his little plot of ground. In quiet country villages the lavender-sprig still scents the household linen; the bouquet of balm or mint is still carried to church with the Bible and the white pockethandkerchief, and mingles its familiar perfume with the devotional exercises; and the rosemary is still placed on the snowy shroud of the dead cottager, soothingly suggestive of the sweet and lasting perfume left behind in the dark tomb by the Rose of Sharon, Mary's Son, who once lay there. All these are, indeed, 'plants of gray renown,' as Shenstone calls them. They came into the world with man; they were created for man's special gratification; and they have continued ever since in intimate fellowship with him as ministers to some of his simplest and purest joys. They were prepared, too, against the day of Christ's anointing and burying; for some of the finest spices with which Joseph of Arimathea embalmed His dead body were products of the labiate family; and in this sacred use they have received a consecration which for ever hallows them to the Christian heart.

No sense is more closely connected with the sphere of soul than the sense of smell. It reaches more directly and excites more powerfully the emotional nature than either sight or hearing. It is an unexplored avenue, leading at once, and by a process too enchanting to examine, into the ideal world. Its very vagueness and indefiniteness make it more suggestive, and quicken the mind's consciousness. Its agency is most subtle and extensive—going down to the very depths of our nature,

and back to the earliest dawn of life. Memory especially is keenly susceptible to its influence. Everyone knows how instantaneously a particular odour will recall the past circumstances associated with it. Trains of association long forgotten, glimpses of old familiar things—mystic visions and memories of youth, beyond the reach even of the subtle power of music—are brought back by the perfume of some little flower noteless to all others. Looks of long ago answer to our gazing; touches of hands, soft as a young trembling bird, lying in ours; words that were brimful of tenderness; joys that had no sorrow in their satisfying fruitage, come back with the passing breath of mignonette, caught from some garden by the wayside in the sweet, sad autumn eve. Lime-blossoms, murmurous with bees in the shady avenue; hyacinth-bells, standing sentinel beside some sapphire spring; violets, like children's eyes heavy with sleep, on some greenwood bank—each exhales a fragrance into which all the heart of Nature seems to melt, and touches the soul with the memories of the years. It is on account of this far-reaching power of fragrance, its association with the deep and hidden things of the heart, that so many of the Bible images appeal to our sense of smell. It is regarded as an important means of communication with Heaven, and a direct avenue for the soul's approach to the Father of spirits. The acceptance of man's offerings by God is usually represented in the anthropomorphism of the Bible as finding its expression in the sense of smell. When Noah offered the first sacrifice after the flood, 'the Lord,' we are told, 'smelled a sweet savour.' The drink-offerings and the various burnt-offerings prescribed by Levitical law were regarded as a sweet savour unto the Lord. Christ, the antitype of these institutions, is spoken of as having given Himself for us an offering and a sacrifice to God for a sweet-smelling savour. And the Apostle Paul, employing the same typical language, speaks of himself and the other Apostles as 'unto God a sweet savour of Christ in them that are saved and in them that perish. To the one we are the savour of death unto death, and to the other the savour of life unto life.' The Psalms and the prophetic writings are full of the most beautiful and expressive metaphors, applied to the most solemn persons and things, borrowed from perfumes; while the whole of the Song of Solomon is like an Oriental garden stocked with delicious flowers, as grateful to the sense of smell as to the sense of sight.—*Hugh Macmillan, LL.D.*

The Home of the Daffodil.

Everything responds to congenial surroundings.

Before making an end of my Easter holiday, and returning to the restlessness of town, I determined to undertake a quest of the daffodil. Sunday was all sunshine, and it was observed that the boy who came at eventide to feed the horses had two full-blown daffodils in the buttonhole of his velveteen jacket. There ought to have been nothing phenomenal about this early in April, but it so happened that in the forenoon we had made a round of the fields where there should have been great patches of fully developed bloom, and had found them not. The boy, however, had marked these two flowers at the bottom of the orchard, and so gathered, as we had every reason to suppose, the entire daffodil produce for the time being of the estate. The backwardness of the season, of course, accounts for this scarcity there and everywhere. Some thirty miles south I knew of an out-of-the-way valley where these lovely spring flowers should be

nevertheless in evidence. Shakespeare, as keen an observer of Nature as of humanity, gives a brief but faithful description of the daffodil in 'The Winter's Tale.' Autolycus aptly enough mentions it in his song, but Perdita pronounces its history in the expression:

> 'Daffodils that come before the swallow dares,
> And take the winds of March with beauty.'

The violet, also referred to in the same speech, is a March flower, and its scent is compared to Cytherea's breath. Shakespeare knew that the daffodil was scentless, and so infers by his silence. Wordsworth most happily catches the decidedly March flavour of the flower in the poem where, wandering lonely as a cloud, he saw a

> 'Host of golden daffodils,
> Beside the lake, beneath the trees,
> Fluttering and dancing in the breeze.'

There is no more beautiful sight in the wild March mornings than the graceful deep-green foliage, studded as if with moidores, ruffled by the wind; the flowers meekly bend their graceful stalks, but the heads, perfect in shape, and unique in their two harmonious shades of yellow, are cheerfully lifted up again to catch the smile of the sunshine gleaming between the scudding clouds. Then, as Wordsworth puts it, the

> '. . heart with pleasure fills,
> And dances with the daffodils.'

Many poets have sung the praises of this dainty narcissus, which, individually modest in its loveliness, becomes collectively one of the most showy of our field and woodland flowers, though it is not so universal as the buttercups, nor so extensively massed as the so-called bluebell, the wild hyacinth whose foliage is so similar.

The daffodils flourish in irregular patches; close together when they are not interfered with, straggling when they sturdily maintain precarious roothold upon hedgerow banks or other places not wholly suited to them. A wood into which the open arrangement of the trees admits a large share of daylight, if the soil be not too dry, is a favourite home of the daffodils when once they are there established. In proceeding upon our quest of the daffodil, we know therefore where to expect it, know also how hopeless the venture must be. In London the blaze of colour in the florists' windows, and upon the flower-girls' baskets, should challenge attention towards the end of March. Last year they were fairly abundant in the second week of the month, but in Holy Week this year they were hard to obtain even at high prices; and it was not surprising to read that the Easter ornamentation in the churches suffered from the unwonted dearth. The grass is white with frost, and there is April ice upon the puddles in the lane, as I start soon after sunrise for the station. Bitter as the cold is, the blackbirds, thrushes, and chaffinches in the glossy-leaved shrubbery are in full matin song, and the rooks in the elm-tops are quarrelling and gossiping around the nests, just now centres of paramount domestic interest. At this blithe period of love's young dream, the birds are superior to such a trifle as a nipping air in the early morning.

During the forenoon the sun shines magnificently, and I experience the reward of the philosopher digging for the stone—obtaining not the stone itself, but some unexpected results. I have first to cross a piece of marsh, and pass in review a prodigious company of snipes. They are solitary, as usual, but in the course of ten minutes I flush sixteen of them, and scare them away, bleating their annoyance. Then, with loud quacks, up go from their

nests (and probably eggs) the wild ducks, in twos, threes, fours, and fives. On the upland, rising gently from the marsh, the wanton lapwings cry aloud; they wheel around me, partly in alarm, partly in anger, partly in derision, perhaps, or appeal, uttering alternately that mournful single note, and that very jolly exclamation which has gained for them the name of peewit. Now comes a field that was barley last year. It is down for clover now, and here I espy my first wild-flower, two specimens of the (to the farmer) unwelcome coltsfoot. The flowers appear before there is any sign of leaf, and the stems are covered with curious scales that seem to be laid upon cotton-wool. But the presence of the plant indicates poor soil, and the remnants of last year's stubble and the scanty stock of clover are quite in keeping with the indication. A few advance samples of the ground ivy are also peeping upwards. In the moist pastures where the snipe and wild duck were quartered, there should have been ample store of the lesser celandine and marsh marigold, but they, too, are very late, and in these parts indeed even the grass has not yet discarded the russet of winter wear. The hedges, as presently they appear, are as reluctant to move as the rest. The hazel catkins made the best display, but the elder bushes and the honeysuckle, the earliest to put forth leaves, are now unusually chary, and the incipient leaflets that could not be restrained are pinched and shrivelled by the present frost. On the ridge the north wind howls and cuts like a knife. The sun has been almost suddenly obscured by leaden clouds, and the meteorological prognostication of my morning paper has been once more wonderfully verified. The day that began with frost succeeded by sunshine, is to end in wintry storm. I hasten down the slope, push through the copse where the primroses are scarcely in bud, and the slender spears of the 'bluebell' barely an inch above the mossy carpet, and at last reach the dell where my quest of the daffodil ends. The spot is protected from all the winds that blow, and here have the earliest flowers never failed, but I can discover but five fully opened daffodils in a patch of about fifty square yards; and the buds as a rule have not yet begun to show. The farmer whom I subsequently meet speaks truly in his greeting, 'Good-day, sir. Backward spring this.' The labouring man whom I pass later sowing grain would agree in this, no doubt. He is casting forth oats by handfuls in the good old-fashioned way; but he is enveloped in a storm of snow and hail, and which is the scattered seed and which the whirling flakes I, for one, cannot determine.

Climbing Plants.

The soul of man knows well that it can only thrive by clinging to another, a Divine soul.

I have lately found in President Bascom's treatise on 'Comparative Psychology' some quotations that have greatly interested me from Mr. Darwin's volume on 'Climbing Plants.' The book itself I have not seen, but these extracts furnish me analogies that are instructive. The fact that all life comes from one Life-giver, and that the laws of the natural world often run parallel with the laws of the spiritual world, is most beautifully set forth by these studies of Mr. Darwin. Therefore, I shall let him preach to you this morning; that is to say, the truth of God, as revealed in Nature and recorded by this naturalist, shall be placed before you that you may see in it, as in a glass, the reflection of truths that deeply relate to your own spiritual life.

The first peculiarity of the

climbing plant to which the author calls our attention is, 'the slow revolution, in a larger or smaller circle, of the upper extremities in search of a support.' Just as soon as the tender stalk of the plant begins to lift itself up from the earth, the top of it begins to swing round, reaching out thus in all directions for something to lay hold upon and cling to. The petioles or leaf-stalks, the tendrils, and even the stem of the plant itself, show a wonderful sensitiveness to touch; and when in their revolutions they are brought into contact with some firm object, they immediately begin to press against it, and to twine round it. The tendrils and petioles are the most sensitive, and they lay hold upon the object that they have reached with a firm grasp, and, if the form of the object permit, carry the whole plant round it, and bind it fast.

Thus it is that the climbing-plant feels after the strong support on which it must depend. The plant knows that it cannot stand alone; it knows that it must have something to cling to, and it begins to reach out after it just as soon as it begins to grow. I say the plant 'knows,' and though that expression must not be taken too literally, yet there is in this instinctive search for support something so wonderfully like many of our own instinctive mental operations that we cannot help seeing that all kingdoms of life are closely allied. As President Bascom says of these phenomena: 'They all show an organic mastery of external conditions approaching that which we find in a more complete form in higher life.'

Do we not witness in these movements of the climbing plant something closely analogous to the outreachings of the human soul after God? The soul knows, too, that it cannot thrive alone, that it needs some Power stronger than itself to cling to; and it always begins to feel after it, if haply it may find it. Blindly, in the dark, the minds of men grope after this Object of their faith; often it is only to them the Great Unknown:

> 'That which we dare invoke to bless,
> Our dearest faith, our ghastliest doubt,
> He, they, one, all, within, without—
> The Power in darkness whom we guess.'

In the jungles of Africa, in the ice-fields of the North, these instincts stir in the hearts of men, and draw them toward Him in whom they live, and on whom they ought to lean, and about whom the tendrils of their affections ought to cling. It is not the heathen alone who have this experience. You know what it means, my friend, no matter how irreligious your life may have been; you know that your heart is often yearning for a good you have not got; that the sense of helplessness and dependence sometimes takes strong hold of you, and forces from your heart the cry: 'Oh that I knew where I might find Him, and lay hold upon His strength!'—*Washington Gladden.*

Lessons from Climbing Plants.

Dependent natures may cling to unworthy and unstable objects, and even to treacherous self.

'When a tendril,' says Darwin, 'has not succeeded in clasping a support, either through its own revolving movement or that of the shoot, or by turning toward any object that intercepts the light, it bends vertically downwards and then towards its own stem, which it seizes, together with the supporting stick, if there be one.' The aptness of this simile you do not fail to perceive. When those spiritual instincts of our nature that reach out naturally after God and goodness do not lay hold on that which is their normal support,

they, too, are very apt to turn downward and inward, and to lay hold upon that self which it was their true function to bind to a firm support. Man ought to trust in and worship something outside of and above himself; it is his nature to go forth from himself in search of such an object to worship; but sometimes his own perverse and wicked will checks these natural aspirations, and will not suffer them to fasten upon the Object to which they ought to cling. And when this is done the affections are apt to be turned backward upon self; the man comes to believe only in himself and to worship himself, and the character that is developed is a most unlovely product of egotism and selfishness. Alas for the man whose trust and hope are in himself alone! 'If the tendril seizes nothing,' says this naturalist, 'it soon withers away and drops off.' There is a world of meaning in this trait of the parable. The tendril shrivels and dies when it does not find any support to cling to. The disused faculty perishes by disuse. And these instincts of our souls that reach out after God —these yearnings for His strength and His peace—may perish in the same way. The desire to know Him and to love Him and to serve Him is extinguished in the breast if we refuse His service. It is possible thus, by simple neglect, to destroy that part of our nature by which we take hold upon God. The extinction of the faith-faculty is not an impossible calamity; of all calamities that could befall us, this is the direst. How can the climbing plant climb when the tendrils have withered and dropped off? It must thenceforth grovel in the dirt and be trodden under foot of men. And how can the soul lift itself up when all the faculties by which it takes hold on God have fallen into decay? From that hour its destiny must be corruption and death.

Let us hear Mr. Darwin again. 'Tendrils, soon after catching a support, grow much stronger and thicker, and sometimes more durable to a wonderful degree; and this shows how much their internal tissues must be changed. Occasionally it is the part which is wound round a support which chiefly becomes thicker and stronger. I have seen, for instance, this part of a tendril of *Bignonia æquinoctialis* twice as thick and rigid as the free basal part.' Is not this, also, true in the higher realm? The instincts of the soul that feel after God are wonderfully strengthened when they find Him and take hold of His power. Faith grows by exercise. The man who says, 'Lord, I believe!'—even if he must, because of the infirmity of his faith, say in the same breath, 'Help Thou mine unbelief!'—finds always that his power of believing increases while he speaks.

'The tendril strikes some object,' Mr. Darwin proceeds, 'and firmly grasps it. In the course of some hours it contracts into a spire, dragging up the stem and forming an excellent spring. All movements now cease. By growth the tissues soon become wonderfully strong and durable.' The very character and quality of the tendrils themselves are changed as they thus fasten upon their support, and perform the function to which Nature has assigned them. And so it is with the spiritual faculties of ours by which we lay hold upon God. Our trust, instead of being a tender and fragile thing, grows firm and strong, and holds us fast to the throne of God with a grasp that the shocks of change cannot break, nor the storms of adversity loosen.

One more quotation from this wonderful fable of the climbing plants must suffice us for to-day: 'The tendrils and internodes of ampelopsis have little or no power

of revolving; the tendrils are but little sensitive to contact; their hooked extremities cannot seize their objects; they will not even clasp a stick unless in extreme need of support; but they turn from the light to the dark, and, spreading out their branches in contact with any nearly flat surface, develop discs. These adhere, by the secretion of some cement, to a wall or even to a polished surface. The rapid development of these adherent discs is one of the most remarkable peculiarities possessed by any tendril.' I cannot help seeing in this wonderful provision of Nature an analogy of that phenomenon of the spiritual life which we so often witness, by which those natures which have but little power of comprehending religious truth—of reaching round it, and getting hold of it by their understanding — do yet lay hold upon it in a way of their own, and hold fast to it, very firmly, too. The ampelopsis that climbs the wall of your church has no need of a ladder or a rope to climb by; its own little discs make fast to the wall, and hold it quite as if it were wound round a trellis. And so there are Christians whose faith does not seem to need the leading strings of logic or theology, but mounts right up by its own sure-footed intuition. And it is a blessed thing that those to whom the paths of philosophy are thorny, and the steeps of speculation hard to climb, may thus, by a simple and direct confidence in the Christ Himself, who is to all who receive Him the Way and the Truth and the Life, ascend to the serene and tranquil heights of virtue. And doubtless it would often be better for us all if, instead of believing much about Him, we would just believe on Him, joining ourselves to Him by a living faith, and trusting where we cannot see.

Such, then, is our parable. Its meaning has been disclosed as we have told it, and I do not think you have failed to see the significance of its teaching. For one thing, it brings us into a better acquaintance with those other creatures of God that we sometimes think have but little in common with ourselves, and makes us see how near of kin we are to the vines and the lilies and the grass of the field. In the story of their lives we see our own lives prefigured, and some new meaning is given to that bold parable of Paul in which he represents the whole creation as sharing with man in the degradation of sin, and toiling upward with him out of the bondage of corruption into the glorious liberty of the children of God.

For proof of the existence of these instincts of the soul that feel after God, if haply they may find Him, that impel you often in hours of darkness and unrest to acquaint yourself with Him that you may be at peace; that bear witness to you over and over again, telling you that for these things of life — these choices, these burdens, these conflicts, these tears, you are not sufficient; that your strength needs to be supplemented by the strength of One who is almighty — for the existence of such instincts I need only go for proof to your own consciousness. You know what they are; you have felt their gentle but powerful drawings in your own hearts. Toward the darkness in which the Infinite is hidden, toward the shadow in which He is disclosed, your desire often reaches out; upon the sure support that you know is somewhere on that side of your nature your needs and your longings strive to fasten themselves. Is it true of any of you that these affections have laid hold of coarse and unworthy objects, or that, failing to find the Object to which they ought to cling, they have turned back upon yourselves, aggravating your own 'selfish-

ness'? Or have these instincts in any of your natures, through neglect or disuse, withered and dropped away, leaving you with no faculties by which you can take hold on the things that are above? God forbid that so sad a fate should overtake any of you. Remember this, that He after whom our desires reach out is 'not far from any one of us.' He is near enough to you to-day, so that by faith you may join your life to Him, and rest for ever upon His unfailing love. And remember, too, that though our grasp upon the everlasting strength be frail at first, it strengthens as we cling; as we hold, we are held; all the experiences of life confirm the bond that joins us to Him: until at length we shall be able to join with Paul in that triumphant utterance: 'For I am persuaded that neither death, nor life, nor angels, nor principalities, nor powers, nor things present, nor things to come, nor height, nor depth, nor any other creature, shall be able to separate us from the love of God which is in Christ Jesus our Lord.'—*Washington Gladden.*

The Fastening Power of Roots.

Until we are rooted in Christ we have no fixity and no rest.

One of the principal functions which the root performs in the economy of vegetation is to attach the plant to the soil, and prevent it from moving hither and thither at the mercy of the elements. So Christ is the living Root of our spiritual life, connecting it with the whole system of grace, the whole economy of redemption. It is only when united to Christ by a living faith that a soul can lay hold on heaven and immortality. Apart from Him, it is like a weed, sun-dried and wind-wafted, drifting about from place to place—the facile slave of every fickle breeze of doctrine and circumstance, walking through dry places, seeking rest and finding none. In the arid deserts of Central South America there is a strange plant, the *Selaginella convoluta*, a species of club-moss, endowed with very remarkable hygrometric properties. In the dry season, when every particle of moisture is extracted from the soil, it is detached from its growing place, rolled up into a ball, and carried away by the violent equinoctial gales which prevail at the time in these regions, often to very great distances. It remains coiled up in this form for a considerable time; but if carried to a marsh, or the margin of a stream, or any other moist place, it begins slowly to unfold, and spread itself out flatly on the soil, assumes its former vigour and freshness, takes root, develops its fructification, and casts abroad its seed upon the air. When this new situation is dried up, it resumes its old unsettled habits, and, like an adventurous pilgrim, takes advantage of the wind to emigrate to a more favourable locality. And is not this plant an emblem of the man who is detached from Christ, and who therefore wanders from one broken cistern of earthly joy to another, restless, disappointed, dissatisfied? He is wearied in the greatness of his ways, in his manifold journeyings hither and thither in search of true satisfaction. Amid all the resources of modern science and art, there is still the same old vanity and vexation of spirit. Jesus knew well how deep and universal was the experience He was appealing to when He said, 'Come unto Me, all ye that labour and are heavy laden, and I will give you rest.' We are striving to attach outward things—our possessions, our friends, our enjoyments—to ourselves; but where is our fixedness? How carefully does the lawyer draw up the con-

tract, the assignment, or the will, which is to secure to us our portion in this world! What precautions do we take to guard against the changes, fluctuations and uncertainties of business! but what is to make ourselves secure? How are we to save ourselves from being drifted hither and thither at the mercy of the winds and waves of circumstances? All our efforts to make ourselves centres and roots will be vain. Our centre is Christ, and until we are in Him, we shall never know true peace. Our root is Christ, and until we are rooted in Him, we shall be helpless and lifeless, overpowered by outward things, and disquieted by their terrors. Attached to Him, we shall not be moved. United to Him by a living faith, our hearts are fixed and at rest; we are united to God, to eternal life, and to all the blissful and glorious realities of the spiritual world. We are in Him, who is the Root of all life and the Centre of all things; and therefore, in all conditions and circumstances, however painful and trying, we enjoy the perfect peace of the man whose soul is stayed upon God, the very peace of God Himself, which passeth all understanding. —*Hugh Macmillan, LL.D.*

The Lesson of the Lilies.

'*Consider the lilies, how they grow.*'

Did you make the lily? Where is the lily that you made? Produce it. By what way is the light parted which scattereth the east wind upon the earth? Are your fingers dainty enough to part the light, to separate its constituents, and to lay here and there and yonder its marvellous fibre? The hoary frost of heaven, who hath gendered it? Who moulded the drops of dew? How was the ardent colour laid upon the rose? Did you ever paint a flower? Produce it. You will be glad to produce it where there is no natural flower to look at; or, contrariwise, you will find your boast and your compliment in the fact that your flower is an excellent mimicry of the one 'not made with hands.' Who let the spring forth, and set her in queenliness upon the green earth? Who made her? Who gives her vigour? Who painted her complexion? Who made her breath fragrant? — 'Not made with hands!' . . .

'Consider the lilies, how they grow . . . Solomon in all his glory was not arrayed like one of these.' There is Nature set against manufacturers, and set so as to throw them into pitiable contrast. Solomon was all, as to his decorations, *manufacture* — the decorations were *hand*-made; and the lily is lifted up, and declared to be his superior in tender delicacy of beauty to all the colour that flamed on the shoulders of the king. *How* are they made? Look at them and you will know. Compare anything which *you* have made with anything which you find in *Nature*, and you will see that you have either been copying Nature, or travestying by mean and impotent imitation what Nature has done so infinitely well. Can you show me anything so delicate as the bloom upon the cheek of the peach? Touch it. Now put the bloom *back again*. Look at the meadow in the morning when brightened with dew, and tell me if the hands of man ever made such a scene as that dewy field presents when the sun shines upon it? What gleaming diamonds! what glowing rubies! what glittering emeralds! what a blazing of living and all but speaking colour! How made? 'Not made with hands!' Touch one of the jewels. It is gone. Restore it! No angel could! Who hath laid the corner-stone of the earth and shut up the sea with bars? Who formed the bars, and carried them, and set them in their

places? Who fastened on their hinges the ponderous gates of death? or drew a line around the last shadow from which life shrinks? Who holds the reins which guide Orion through all his orbit? How were the Pleiades sprinkled in the heavens? Who made the Milky Way? 'Not made with hands!' — *Joseph Parker, D.D.*

A Sermonette from the Rose.

Learn lessons of frailty, dependence, and ministry, from the fragrant, beautiful, delicate rose. (For the young.)

That is a lovely rose, deep in colour, rich in perfume. Little Alice saw it. Soul light came into her eyes; the colour heightened in her cheek; she pressed forward to make it her own, but paused as the rose said: 'You see me, child; I do not make myself; I am a thing made. Light and heat, air and rain, came together, I know not how, and I was made, powers of heaven and earth joined together, and here I am. I am not like the roses in shop windows. We look much alike, but we are not. Smell—I have fragrance, they have none. Touch—I have life lingering in me though I have been plucked, they have none. We are like our makers — they come from ever-dying workers, I from the Ever-living. And mark, Alice, I am not a last year's rose; this season brought me forth, I am fresh from the Maker's hands; He lives and works to-day, and in such fair creations He delights. He means to win a child's love by charms like these.

'I am what I am by growth. Many improvements have brought me to what you see. My ancestors were wild, single-leaved, growing in hedges and on "banks and braes." But I have been cared for and loved, grafted and grafted again, and so have become the rose you see. Florists say I am not perfect yet, they have never seen a perfect rose, yet they fully expect such a rose will be seen some day. I am like you, child, and you are like me. You will grow because great things lie in you. God will do great things for you, but the perfection and crown of your life the future alone can reveal.

'I am easily hurt, Alice. Things fair and fragrant are usually also frail. An untimely frost will do it, a breath of cold wind, too much rain or too little. London smoke will do it, and tiny insects which the eye, unaided, cannot see. And you may be hurt by little things, you are more likely to be hurt by these than by the big things you dread so much. You can help yourself, you can watch and pray; as for me, I have only to bear what comes. Watch against little faults, and you will be in small danger from greater ones.

'Alice, you have a soul, a something in you which the beasts of the field have not. I can give no pleasure to horse, or dog, or cat; if offered to an ox, he might think me good, but good would mean good to eat. Lower down the scale I am nothing. I am a world to you. Your face lights up, your eye brightens, your heart beats high with delight, you find joy in form, colour, perfume, in my whole being. Your sense of beauty is appealed to, and responds to the appeal. The sense belongs to the soul, exists where soul exists, and nowhere else. You have a soul, child, and that soul has a Friend and Saviour; one of His names He takes from me, "I am the Rose of Sharon." Make Him yours; my beauty and fragrance are types of His.

'God made me and loves me, Alice; He means you to love me, yet nobody can keep me long. Every rose has its season, and the season is brief. To fade, and droop, and die is set down in my

lot. This also is good, and not evil. I have a mission, a little work to do, and I do it. In the garden, the sick-room, the ward of a hospital, I do my little part; and when I drop, careful people gather up my leaves and keep them, for there is fragrance in them still. Go and do likewise, my child: "The memory of the just is blessed.'"

Here the lesson ended. Alice loved the rose and made it her own. There was fragrance without and within—without, the fragrance of the lovely flower; within, the fragrance of holy thoughts and tender love.

The Love of the Garden.

Great men have found solace and suggestion in their gardens.

Can we wonder at the enthusiasm that has always been felt, even by our greatest men, for flowers and gardens, when we review, however cursorily, their interest and attractions? And how beautiful is the spectacle of a great mind—that of a Wordsworth, a Bacon, a Shakespeare, a Milton, a Chaucer, or a Plato—bending in devout admiration over these little fragile flowers, and learning from them, confessedly, some of the most Divine truths that they disseminate for the instruction of a world. Let us glance for a moment at the men whose names have become peculiarly connected with the love of gardens. It is useless to speak of those who love flowers, for that is, in a word, everybody, the lowest and most brutalized minds alone excepted. Neither need we attempt to enumerate the poets who have enjoyed both, for there again we should have to enumerate all. But there are men whose special enjoyment of the subject has been noted, and deserves note. Epicurus — who was anything but what the name would now imply, an epicurean, although he was the founder of the philosophy that has been since so unworthily appreciated—'Epicurus, whose admirable wit, felicity of expression, excellence of nature, meekness of conversation, temperance of life, and constancy in death, made him so beloved by his friends, admired by his scholars, and honoured by the Athenians, passed his time wholly in his garden. There he studied, there he exercised, there he taught his philosophy; and, indeed, no other sort of abode seems to contribute so much to both the tranquillity of mind and indolence of body which he made his chief ends. The sweetness of air, the pleasantness of smell, the verdure of plants, the cleanliness and lightness of food, the exercise of working or walking, but, above all, the exemption from cares and solicitude, seem equally to favour and improve both contemplation and health, the enjoyment of sense and imagination, and thereby the quiet and ease both of the mind and body.' The writer of this passage was Sir William Temple, a veteran diplomatist, and the well-known patron of Swift. Sir William's own love for gardening shines out in his words, but still more vividly in his act—the latest of his life—which was to direct the burial of his heart beneath the sun-dial in his own dearly-beloved gardens at Moor Park. There, where his heart had been in life, it still reposed in death.

Lord Bacon describes a garden as the purest of human pleasures, and as providing the greatest refreshment to the spirit of man. 'The breath of flowers,' he continues, 'is far sweeter in the air (where it comes and goes like the warbling music) than in the hand. Therefore nothing is more fit for this delight than to know what be the flowers and plants that do best perfume the air.' And he then gives us a glimpse of his own especial favourites: 'The flower which above all others yields the

sweetest smell in the air is the violet; next to that is the musk-rose; then the strawberry-leaves, dying with a most excellent cordial smell; then sweet-brier; then wall-flowers, which are very delightful to be set under a parlour or lower-chamber window. But those which perfume the air most delightfully, not passed by as the rest, but being trodden upon and crushed, are three; that is, burnet, wild thyme, and water-mints; therefore you are to set whole alleys of them, to have the pleasure when you walk or tread.' Truly this is garden epicureanism in its glory.

Locke gave a practical proof of the interest he felt in the genial subject by writing observations on the growth of vines and olives in England; and Addison did the same by his remarks on landscape-gardening in the *Spectator*, and which entitle him to be looked on as one of the founders of the modern or natural style. Milton, curiously enough, is entitled to similar reputation for his description of Paradise in his great poem, which, independent of its sublime objects and effects, produced the lesser good of impressing upon the mind of the more intelligent garden-lovers among his contemporaries and immediate successors the beauty of the natural style. Milton's London residences, generally of that kind called garden-houses, showed his love for gardens; though he, like poets generally, took care not to forget, in the enjoyment of these little sweet snatches, as it were, of the beauty of external Nature—that greater external Nature itself. Finely does he say, 'In those vernal seasons of the year when the air is calm and pleasant, it were an injury and sullenness against Nature not to go out to see her riches and partake in her rejoicing with heaven and earth.'

Pope, in one of his letters, says: 'I am in my garden amused and easy; this is a scene where one finds no disappointment.' Shenstone could not literally agree with the truth of the last remark, however cordially he assented to its spirit; for his exquisitely-beautiful garden (by far the finest of his poems) led him into difficulties and serious disappointments. Johnson says of him: 'He began from this time to entangle his walks and to wind his waters, which he did with such judgment and such fancy as made his little domain the envy of the great and the admiration of the skilful. His house was mean, and he did not improve it; his care was of his grounds. When he came home from his walks, he might find his floors flooded by a shower through the broken roof, but he could spare no money for its reparation. In time his expenses brought clamours about him that overpowered the lamb's bleat and the linnet's song; and his groves were haunted by very different beings from fauns and fairies.'

Peculiarity of Corn.

'Corn is the special gift of God to man.'

There are several interesting and instructive ideas connected with this view of it. All the other plants we use as food are unfit for this purpose in their natural condition, and require to have their nutritious qualities developed, and their natures and forms to a certain extent changed by a gradual process of cultivation. There is not a single useful plant grown in our gardens and fields but is utterly worthless for food in its normal or wild state; and man has been left to himself to find out, slowly and painfully, how to convert these crudities of Nature into nutritious vegetables. But it is not so with corn. It has from the beginning been an abnormal production. God gave it to Adam, we have every reason to believe, in the same perfect state

of preparation for food in which we find it at the present day. It was made expressly for man, and given directly into his hands. 'Behold,' says the Creator, 'I have given you every herb bearing seed which is upon the face of all the earth'—that is, all the cereal plants, such as corn, wheat, barley, rice, maize, etc., whose peculiar distinction and characteristic it is to produce seed—'and to every beast of the earth, and to every creeping thing, and to every fowl of the air, I have given every green herb for meat!' That is, all the species of grass and succulent plants whose nutritious qualities reside chiefly in the stems and foliage. The Word of God plainly tells us this, and Nature affords a remarkable corroboration of it. We cannot regard it as an accidental, but, on the contrary, as a striking Providential circumstance, that the corn-plants were utterly unknown throughout all the geological periods. Not the slightest trace or vestige of them occurs in any of the strata of the earth, until we come to the most recent formations, contemporaneous with man. They are exclusively and characteristically plants of the human epoch; their remains are found only in deposits near the surface, which belong to the existing order of physical conditions. They were ushered upon the scene in the company of those labiate and rosaceous plants whose beauty, fragrance, or fruitfulness, were especially fitted to minister to the wants of a rational creature. The testimony of geology, therefore, confirms unequivocally the testimony of revelation, and shows that corn was not only specially created for man's use, but was also got ready specially for the appointed hour of his appearance on earth. A table was spread for him in the wilderness by God's own hands, richly furnished with the finest of the wheat, and adorned with wreaths of roses and luscious fruits, and rendered fragrant with mint and spikenard and frankincense.

There is another proof that corn was created expressly for man's use in the fact that it has never been found in a wild state. The primitive types from which all our other esculent plants were derived are still to be found in a state of nature in this or in other countries. The wild beet and cabbage still grow on our sea-shores; the crab-apple and the sloe, the savage parents of our luscious pippins and plums, are still found among the trees of the wood; but where are the original types of our corn-plants? Where are the wild grasses which, according to some authors, the cumulative processes of agriculture, carried on through successive ages, have developed into corn, wheat, and barley? Much has been written, and many experiments have been tried, to determine the natural origin of these cereals, but every effort has hitherto proved in vain. Reports have again and again been circulated that corn and wheat have been found growing wild in some parts of Persia and the steppes of Tartary, apparently far from the influence of cultivation; but when tested by botanical data, these reports have turned out in every instance to be unfounded. Corn has never been known as anything else than a cultivated plant. The oldest records speak of it exclusively as such. Wheat grains have been found wrapped up in the cerements of Egyptian mummies, which were old before history began, identical in every respect with the same variety which the farmer sows at the present day. Charred fragments of bread, and large quantities of carbonized barley and other grain, have been dug out from beneath the alluvial deposits of the Swiss and Italian lakes, where the lacustrine dwellings of a singular

people stood at the very least two thousand years before the Christian era. And at the present day, to the wild and roving savage in the uttermost parts of the earth, corn is known only in a state of cultivation. History and observation prove that it cannot grow spontaneously. It is never like other plants, self-sown and self-diffused. Neglected of men, it speedily disappears and becomes extinct. It does not return, as do all other cultivated varieties of plants, to a natural condition, and so become worthless as food, but utterly perishes, being constitutionally unfitted to maintain the struggle for existence with the aboriginal vegetation of the soil. All this proves that it must have been produced miraculously, or, in other words, given by God to man directly in the same abnormal condition in which it now appears; for Nature never could have developed or preserved it. In the mythologies of all the ancient nations it was confidently affirmed to have had a supernatural origin. The Greeks and Romans believed it to be the gift of the goddess Ceres, who taught her son Triptolemus to cultivate and distribute it over the earth; and from her the whole class of plants received the name of cereals, which they now bear. And we only express the same truth when we say to Him whom these pagans ignorantly worshipped: 'Thou preparest them corn when Thou hast so provided for it.'—*Hugh Macmillan, LL.D.*

The Mystery of the Virginia Creeper.

The powers that are in a man may enable him to master adverse circumstances.

This is one of those climbing wall-plants which for many past years has been becoming more and more popular in the capital. Botanists know it as the *Ampelopsis hederacea*, but in common parlance it is styled the Virginian creeper, being named from the State of Virginia in America, from which it was first introduced, and where it grows wild. Everybody must be familiar with this creeper, which has done more than almost any other member of the vegetable kingdom to redeem London from sterility in the summer. No dry or rainy weather, no difference of soil or locality, affect it; it is the veritable 'gamin' of the vegetable world, living and thriving wherever it can once get a foothold; the close friend of sparrows, the bower-maker of cooks and housemaids; a creeper which was created for towns and cities, it lacks only two things to be 'a thing of beauty and a joy for ever.'

It ought to possess blossoms, of which it is entirely destitute, and it should be an evergreen; whereas during all the winter months it leaves upon our walls a dry and dreary skeleton of its green beauty. Before it sheds its lovely and vine-like foliage the finger of autumn touches its graceful tendrils into the most perfect beauty of colour. At this time the backs of half the London houses in the suburbs are mantled with long hangings of crimson, amber, russet, and brown, the hues of the dying leaves of the Ampelopsis. The effect is as if innumerable hangings of richly-dyed carpets or shawls were suspended from the casements of the suburban residences. Every leaf of the plant which throughout the summer has beautified the dingy purlieus of the Metropolis with its cascades of emerald now glows with splendid and tender tints, for the time transforming the city into an Arcadian land. The dangling stems, with their natural festoons of scarlet and gold, make a hundred thousand windows charming; they cover the hideousness of a thousand dead walls with folds of fading gold and amber; they furnish the prettiest conceivable enrichment of

the dinner-table or background of the bouquet, and will only desert us when the 'wild west wind, that breath of autumn's being,' tears them and all the other leaves from the parent-stem, and winter comes, permitting nothing green except the ivy and the laurels.

Yet it is a curious fact that this same climbing plant, so universal and so easily domesticated, is also one of the most wonderful in the botanical world. A creeper which needed culture and attention could never have prospered and covered half London with its branches, as the Ampelopsis has done. Be it man or vegetable, there must be some special gifts and faculties in whatever invades a metropolis and holds its own there, without any external aid. The Virginia vine displays perfectly miraculous powers of adaptation. It sends out tendrils three or four inches in length, which grow in apparently an aimless way for a few days in five or six slender fingers until they touch and feel a wall, a window, a water-pipe, or any flat surface. Then the curved extremities of the tendrils swell, become bright red, and expand into little discs or cushions closely pressed to the adjacent superficies. It takes from thirty-eight to forty-eight hours for this remarkable change to occur in the seemingly simple ends of the tendrils or hooks, but once the discs are formed they secrete a fluid which fixes them to the wall or window firmly as any stick-fast, glue, or gum. No solar heat, no warmth of the adherent surface, can evaporate the liquid thus exuded; the climbing juice of the fig will remain liquid for one hundred and twenty-eight days, and that of the Virginian creeper is nearly as much proof against desiccation. Yet once affixed it dries into an indomitable cement, and by these wondrous hands the little London plant climbs and thrives. As soon as ever the discs have found a good foothold they discharge this hold-fast fluid, which hardens, and then the tendril curls itself into a watch-spring, twisting first one way and then the other, so as to avoid destructive tension, and by this method obtains a perfectly serviceable and elastic stay. Thus anchored, the little sentient mooring dries up and dies, but retains its strength and elasticity in the withered state, so much so that one single branchlet of Ampelopsis, dead for ten years, has been found capable of supporting a weight of two pounds, the entire tendril easily sustaining ten pounds. Hereby it will be easily understood how the lavish wealth of foliage displayed by this friendly and familiar London creeper is held up. It has a thousand hands, and these possess ten thousand fingers, all feeling about for eligible points of vantage, which once seized are grasped for good; the creeper finding its own means of ascending and beautifying the blank backs of metropolitan abodes. A still more remarkable thing is that, once it has climbed as high as it can go, it takes no more trouble to develop these tendrils and discs. It seems to be quite aware that its aspiring days are over, and lays itself out to produce leaves and branches just like the ivy, which shoots no more adhesive rootlets when it once arrives at the top of a tree or wall, and just as the holly keeps all its prickly leaves for the lowest parts of the tree, and exhibits only smooth and unarmed branchlets when it passes out of reach of cattle and wayfarers.

We have spoken at some length of this plant, because it brings under the very eyes of Londoners some of the every-day miracles of the botanical kingdom. Nobody can be unaware of the Ampelopsis; everybody must see its graceful summer foliage and beauteous autumnal adorning, and, so seeing, have within reach and examination one of the deepest mysteries of creation.

The Beauty of the Grass.

The grass is the chief garment of the earth.

It seems as if nothing could be said under this head; because, in truth, there is so much to say. To get a good idea of the beauty of the grass, endeavour, in imagination, to form a picture of a world without it. It is precisely to the scenery of Nature what the Bible is to literature. Do you remember that idea of Froude's, that the Bible had been obliterated, and every other book had thereat lost its value, and literature was at an end? Take away this green ground colour on which Dame Nature works her embroidery patterns, and where would be the picturesque scarlet poppies or white daisies, or the gray of the chalk cliffs, or the golden bloom of a wilderness of buttercups? Its chief service to beauty is as the garment of the earth. It watches night and day, at all seasons of the year, 'in all places that the eye of Heaven visits,' for spots on which to pitch new tents, to make the desert less hideous, fill up the groundwork of the grandest pictures, and give the promise of plenty on the flowery meadows where it lifts its silvery and purple panicles breast-high, and mocks the sea in its rolling waves of sparkling greenness. It is beautiful when it mixes with *oupine* and *turritis* on the ruined bastion or gray garden-wall; beautiful when it sprinkles the brown thatch with tufts that find sufficient nourishment where green mosses have been before; beautiful when it clothes the harsh upland, and gives nourishment to a thousand snow-white fleeces; still more beautiful when it makes a little islet in a bright blue mountain lake, 'a fortunate purple isle,' with its ruddy spikes of short-lived flowers; and precious as well as beautiful when it comes close beside us, in company with the sparrow and the robin, as a threshold visitant, to soften the footfall of care, and give a daily welcome to the world of greenness.

'If a friend my grass-grown threshold find,
Oh, how my lonely cot resounds with glee!'

Is it only for its velvet softness, and the round pillowy knolls it heaves up in the vistas of the greenwood, that the weary and the dreamer find it so sweet a place of rest?—or is it because the wild bee flits around its silvery panicles, and blows his bugle as he goes with a bounding heart to gather sweets; that the hare and the rabbit burrow beneath its smooth sward; that the dear lark cowers amid its sprays, and cherishes the children of his bosom under its brown, matted roots; that the daisy, the cowslip, the daffodil, the orchises—the fairies of the flower world—the bird's foot trefoil—the golden-fingered beauty of the meadows, the little yellow and the large strawberry trefoil, are all sheltered and cherished by it; and that one of its simple children, the *Anthoxanthum odoratus*, or sweet-scented vernal grass, scents the air for miles with the sweetest perfume ever breathed by man?—*Hibberd.*

Various Thoughts on Flowers.

They are symbolic and suggestive of spiritual things.

What is the utility of flowers? Is it anything more than colour, shape, and motion? Assuredly it is. Their utility is made up of a structural organism and a physiological system, containing a mine of wonderful instruction, and constituting a science in itself. The lessons to be derived from the structure and physiology of plants are varied and innumerable; they elevate the mind to the contemplation of that 'one stupendous

whole whose body Nature is and God the soul,' and of which flowers are little representative fragments; they are equal to the acquisition of a language; they are worth the society of men whose acquaintance is said to be a liberal education. Add to this the delicious fragrance which so many garden flowers exhale, and which constitutes a very tangible utility; where this is wanting, however, observe the excellent richness, variety, and purity of colour which the majority of garden flowers display—hues with which no artistic imitations can for a moment compare. There is nothing in pictures or in ornaments to equal the colours of the commonest garden flowers; they baffle all reproduction, and beggar all description; they are incomparably fine and perfect beyond anything that human effort can achieve. All the artists in the world could not produce anything equal to the petal of a geranium, and the very best approaches to Nature which canvas or paper can exhibit are inevitably dimmed and spoiled by time. Flowers themselves only retain their brilliant hues while alive and healthy; so long, therefore, only is our admiration accorded, for dead or withered flowers are ugly and contemptible. Certain gems owe half their value or utility to that quality which neither flowers possess nor painters can bestow—the quality of perpetual freshness. Flowers secrete nectar; they also possess a sanitary advantage connected with the absorption of carbonic acid gas from the air. Putting all these items together, they constitute a very small yet decided aggregate of utility; and flowers, it will be admitted on all hands, serve to sustain a very large amount of beauty.—*Holmes-Forbes.*

'What can be more innocent,' says Samuel Smiles, 'than flowers? They are like children undimmed by sin. They are emblems of truth, a source of fresh delight to the pure and innocent. The heart that does not love flowers or the voice of a playful child, cannot be genial. It was a beautiful conceit that invented a language of flowers, by which lovers were enabled to express the feelings that they dared not openly to speak. But flowers have a voice for all—old and young, rich and poor. "To me," says Wordsworth:

'"The meanest flower that blows can give
Thoughts that do often lie too deep for tears."'

Bring one of the commonest field flowers into a room, place it on a table or chimney-piece, and you seem to have brought a ray of sunshine into the place. There is a cheerfulness about flowers. What a delight are they to the drooping invalid! They are like a sweet draught of enjoyment, coming as messengers from the country, and seeming to say, "Come and see the place where we grow, and let your heart be glad in our presence." A flower in the window sweetens the air, makes the room look graceful, gives the sun's light a new charm, rejoices the eye, and links Nature with beauty. The flower is a companion that will never say a cross thing to anyone, but will always look beautiful and smiling. Common things are cheap, but common things are invariably the most invaluable. Could we only have fresh air, or sunshine to purchase, what luxuries they would be considered! but they are free to all, and we think little of their blessings.'

Flowers are made so beautiful as we find them, no doubt in a high degree for the delight of human eyes. Before the appearance of man upon this earth of ours, scarcely anything of the character of a flower had been ultimated into existence here. Geology makes this abundantly evident,

together with the fact that flowering plants, properly so called, began to appear in plenty upon the earth's surface only when the golden period which we call the creation of man was swiftly approaching. Human delight, however, is not their only intent. The happiness of mankind is enhanced, without question, by *every* circumstance in Nature, either directly or indirectly; but a special intent in the beauty of flowers, as produced by their coloured and satiny petals, is that they shall act as so many concave mirrors, and reflecting surfaces, catching the sun's rays, and concentrating and casting them upon the seed-making apparatus, just as white clouds beautifully fling light upon the earth that they themselves have first received from the common source, or as silken curtains to parlour-windows transmit, when the sun is shining, a lustre not their own to our tables and books, and even to our faces.

If we examine a flower carefully, with a view to an intelligent comprehension of how it is constructed —not necessarily pulling it to pieces, but turning it over and over, round and round, looking first at the outside, then into the depths of its heart, we find that it consists, in the great majority of cases, of two distinct portions—an outer one, which is green, and in texture not unlike a leaf; and an inner one, which is softer than the finest satin, usually thinner than the thinnest silver-paper, and exquisitely coloured. The outer portion is the 'calyx' (in which word we have only another way of writing 'chalice'); the inner portion is the 'corolla,' literally the 'little crown,' from the poetical, and therefore good and true, idea which regards it as marking the day when the plant is in the enjoyment of its highest honour and glory—upon which it is 'crowned,' as it were, and thus in the condition of king or queen when lifted to the highest pinnacle of royal dignity by having the golden diadem placed upon the brow.

The Master of all wisdom said to His first disciples, and through them to the disciples of all succeeding ages, '*Consider* the lilies of the field;' but how many thousands of these meek teachers bloom and die unheard and unregarded? It is beautiful, however, to note, to use the words of a modern writer, how strongly the sentiment of affection for the bright frail blossoms of field and garden operates among classes that might be supposed to have had all sympathy with the beautiful crushed out of them; this may any day be seen in the most squalid parts of London, where, as sisters of mercy and others testify, the most wretched of men and women prize and cherish every flower they can obtain, and where a present of flowers is valued for itself, as a thing of beauty and a pleasure to possess. Or let a flower-show be thrown open to the poor and destitute folk who dwell in such parts of our city as Bethnal Green, and the wistful, lingering way in which these hard-lived people eye the flowers, and the simple spontaneous ejaculations of admiration and delight which escape them, are as pathetic as can well be imagined.

There is, indeed, in the human heart an instinctive tenderness for flowers; and go where he will, the traveller finds the people he is among associating them with gentle or sacred memories, and employing them as symbols of the best emotions. As direct agents for good, as true missionaries, their value and power can hardly be over-estimated; and in whatever way, therefore, public attention is drawn to the garden as affording an influence towards reform, the tendency is beneficial. The well-kept flower—so those

who work among the poor say—is always a cheering sign; and if they can only persuade a household to preserve a plant in bloom, that single plant will somehow set one or other of the inmates thinking of another improvement which may be made in the appearance of their squalid abode, and thus step by step the end may eventually be gained, and cleanliness and self-respect once more assert themselves.

In every age and country the symbol of flowers has been employed to commemorate occurrences both good and evil. History preserves in its eventful pages a calendar of fateful blossoms of its own accord; and instinctively humanity has perceived the beautiful truths which these dainty things are for ever telling—the patient reliance upon the processes of Nature, their unswerving fidelity of character, their graces, even though unobserved in desert places, of colour, form, and perfume, their courageous confidence, their inevitable frailty. Perceiving this, recognising in them the purest and most appropriate of emblems, they have dedicated them to every circumstance of life in which the best and tenderest feelings are aroused, and associated them with the happiest and most pathetic incidents of our existence. The font and the grave are decorated alike, and birth and death honoured with the same coronation. This symbolism is older than history itself; but the human heart, with its strange pathetic tenderness for the most fragile and fleeting of Nature's gifts, still loves to draw memory back again by such links from the present to the past. The language of flowers is one that requires no special scholarship to read; and it needs no technical training to understand how eloquent our gardens are of the history of the human heart, and how instinct with the most beautiful traditions of our race. The lessons and morals which have been drawn from these dainty preachers of the woodland and garden are without number, and we are too slow to recognise the debt which we owe to flowers.

Flowers, of all created things, are the most innocent and simple, and most superbly complex—playthings for childhood, ornaments for the grave, and the companions of the cold corpse in the coffin. Flowers beloved by the wandering idiot, and studied by the deep-thinking man of science! Flowers, that of all perishing things are most perishing, yet of all earthly things the most heavenly. Flowers, that unceasingly expand to heaven their grateful, and to man their cheerful, looks—partners of human joy, soothers of human sorrow; fit emblems of the victor's triumphs, of the young bride's blushes—welcome to crowded halls, and graceful upon solitary graves! Flowers are, in the volume of Nature, what the expression 'God is love' is in the volume of revelation. What a dreary, desolate place would be a face without a smile—a feast without a welcome! Are not flowers the stars of the earth, and are not flowers the stars of heaven? One cannot look closely at the structure of a flower without loving it. They are emblems and manifestations of God's love to the creation, and they are the means and ministrations of man's love to his fellow-creatures; for they first awaken in his mind a sense of the beautiful and good. The very inutility of flowers is their excellence and great beauty, for they lead us to thoughts of generosity and moral beauty, detached from and superior to all selfishness; so that they are pretty lessons in Nature's book of instruction, teaching man that he liveth not by bread alone, but that he hath another than an animal life.

Flowers exhibit many powers and properties which the science of man has never been able to explain. Some will instantly close upon the slightest touch. Some will flutter, as if in alarm, upon sudden exposure to intense light. Some seem possessed of limited powers of locomotion. A certain species of wild oats, when placed upon a table, will spontaneously move; pea-blossoms always turn their backs upon the wind; the heliotrope always faces the sun; the tulip opens its petals when the weather is fine, but closes them during rain and darkness; the pond-lily closes its pure white leaves at night, as it lies on its watery bed, but unfolds them again in the morning. On the other hand, some flowers open only at night. That splendid flower, the night-blooming cereus, is of this kind; it opens but once, and that in the night, for a few hours only, then fades and dies, without ever admitting the light of day into its bosom. Some open and shut at certain hours, and that so regularly as to indicate the time of day, like the sindrimal of Hindostan, which opens at four in the evening, and closes at four in the morning. Dr. Good describes a water-plant which at a certain season detaches itself from its stem, and, like a gallant suitor, sails complacently over the waters in pursuit of a mate, till he finds her. Other flowers there are, as the nepenthes, that will adroitly catch flies and devour them. Others, again, possess a most extraordinary luminous property. A plant that abounds in the jungles of Madura illumines the ground to a distance all around; and many species of lichens, creeping along the roofs of caverns, lend to them an air of enchantment by the soft and clear light they diffuse. Who can explain to us these phenomena of flowers? Who but must see that the hand and counsel of Infinite Wisdom are concerned in the production of these vegetable wonders?

Israel's Flowery Land.

Palestine has been called 'the Garden of Eden run wild.'

The Jews of old fed among the lilies, for their land was pre-eminently the flowery land. It merited that name far more than China, which has usurped the title. Though not larger than the six northern counties of England, Palestine possesses 2,500 species of flowering plants, or nearly twice as many as occur in the British Islands. Dr. Tristram calls it 'the Garden of Eden run wild.' Every traveller is struck with the immense profusion, variety and brilliancy of the flowers. In the early months of the year the ground is not seen for the multitude of them. The flowering season lasts only a very few weeks; but during this period crowds of brightly-tinted blossoms flourish in luxuriant succession day after day, like the wonderful mountain flora which rushes up as if by magic on the pastures of the Alps in May or June, and fringes the limits of eternal snow with a rainbow loveliness. All the flowers of Palestine have very much the general look of spring or Alpine flowers, and owe their fresh and brilliant appearance to the same cause. The Land of Promise was called 'a land flowing with milk and honey.' Its abundance of milk depended upon the rich verdure of its fields in spring; while its profusion of honey was owing to the immense quantity and variety of its flowers. And as it is well known that bees and other insects are allured, in their search for the sweet juices upon which they feed, by bright colours and fragrant odours—those very qualities which render flowers so attractive to our senses—to certain plants in order to aid in fertilizing them; so we can trace the connection between the splen-

did flora of Palestine and its enormous production of honey. The bright flowers favoured the increase of the bees, and the bees favoured the increase of the bright flowers. And in this way the country was beautified and enriched, until it became one great garden of the Lord—was made musical with the hum of bees, and gay with the laugh of flowers. The scenery might be featureless and destitute of grandeur, but the flowers by their abundance and beauty imparted to it the form and colour that were wanting. God did not neglect the bright adornment of flowers on the table which He had prepared and richly furnished for His people. That *Beulah* land which they married was bountifully decorated, like a bride, with these appropriate ornaments. That second Eden had not only every tree that was good for food, but also every tree to be desired for its beauty. Among these beautiful lilies the idyllic life of the people was spent, and their loveliness and fragrance entered insensibly into their souls, and formed their character; while they cheered and graced their common toil in the fields and the pleasant relaxation of their festivals. And as with the land, so with the book. The Bible is the book of flowers; its language is the language of flowers; it is full of the highest poetry and truest philosophy of these fair creations. It considers the lilies, how they grow, in all their aspects, and we gather our spiritual food in the midst of the lilies. The provision of Zion is indeed a heap of wheat set about with lilies. The sweetest and most satisfying promises of God come to us in the midst of the most beautiful poetry; the plainest and simplest precepts are set forth in glowing images; the highest revelations reach us in lessons of the lowly lilies that grow beside our door.—*Hugh Macmillan, LL.D.*

Walking on the Grass.

The brightening influence of Nature associations.

The foot that is familiar with the grass belongs usually to a man of lighter heart than he whose soles seldom wander from the pavement; and the best elixir vitæ is a run, as often as we can contrive it, amid the sweets of new and lovely scenery, where Nature sits, fresh from the hand of the Creator, almost chiding us for our delay.—*Leo H. Grindon.*

A Wealth of Beauty in a Highland Nook.

Nature seems to spend itself in adorning particular spots of earth.

Suppose ourselves seated on a green headland, rising a few hundred feet above the sea-level. In itself this elevation is remarkable for nothing more than the greenest of grass; consequently in the estimation of the shepherd it is one of the 'best places for wintering sheep,' and it is the more fitted for such a purpose owing to its being broken up by innumerable hollows and dykes of trap, which afford shelter to the sheep from every wind. Moreover, the snow seldom lies here, as it is speedily thawed by the breath of the temperate sea. It has its own secluded spots of Highland beauty, too, though these are seldom, if ever, visited by anyone save the solitary herd-boy. In these nooks Nature, as if rejoicing in the undisturbed contemplation of her own grace and loveliness, lavishly grows her wild-flowers, and spreads out her drooping ferns. Nay, she seems unconsciously to adorn herself with tufts of primroses, blue-bells, and crimson heather, and slyly retires into little recesses, to enter which one has to put aside the branches of mountain ash clothed with bunches of coral fruit, as well as the weeping birch and

hazel, in order to get a glimpse of the rivulet which whisks between banks glorious with green mosses, lichens, ferns, honeysuckle, and wild roses. In the spring such recesses are a very home of love for piping birds. At the base of our unknown, untrodden promontory are clefts and caves, worn out and cut into the strangest shapes by the everlasting beat of the ocean tides. In each round rocky bowl, filled with pure sea water, is a forest of fairy-like trees of all colours, strangely mingled —brown, green, and white. Molluscs and fish almost microscopic, together with a solitary crab here and there, move about in this their little world of beauty, in which, to the observer, there indeed seems to be nothing but purity and joy. But the grand and commanding object at the head of Loch Leven is Glencoe. Seen from our promontory, its precipices rise like a huge wall, dark as though built of lava. Tremendous buttresses, from base to summit, disengage themselves from their surface, separated from each other by depths such as might have been cut and cloven by Thor's great hammer, wielded in stormy passion. The mountain is scored across, too, by deep lines and platforms of trap, as though they marked the successive floods of molten rock poured out by volcanic forces. Nothing can be more utterly sombre, sad, and desolate than this Glencoe. We have watched it in its every mood; sometimes when it seemed to sleep like a wearied giant, wrapped in the sun-mist; sometimes when it began to arrest the western clouds, until, as if overcome by their stifling power, they covered it with impenetrable masses, black as night; or, again, when slowly and solemnly it unveiled itself after the storm, and the sun crept up to it, after visiting the green fields and trees below, and pouring itself on white cottages and the sails of fishing-boats, until at last it scattered the clouds from the dark precipices and sent the mists flying — not fiercely, but kindly; not hastily, but slowly — in white smoke up the glens, tingeing with auroral light the dark ridge as they streamed over it, while the infinite sky appeared without a cloud over all, and as if supported by the mighty pillars of the glen.

Injuries produced by Fungi.

Lowered vitality exposes to the inroads of disease.

1. The first and most general injury which is produced upon plants by parasitic fungi results in consequence of the essential character of the fungus. Green plants have the power of converting inorganic materials unto food for themselves. Fungi have not this power, but depend for their food entirely upon materials that have been previously elaborated by some green plant. Parasitic fungi take their food from their host while it is yet alive. The consequence to the plant, therefore, is a loss of food, a withdrawal of formed nutritive material, resulting, to greater or less extent, in starvation. In individual cells the contents usually suffer the greater injury, but the wall is also injured, as when penetrated by the haustoria, or suckers, *e.g.*, upon the mycelium of Peronospora. But the special office of the haustoria is to absorb nutriment from the cell-contents. In some cases, as above, the cell may live to be the continual prey of the parasite and in some cases the cell is killed.

2. While the food supply of the plant is reduced, its power to replenish it is at the same time impaired, *i.e.*, in case the fungus grows upon the green parts, as it does most frequently. The passage of light to the cells may be obstructed. The white moulds,

or mildews, must obstruct it to some extent, black moulds growing over the surface, much more. The latter may occur either as true parasites, or as saprophytes upon 'honey-dew.'

Impaired nutrition weakens the physiological power of the chlorophyll. The life of the cells preyed upon is frequently destroyed, and they become brown and dry, as in many species of Septoria, or crumble and fall out, leaving holes in the leaf, as frequently in *Puccinia asteris*. Where the injury is not so severe, spots of various colours, often characteristic of the species, mark more or less definitely the extent of the mycelium. Exposure to light and activity of the chlorophyll may be lessened in another way by a change in the position of the infested stems and leaves. A very common effect of a parasite is a more erect and rigid growth, as in blackberries diseased with *Cæoma nitens*, the orange rust, and in the garden spurges, *Euphorbia maculata* and *E. hypericifolia*, infested with the cluster-cup, *Æcidium euphorbiæ*. These spurges normally grow prostrate, with leaves widely spreading, allowing the greatest possible exposure to sunlight. In the diseased condition the stems are erect and the leaves less favourably spread.

3. Growth may be abnormally accelerated or retarded, and both these effects may be produced in different cases by the same fungus. *Peronospora parasitica* growing upon the common peppergrass, *Lepidium virginicum*, forms a thick, felted coating of hyphæ upon the under surface of the leaves and causes the latter to be somewhat contracted. The same fungus growing upon the stems of *Sisymbrium canescens* causes swelling and distortion. The Æcidium on *Sambucus canadensis* distorts the stem by accelerating growth, the infested side becoming swollen and the stem bent.

Exobasidium vaccinii on species of Vaccinium causes the leaves to shrink—forms believed to belong to the same species, growing on Azalea and Andromeda, produce inflated sacs, often several inches in diameter.

A distortion usually consists of the fungus producing it, and the abnormal tissues of the host, as illustrated in the smut of maize and the curl of peach leaves. In the latter extra layers of cells are formed on one side.

Æcidium euphorbiæ accelerates the growth of the stems of its host, and retards that of the leaves—an effect resembling that of insufficient light upon plants, as upon vines on the shaded side of a trellis, or potato sprouts in a cellar. The orange-rust on blackberries retards the growth of the leaves, as does also the cluster-cup upon *Ranunculus abortivus*.

Fusicladium, the scab-fungus of apples and pears, retards the growth often of one side, while that of the other continues, producing unilateral development and curvature of the axis of the fruit.

4. Fungi are not confined to the chlorophyll-bearing parts of plants; woody stems, roots, flowers, seeds, and fleshy fruits all have their parasites. One of the Myxomycetes, *Plasmodiophora brassicæ*, causes the disease called club-root in the roots of cabbage. The appearance of the club-root of roses, which is troublesome in American greenhouses, suggests a similar cause. Among those on woody stems are the black knot on species of Prunus, and the Gymnosporangia on cedars.

The flower is attacked in the case of the 'double blossom' of blackberries, the smuts of many grasses (such as *Ustilago rabennorstiana* on *Panicum sanguinale*), and other cases that will suggest themselves. Often the entire inflorescence is arrested in its development. Smut of Indian corn attacks both staminate and pistillate

flowers, and the green parts as well. *Ustilago antherarum* upon Caryophyllaceæ produces its spores in the anthers. *Tilletia caries*, the bunt of wheat, destroys the inner structure of the seed, without much changing the external appearance. The majority of Ustilagineæ attack the inflorescence, flowers and fruit.

The young ovary is affected in various ways. Ergot distorts it and produces an abnormal, horn-like mass of tissue; smuts convert it into powdery spores. Exoascus changes that of Prunus into a pouch. Fusicladium kills the newly formed pear.

5. The last case is also an example of the premature falling of diseased parts, apparently by the formation of the separative layer before its time. Such a falling of leaves is well illustrated by *Septoria ribis* upon the currant. On the other hand, diseased parts may remain green after the other parts have matured in the usual way. Ovaries of *Eragrostis poœoides* filled with *Ustilago spermophorus* are most readily detected by this sign. Probably this may be classed as retarded development.

6. Many fungi cause decay of ripe fruit, both while attached to its plant and after removal, while still alive. From a practical standpoint, the injury to fruit may be of two kinds; it may affect simply the appearance and hence the market value, or impair the quality when it does not entirely destroy. The scab of apples is injurious in either of these degrees.

Some fungi begin their growth as parasites under ordinary conditions, to continue it under conditions more like those which accompany saprophytic growth; in this connection may be mentioned the potato-rot, beginning its growth upon the green plant, and sometimes completing it in the cellar, but upon the still living tuber.

7. Some valuable plants are liable to infection from others of less value; a knowledge of this fact in individual cases may be of great practical utility, as a remedy may be more easily and effectively applied. It is easier to destroy wild grapes and Ampelopsis than to destroy Peronospora upon cultivated grapes which have suffered infection from the wild ones. This remedy especially commends itself when one stage of the fungus grows upon one kind of plant, and another stage upon another kind, as do cedar-apples and orchard-rusts.

Perhaps no line of investigation in economic mycology promises better practical results than this. The relations of a few of the Uredineæ are known, as are also the relations of Ustilagineæ and the yeast-like forms which may be looked for in manure; but of the life-histories of the great group of 'Fungi imperfecti,' including many injurious species, almost nothing is known.

It is often difficult to estimate the extent of the injury to be attributed to any one of these causes, as several commonly operate together. Canada thistle attacked by *Puccinia suaveolens* wilts in hot sunshine, while healthy plants remain fresh; and this appears to be due chiefly to the first cause, the loss of nutriment, which weakens the physiological power. Is it possible that the breaking of the epidermis by the sori, in this or other cases, increases the rapidity of transpiration?

Farmers say the red rust of wheat produces comparatively slight injury, while the black rust is destructive. The black rust appears on the stems, which at that stage of growth have little chlorophyll, even if healthy; the formation of winter spores appears to make a greater drain upon the resources of the host than the formation of summer spores, which have much weaker vitality.

Certain groups of plants are the prey of certain groups of fungi. Gymnosporangia grow upon Cupressineæ; Ræsteliæ upon Pomaceæ; Phragmidia upon the sub-order Rosaceæ proper. Numerous species of Uromyces are parasitic upon Leguminosæ, and the grasses support more Pucciniæ than does any other family of phanerogams. In these two genera no species is known to produce its teleutospores upon host plants belonging to more than one order. The large majority of Uredineæ grow upon herbaceous plants, as do Ustilagineæ and Peronosporeæ. In these groups a given species commonly inhabits but few species of host-plants, while some Erysipheæ inhabit a large number.

Many Erysipheæ grow upon woody plants. Fungi imperfecti are perhaps least of all to be classified with reference to hosts, though many of their genera may be. Woody plants have fewer active parasites than herbaceous plants. Water plants and those of wet places are freer from attack than those which grow upon common soil.

To recapitulate, parasitic fungi injure their host plants by (1) depriving them of nourishment; (2) impairing the power of assimilation; (3) abnormally accelerating or retarding growth, causing distortion; (4) not only green parts are affected, but roots, stems, inflorescence, flowers, and fruit; (5) leaves and fruit fall prematurely; (6) decay is produced in ripe fruits before and after removal from the plant; (7) valuable plants receive injury from those of less value by ordinary infection or heterœcism.

The amount of injury due to one cause is uncertain, since several act together.

Certain groups of phanerogams are liable to be attacked by certain groups of fungi.—*A. B. Seymour.*

Vegetation on Garden Walls.

Nature puts everything into tone, and allows no harsh contrasts.

Many of the stones of my garden wall are covered over with a thin coating of vegetation of various hues and forms. The tints from Nature's palette have been applied with wonderful skill, the warmer and more vivid hues gradually blending with the gray and neutral ones. By this means, the harsh, artificial aspect of the wall has disappeared, and an air of natural beauty has been imparted to it, exquisitely harmonizing with the white trunks of the birch-trees, the green flower-sprinkled bank of the streamlet, and the blue cloud-flecked softness of the over-arching sky. Instead of disfiguring it, it now adorns the landscape, and the eye rests upon its mottled, softly-rounded sides and top with unwearied pleasure. It affords an illustration of the common truth, that there are no distinct lines of demarcation, no harsh, abrupt objects allowed in Nature. Even man's work must come under this law; and wherever Nature has the power, she brings back the human structure to her own bosom, and, while dismantling and disintegrating it, clothes it with a living garniture of beauty such as no art of man can imitate. The farmer may keep the meadow or the corn-field distinct from the surrounding scene, heavy with uniform greenness, or ugly with the discordant glare of yellow weeds; but as soon as Nature obtains the control of it, when out of cultivation, she brings it into harmony with the landscape by carefully spreading her wild-flowers over it in such a way as to restore the proper balance of colour. As the earth is rounded into one great whole, so all its objects are connected with each other, not merely by laws of

structure and dependence, but also by close æsthetic relations. The rock, decked with moss, lichen, and fern, shades in sympathy of hue and outline with the verdure of wood and meadow around it; the mountain and the ocean melt on their farthest limits into the blue of the sky; the river and the lake do not preserve the distinctness of a separate element, but blend with the solid land, by mirroring its scenery on their tranquil bosom; and the very atmosphere itself, by its purple clouds on the horizon, raising the eye gradually and insensibly from the dull, tangible earth to the transparent heavens, becomes a part of the landscape instead of the mere empty space that surrounds it.

The line of turf along the top of the wall is a perfect Lilliputian garden. It bears a bright and interesting succession of plants from January to December. The little lichens and mosses claim exclusive possession of it during the winter months, for these simple hardy forms of life are most luxuriant when the weather is most severe; they are the first to come to any spot, and the last to leave it, growing through sunshine and gloom with meek and unruffled serenity. There are whole colonies of that most social of all cryptogams, the hair moss, looking, with their stiff and rigid leaves, like a forest of miniature aloes; preserving during summer and autumn a uniform dull green appearance, but breaking out in spring into a multitude of little cups of a brilliant crimson colour, nestling among the uppermost leaves, and rivalling in beauty the gayest blossoms of flowers. Hardly less interesting are the scores of cup-lichens, holding up in their mealy sulphur-coloured goblets dewy offerings to the sun, like vegetable Ganymedes. And the lover of the curious will be sure to notice the livid leathery leaves of the dog-lichen, tipped with brown shields like finger-nails, that grow redder in the piercing Christmas cold, bringing us back in fancy to the days of Dr. Mead, the famous physician and friend of Pope, Bentham, and Newton, by whom it was first brought into notice as a remedy for hydrophobia. These and numerous other minute forms, too obscure to mention, may be seen all the year round; and dim though the sunbeams of winter may be, they search them out in their hidden nooks, and stimulate them to life and energy, and the glow of sunrise or sunset, that sets a mountain range on fire, rests lovingly on the smallest moss or lichen, intimating that it, too, has its place and its relations in this wide universe. When the first mild days of early spring come, the *Draba*, or whitlow-grass, puts forth its tiny white flowers, and greets the returning warmth, when there is not a daisy in the meadow, or a single golden blossom on the whinny hillside. Then follows a bright array of chance wild-flowers, wayward adventurers, whose seeds the winds have wafted, or the birds have dropped upon this elevated site, their colours deepening as the season advances; old thyme, ever new, hanging down in fragrant festoons of purple; yellow bedstraw—the Crysohoe of flowers—like masses of golden foam, scenting the breeze with honey sweetness, and ever murmurous with bees; chimes of bluebells hanging from the wall as from a belfry, and tolling with their rich peal of bells—which the soul alone can hear—the knell of the departing flowers. A fringe of soft meadow-grass covers the turf, whose silken greenness forms the ground colour on which these bright patterns are embroidered; while its silvery panicles hang in all their airy grace over the flowers, like gossamer veils, greatly enhancing their beauty. That patch of grass softens no human footfall of care, but it is refreshing to the eye, and the robin

rests upon it, as it pours out its low sweet chant, according well with the sere leaves and the dim stillness of autumn, the calm decay of earth, and the peace divine of heaven. I love, in the silent eve, when there is scarcely a breath in the garden, and the sunset is flushing the flowers and purpling the hills, to sit near that richly decorated wall, in full view of its autumn flowers, smiling on the lap of death, for ever perishing, but immortal, joys that have come down to us pure and unstained from Eden, and amid a world of progress will be transmitted without a single leaf being changed to the latest generation. Looking at them, and feeling to the full the beauty and wonder of the world, I enjoy all that the coming centuries can bestow upon the wisest and happiest of our race. Voiceless though they are, they have a secret power to thrill my heart to its very core. They speak of hope and love, bright as their own hue, and vague as their perfume; they speak of the mystery of human life, its beautiful blossoming and its sudden fading; and, more than all, they speak of Him who, holy and harmless, undefiled, and separate from sinners, found on earth most congenial fellowship with these emblems of purity and innocence; whose favourite resort was the garden of Gethsemane; whose lesson of faith and trust in Providence was illustrated by the growth of the lilies; and who, at last—as the Rose of Sharon and Lily of the Valley—was laid in a sepulchre in a garden, leaving behind there a sweet and lasting perfume, which makes the grave to all who fall asleep in Him a bed of sweet and refreshing rest.—*Hugh Macmillan, LL.D.*

Eastern Love of Perfumes.

Illustrating the refreshing and sanitary ministries of Nature's fragrance.

Perfumes were associated with almost every action and event in the life of the ancients. The free use of them was peculiarly delightful and refreshing to the Orientals. Their physical organization was more delicate and sensitive to external influences than ours; like well-strung harps, they vibrated to every impression from without. Not as mere luxuries or evidences of an effeminate taste, however, were perfumes employed by the Hebrews and Egyptians. The parching and scorching effect of a burning sun rendered them necessaries. They counteracted the excessive evaporation of the moisture of the body, relieved the feeling of lassitude and irritation produced by the heat, and restored vigour and elasticity to the frame. A bouquet of fragrant flowers was carried in the hand, or rooms were fumigated with the odorous vapours of burning resins, or the body was anointed with oil mixed with the aromatic qualities of some plant extracted by boiling, or scents were worn about the person in gold and silver boxes, or in alabaster vials, in which the delicious aroma was best preserved. Beds, garments, hair, and articles of furniture were perfumed with myrrh, aloes, and cinnamon; and so indispensable were perfumes considered to the feminine toilet, that the Talmud directs that one-tenth of a bride's dowry be set apart for their purchase. When entertainments were given, the rooms were fumigated; and it was customary for a servant to attend every guest as he seated himself, and to anoint his head sprinkle his person with rose-water, or apply incense to his face and beard; and so entirely was the use of perfumes on such occasions in accordance with the customs of the people, that the Saviour reproached Simon for the omission of this mark of attention, leaving it to be performed by a woman. And when death at last closed the scene, odorous drugs were employed to check the progress of corruption, and to express the affection of

friends. The body was embalmed in a costly and elaborate manner; and even the cold, noisome grave was made fragrant with the multitude of spices—symbols of faith which outlive that perishing, and will therefore see its resurrection—emblems of the self-sacrificing love of Him who makes all our gathered flowers to give forth a richer fragrance through dying. And it is a beautiful coincidence in connection with this custom, that Smyrna, the name of the old suffering Asiatic Church, is derived from myrrh, one of the principal gums employed in embalming the dead. The virtues and excellences of this bruised Christian Church, like aromatic spices, were to preserve it from spiritual decay, from the second death. 'He that overcometh shall not be hurt of the second death.'

The ingredients of the Hebrew perfumes were principally obtained in traffic from the Phœnicians. A few of them were products of native plants, but the great majority of them came from Arabia, India, and the spice islands of the Indian Archipelago. So great was the skill required in the mixing of these ingredients, in order to form their most valued perfumes, that the art was a recognised profession among the Jews; and the *rokechim*, translated 'apothecary' in our version, was not a seller of medicines as with us, but simply a maker of perfumes. An immense quantity was annually manufactured and consumed, of which we have a very significant indication in the fact that the holy anointing oil of the tabernacle and temple was never made in smaller quantities than 750 ounces of solids compounded with five quarts of oil, and was so profusely employed that, as we are told in Psalm cxxxiii., when applied to Aaron's head, it flowed down over his beard and breast, to the very skirts of his garments. So admirable was the quality of the better and more costly kinds of perfumes, that they lasted unimpaired for hundreds of years, and many of the alabaster boxes dug up from Egyptian tombs from two to three thousand years old, still retain fragrant traces of the ointments once contained in them.—*Hugh Macmillan, LL.D.*

FORESTS, WOODS, ETC.

The Silence and Voices of the Forest.

The value of prayer simply as communion.

Prayer, to one who lives in daily service of God, oftentimes takes the form of simple communion, the spreading out of our life to One who is worthy, whom we love and trust, not for the sake of any special advice, nor for the sake of special help, but for the heart rest which there is in the thing itself. Thus I have sat down within the forest, and, while men were passing, feet tramping, and voices shouting, everything in the boughs and among the leaves hid itself. But after the noise had died out, sitting still and motionless as the tree I leaned against, I have heard a sweet note sounded near me; then a brief response from yonder bush; a bird had hopped down upon the leaves, squirrels had come forth lithe and merry, and in a few moments all the secrets and confidences of sylvan shades were revealed to me. And thus it is in the soul that shuts itself and holds its peace while the world is near, but grows securer in silence of contemplation, and lets out its

gentle thoughts and whispering joys, its hopes or sad fears, into the listening ear and before the kindly eye of God. — *H. W. Beecher.*

A Desert Land.

The experiences of the Israelites are types of phases of religious experience through which souls are still led (DEUT. xxxii. 10).

Few who have not visited Eastern lands can form any adequate idea of the nature of a desert. In those wide-spread plains the hand of man is powerless. Nature holds sway, as on the morning of creation; in primeval wildness she displays her terrors and her magnificence, and art and science sink down, helpless and appalled, before the barriers which she has erected. As the traveller recedes from the habitations of men, and the tokens of human cultivation begin to disappear, the scene becomes wilder and more desolate; a few stunted patches of parched and scanty herbage here and there meet the eye; vast blocks of stone are scattered over the sand; no cooling streams, no refreshing groves break the monotony of the prospect; the sun pours down a flood of burning and dazzling light, and the distant mountains glow in the hot and dusky horizon. The strength of man seems to melt away within him; and the camel, 'the ship of the desert,' paces onwards with languid step. By night the piercing winds are scarcely less endurable than the heat by day. The mountainous portions of the desert afford some of the most awfully sublime scenery that the world can exhibit; and here the terrors of the plains are mitigated by shade and water. Such was the wilderness where the children of Israel wandered for forty years. — *Henry Christmas.*

Inspiring Influence of Forests.

Sensitive souls find companionship in trees.

Enfeeblement to the weak, and source of superstitious fears, the soft twilight and the deep stillness of a great wood to the strong become new strength, inciting to sacred and heavenward thought. Here, too, is felt most powerfully the harmony of trees with our own nature, and the wonderful concord that exists between their varied shapes and qualities and the thoughts and feelings we call our own, and most love to possess and cherish. For there is more companionship in trees than men who have never sought and found it can imagine. It is not so much because the woods are lonely that they yield enjoyment and solace, and move the soul into a happy mood. When the mind is prepared to open itself to their kindly influence, and to hear the voices and catch the glances of the dear old friends abiding there, though at the moment they may be leafless, few places are *less* lonely. There is far profounder loneliness in the streets of a great, strange city:

'The crowd is safer than the silent wood,
Where love's own thoughts disturb the solitude.'

Quintilian found so much in the tranquillity of the woods to interrupt the meditations which he carried thither, that when he would pursue them unbrokenly he was fain to stay at home. 'In the woods a man casts off his years as the snake his slough, and, at whatever period of life, is always a child. In the woods is perpetual youth. Within these plantations of God a decorum and sanctity reign, a perennial festival is dressed, and the guest sees not how he should tire of them in a thousand years. In the woods we

return to reason and faith; there I feel that nothing can befall me in life which (leaving me my eyes) Nature cannot repair. With the trees I am not alone and unacquainted; they nod to me and I to them.' Hence, again, is it that to the lover of Nature there are few greater privations than to be detained from the frequent sight and immediate influence of noble trees. The woods, like the waves on the shore, seem identified with his very existence, claiming companionship with his best and happiest emotions.

'Though caged in this close town, my thoughts still are
To visit thy green fields and pensive woods,
And rivulets that chant their lowly ditties
In the sleepy ear of summer, and the sea
That talks for ever to the quiet sands.'

No wonder that the lively fancy of the ancient poets led them to assign to every wood its dryads, and to every tree its nymph; the pretty and delicate spirit arriving with it and departing with it, grieved when it was injured or ill-treated, pleased when it was honoured and honestly dealt with, as a tree always deserves to be.

The Black Forest.—One cannot describe those noble woods, nor the feeling with which they inspire him. A feature of the feeling, however, is a deep sense of contentment; another feature of it is a buoyant, boyish gladness; and a third and very conspicuous feature of it is one's sense of the remoteness of the work-day world, and his entire emancipation from it and its affairs. Those woods stretch unbroken over a vast region, and everywhere they are such dense woods, and so still, and so piny and fragrant. The stems of the trees are trim and straight, and in many places all the ground is hidden for miles under a thick cushion of moss of a vivid green colour, with not a decayed or ragged spot on its surface, and not a fallen leaf or twig to mar its immaculate tidiness. A rich cathedral gloom pervades the pillared aisles; so the stray flecks of sunlight that strike a trunk here, and a bough yonder, are strongly accented, and when they strike the moss they fairly seem to burn; but the weirdest effect, and the most enchanting, is that produced by the diffused light of the afternoon sun; no single ray is able to pierce its way in then, but the diffused light takes colour from moss and foliage, and pervades the place, like a faint, green-tinted mist—the theatrical fire of fairyland. The suggestion of mystery and the supernatural which haunts the forest at all times is intensified by this unearthly glow.—*Mark Twain.*

Forest Scenery.

Specially helpful in suggesting tender thoughts, and awakening sad memories.

Soon I entered a wood of heaven-high fir-trees, for which I entertain, on every account, a very great respect. The golden sunbeams shoot down lovingly through the thick green of the firs. The roots of the trees form a natural stairway. Everywhere are swelling banks of moss; the stones are overgrown foot-deep with the most beautiful mosses, as with bright green velvet cushions. Delicious coolness, and the dreamy murmur of brooks! Here and there you see the water running silver-clear among the stones, and bathing the naked roots and filaments of the trees. In some places it bursts more impetuously forth from the rocks and roots, and makes little cascades. There is such a mysterious murmuring and rustling; the birds pour out such broken, longing songs; the trees whisper like the tongues of a thousand

maidens; like the eyes of a thousand maidens the strange mountain-flowers look up at us; the wondrously broad, queerly-pointed leaves stretch themselves towards us. The gay sunbeams flicker here and there in their play; the thoughtful little herbs tell their green tales; everything seems enchanted; it becomes more and more familiar—an ancient dream rises to life again—the beloved one appears—alas! that she so soon disappears again.—*Heine.*

When we walked under the forest aisles in summer, the foliage hid from us God's sweet skies; but it was only when the desolating winds of winter had made the branches spare, that through those very black and naked boughs we could all the better discern God's eternal guiding star.—*Jean Paul Richter.*

They tell us that in some trackless lands, when one friend passes through the pathless forests, he breaks a twig ever and anon as he goes, that those who come after may see the traces of his having been there, and may know that they are not out of the road. Oh, when we are journeying through the murky night, and the dark woods of affliction and sorrow, it is something to find here and there a spray broken, or a leafy stem bent down with the tread of His foot and the brush of His hand as He passed; and to remember the path He trod He has hallowed; and that there are lingering fragrances and hidden strengths in the remembrance 'in all points tempted as we are,' bearing grief *for* us, bearing grief *with* us, bearing *grief* like us.—*A. Maclaren, D.D.*

The Charm of the Woodlands.

Sensitive souls respond to the beauty of the 'fields of the wood.'

We are in a green grassy road between lofty hedges of hazel, and on all sides beyond the hazel tower up the leafy boughs of oak, beech, horse-chestnut, and that 'lady of the woods'—the silver birch. So dense is the woodland in many places that the branches meet overhead, and not a glimpse can be had of the blue sky, though we can easily catch a glimpse of fierce sunlight on the broad mass of some giant beech. The path winds again and again, and is crossed and re-crossed by other winding and green paths, among which it is easy to lose one's way. But now it suddenly ends, and we come out into an open glade, and pass at once into the land of flowers. The underwood has been thinned away, some trees are cut down, and are now lying along amidst the tall grass, bracken, and heath, with all the glory of crown, branches, and leafy splendour reft away, maimed, and desolate. But many of the broken, shattered trunks are covered with moss and gray lichen, as if daintily wrapped up in their day of trouble, and half hidden among the flowers, every blade, leaf, floweret, and petal telling of new hope and life. Here and there, in the open spaces among the trees, you will see great clumps of bramble which, after years in the shade, suddenly, in the blaze of sunshine, have shot up with wild luxuriance round the trunk of a stunted oak, and threaten to invade the lower branches. Here, too, are some scattered bunches of hawthorn, the snowy bloom of which has all fallen in showers over the mossy turf, and left clusters of green berries to grow red and feed many a starving finch in wintry days to come. And here, above all, in the midst of a thicket of bramble, a dog-rose has made its way up through the tangle, and put forth a couple of pink buds—just temptingly beyond reach—that sweetest of all sweet blossom, the first rose of June. Close by hang down sprays of yellow and pink honeysuckle, about which

many bees are hard at work, having been out since six this morning, and already made many journeys to and from the hive. They dislike the tangle of the long grass, and pass over the smaller flowers that spring up among the moss, and fairly carpet the whole sward with a pattern of glowing colour, and much prefer the open fields of clover and lucerne. It is the quiet humble-bee, with the tiny bar of gold across his back, that labours on so patiently in the tiny undergrowth, and you may count half a dozen of them within a few yards of us. He is one of the hardiest and busiest of all his tribe, cares little for wind or rain, and after a long day's toil is content to wind his way dreamily home to his nest under the roots of the rough, mossy grass, a mere scrap of a tunnel in the sandy earth. Hard by on that little mound, once a mole-hill, has sprung up a whole cluster of the wild scabious, with its sweet sunny flowers of pink and lilac, on one of which is perched a tiny butterfly, his wings of azure blue opening and shutting in the very eye of the sun, after a hearty feast of the daintiest honey. On the very next flower are a couple of yellow and brown skippers, and a fairy-like frittilary, with under-wings of dark amber, sprinkled with shiny dots of silver. As we watch them, presently there darts swiftly by a dragon-fly, with gauzy wings that gleam in the sunlight as he hurries away, and in a moment is out of sight. Meanwhile we have strolled across the glade and take another and narrower green road, which carries us over a slope down towards the valley. Here, again, the wood becomes thicker, the shadows across the path seem black after the glare of the sunshine, and the cool shade is doubly welcome. So thick and soft is the mossy turf, that not a step can be heard, and the whole air is full of music. Finches of all kinds, robins, and white-throats, with here and there a warbler and a yellow-hammer, make up a chorus of full and joyous harmony to which no heart can be dead.—*Rev. B. G. Johns, M.A.*

Fleckering Light in a Forest.

The variety of mind and heart experiences.

Did you ever sit in a half-cleared forest, in a summer's day, and, looking up see the light come fleckering down in uncounted shades of golden brown and greenish gold, and these all the while changing and running into each other with the rustling leaves and the cloud-crossed sun? How useless to attempt to chronicle this play and interplay of light and dark! Yet this would be simple and easy compared with the effort to note the number and variety of our thoughts and feelings for a single hour. If the flow of a day's mind and heart experiences were written, it would be a volume, and one's life a Bodleian library; but the 'book of remembrance' is yonder, and the life is daguerreotyped on the sensitive pages of the future.—*H. W. Beecher.*

A Fir Wood.

To Christian hearts it brings the silence of a temple.

A fir-wood—one of the grandest, gravest, loveliest, most solemn places to be found in this world. To enter it is like entering a cathedral; the bronzed and slender shafts are like the polished pillars of a temple; the curved and pointed branches overhead, with their solemn depth of shadow, are like its fretted roof. Under foot the earth is brown and soundless, with a carpet of fallen needle-like leaflets, which have died away from their places, as we do, unmissed in the eternity of the life of which they formed an undistinguishable part. There is seldom

the chirping of birds, or the hum of insects to be heard, but always a low, shivering, awe-stricken murmur running through the topmost, trembling branches. They used to tell me, before I had ever stood upon the sea-shore, that the sound of the waves was like that ceaseless ripple of sighing in the tops of the pine-trees; but there is no liquid squash here, such as the water rings out musically; none of the rhythm and rhyme of the sea, but in its stead a suppressed, almost breathless, sacred tone of awe, which fills one with a profound quietude of spirit. There is no other sound like it; no coppice like a fir-coppice. The yew-tree is too gloomy and too ghostly, the beech too earthly and sensuous, one is almost a heathen among either of them; but in a fir-coppice, silent and subdued, one is a Christian in a Christian temple. And the silence is so intense! All about you stand those unnumbered shafts which support the darksome roof above, and there is no crackling of branches, or rustling of dead leaves, as you walk to and fro along its aisles. If you listen very closely, you may hear the very faint, tiny snap with which the fir-cones unloose their sealed scales, to set free the winged seed within them. But there is no other sound; and your own voice grows softer if you choose to disturb the almost Divine stillness by any words of human speech; until, with a sigh, answering to the eternal sigh through the trees, you turn away from the soothing level and calm, and set your face once more towards the chattering streets you left half an hour ago.—*From 'The Argosy.'*

The Beauty of Pine Forests.

God's handiwork always repays sympathetic study.

A pine forest is one of the most beautiful features of Nature. Of all quiet scenes it is surely the quietest. The harsh sounds of the busy, human world, and even the dreamy murmurs of summer, are hushed there; no song of bird or hum of insect disturbs the solemn stillness; and only at rare intervals the mournful coo of a dove, making the solitude more profound, is heard in the deeper recesses. The weary, careworn spirit bathes in the serenity of the silence, and feels the charm and refreshment of its highest life. The trunks of the trees have caught the ripened red of many vanished summers, and are bearded with long streaming tufts of gray lichen, which impart to them a weird, savage appearance; but they are touched with grace by the wild-flowers growing at their roots—childhood sporting in unconscious loveliness at the feet of old age. They form long-drawn aisles and vistas, like the pillared halls of Karnak, or the Thousand Columns of Constantinople, which are indescribably attractive, for they appeal to that love of mystery which exists in every mind; they reveal only enough to stimulate the imagination, and lead it onward to lovelier scenes beyond. It is the same vague sentiment of expectation or hope that gives the charm to every natural, as well as to every moral, landscape. Life itself, without these vistas of expectation, would not be worth living. When the sun is shining brightly, and pierces here and there through the dusky foliage, the effects of the chequered light and shade, the alternations of green and gold, are very lovely. Richly tinted mosses, that 'steal all noises from the foot,' palmy clusters of delicate ferns, starry flowers of the Trientalis, waxen bells of the Pyrola, and green and crimson leaves of the blae-berry, cover every inch of ground not occupied by the boles of the trees, and form mosaics more beautiful than those of the Vatican. The

dim, slumberous air is laden with an all-pervading balsamic fragrance, strongly stimulating that sense which is more closely connected with the brain than any other, and suggesting numberless vague but sweet associations and memories of the past; while through the pyramidal tree-tops may be obtained glimpses of the quiet sky, which seems to come close to the earth as if in sympathy, and appears calmer and bluer than elsewhere, by contrast with the dark-green, motionless foliage. Beautiful indeed is the pine forest in all seasons; in the freshness of spring, when the gnarled boughs are penetrated and mollified by the soft wind and the warm sun, and thrilled with new life, burst out into fringes and tassels of the richest green, and cones of the tenderest purple; beautiful in the sultry summer, when among its cool, dim shadows the cheated hours all day sing vespers, while the open landscape is palpitating in the scorching heat; beautiful in the sadness of autumn, when its unfading verdure stands out in striking relief amid changing scenes, that have no sympathy with anything earthly save sorrow and decay, and directs the thoughts to the imperishableness of the heavenly Paradise; beautiful exceedingly in the depth of winter, when the tiers of branches are covered with pure, unsullied wreaths of snow, sculptured by the winds into curves of exquisite grace. It is beautiful in calm, when the tree-tops scarce whisper to each other, and the twitter of the golden wren sounds loud in the expectant hush; it is more than beautiful in storm, when the wild fingers of the wind play the most mournful music on its great harp-strings, and its full diapason is sublime as the roar of the ocean on a rock-bound shore. I do not wonder that the Northern imagination in heathen times should have invested it with awe and fear, as the favourite haunt of Odin and Thor; or that, in after-times, its long rows of trunks, vanishing in the dim perspective, should have furnished designs for the aisles of Christian temples; and the sunset, burning amongst its fretted branches, should have suggested the gorgeous painted window of the cathedral. It looks like a place made for worship; all its sentiments and associations seem of a sacred and solemn character. Nature, with folded hands, as Longfellow says, seems kneeling there in prayer. It certainly reminds us in various ways of the power, wisdom, and goodness of Him who thus spake by the mouth of His prophet: 'I will plant in the wilderness the cedar, the fir-tree, and the pine, and the box-tree together; that they may see, and know, and consider, and understand together, that the hand of the Lord hath done this, and the Holy One of Israel hath created it.'—*Hugh Macmillan, LL.D.*

The African Forest.

Various trees represent varying types of humanity.

In his recent address before the Royal Geographical Society, Mr. Stanley, describing the dense forest through which he travelled, said: 'I have passed far more hours than I would like to say spellbound with wonder during various phases of existence within it. I have caught myself often unconsciously wondering at the strange resemblance to human life visible in the forest. It was represented here very faithfully in all its youth, vigour, and decrepitude. There are trees prematurely aged and blanched, others were tumorous, others organically weak, others were hunchbacks, others suffered from poor nutrition, many are pallid and shrunk from want of air and sunshine, many were supported by

their neighbours because of constitutional infirmity, many are toppling one over another as though they were the incurables of a hospital, and you wonder how they exist at all. Some are already dead, and lie buried in reeking composts of humus, some are bleached white by the palsying thunderbolt, or shivered by the levin brand, or quite decapitated, or some old veteran, born long before the siege of Troy, is decaying in core and vitals; but the majority have the assurance of insolent youth, with all its grace and elegance of form, the mighty strength of prime life, and the tranquil pride of hoary aristocrats, or the placid endurance of ripe old age. All characters of humanity are represented here except the martyr and the suicide. Sacrifice is not within tree nature, and it may be that they only heard two Divine precepts — "Obedience is better than sacrifice," and "Live and multiply."

'I have sat at my tent-door watching the twilight deepen into a sepulchral gloom, knowing the elements were gathering for a war with the forest. I have heard the march of the storm advancing with the speed of a hurricane and the sullen roar of the forest, as with nerves collected it swung its millions of giant heads to wrestle with it, the groaning, and rending, and crashing. I have seen the mighty swaying and surging of a countless army of tree-tops and their leaves all quivering and rustling, and the undergrowth dancing as though in approval of the strength of its gray sires, and then I have heard the rain follow in a torrential downpour, hushing the storm and the strife, and descend in cascades from the drowning trees. We have watched the humus absorbing the rainwater as it fell, until, like a sponge, it was full, and the water rising by inches around us, and for twelve, fifteen, and eighteen hours the rain has steadily poured until it seemed as though we were never to see dry ground again. And then, after an uneasy night, wakened now and then by a falling tree, which made the earth quake, or an unusual thunderclap overhead, as loud as if a planet had exploded, I have sat and watched the steaming vapour rise in blue clouds and sail up among the still foliage in ever-thickening folds, and have wondered how the atmosphere would ever become clear again. Yet within a few hours the sun would be felt shining with purified lustre again, and every now and then, as some strata of foliage would be lifted by a sportive breeze, there would be subtle changes of light, and the dull green and damp leaves would shine with fitful life.

'When there is so much vigorous life round about us in these eternal woods, it did seem strange to us that vegetable life was so incommunicable with our own. But yesterday we sympathized with the trees as they roared in pain and torment, battling with the angry storm, and as they stand now, so spectral and still in mute peacefulness; still, so keen are our sympathies with them that one fancies there should be some mode of speech between us and them. I saw that some were many centuries old, some in prime life with every fibre healthy, some glorious in youth and strength, some goitrous, warty, ulcerous, stunted, and unwholesome, some slaves of slaves strangled by rigid clutch of a pythonous parasite, the parasite in its turn bound firm with exceeding tension by a snaky creeper, and that also covered with lichen and moss; some with great sores exuding globules and pastils of gummy matter, the ants feeding on them like flies on pus; some old, ancient, palsied by a lightning-stroke — life, death and decay all around as with us.

'I have been absorbed in comparing the existence of some of

those tree kings with events of human history. That splendid palm by the river-side took root half a century before the great Plague of London. Yonder stately bombax springing up a head and neck above myriads was born probably about the time of that memorable scene on Calvary; that wrinkled ironwood, four feet in diameter, was an infant under the shelter of his old sire when the Tower of Babel was building.

'And what office, if any, may one of these forest giants hold, whose blossoming crown and globe of foliage rise so high above the herd? Is it that of a watchman looking out for tidings? Is he the sire of the tribe? Does it herald the dawn and the morning sun, and bid the trees unfold their buds, and shake their leaves for rejoicing? Or has it gained such proud pre-eminence by its selfish and exuberant vitality? But lo! the storm approaches, there is fury and wrath, the thunderbolt falls, and the proud king falls severed at the neck. You almost hear the cry of "The king is dead, long live the king!"'

A Woodland Hymn.

'There is a Power, a Presence, in the woods.'

Broods there some spirit here?
The summer leaves hang silent as a cloud,
And o'er the pools, all still and darkly clear,
The wild wood-hyacinth with awe seems bow'd;
And something of a tender cloistral gloom
Deepens the violet's bloom.

The very light, that streams
Through the dim dewy veil of foliage round,
Comes tremulous with emerald-tinted gleams,
As if it knew the place were holy ground,
And would not startle, with too bright a burst,
Flowers all divinely nursed.

Wakes there some spirit here?
A swift wind, fraught with change, comes rushing by,
And leaves and waters, in its wild career,
Shed forth sweet voices—each a mystery!
Surely some awful influence must pervade
These depths of trembling shade!

Yes, lightly, softly move!
There *is* a Power, a Presence in the woods;
A viewless Being, that with life and love
Informs the reverential solitudes;
The rich air knows it, and the mossy sod—
Thou, *Thou* art here, my God!

And if with awe we tread
The minster floor, beneath the storied pane,
And 'midst the mouldering banners of the dead,
Shall the green voiceful wild seem *less* Thy fane,
Where Thou alone hast built—where arch and roof
Are of Thy living woof?

The silence and the sound
In the lone places breathe alike of Thee;
The temple-twilight of the gloom profound,
The dew-cup of the frail anemone,
The reed by every wandering whisper thrill'd
All, all with Thee are fill'd!

O purify mine eyes,
More and yet more, by love and lowly thought,
Thy presence, Holiest One! to recognise.
In these majestic isles which Thou hast wrought;
And, 'midst their sea-like murmurs, teach mine ear
Ever Thy voice to hear!

And sanctify my heart
To meet the awful sweetness of that tone,
With no faint thrill, or self-accusing start,
But a deep joy the Heavenly Guest to own!
Joy such as dwelt in Eden's glorious bowers
Ere sin had dimm'd the flowers.

Let me not know the change
O'er Nature thrown by guilt!—the boding sky,
The hollow leaf-sounds ominous and strange,
The weight wherewith the dark tree-shadows lie!
Father! oh, keep my footsteps pure and free,
To walk the woods with Thee!

The Old Green Woods.

The scene in which to form plans for rendering others happy.

There is a soothing charm about them. Beneath each shadowy tree may be found an antidote which will deaden the sting of neglect; within each leafy enclosure, which seems a fit retreat for the fascinating beings, Kindness and Love, all may partake of the delicious beverage, Forgetfulness, and wander through the flowery paths that fancy loves to tread. The lineaments of reality may be cast aside, and the tissue wings of imagination be spread, bearing on them earth-sick ones to scenes of dazzling brilliancy and unfading beauty. The lips that were coldly compressed in haughtiness gently part, while a loving smile playing peacefully about them bespeak the full intentions of the heart. The eyes that never sought our sun look fondly upon us, speaking in mysterious language of deep sincerity. The wind, sighing through the rich foliage above, together with the carol anthems of merry warblers, by their melody entrance our senses, causing us to think that numberless angels are striking the silver cords of their golden harps, accompanying their life-like strains with the heavenly voices, thereby causing harmony like that which Paradise above can afford.

Imagination, as though weary of her vocation, soon loses her activity, and we wake to consciousness to lament that true happiness cannot be here obtained. The flowers and trees are our companions, but their less pleasing forms teach that perfection is unattainable. Though very unlike the ideal world, none will say that the verdant woods are devoid of beauty or instruction.

I love the old green woods, rich with mossy seats and towering trees; for they ever revive the recollection of childish pastimes, when laughingly we wandered in quest of woodland productions, when the heart beat wildly as we spied under an aged tree, or by a decayed trunk, a wished-for spot, to which we eagerly hastened, impatient to partake of its tempting berries, or tender leaves of the luscious winter-green. Again we are children, searching beneath the beech or chestnut tree, now murmuring at what we termed ill luck, and anon clasping our hands in surprise, as we discovered, perchance, a handful of nuts which the faded leaves of autumn concealed from view months before. Oh, happy days, would we could again live in your delights! Ye have passed away, but have left kind remembrances in the old green woods, which faithfully speak of joys unmixed with tears, hearts unfettered by the corroding chain of deceit.

The pen of poesy, moved by a genius, can never record half the loveliness of the tiny cups of the clustering moss, the delicate flowers, the bending shrubs, the lofty trees which form the fairest page of Nature's wonderful book. Much less could even an artist's masterhand picture the consummate beauty of the streakings of ceru-

lean hue which meets the eye, which amidst these soul-stirring scenes is instinctively raised in adoration and thanks. Surrounded by such pensive beauty, it were ungrateful to spend the precious moments entirely in silent musings; far, far removed from the gaze of a heartless public, hidden from the scrutinizing glance of curiosity, one may well form plans by which to render others happy—reflect not merely on passing events, but life's duties, and discover the best mode of meeting and resisting distresses liable to be encountered in the battle of life.—*The Advocate of Kindness.*

The Evening Sun unseen in the Woods.

God's Spirit works in secret, but is seen in the effects He produces (EPH. v. 9).

Oftentimes, when walking in a wood near sunset, though the sun himself be hid by the height and bushiness of the trees around, yet we know that he is still above the horizon, from seeing his beams in the open glades before us, illumining a thousand leaves, the several brightnesses of which are so many evidences of his presence. Thus it is with the Holy Spirit: He works in secret; but His work is manifest in the lives of all true Christians. Lamps so heavenly must have been lit from on high. —*Julius Charles Hare.*

A Church in the Woods.

The sense of the Divine Presence may be realized, and the response of a worshipping soul may be made, amid scenes of Nature.

From the dim blue distance, through the budding trees and over the wide hilly tract of sweet orange-blossomed furze, the sound of the bells from the village church is floating. The little old church stands in the midst of a graveyard, in which every grave is bright with blazing tulips, pale primroses, and ruby velvet gillyflowers. In the tall trees around the church the thrushes sing all through the Litany and sermon; in one corner of the brown wooden ceiling the climbing ivy has crept in, and its fresh pale-green shoots are clinging to the heavy rafters. But the pealing bells call in vain to the parish church to-day when the whole world is one great, beautiful temple, from which each bursting blossom sends up its pure incense; where chorus after chorus of birds warbles forth harmonious anthems; through which the hum of unseen insects floats unceasingly, like distant organ music, and where sermons without words are preached by all things, great and small.

Down among the oaks or beeches the Sunday service has begun long ago; it commenced when the water of the little brook, which winds along, babbling and chattering, was all dyed pink and gold at four this morning, when the cuckoo called, and the wood-pigeons cooed just after they awoke. It is an 'all day' service, and prayer and praise and preaching never cease. Clusters of light-blue wild violets—sometimes one looks almost pink, it is so pale—are members of the silent part of the congregation; buttercups and daisies, and curly tips of rough brown bracken, and close to the brook, on their long, straight stalks, golden-crowned dandelions; dainty blackthorn blossoms half hidden among the fluttering birch leaves; and a stunted wild apple-tree. All the year round it looks old and crotchety; its leaves seem never to be fully developed, and lichens and gray mosses cling to its crooked stem and branches. In May, however, it is one mass of magnificent pink blossoms, and the bees and birds seek it, and worship at this shrine of loveliness. The stroller in the wood pays homage from afar, for the apple-tree stands in an inclosure,

where rabbits peep furtively out from under the bushes, and where violets look larger, and buttercups more golden, because they are out of reach. In the wide temple the text of at least one small part of the human congregation—all may choose their own texts—is taken from Hans Andersen's immortal fairy tales, which, in their unfading freshness of beauty, could have no better setting than this bright May-day scene; and visions of the 'Dumb Book'; of old Northern farmhouses, with daisies growing on the roof, and elder blossoms sending their overpowering scent in at the low, small windows; of fir trees, storks, and swallows; of old wrinkled men and women, laughing children, and dreaming youths and maidens, are conjured up; and the moral which the poet drew from the story of his own life—that 'Life is like a sea voyage towards a certain goal; I stand at the helm; I have chosen my course, but God rules over storm and sea, and may ordain it otherwise; and, if it is so, it will be the best for me'—is also the moral of the impressive Sunday service of Nature, till the everyday world, with its cares, sinks back, and nothing remains except what Uhland expressed in his little poem, 'Sunday Morning':

'This is the Lord's own day.
I stand alone in the wide field.
It is as if a multitude
Knelt down and prayed with me.'

Pall Mall Gazette.

The Teaching of the Woods.

Man should unrepiningly submit to his allotted condition.

In the woods we see that amongst the mosses and brambles there is no jostling or heart-burning. The elderberry on the edge of the swamp is not anxious to be the barberry beside the stone well. The lichen clings with fond tenacity to its own place on the rock. The chestnuts and the oaks show no dissatisfaction with their qualities and situations. An expression of content reigns supreme in the forest. The trees stand in their places where God plants them, send their roots down to drink in the watercourses of the earth, lift their leaves up to drink in the upper air, sway and yield to every wind that beats them, drop their yellow foliage without a cry. Thus they teach man unrepining submission to his allotted condition.

FALLS OF WATER.

A Waterfall in the Yosemite Valley.

Many human lives are purposeless, and therefore useless.

There is a stream in the Yosemite Valley that plunges from the high upland over the brink of the precipice, dashes downwards beyond the front of the rocky wall, keeping for a space the form of water, but broken more and more as it falls, until at last, through velocity and friction of the atmosphere, the whole descending volume of the stream is dispersed into the mist that hangs for a little space around the ragged terminus of the cascade, and then slowly ascends towards the sky, until it disappears within the air as invisible vapour. That waterfall is called 'The Bridal Veil.' It seems to me an emblem of too many lives that start upon the ventures of young manhood and young womanhood with high purposes and noble resolve, with all

the force of youth's rush and vigour urging them forward, but after a brief career are dispersed into the mists of aimless living, and fade away into the life-ways surrounding them, purposeless and useless.—*H. C. McCook, D.D.*

A Waterfall in the Lauterbrunnen Valley.

That which is apparently lost may gather itself together again, and render further service.

Deep within the heart of the Swiss Alps, in the valley of Lauterbrunnen, there is a marvellous cascade, known as the falls of the Staubbach. It is made by a little rivulet that comes down a shoulder of the Jungfrau, from the height of perhaps five thousand feet. As seen from the opposite mountain, the Wengern Alps, it looks, as it dashes downward, like a string of pearls beading the garments of a monarch. Rounding a thousand curves and angles, it rushes on, when at length, by one sheer leap of nearly one thousand feet, it reaches the valley below. The thin silvery sheet becomes less and less defined as it falls, until, when about two-thirds of the distance down, it fades into a mere vapour, which any little puff of wind bears away so completely that you may stand directly under the descending sheet and not a drop fall upon you. And this foaming torrent, which has come down from the springs that never fail in the heights above, seems here to vanish into mist and thin air, and to have disappeared for ever. Hence the name *Staubbach* —'Dust Fall.'

But these waters, though they vanish, are not lost. They somehow have a way of gathering themselves up again; for only a few rods from the foot of the cliff where this rivulet disappeared it again reappears as large as ever, and glides on with a subdued and gentler flow, but with as merry a laugh, and as pleasant a chatter over the stones and among the boulders, as though it were only a common brook, and had not performed the most wonderful feat of any stream in Europe, and been 'born again' from its turbid mountain violence to which it had died, out of the gentle spray-cloud that filled the air.

Niagara Waterfalls.

The chief impression left by the ever-moving, august force, noisy as it is, is one of peace.

(Facts concerning the recession of these Falls, giving an indication of the majesty of their power.—At a meeting of the State Commissioners on Niagara Falls, held at New York, a report was presented from the State Engineer upon the survey which has just been made. This report gives particulars of the recession of the Falls since 1742, when the first survey was made. It shows that the total mean recession of the Horseshoe Falls since 1742 has been 104 feet 6 inches. The maximum recession at one point is 270 feet. The mean recession of the American Falls is 30 feet 6 inches. The length of the crest has increased from 2,260 to 3,010 feet by the washing away of the embankment. The total area of recession of the American Falls is 32,900 square feet, and that of the Horseshoe Falls 275,400 feet.)

When we were seated in the little ferry-boat, and were crossing the swollen river immediately before both cataracts, I began to feel what it is; but I was in a manner stunned and unable to comprehend the vastness of the scene. It was not until I came on Table Rock and looked—great Heaven! — on what a fall of bright green water! that it came upon me in its full might and majesty.

Then, when I felt how near to

my Creator I was standing, the first effect, and the enduring one — instant and lasting — of the tremendous spectacle, was Peace. Peace of mind, tranquillity, calm recollections of the dead, great thoughts of eternal rest and happiness — nothing of gloom or terror. Niagara was at once stamped on my heart, an image of beauty, to remain there, changeless and indelible, until its pulses cease to beat—for ever.

* * * *

I think in every quiet season now, still do those waters roll and leap, and roar, and tumble, all day long; still are the rainbows spanning them a hundred feet below. Still, when the sun is on them, do they shine and glow like molten gold. Still, when the day is gloomy, do they fall like snow, or seem to crumble away like the front of a great chalk cliff, or roll down the rock like dense white smoke. But always does the mighty stream appear to die as it comes down, and always from its unfathomable grave rises that tremendous ghost of spray and mist which is never laid, which has haunted this place with the same dread solemnity since darkness brooded on the deep, and that first flood before the Deluge — light — came rushing on Creation at the word of God.—*Charles Dickens.*

In July the climate on the Dominion frontier is perfection itself, while the beauty of the river and the majestic cataract, in the full foliage of midsummer, is a sight worth going the longest journey to see. The unflecked blue of the sky, the masses of exquisite vegetation on the banks and the islands in mid-stream, the stupendous river itself spread out in a sheet of glittering steel, and flowing with such inimitable dignity down to the Horseshoe Fall, combine to make a picture of which the memory can never lose touch. In the silent advance of the volume to the edge of the cataract there is, indeed, a surpassing nobility. It seems as if it knew what was in front of it, but calmed itself into a heroic disregard. Noblesse oblige. So without a ripple or a swirl the solid flood glides towards the ledge, smooth as glass and silent. It reaches it and pours over the brink; and then, as if its pent-up thunders could no longer be restrained, it descends with such a voice of majesty as not the Libyan wilderness 'with all its lions up,' nor battle-field with all its artillery roaring, can match. The ocean in storms bellowing on a rocky shore fills the air with the same immense and deep-toned sound; but nothing else can compare with these Falls. The thunderstorm is too brief, and so, too, is the fearful muttering of the coming hurricane. Niagara is never-ceasing. The vast voice grows upon the listener's ear. No modulations break its colossal monotony. It is the same from morning to night, from year's end to year's end, untiring, irresistible, august. How admirable, too, is the relief of foliage to the tumultuous caldron into which the great stream plunges! Underneath, far below, the mad waters boil and whirl and struggle, while the foam leaps up high as ocean waves upon the cliffs, and the spray rises in rolling clouds. Above and overhanging the watery chaos are the tranquil, restful trees, beautiful in themselves, and still more beautiful by the contrast of peace and turbulence. —*Daily Telegraph.*

The Falls of Niagara may be heard some twenty miles off, far away amid forests' silence; so the studious listening mind may hear the solemn rush of life's mighty tide, though distant from its noisy banks, and it may have a greater significance to him than to those

who are looking on at its fearful eddies.—*Henry Gill.*

Geysers, or Hot Springs.

Religious intensity is usually but spasmodic.

In some parts of the world there are certain boiling springs called geysers. Their peculiarity is that at irregular intervals they send up spouts of boiling water, and then are silent for a considerable time. Travellers will tell you that at the time when they are silent you would find it very difficult to believe that water would ever issue out of such an orifice at all.

There was a revival some years ago, was there not? The gracious rain came down upon God's inheritance. How earnest you were! how active! But the revival passed away, and your warmth and fervour and energy passed away with it, and those who look on you would find it very difficult to believe that you have ever been zealous in God's service at all.—*W. M. Punshon.*

LAKES, TARNS, POOLS, ETC.

Two Contiguous Lakes.

Lives that seem side by side may be moving in opposite directions.

One of the expeditions which it is customary to make from Pontresina is to the Bernina Hospice and the Grumm Alp. To reach the latter you pass along the edge of a lake which, because of the contrast which its waters present to those of another lying a short way off, is called Lago Bianco, or the White Lake. The name suggests that we are here on the confines of Italy; and indeed, if you give in to the seductions of a man who posts himself at a particular turning, and entreats travellers to follow him only a little way further over the snow, you will really gain, with no great effort, a point from which you can look across to the hills that shut in on one side the valley of Como. He has unquestionably something worth seeing to show, for among the wilderness of mountains lying underneath there appears on the one side an ice-river, or glacier, and on the other one of those still and beautiful Italian lakes, which we look for only where there is perpetual sunshine.

But what concerns us at present is the curious spectacle presented by the two contiguous lakes—Lago Bianco and Lago Nero. They are so near that you could, with the greatest ease, pitch a stone from the one into the other, and the first impression of a spectator is certainly that they are connected. But you soon learn that this is a mistake. The fact is that they are on opposite inclines of the water-shed, and that while the one sends its overflow to the Adriatic, the other is vitally connected with the Black Sea! They are different enough even to look at. Lago Bianco is the larger of the two, and is of a light-green colour. Lago Nero is true to its name, and is dark and gloomy-looking. But your interest in them is greatly increased when you think of them as among the feeders of seas so far apart. Visions rise up before you of Venice on the one side, and of Sebastopol on the other.

We did not need to go far afield to find a lesson in this scene. How often does it happen in human life that two men grow up in one home, and under the same influences, and live for years as near neighbours, while all the

while they are on different 'inclines,' and tend towards opposite destinies! 'Two men shall be in the field; the one shall be taken, and the other left. Two women shall be grinding at the mill; the one shall be taken, and the other left.' Juxtaposition is no certain sign of grace. As the two lakes needed not merely to occupy the same region, but to be on the same slope, in order to reach a similar destination, so with us. The course of our life-currents is in the long-run determined by the inclination of our hearts.—*Editor of 'Family Treasury.'*

Tarn Ripples.

'Ever changing in line, and yet so uniform in law.'

Ever changing in line, and yet so uniform in law, the artist and the hydrographer might learn some valuable truths from half a day's study of one of these small mountain sheets of water. Now the broad, smooth, silky curves flow steadily across; now a fine network spreads over these, and again another network, smaller and finer still, breaks up the rest into a thousand fragments; then the tarn bursts out into tiny silver spangles, like a girl's causeless laughter; and then comes a gray sweep across the water, as if it shivered in the wind; and then again all subsides, and the long silky flow sets in again with quiet shadows and play of green and gray in the transparent shallows. It is like a large diamond set in emerald; for the light of the water is radiance simply, not colour; and the grass, with the sun striking through, is as bright as an emerald. —*Mrs. Hinton.*

Rivers passing into Calm Lakes.

When the struggle of life is over, how sweet it will be to enter the rest of God!

From a high bank we obtained a distant view of Lake Ontario, and could even trace the narrow and winding Niagara till its waters mingled with the calm and distant lake. It was a striking image of the quiet and repose of the latter years of life, after the stormy passions of youth have subsided, and the wild tumult of earthly hopes and the cares of ambition have been lulled to rest; when the grief which shook the strong man like a reed shall have passed away, and when, after being drawn into the fierce whirlpool of the waters of strife, and hurried unresistingly down the maddening torrent, what joy to find himself at the last buoyed up on those pleasant waters, and approaching a haven of safety!

The Wayside Pool.

What we see in things greatly depends on what we look for.

There is hardly a roadside pond or pool which has not as much landscape in it as about it. It is not the brown muddy dull thing we suppose it to be; it has a heart like ourselves, in the bottom of that there are the boughs of the tall trees, and the blades of the shaking grasses, and all manner and kinds of variable pleasant lights out of the sky. Nay, the ugly gutter that stagnates over the drain of the frail city is not altogether so. Down in that, if you look deep enough, you may see the dark serious blue of far-off sky and the passing pure clouds. It is at your will then you see in that despised stream, either the refuse of the street or the image of the sky. So it is with almost all other things that we despise.—*John Ruskin.*

It is a comfortable thought that the smallest and most turbid mud-puddle can contain its own picture of heaven; it shall be a symbol to me that even a human breast that may appear least spiritual in some aspects may still have the

capability of reflecting an infinite heaven in its depths, and therefore of enjoying it. Let us remember this when we feel inclined to deny all spiritual life to some people, in whom, nevertheless, our Father may perhaps see the image of His face. This dull river has a deep religion of its own — so, let us trust, has the dullest human soul, though perhaps unconsciously. — *Hawthorne.*

You see the shadow of the heavens in a lake. But the heavens that look out of that placid water do not seem very deep—the shadow of heaven is shallow because the heaven shadowed there is low. But when the low clouds have all passed away, look down then into the lake and tell what sight you see — the heaven shadowed in the water is deep, like eternity now.

When your joy in Christ's love does not rise high, your grief over the sins that crucified Him does not sink very deep. Hate of evil is shallow because love to Him is shallow. But when I live more by looking at Jesus Christ and what He has done for me, I shall grieve more over the plague of my own evil heart. — *William Arnot.*

The Pool in a Forest.

The use of affliction and adversity.

Affliction and adversity are not, as we are sometimes apt to suppose, the mere random strokes of a blind Fate. They are rather the wisely chosen means whereby the Father of our spirits seeks to find His way into our hearts, and to bless us with His love. Here is a pool in the depth of a forest. It might be very lovely, very beautiful, but it is closed in with high trees and thick brushwood, so that the beams of the sun cannot pierce through to its surface, and it is dull and stagnant, and what vegetation there is around its margin is weak and sickly. But a storm arises, and some of the trees that girdle the pool fall with a crash. And now what a change! Through the gaps the storm has made the sun shines in upon the pool, and its waters become bright, and the drooping flowers and grasses around it lift themselves up to greet the light, and by-and-by the pool becomes a gem of beauty, fringed with the greenest vegetation, scented with the sweetest odours, and, like a perfect mirror, reflecting all the exquisite loveliness that surrounds it. Even so affliction and adversity are often sent as storms to clear away the dense growths of selfishness and worldliness which are hemming in our souls, and to let into our souls the light of the Sun of Righteousness, that we may become spiritually bright and beautiful, covered over with all sweet and fair and comely graces. This is the purpose of God in ordaining for us affliction and adversity. He pulls down our dearest projects, He takes from us our fondest loves, He crushes into the dust our loftiest hopes, that He may make a way for Himself to get to our hearts with life, with blessedness, and with peace.—*B. Wilkinson, F.G.S.*

A Beautiful Lake.

Water responds to all the movements of the air.

I have in my mind's eye the western, indented with deep bays, the bolder northern, and the beautifully southern shore of Walden Pond, where successive capes overlap each other, and suggest unexplored coves between. The forest has never so good a setting, nor is so distinctly beautiful, as when seen from the middle of a small lake, amid hills which rise from the water's edge; for the water in which it is reflected

not only makes the best foreground in such a case, but, with its winding shore, the most natural and agreeable boundary to it. There is no rawness nor imperfection in its edge there, as where the axe has cleared a part, or a cultivated field abuts on it. The trees have ample room to expand on the water-side, and each sends forth its most vigorous branch in that direction. There Nature has woven a natural selvage, and the eye rises by fast gradations from the low shrubs of the shore to the highest trees. There are few traces of man's hand to be seen. The water leaves the shore as it did a thousand years ago.

A lake is the landscape's most beautiful and expressive feature. It is the earth's eye, looking into which the beholder measures the depth of his own nature. The fluviatile trees next the shore are the slender eyelashes which fringe it, and the wooded hills and cliffs around are its overhanging brows.

Standing on the smooth sandy beech at the east end of the pond in a calm September afternoon, when a slight haze makes the opposite shore indistinct, I have seen whence came the expression, 'the glassy surface of a lake.' When you invert your head, it looks like a thread of finest gossamer stretched across the valley, and gleaming against the distant pinewoods, separating one stratum of the atmosphere from another. You would think that you could walk dry under it to the opposite hills, and that the swallows which skim over might perch on it. Indeed, they sometimes dive below the line, as it were, by mistake, and are undeceived. As you look over the pond westward, you are obliged to employ both your hands to defend your eyes against the reflected as well as the true sun, for they are equally bright; and if, between the two, you survey its surface critically, it is literally as smooth as glass, except where the skater insects, at equal intervals scattered over its whole extent, by their motions in the sun produce the finest imaginable sparkle on it; or, perchance, a duck plumes itself, or, as I have said, a swallow skims so low as to touch it. It may be that in the distance a fish describes an arc of three or four feet in the air, and there is one bright flash where it emerges, and another where it strikes the water; sometimes the whole silvery arc is revealed; or here and there, perhaps, is a thistle-down floating on its surface, which the fishes dart at, and so dimple it again. It is like molten glass cooled, but not congealed; and the few motes in it are pure and beautiful, like the imperfections in glass. You may often detect a yet smoother and darker water, separated from the rest as if by an invisible cobweb, boom of the water nymphs, resting on it. From a hill-top you can see a fish leap in almost any part; for not a pickerel or shiner picks an insect from this smooth surface but it manifestly disturbs the equilibrium of the whole lake. It is wonderful with what elaborateness this simple fact is advertised — this piscine murder will out—and from my distant perch I distinguished the circling undulations when they are half a dozen rods in diameter. You can even detect a water-bug (*Gyronus*) ceaselessly progressing over the smooth surface a quarter of a mile off; for they furrow the water slightly, making a conspicuous ripple bounded by two diverging lines; but the skaters glide over it without rippling it perceptibly. When the surface is considerably agitated, there are no skaters nor water-bugs on it, but, apparently, in calm days they leave their havens and adventurously glide forth from the shore by short impulses till they completely cover it. It is a soothing employment, on one of these fine days in the fall, when all the warmth of the

sun is fully appreciated, to sit on a stump on such a height as this, overlooking the pond, and study the dimpling circles amid the reflected skies and trees. Over this great expanse there is no disturbance, but it is thus at once gently smoothed away and assuaged, as, when a vase of water is jarred, the trembling circles seek the shore, and all is smooth again. Not a fish can leap or an insect fall on the pond but it is thus reported in circling dimples, in lines of beauty, as it were the constant welling up of its fountain, the gentle pulsing of its life, the heaving of its breast. The thrills of joy and thrills of pain are undistinguishable. How peaceful the phenomena of the lake! Again the works of man shine as in the spring—ay, every leap, and twig, and stone, and cobweb sparkles now at mid-afternoon, as when covered with dew in a spring morning. Every motion of an oar or an insect produces a flash of light; and if an oar falls, how sweet the echo!

In such a day, in September or October, Walden is a perfect forest mirror, set round with stones as precious to my eye as if fewer or rarer. Nothing so fair, so pure, and at the same time so large, as a lake, perchance, lies on the surface of the earth. Sky water. It needs no fence. Nations come and go without defiling it. It is a mirror which no stone can crack, whose quicksilver will never wear off, whose gilding Nature continually repairs; no storms, no dust, can dim its surface, ever fresh; a mirror in which all impurity presented to it sinks, swept and dusted by the sun's hazy brush—this the light] dust-cloth—which retains no breath that is breathed on it, but sends its own to float as clouds high above its surface, and be reflected on its bosom still.

A field of water betrays the spirit that is in the air. It is continually receiving new life and motion from above. It is intermediate in its nature between land and sky. On land only the grass and trees wave, but the water itself is rippled by the wind. I see where the breeze dashes across it by the streaks or flakes of light. It is remarkable that we can look down on its surface. We shall, perhaps, look down thus on the surface of air at length, and mark where a still subtler spirit sweeps over it.—*Thoreau's 'Walden.'*

English Lake Scenery.

Bare, tame, wearying scenery may be the threshold of Nature's loveliest regions.

One of the most noticeable features of the Lake District is the broad tract of poor land which lies like a way of separation between the loveliness hidden behind the hills, and the more generous beauty of the plains. If you trace on the map the boundaries of this district, rarely will you find the mountains flowing down into richness and fertility on the outer side, but generally subsiding into barren moors and impracticable fells—generally, though not always, this broad way of desolation between the grandeur of the hills, with the heart of loveliness within, and the generosity of the plains. And so it is that from Lancaster, which may be taken as the gateway of the Lake District, the country has been gradually getting more rugged and less populous as it runs up towards the mountains. Past Oxenholme and Kendal, the only human habitations are scattered fell-side hamlets, bleak and bare, where one wonders what the people find to do, and how they live, and what their pleasures and emotions, and what their special uses to the world at large. The land is poor, with stones lying thick among the young crops and over the coarse grass; the railway cutting clean through the solid rock; bare stone walls, instead of

hedges, mark the boundaries of the fields and properties; streams as bright as crystal, but streams with no fertility in them—mere brawling expressions of the waste and wet of the place—break in all directions over beds of rock and pebble; the country on either side gets wilder and rougher, the houses fewer and of still poorer character, the masses of yellow broom and golden gorse, and trailing wealth of briar, yet more lovely in their contrast with the gray boulders breaking out through the green grass, but yet more eloquent of the poverty they adorn; the crags and fells are steeper, more jagged, and more inhospitable; till, as you steam rapidly on, the dim blue outlines, first seen like darker clouds in the distance across the glistening breadth of Morecambe Bay, and which you have been watching since you left Kendal behind you, assume definite form and stability, and soon you recognise Wetherlam and Coniston Old Man, others coming out from the clouds and unfolding themselves in turn as you rush on. And now the sunlight catches the surface of a small shining tract far to the left; in half a minute more you see another shining glimpse under the wooded banks of Heald Brow; and then you draw breath at the station, full in the narrow valley, and Windermere, the first of the lakes, lies like a dream of Eden at your feet.

Windermere after a Storm.

Beauty is often realized through sharp contrasts.

The woods glittered and sparkled in the sun, each dripping branch a spray of golden light, and the light was married to the loud music of the birds flowing out in rivulets of song. Countless flies shot through the air, and vibrated on the water; and the fish leaped up to catch them, dimpling the shining surface with concentric ripples, and throwing up small jets of light in the smooth black bays. Every crag and stone, and line of wall, and tuft of gorse, was visible on the nearer hills, where the colouring was intense and untranslatable; and on the more distant mountains we could see, as through a telescope, the scars on the steeps, the slaty shingles, and the straight cleavings down the sides, the old gray water-courses threaded now with a silver line—those silver lines, after the storm, over all the craggy faces everywhere; we could see each green knoll set like an island among the gray boulders, each belt of mountain wood, each purple rift, each shadowed pass; slope and gully, and ghyll, and scaur, we could count them all glistening in the sun, or clear and tender in the shade, while the sky was of a deep pure blue above, and the cumulus clouds were gathered into masses, white and dazzling as marble, and almost as solid-looking.

And over all, and on all, and lying in the heart of everything, warming, creating, fashioning the dead matter into all lovely forms, and driving the sweet juices like blood through the veins of the whole of earth, shone the glad sun, free, cloudless, loving—life of the world's life, glory of its glory, shaper and creator of its brightest beauty. Silver on the lake, gold in the wood, purple over the hills, white and lazule in the heavens—what infinite splendour hanging through this narrow valley! What a wealth of love and beauty pouring out for the heart of all Nature, and for the diviner soul of man!

The Desert Mirage.

'*As waters that fail*' (JER. xv. 18).

The day had been more than usually sultry, and there was not a breath of wind. Our route lay across a sandy plain, where the

scenery would have been dull and uninteresting, but that it was enlivened by the stately palms, scattered about or in groups, with their feathery tops and clustering dates or nuts; and that exceedingly beautiful and luxuriant shrub, the cashew nut, which, flourishing in sandy soils, adorns the desert with its sweeping branches of bright green foliage and tempting fruit, with its strangely-shaped nut outside. Here and there, also, we observed a Mahommedan tomb, almost in ruins. As we advanced the scene changed, and in the distance a sheet of water came gradually into view, which at last was spread out before us as far as the eye could reach; just like the calm sea on a summer's evening, or the waters of a tranquil lake. The question soon arose how we were to cross this expanse of water, if it was fordable; as, if not, we should have to go miles round, and thus lengthen a journey which, from the intense heat and the thirst which we experienced, was already almost insupportable. Now, we had often observed slight appearances of the mirage before, but we never for one moment supposed that this was one. The illusion was so complete that not one in the company seemed for one moment to doubt its reality. Not one of the natives who accompanied us was acquainted with this locality; and we noticed them whispering together, while one asked another if that water was not far too deep for the sahib to attempt to drive through it. One little child clapped her hands with delight at the prospect before us, and said, 'Will it not be nice to go through the water? Will not the poor horse like it? And then we're all so thirsty!' We were indeed parched with thirst, so that the very thought of passing through, or near, water, and of meeting the cool breezes generally to be found blowing over it, quite exhilarated our drooping spirits. More and more we admired the charming view before us. The calm, still lake, only broken by its numerous fertile islands, where the trees and shrubs were so clearly reflected on its unruffled surface; a tomb was also shadowed in its depths; and to add to the illusion a party of native travellers were in front—a woman veiled, mounted on a bullock, a man walking behind, and their forms clearly depicted in the waters as they appeared to be actually fording them with caution and difficulty. As we proceeded the scene bore a rather different aspect. The expanse of water did not seem so great, but it had taken more the appearance of a lake, with trees and shrubs bordering it in the distance. A little nearer, and it was more reduced in size; a sandy beach was also visible in the foreground, which seemed to increase in breadth, while the water diminished. A few more steps, and no water at all was visible. We drove over, on dry ground, what had at first appeared a sea of boundless extent. This was one of the optical deceptions so often occurring in India and other hot and sandy countries, but which I never, either before or since, saw so complete or so extensive. Great was the disappointment of the whole party, more especially of the little child. She was, however, soon comforted and refreshed, as we quickly came to a well outside a village, which was under the shade of palm-trees. It was the time of drawing water, and the women were assembled with their earthen vessels. We offered a native man a few pice, and he climbed one of the trees, and cutting off some of the ripe nuts, let them fall, and then descended to open them for us. The women smiled kindly and delightedly on the European child, as she eagerly stretched out both hands for the nuts in her anxiety to quench her thirst with

a draught of the sweet, fresh milk. We all seemed to feel our thirst the more for the great disappointment we had endured.

Is there not a lesson in this narrative, and are we not reminded by it of the fleeting pleasures of this life, so eagerly pursued, but so delusive? What are they but 'deceitful brooks,' and 'waters that fail,' which can never satisfy immortal souls?

LEAVES.

The Life of the Leaves.

The life of the leaves may be suggestively compared with the life of man.

Nothing is more beautiful to contemplate than the parallel between the life of leaves and that of man. Infancy in the one is the early spring condition in the other. Each has its summer of maturity, and each has its autumn of decline, while every separate day and night is with each an alternation of activity and rest. Leaves do nothing during the night—that is to say, nothing of the nature of work, for the benefit of the plant as a whole; their activity ceases when darkness comes; they never fail, however, while alive, to resume it in the morning. Nearly all that a plant contains is prepared in the leaves. The roots absorb plenty of crude nourishment, but it is in the leaves that this is converted into genuine plant-food; so that we may well compare them to the busy labourers who maintain the fabric and comfort of society—men in town, women in the sanctuaries of home—every one of whom who fulfils the duties of life is a leaf of the great tree of the human family. Well, too, may we expect that in the evening they should show signs of weariness, and repose themselves each in its own fashion. Man comes home to the prattle of his little folk, their tales of the day's wonders, told half out of breath, and with sweet dance of innocent eyes to the music of mingled voices; or he comes to the 'wife of his youth,' happy in her little pride, that lives not so much upon her knees as in the innermost centre of her heart, and lifts up heaven in her face, in small, sweet babe-smiles, that float like speech from lips yet speechless, but to call her some day by the sweetest name a woman can hear; home becomes to these, finding that the Golden Age is not a dream of ancient poets, but a golden thread that runs through all the years and centuries, and of which he holds a filament; and over them he closes like the lotus and the tamarind.—*Leo H. Grindon.*

The Potentialities of Leaves.

'It doth not yet appear what we shall be.'

It is now nearly a hundred years since Goethe pointed out in his 'Metamorphoses of Plants' the fact that all the parts of a flower are simply modifications of the ordinary green leaves; these being altered in size, form, colour, texture, and function, so as to promote the perpetuation of the species by seed. All the observations of the past century have gone to confirm this view, so that the common phrase, 'nothing but leaves,' is literally true as applied to the flowers we most admire in our gardens or in the fields. 'Nothing but leaves,' but then leaves are full of all sorts of beautiful potentialities. In the fifth

letter of 'Fors Clavigera,' Ruskin, in alluding to this discovery of Goethe's, says it was 'a true discovery and a notable one; and you will find that, in fact, all plants are composed of essentially two parts, the leaf and root—one loving light, the other darkness; one liking to be clean, the other dirty; one liking to grow for the most part up, the other for the most part down; and each having faculties and purposes of its own. But the pure one, which loves the light, has, above all things, the purpose of being married to another leaf, and having child-leaves, and children's children of leaves, to make the earth fair for ever. And when the leaves marry they put on wedding robes, and are more glorious than Solomon in all his glory, and they have feasts of honey, and we call them "flowers."'—*F. W. Burbidge.*

The Making of the Leaves.

God's work in souls is a long process.

O impatient ones! did the leaves say nothing to you as they murmured, when you came hither to-day? They were not created this spring, but months ago; and the summer just begun will fashion others for another year. At the bottom of every leaf-stem is a cradle, and in it is an infant germ; and the winds will rock it, and the birds will sing to it all summer long, and next season it will unfold. So God is working for you, and carrying forward to the perfect development all the processes of your lives.—*H. W. Beecher.*

The Anxious Leaf.

The happiest lot for everything is just to fulfil its mission.

Once upon a time a little leaf was heard to sigh and cry, as leaves often do when a gentle wind is about. And the twig said, 'What is the matter, little leaf?' And the leaf said, 'The wind just told me that one day it would pull me off and throw me down to die on the ground!' The twig told it to the branch on which it grew, and the branch told it to the tree. And when the tree heard it, it rustled all over, and sent back word to the leaf, 'Do not be afraid: hold on tightly, and you shall not go till you want to.' And so the leaf stopped sighing, but went on nestling and singing. Every time the tree shook itself and stirred up all its leaves, the branches shook themselves, and the little twig shook itself, and the little leaf danced up and down merrily, as if nothing could ever pull it off. And so it grew all summer long till October. And when the bright days of autumn came, the little leaf saw all the leaves around becoming very beautiful. Some were yellow, and some scarlet, and some striped with both colours. Then it asked the tree what it meant. And the tree said, 'All these leaves are getting ready to fly away, and they have put on these beautiful colours because of joy.' Then the little leaf began to want to go, and grew very beautiful in thinking of it; and when it was very gay in colour, it saw that the branches of the tree had no colour in them, and so the leaf said, 'Oh, branches, why are you lead colour and we golden?' 'We must keep on our work-clothes, for our life is not done; but your clothes are for holiday, because your tasks are over.' Just then a little puff of wind came, and the leaf let go without thinking of it, and the wind took it up and turned it over and over, and whirled it like a spark of fire in the air, and then it fell gently down under the edge of the fence among hundreds of leaves, and fell into a dream, and never waked up to tell what it dreamed about. — *Henry Ward Beecher.*

Peculiarities of Falling Leaves.

Some men pass away and leave little or no trace behind.

The leaves of some trees when they fall leave no trace whatever behind. The scar left by their removal heals immediately, and on the smooth naked bark of the bough, in winter, there is no mark to indicate that it was once covered with foliage. There are other trees, however, on which the scars are permanent. The leaf drops off, but it leaves a seal-like impression behind on the stem, and no succeeding growth can obliterate it. Through summer's luxuriance and winter's desolation the memory of the vanished leaf remains indelibly fixed on the tree, engraved as if with a pen of iron upon the bough which it once adorned. The tree may increase in size until it forms a grove by itself; but the signet-mark left by the leaf, which fell from it when it was a mere sapling, still cleaves to it in the grandeur of old age. Many of the characteristic markings on the stems of palm-trees and tree-ferns are due to the permanence of these scars, when their leaves are decayed and dropped off. And is not the lesson of analogy here very clear and impressive? How many there are who fade and drop off the tree of humanity, and leave no trace of their existence behind! while others, when they fade and drop off the tree of life, leave behind them an impression which time will only make deeper—an empty space, whose perpetual vacancy reminds the survivors of an irreparable loss.—*Hugh Macmillan, LL.D.*

A vine-leaf has a peculiar mode of falling. Attached by cellular tissue to the stem, it separates easily therefrom when the time of falling comes; and its long, thick, and heavy footstalk prevents it from twirling in the breeze like other and hollow leaves; and falling in a vertical line, it alights on the ground with a hollow clash, having a startling effect in a calm and quiet day, and differing widely from the rustling sound, so common in woodlands, at the season styled 'the fall of the leaf.'—*Gorrie.*

The withered leaf is not dead and lost. There are forces in it and around it, though working in inverse order; else how could it rot? Despise not the rag from which paper is made, or the litter from which the earth makes corn. —*Carlyle.*

New Leaves pushing off the Old Ones.

Old corruptions are best removed by the growth of new graces.

Old leaves, if they remain upon the trees through the autumn and the winter, fall off in the spring (Manton). We have seen a hedge all thick with dry leaves throughout the winter, and neither frost nor wind has removed the withered foliage; but the spring has soon made a clearance. The new life dislodges the old, pushing it away as unsuitable to it. So our old corruptions are best removed by the growth of new graces. 'Old things are passed away; behold, all things are become new.' It is as the new life buds and opens that the old worn-out things of our former state are compelled to quit their hold of us. Our wisdom lies in living near to God, that by the power of His Holy Spirit all our graces may be vigorous, and may exercise a sin-expelling power over our lives, the new leaves of grace pushing off our old sere affections and habits of sin.—*C. H. Spurgeon.*

Leaves are Light, Frail, seemingly Worthless Things.

Never mistake 'lightsomeness;' it may be linked with strength.

Leaves seem light, and useless, and idle, and wavering, and changeable — they even dance; yet God has made them part of an oak. In so doing He has given us a lesson: not to deny the stout-heartedness within, because we see the lightsomeness *without*.

All Parts of a Flower are Modified Leaves.

'Each living part of the "true vine" is ideally the same, and yet individually different.'

Step by step we can see how the leaf passes into the flower, the fruit, the seed. However different the parts may be in the end, it can be shown that they are essentially one, modified according to the work which they have to do. In the last change there are still marks of the beginning — in the first leaf, if we can read it aright, a prophecy of the tree. And more than this: not only are the separated parts thus related in their most extreme variation, but there is always a correspondence between the grouping of the parts which answers to the constitution of the whole plant. Not only is the petal, for example, truly a leaf, but the arrangement of the leaves round the stem indicates the arrangement of the petals in the flower. One law is fulfilled everywhere. There is no repetition in the organs which are most like; there is no discord in the organs which are most widely separated. It would be easy to follow out this Divine plan, so to speak, of the tree's growth in much fuller detail; but what I have said is enough to show the truths which it teaches us as to the diversities of our Christian life. Each living part of *the true vine* is ideally the same, and yet individually different. Our differences are given to us to fit us for the discharge of special offices in its life. If, therefore, we seek to obliterate them, or to exaggerate them, we mar its symmetry and check its fruitfulness. We may perhaps have noticed how in a rose the coloured flower-leaf sometimes goes back to the green stem-leaf, and the beauty of the flower is at once destroyed. Just so it is with ourselves. If we affect a work other than that for which we are made, we destroy that which we ought to further. Our special service, and all true service in the same, lies in doing that which we find waiting to be done by us.— *Brooke Foss Westcott, D.D.*

The Fading Leaf has done its Duty.

If we are trying to be the best that we can be, we fall honourably when falling time comes.

'All leaves are builders,' says Ruskin; 'but they are to be divided into two orders—those that build by the sword, and those that build by the shield.' I would see every life as that most perfect of all seers into leaf-life sees every leaf. It may be that our lives are the most obscure and powerless for good this earth ever bore on her breast: I tell you, if we are trying to be what we can be, then the life of every one of us casts its speck of grateful shadow somewhere, holds itself somehow up to the sun and rain, fights its way with some poor success against storm and fire and foe and parasite; or it stands sternly, in these great days, shoulder to shoulder with its comrades, a strong tower of defence, to guard what we have won in our war for humanity, resolute not to fall in that trap the devil always sets for a generous people —of giving up in the treaty what they won in the fight. For it is true, and truest of all, that not the

things which satisfy the world's heart easily: not purple grape, and golden apple, and ripe grain, and brown seed, and roses and asters; not the noble and beautiful, over which men rejoice and are glad—are alone the fruit on the tree of life; but the leaf, faded, ragged and unnoticed, is fruit too; falling, when its day is done, it falls honourably; dying, it dies well, its work well done, and the world is better by the measure of what one poor leaf may do for its life.

Only let me make this sure, that in the humble place which I occupy I have done my duty and accomplished my work, and then I may be sure of this also, that the nipping frosts of the autumn, when they come, will be as divine to me as the dewy splendours of June. A falling leaf, I shall fall honourably; and the spirit, returning to the God who gave it, will again be set to do the greatest, and by consequence the most blessed, thing it can do; while this frame, the faded leaf, will wait for the morning of its resurrection. For this corruptible shall put on incorruption, and this mortal immortality. And when a man reaches this faith, he will not fear death any more than he fears life.—*Robert Collyer.*

Leaves of Fragrant Plants.

Christlike men and women breathe out fragrance, though they may not know they do.

Christ-like men and women, in their common everyday routine, and in all their passive and silent states, like the leaves of fragrant plants, breathe out into the air of the world healings and comfortings, which no one thinks of attributing to them.—*John Pulsford.*

The Peculiarity of the Lotus Leaf.

The best guard from moral evil is the encircling of sensitive moral purity.

When the lotus leaf is placed under water, it reflects light like a mirror, so that the image of any object, if presented to it at a proper angle, is seen by the spectator as distinctly as if the surface were one of polished metal. When water is thrown on the surface of a floating leaf, it flows off like a pool of quicksilver, reflecting light from the whole of its lower surface. This holds good on all occasions. On examining carefully the cause of this natural phenomenon, it is found that the lotus leaf is covered by short microscopic papillæ, which entangle the air, and establish a kind of air-plate over the entire surface of the leaf, with which in reality the water never comes in contact. This peculiarity is familiar to the natives of Australia, who have founded on it a kind of proverb, which may be thus translated: 'The good and virtuous man is not enslaved by passion nor polluted by vice; for though he may be immersed in the waters of temptation, yet, like the lotus leaf, he will rise uninjured by them.' He is surrounded by an atmosphere of purity which prevents temptation from affecting him, and he reflects light all around him.—'*Scientific Symbols.*'

The Work of the Green Leaf.

The mission entrusted to most things is various and complicated.

1. *Purifier of Nature.*—This is one of the most important offices which it was created to fulfil. In the early ages of the earth, long before man came upon the scene, the atmosphere was foul with carbonic acid gases, so poisonous that a few inspirations of them would be sufficient to destroy life. These formed a dense covering which kept in the steaming warmth of the earth, and nourished a rank and luxuriant vegetation. Gigantic ferns, tree-mosses, and reeds grew with extraordinary rapidity and absorbed these noxious gases into their own structures, consolidating

them into leaves, stems, and branches, which in the course of long ages grew and decayed, and by subtle chemical processes and mechanical arrangements were changed into coal-beds under the earth. In this wonderful way two great results were accomplished at the same time, and by the same means: the atmosphere was purified and made fit for the breathing of man, and animals useful to man; and vast stores of fuel were prepared to enable future generations to subdue the earth and spread over it the blessings of civilization. And what the green leaves of the early geological forests did for the primeval atmosphere of the world, the green leaves of our woods and fields are continually doing for our atmosphere still. They absorb the foul air caused by the processes of decay and combustion going on over the earth, and by the breathing of men and animals, and convert this noxious element into the useful and beautiful products of the vegetable kingdom. They preserve the air in a condition fit for human breathing. Without them carbonic acid gas would soon accumulate to such an extent that animal life would be impossible. There would be no gaily-coloured blossoms to delight our senses and stimulate the poetical side of our nature, for flowers are as pure breathers as man himself, and cannot exist in a foul atmosphere. We little think when we inhale the fresh air that its purity and healthfulness come to us by the beautiful mission of the green leaf. Nor have we only the green leaves of our own fields and woods to thank for this blessing; the air that we breathe has been purified for us, thousands of miles away, by the palms of the South and the pines of the North; by the birches of America and the gum-trees of Australia. Nothing is more wonderful in Nature than the balance which is constantly kept up between the animals that contaminate the air, and the plants that purify it, the refuse of the one kingdom being the food of the other. Were even so small a proportion as ten per cent. of carbonic acid gas allowed to accumulate in the atmosphere, it would destroy every living animal that breathed it. And yet out of a much smaller proportion of this noxious substance in the atmosphere, the green leaf builds up all the immense and varied mass of the vegetation that covers the surface of the earth; while by the very same act it restores to man and the other animals the atmosphere in healthy purity.

2. *Source of all the Life of the World.*—It is by its agency alone that inert inorganic matter is changed into organic matter, which furnishes the starting-point of all life. Nowhere else on the face of the earth does this most important process take place. Everything else consumes and destroys. The green leaf alone conserves and creates. It is the meditator between the world of death and the world of life. The crust of the earth was once like a burnt cinder; and the reason why it has not continued so, why, unlike the moon which revolves round the earth a great lifeless desert of solid lava, it has been peopled with all kinds of living things, is owing to the ministry of the green leaf. It is because of this ministry that in a world once burnt up is found an abundant supply of combustible materials for all our wants. During the long geological periods the silent agency of the leaf has been slowly recovering combustible materials from the wrecks of the first conflagration that should enter anew into the great vortex of life and use and beauty. The quiet sunbeams, working by means of the most delicate of all structures, the cellular tissue of the green leaf, and by a process the most subtle and wonderful in the whole

range of chemistry, have partly undone the work of the fire; and whatever now exists on the earth unburnt—wood, coal, animal and vegetable tissue, the wondrous body of man himself—we owe to that simple agent, the green leaf. There is a mighty conflagration still going on continually all over the earth, not with the roar and fury of a great fire consuming an extensive building, in which the elements rush into combination with an appalling force which no human power can resist, but unseen, unheard, unknown to us, except when in the end we see the dreary results, reducing all things to decay, corruption, dust and ashes, burning everything that can be burnt, and converting the earth into a uniform lifeless desert. But there is a mightier force ceaselessly at work undoing all the destruction, giving beauty for ashes, and the rich variety of life for the dreary uniformity of death; working not amid the convulsions of Nature and the crash of the elements, but quietly, unseen, unknown, except when in the end we see the results of its beneficent labours; and that force is the green leaf.

3. *Conductor of Electricity.*—In the third place, the green leaf is the best conductor of electricity—that most powerful and destructive of all the forces of the earth. To guard our homes and public buildings from its destructive action, we erect our lightning-rods, whose sharp points quietly drain the clouds, or, failing to do this, receive the discharge and bear it harmlessly to the earth. But ages before Franklin pointed the first lightning-rod to the storm, God has surrounded the dwellings of man with a protection far more effectual than this; for since the creation of organic life every pointed leaf and blade of grass have been silently disarming the clouds of their destructive weapons. A twig covered with leaves, sharpened by Nature's exquisite workmanship, is said to be three times as effectual as the metallic points of the best constructed rod. And when we reflect how many thousands of these vegetable points every large tree directs to the sky, and consider what must be the efficacy of a single forest with its innumerable leaves, or of a single meadow with its countless blades of grass, we see how abundant the protection from the storm is, and with what care Providence has guarded us from the destructive force.

4. *Source of all the Streams and Rivers in the World.*—In the fourth place, the green leaf is the source of all the streams and rivers in the world. It is by the agency of the leaf that water circulates as the life-blood of the globe. In a leafless world there would be no rains and no streams. Destroy the woods, and you destroy the balance of Nature; you prevent the formation of clouds, you dry up the rivers, and you produce an arid desert. Whereas, on the other hand, foster the growth of leaves, and they will alter the nature of the climate, and change the wilderness into a fruitful field.

And how appropriately, in this light, did the green leaf come to Noah as the earnest and the instrument of the re-arrangement of a world which had been reduced to a desert by the punishment of man's sin! That leaf assured him that the old rivers would flow again; that the former fields would smile anew; that the forests would, as in previous times, cover the earth with their shadow; and that all the conditions of seed-time and harvest, and of a pleasant and useful home for man, would be present as of yore.

5. *Type upon which all Forms of Life are moulded.*—All the parts

of a plant are but modifications of the leaf. The stem is a leaf rolled up tight; the blossom is a leaf transfigured for a higher purpose; the fruit is a leaf changed into a receptacle for the seed; and the seed itself is a leaf packed together in a case to protect it from unfavourable weather, and furnished with a sufficient amount of food for its unfolding and growth into a new plant in more favourable circumstances. Take a pea or a bean, and if you strip off its envelope or skin, you find that it consists of a short joint and a pair of leaves; as it grows in the ground, another joint with its pair of leaves is formed; as it still grows in the air and sunshine another joint with its pair of leaves is formed; and then another joint with its pair of leaves is formed, and so on. The whole stem consists of a mere repetition of these single elements —joints and leaves. And as all the vegetable kingdom is thus built up of leaves, so the animal kingdom is constructed on the same model. All organisms, whether animal or vegetable, are similar in their elementary structure and form; and the most complicated results are attained by the simplest conceivable means, and that without the slightest violation of the original plan of Nature. The palm of the human hand and the backbone of the human form are both constructed upon the model of the leaf. Thoreau has said that the whole earth is but a gigantic leaf, in which the rivers and streams resemble the veins, and the mountains and the plains the green parts. — *Hugh Macmillan, LL.D.*

Leafy London.

The trees of a city are sweet suggesters of purity, peace, change, and renewal.

The London trees are having their season. They insist upon our attention. The younger ones are bright with fresh green leaves, and birds babble from among them, as if sin and misery, the greed for gold and the race for pleasure, had no existence in this brick and mortar wilderness. The older ones, black-barked and grim, are putting forth dusky white, yellow and green points, that will some day be full leaves. Anon they will be richly arrayed also, and the birds will mount them for wider surveys, as the young look out upon life from the staid wisdom of their elders. A London tree is a delicious revelation in spring. The young tree is lush, exuberant, all flutter and gaiety. 'Look at my wealth, my colour, my flowing drapery, in contrast with bleached church, or gravestone, or dull red-brick house,' it seems to say; 'I present myself to the monarch, Man, in this his court of life and rule. I bow to him, and the good smile at me!' The gnarled, twisted elm and chestnut symbolize the mature, the spiritually dead, the emotionless, until Spring's breath blows upon them. The greatest grief of life, sings the poet, is 'to feel all feeling die.' The old trees protest against this cynicism. They feel; they put forth their light greenery; they seem to draw upon memory for richness, upon inner life for expanse. Their leaf tints are soberer, but the contrast between black bark and shimmering leaves is greater. Is there not always some good in man? whispers the moralist as he looks at them. The city darkens and soils; the inward life is the brighter and purer. Is there not hope as bright for the seared soul as for the soot-stained tree?

The squares have their season in May, the parks in June, except where some square is a fragment of truly suburban London, preserved intact as a remembrance —a rural cameo. The fine elms in the older country-cut squares are still behind their younger

fellows in the planted plots; but they will remain green when the hasty leaf-bearers have exhausted their vitality. The newer squares are now in their glory. The greensward is emerald indeed. Tulips have given place to hyacinths. The light-green diaphanous leaves float in the air, whilst the gray stucco, bleached stone, and blurred bricks about them are hard, cold, stiff, and altogether unlovely. By-and-by lilacs will shake out their feathers, chestnuts will offer their white altars for hymning bees, and laburnums will drop their golden tassels over the bright eyes of wondering children and the upturned faces of the frivolous and the seekers after less lustrous shekels. And then human beings may get metaphysical, and muse or read, or turn sportive, and toss the tennis-ball, amid rippling laughter that will amaze bold wrens and twittering sparrows and wild-eyed swifts, who have wintered in lands of palm and cypress and sad-eyed men and women.

The squares are the sonnets of the city, but the parks are its epics. Life must needs be a little languorous in the one—it is ambitious, feverish, jealous, love-sick, gold-sick, artificial in the other. The square is girt about with homes which its leafiness brightens. The trees of the park are forgotten in the rush of the season, except as they are useful to afford shade, and stand sentinel over society in its pomp and parade. Yet the older parks are memories of ancient London. The surge has rolled about them and left them intact. The house-builder, putting up his great ugly stone houses, as children erect their toy-dwellings of brick playthings, has built them in, to remind London that it once had its 'mofussil days,' as an old Anglo-Indian would say, and the parks are the survivals thereof.

Londoners love trees, and what a pity it is there are not more of them! Leigh Hunt has said that you can hardly stand anywhere in London without beholding a tree somewhere. The assertion is less true of some parts than it used to be. Yet New London has its trees, and how beautiful they look! The Embankment trees are lines of loveliness. The cold winds that sweep about the river have kept them backward this spring. But they are still sweet and pleasant to the eye, seen, for example, from the tower of the National Liberal Club. Some day, perhaps, all our wider thoroughfares will be brightened with sycamores, limes and planes. Here, perhaps, the County Council may be less prosaic than the Board of Works, and prefer the light green mould upon buildings to the bleached whiteness caused by a pitiless and acid atmosphere. Memories of Paris boulevards will be fresh in many minds this year. Let us hope they will bear fruit in giving us a more leafy London in the future! Business need not wholly swallow us up in this desert of brick and stone, of arid souls and parched, hungry life. Let us have more leaves, to whisper to us softly as 'if a sister's voice reproved'—to give shelter to more singing birds—to quicken in us more poetry in a world that crushes the wine out of our souls and deadens us in the process. The trees of the field 'clap their hands': the trees of the city are sweet suggesters of purity, peace, change and renewal! They are our angels!—*Pall Mall Gazette.*

The Fading Leaf.

To the leaf is entrusted a sacred ministry, which it only completes by its fading.

Few psalms were ever sung about the fading leaf that had for their burden a great cry of accomplishment and victory. All rejoice over the purple grape and ripened grain. The fruit, ruddy

and golden, seems to laugh at us on the tree; but the leaf, rustling under our feet, or shivering in the sharp frost, seems to tell only of dissolution and death. We thank God in our great Thanksgiving for the kindly *fruits* of the earth: we never thank Him for the kindly leaves. Everything on the farm and in the garden is considered except the leaf. 'How strange and awful the gusty wind and whirling leaves of the autumnal day!' Coleridge cries; and he does but express what all men feel. We tack it into a distich for our children's copybooks; we set it to music, and sing it in our parlours and churches; and we engrave it on the memorial stones of our dead—that we all do fade as a leaf.

And yet I do not intend to re-echo this cry to you at this time. At the best, it is not the cry of the Gospel, but of the law. It is not of salvation by grace, but of dissolution by Nature, that we are thinking, when the leaves flutter down from the trees, and the hollow winds sigh through the woodlands. Is the fading of the leaf the only true thing about it, the only matter worth our painful, earnest thought; or is there something more and better? What can the leaf crimsoning on the tree, and the wind wailing through the branches, whisper to our hearts beside this one sad strain, 'We all do fade as a leaf'?

Well, this, I think, first of all. It can say, 'Take care you do not go wrong, in the first step, by misunderstanding entirely what it is for a leaf to fade; that you do not exalt that into the greatest, which may be of the smallest possible consequence; and that your steady gaze at this point in its being does not shut out at once reflection and anticipation—what the leaf has been, and what it may be, in the Providence of God.'

I do not say this to apologize for the leaf. I have no idea that prospect and retrospect shall clap hands over it, and hide it from our sight. I want the leaf to testify for itself, and say, 'Yes, indeed, your text is true. I am a fading leaf certainly — and all leaves fade. But then you must remember, that this is the true time to fade, as the May-days were to spring; and, I cannot doubt this — that any true time must be a good time. Beside, I want you to tell me whether I am not, in my degree, a ripe and perfect fruit, as certainly as your grape or apple; and so whether my falling is not like the fall of all ripe fruit, the proof that I have done God's will through storm and shine, and hear Him whispering "Well done" in the first frost; so that when I am turning to fall, am I not also turning to rise; to be again, in my degree, a servant and minister of the grace of God?'

'The truth is,' my leaf may continue, 'you look at the leaf as you look at life, along the surface, instead of into the deep: your estimate is by superfice, not cube measure. I seem to fall: I do fall. But, if it were possible for you to see what I am doing beside, you would wonder, as you noted, how the spirit that has animated me, and been the life of my life, through all the days and nights since I came into being, is quietly freeing itself from its old familiar frame; and rising, not in fable, but in fact, in deed, and in truth, to wait the bidding of the Master; while the frame itself, this thing shivering over your head or rustling under your feet, will be guarded and kept until the morning of its resurrection. Did you rejoice this summer over your strawberries and roses, and not remember how, for a thousand ages, my race, faded leaves as you call us, have lain treasured, waiting to be their ministers and yours whenever you should come to need

us? You preach from your text, "We all do fade as a leaf": why do you not sometimes preach from that other text, "The leaves of the tree are for the healing of the nations"? What nation is not healed through our ministry? What great thing was ever done where we cast no shadow? You cry "nothing but leaves," and think you have touched the dusty heart of all barrenness. When you know what it is to be even a faded and fallen leaf, there will be a better music in your cry. It is true, we are nothing but leaves; yet, in the order of the creation, you had been nothing but for us. Here, as everywhere, there is no broken link in the chain that binds all things God has made fast to His throne, no step lost out of the ladder stretching from earth to heaven, no dry place in the river of life. From the atom to the angel, in Him we live and move, and have our being; and He is not far from every one of us.'—*Robert Collyer.*

The Fossil Leaves of Bournemouth.

Lives sometimes leave quite unexpected traces.

A magnificent collection of fossil leaves has been, in late years, obtained from certain sites in the neighbourhood of Bournemouth. The whole district is tertiary, and the particular beds in which the leaves have been found are known as Lower Bagshot, the equivalents of the beds at Bagshot Heath. The beds are mostly sand, but the leaves occur in intercalated clay patches. It is a matter of great interest that the stratigraphical position of the beds, and therefore their geological age, are known, and this is all the more important as this is the only case in the whole of Europe in which the age of tertiary beds containing leaves is known. It generally is guessed at from the character of the leaves. Here, however, the stratigraphical proof of age is perfect, and, further, there is no hesitation in recognising the pipeclay band of Alum Bay, also rich in leaves, as belonging to the same series. In fact, the Alum Bay and Bournemouth floras have to be studied together. As regards the leaves, the majority are in excellent preservation, and they are so numerous that there is no difficulty in selecting perfect specimens for comparison with living forms. Although the general public knows less of this flora than of many abroad, which have been worked at by special expeditions, it is one of the most interesting yet discovered anywhere. At a recent meeting of the Royal Society, the Baron von Ettingshausen read a paper on 'The Alum Bay Portion of the Flora,' and gave the number of genera represented there as 116, and the species 274. The far more extensive Bournemouth flora has not yet been sufficiently worked out for even an approximation of numbers to be given. Among the more commonly known trees, however, there are met with leaves of poplar, elm, laurel, oak, beech, willow, plane, fig, cinnamon, many proteaceæ, walnut, prune, maple, eucalyptus, thorn, many leguminous plants, fan-palms, yew, cyprus, pine, cactus, many species of ferns, etc. Fruits referable to these have been found in Sheppey, and a theory has been put forward that the well-known Sheppey fruits floated away from the trees of which here is the foliage. Although the fact that fossil leaves did occur in the cliffs was known forty years ago, it is only within the last few years, and especially from Mr. J. S. Gardner, F.G.S., that they have received much attention.

MOUNTAINS, HILLS, MOORS, ETC.

Mountain Scenery.

Great souls feel the mountain influence as truly as lesser ones.

Arrived aloft, he finds himself lifted into the evening sunset light, and cannot but pause and gaze round him some moments there. An upland irregular expanse of wold, where valleys in complex branchings are suddenly or slowly arranging their descent towards every quarter of the sky. The mountain ranges are beneath your feet, and folded together; only the loftier summits look down here and there, as on a second plain; lakes also lie clear and earnest in their solitude. No trace of man now visible, unless, indeed, it were he who fashioned that little visible link of highway here, as would seem, scaling the inaccessible to unite province with province. But sunwards, lo you! Now its towers sheer up, a world of mountains, the diadem and centre of the mountain region! A hundred and a hundred savage peaks in the last light of day, all glowing of gold and amethyst, like giant spirits of the wilderness; there in their silence, in their solitude, even as on the night when Noah's Deluge first dried! Beautiful, nay solemn, was the sudden aspect to our wanderer. He gazed over those stupendous masses with wonder, almost with longing desire; never till this hour had he known Nature—that she was one, that she was his mother, and Divine. And as the ruddy glow was fading into clearness in the sky, and the sun had now departed, a murmur of eternity and immensity, of death and of life, stole through his soul, and he felt as if death and life were one, as if the earth were not dead, as if the spirit of the earth had its throne in that splendour, and his own spirit were therewith holding communion.

Mountains were not new to him; but rarely are mountains seen in such combined majesty and grace as here. The rocks are of that sort called primitive by the mineralogists, which always arrange themselves in masses of a rugged, gigantic character; which ruggedness, however, is here tempered by a singular airiness of form and softness of environment; in a climate favourable to vegetation, the gray cliff, itself covered with lichens, shoots up through a garment of foliage or verdure, and white, bright cottages, tree shaded, cluster round the everlasting granite. In fine vicissitude, beauty alternates with grandeur; you ride through stony hollows, along straight passes traversed by torrents, overhung by high walls of rock; now winding amid broken, shaggy chasms and huge fragments; now suddenly emerging into some emerald valley, where the streamlet collects itself into a lake, and man has again found a fair dwelling, and it seems as if Peace had established herself in the bosom of Strength.—*T. Carlyle.*

The Necessity for the Mountains.

'To fill the thirst of the human heart for the beauty of God's working.'

It was, indeed, absolutely necessary that such eminences should be created, in order to fit the earth in any wise for human habitation; for without mountains the air could not be purified, nor the flowing of the rivers sustained, and the earth must have become for the most part desert plain or stagnant marsh. But the feeding of the rivers and the purifying of the winds are the least of the

services appointed to the hills. To fill the thirst of the human heart for the beauty of God's working—to startle its lethargy with the deep and pure agitation of astonishment — are their higher missions.

The Hartz Mountains.

Nature can produce the greatest effects with the fewest means.

The mountains were here steeper, the pine forests waved beneath like a deep green sea, and white clouds floated across the blue heavens. The wildness of the scene was, as it were, tamed by its unity and simplicity. Nature, like a good poet, loves no abrupt transitions. The clouds, however fantastic be their forms, have a pure and tender colouring which harmonizes with the blue sky and the green earth, so that all the hues of a region melt into each other like soft music, and Nature, under each of her aspects, has a tranquillizing and soothing influence.

Like a great poet, too, Nature can produce the greatest effects with the fewest means. There are only a sun, trees, flowers, water—and love. It is true, if this is wanting in the heart of the spectator, the whole may present but a poor, uninteresting spectacle; and the sun is then only so many miles in diameter, and the trees are good for firewood, and the flowers are classified according to the number of their stamina, and the water is wet.

On the Summit of Mont Blanc.

'The solemn solitude and silence of a whited wilderness.'

Before me rises one wild and wasteful world of white—a white on which the fierce rays of the sun beat and burn with blinding, blazing, intolerable brilliance. Above, swimming and soaring away into unfathomable azure, spreads the silent heaven; but around, about, beneath, all is white —deadly white, save only where the vast angles of ice-crag or column deepen into a lustrous turquoise, or where a blue mist broods athwart the mouth of yawning crevasse or cavern. Below me and afar—so far that it seems as if I were cut off from it for ever—lies the sunny village that I left so many toilsome hours ago, just visible, a wee white dot upon the green. There the air is sweet with the breath of flowers and of the clover-fields; there, too, are the bees, and the butterflies, and the music of rushing water. But here, where the wasteful snows writhe and wreathe around in arch and cave and column, vast and wonderful to behold—above, the shining zenith; below, the sheer abyss and the treacherous descent—here in the solemn solitude and silence of this whited wilderness, I can scarcely believe that I am still on the earth, and of it, and that the dazzling dome on which I am standing is but the white and swelling bosom of the Great Mother from whom we all sprang. —*A Dead Man's Diary.*

Points of View from which to estimate Mountains.

Moral elevation is necessary if we would behold Christ's glory.

We can only discern the glory of Christ, so as to be kindled by it into admiration and worship, as we ourselves rise above the ordinary levels of our life. A mountain may be very magnificent, towering to a sublime height, its sides covered with rugged grandeur, and its summit crested with shining snow, but much of its magnificence will be lost to the beholder who simply looks at it from the depth of the valley, or the level of the plain below. Mountain heights reveal their massiveness and their splendour only in the degree in

which they are viewed from some proportionate elevation. We may read in the Scriptures of the glory of Christ, of the wondrous majesty that belongs to His person, of the numerous and incomparable excellences that adorn His character; but our hearts will never be stirred to rapture or moved to adoration until we gaze upon 'the King in His beauty' from the lofty attitude of our own spiritual experience. It is one of the grand characteristics of the Christian life that the more we rise up towards Christ the more we discern of Him, and the more we discern of Him the more do we rise up, by the law of attraction, towards Him.—*B. Wilkinson, F.G.S.*

The Relative Height of the Hills.

Life is only estimated aright by reference to the highest standard.

The low foot-hills that lie at the base of some Alpine country may look high when seen from the plain, as long as the snowy summits are wrapped in mist, but when a little puff of wind comes and clears away the fog from the lofty peaks, nobody looks at the little green hills in front. So the world's hindrances, and the world's difficulties and cares: they look very lofty till the cloud lifts. And when we see the great white summits, everything lower does not seem so very high after all. Look to Jesus, and that will dwarf the difficulties. — *A. Maclaren, D.D.*

The Perpetual Moisture of the Mountains.

They have abundant refreshment who spiritually live high up on the hills of God.

The mountains lift their tops so high in the air, that towering clouds, which have no rest in the sky, love to come to them, and, wrapping about their tops, distil their moisture upon them. Thus mountains hold commerce with God's upper ocean, and, like good men, draw supplies from the invisible. And so it is that, in the times of drought in the vales below, the rocks are always wet. The mountain moss is always green. The seams and crevices are always dripping, and rock-veins are throbbing a full pulse; while all the scene down below faints for want of moisture. In some virgin gorge, unwedded by the sun, these cold rills bubble up and issue forth upon their errand. Could one who builds his house upon the plain but meet and tap these springs in the mountain, and lay his artificial channels to the very source, he would never know when drought cometh. For mountain springs never grow dry so long as clouds brood the hill-tops. Day and night they gush and fall with liquid plash and unheard music; except when thirsty birds — to whose song the rivulet all day long has been a bass—stoop to drink at their crystal edges! And he who has put himself into communication with these mountain springs shall never be unsupplied. While artificial cisterns dry up and crack for dryness, this mountain fountain comes night and day with cool abundance. While others, with weary strokes, force up from deep wells a penurious supply of turbid water, he that has joined himself to a mountain spring has its voice in his dwelling night and day, summer and winter, without work or stroke of labouring pump, clear, sweet, and cheerful; running of its own accord to serve, and singing at its work, more musical than any lute; and in its song bringing suggestions of its mountain home—the dark recess, the rock which was its father, the cloud which was its mother, and the teeming heaven broad above both rock and cloud!—*H. W. Beecher.*

The Pathway up the Glen.

Hope brings cheer into our life-struggle.

The narrow gorge stretches before us, with its dark overhanging cliffs that almost shut out the sky; the path is rough and set with sharp pebbles; it is narrow, winding, steep; often it seems to be barred by some huge rock that juts across it, and there is barely room for the broken ledge, yielding slippery footing between the beetling cliff above and the steep slope beneath, that dips so quickly to the black torrent below. All is gloomy, damp and hard; and if we look upwards, the glen becomes more savage as it rises, and armed foes hold the very throat of the pass. But, however long, however barren, however rugged, however black, however trackless, we may see, if we will, a bright Form descending the rocky way, with radiant eyes and calm lips — God's messenger, Hope; and the rough rocks are like the doorway through which she comes near to us in our weary struggle. . . . Never mind how black it may look ahead, or how frowning the rocks. From between their narrowest gorge you may see, if you will, the guide whom God has sent you, and that Angel of Hope will light up all the darkness, and will only fade away when she is lost in the sevenfold brightness of that upper land, whereof our 'God Himself is sun and moon'—the true Canaan, to whose everlasting mountains the steep way of life has climbed at last through valleys of trouble, and of weeping, and of the shadow of death.—*A. Maclaren, D.D.*

Deep Fissures in Alpine Glaciers.

'The depths of the heart often have the smallest openings out to the surface.'

In walking across Alpine glaciers, travellers often come upon narrow and apparently insignificant fissures, that seem to be merely superficial cracks; while the guides know that, if one but sounds them, they shall be found sinking down, fathom after fathom, to the very bottom; and sometimes, though small to the eye externally, they are cavernous, and at the bottom torrents rush and roar in silence; for so far down are they, and so ice-covered, that their angriest noises are smothered.

It is just so in human life. The depths of the heart often have the smallest openings out to the surface. The least important things have the most power in this world of expressing themselves. The most wonderful interior histories sink down in life unuttered and unrecorded. Griefs, longings, loves and fears flow hidden and voiceless, as if the heart were a glacier.—*H. W. Beecher.*

The Maritime Alps.

The glorious things of Nature do not need our applause or court our admiration.

The beauty of the country about Mentone is something wonderful. The Maritime Alps surrounding the bay on the shore of which the town is built; all sorts of gorges and ravines giving access to these mountains and the hill country beyond. On the sides of the hills and in the valleys are plantations of orange and lemon trees, on terraces raised one over the other, and on the lower ground, and where the shelter is greatest, you can wander amidst groves of olive-trees, wondering at the gray and indistinct mystery which seems to gather about and beneath them. And often, as the year advances, and the spring 'comes slowly up,' you chance upon some lonely spot still in the olive groves, where, unnurtured by any human hand, and altogether uncared for and for-

gotten, the red anemones blaze forth in fullest beauty; you take note of the utter seclusion of place in which they grow, you look around for some dwelling to whose inhabitants the flowers may owe their existence, and finding no such thing, and marking the almost oppressive solitude which reigns over all the shadowy region round about, a sort of fearfulness mixes with your wonder — you snatch a handful of these splendid creatures, and hasten away from that isolated spot where the flowers you have left wave and bend in solemn fashion before the spring breezes. The glorious things of Nature seem most glorious in this, that they do not need our applause or court our admiration. We must seek them out if we want to see them, and they are still prodigies of finished beauty, whether there is anyone by to admire them or not.

Our Life-Picture— A Mountain Sunrise.

Sorrow is God's toning work on the picture of our life.

At an artist's reception one day (says the Rev. H. W. Beecher), I saw a picture of a mountain sunrise, and I wondered at its marvellous depths, richness, and splendour of shade and colour, till the artist told me how he had toned down the picture and softened its colouring into its subdued harmony of tint; and I thought how often our life was growing to be like that picture of a mountain sunrise. God's unseen hand is before the easel, sketching here and shading there. The life-picture looks to us unfinished, fragmentary, and imperfect now; but each new joy-light, each sorrow-shade, is toning it down through all its gloom and glory into harmony with God's great ideal. He will frame it at last in such a setting of events as He chooses, and we shall find in that great gallery above that the light has been in the right place, and the shadows too.

Sunrise in the Mountains.

Everything, animate and inanimate, seems to awake to hail the coming glory.

Those who have stood upon the hill-top, and watched the sun appearing above the eastern horizon, can alone form an ideal of the beauty of morning. Nature—not merely the animal and vegetable worlds, but even the inorganic forms of creation — feel the influence of the first rays of the solar glory; and the voice of all moving things, the trembling tongues of leaves, and flowers, and the vibration of the mountain masses, unite in a common chorus of delight to hail the mighty day-star.

The harp of Memnon is not a fable; its music is no imaginary sound. Every lover of Nature who, seated on the mountain or by the ocean, has witnessed the sun casting his first golden beams across the earth, has had his soul stirred by that Divine harmony. Great type of immortality! figuring the passage of the undying soul through the night of death, and its revival in brightness, how many are the lessons thou teachest to man! how few are they who profit by thy wondrous teachings! —*Robert Hunt.*

The Wonderful Rocks and Cliffs of Colorado and New Mexico.

The apparent 'caprices' of Nature are the results of her fixed laws.

In some parts of her dominion, Nature has wrought her works of great serenity, in others her mighty and awful, and in others she has been in her fantastic mood; and here and there in the earth are spots where all her wonders are combined — vast

peaceful plains; mighty, cloud-piercing solemn peaks; grotesque and weird caprices and frolics; disordered cliffs, chasms, and pinnacles of delirious shapes, at which the traveller gazes as on a fairyland which giant magicians worked in wild frenzy with blank, breathless amazement. All this may be seen in the American Valley of the Yellowstone, the Cañons of Colorado, Monument Park, the Garden of the Gods, and the more wonderful, though less known, Cañon Blanco and Cañon Largo in the desert in North-Western New Mexico.

Scattered over all these districts are marvels of rock formations which might have had their model in the vast incongruities of an old curiosity shop. Perched on every variety of pedestal and shelf, hundreds of feet from the valley below, is every variety of unlikely things — a teapot, spout, handle, and lid; a table; a broken candle-stick, with the extinguisher on its block at the side; a man's turbaned head, yawning; a boot-jack; a bear reared up as if stuffed for a hall; a greyhound stretched as in full chase; a hand-bell; a melon; a lion's head; a cat sitting as on a hearthrug; and a cloaked and hatted witch. Seen when the sun is low, in the deep, intense shadow and silence, it all seems like a vast goblin world—a mad sculptor's nightmare struck in stone. Here, too, the architect, Gothic and Italian, has his immeasurable mockeries: moats and ramparts, mighty towers and bastions, castles and redoubts, sweeping stairways, arches, cupolas, spires, minarets, buttresses, gargoyle water-spouts, sculptured masks, imps, and heathen deities, likenesses — of nothing in heaven or earth, with dim blistering outlines of frescoes and friezes, that might have belonged to ancient Titan cities, now rent and ruined by besieging thunderbolts.

All these apparently-magic and startling 'caprices' of Nature are the results of her fixed laws. They are the sculpture of water acting upon harder and softer rocks—marble, sandstone, gravel, and granite—of which the great plateau of Colorado is composed. It is in huge rents and gorges that they occur. These extraordinary scenes, like the ordinary swarded fields and wood-bosomed hills, are the work of the one God, Father of men. On the sign of the manifold workshop of Nature there is but one Name, at home, and in the uttermost parts of the earth; that name is God, and everywhere this God is our God, our Father and our Friend.—'*Sunday Magazine*,' *March*, 1889.

Honey from the Rock.

Our appreciation of good things largely depends on their contrast with their surroundings.

God promises vineyards from the wilderness, and honey from the rock—indicating, under both figures, that those dispensations which have in them most of the painful and severe, the dreariness of the wilderness and the hardness of the rock, are both designed and adapted to yield to their subjects an abundance of the very choicest of spiritual provisions. Yea, you must go to the wilderness for vineyards, and to the rock for honey. Not that there are no vineyards except in the wilderness, and no stores of honey except in the rock. The vine will grow in the sunny vale, and the bee find and deposit her treasures in the luxuriant garden; for religion is adapted as much to prosperity as adversity. But we take comparatively little note of the vine amid a hundred other tokens of fertility, and the honey is almost untasted where every luscious fruit is offering itself abundantly. The worth of the vineyard is felt when met with in the wilderness,

and the honey, to be appreciated, must be found in the rock.—*Rev. Henry Melvill.*

The Sternness of the Higher Mountain Lands.

The journey of life is up into the stern experiences of old age.

When travellers undertake to climb the Alps, they first traverse deep valleys which are sheltered by the mountain from the cold blasts of the wind; there the air is pure and loaded with fragrance, the waters are of an unequalled transparency, and the trees are covered with sweet and luscious fruits; in these lovely spots are many peaceful and charming retreats where it might be supposed that life must of necessity glide on in unbroken solitude and rest. As they ascend, the scenery changes; it becomes at once grander and more austere; here are the dark pine forests in which the howlings of the wind are oft followed by the distant noise of the avalanche; there the deep passes and the fearful precipices; the sky has lost its variegated tints, the air is keener, but the horizon widens. The higher they climb, the sterner becomes Nature; soon flowers, verdure, perfume, everything has disappeared; nothing is left but a gloomy pall of snow and ice; and on the highest summits all would speak of death if there were not in that wonderful silence, in that vast and boundless sky, something which tells of infinity and eternity. We have often thought this a suitable figure of human life. It is a journeying from south to north, from summer to winter: below are visible blessings, the trusting heart which blossoms beneath the cheerful light of reciprocal love; below, the dreams of hardy youth; further on, the serious conflicts of maturer years; higher on still, alas! the heart would find nought but fields of ice, unfulfilled promises.

The Fascination of the Mountains.

Types of the stability of the Christian promises and of the eternal God.

Mountains exercise a peculiar and powerful fascination over the imagination. They transport us out of the fictitious atmosphere of civilization, and the cramping air of the world of taskwork, into the region of poetry and freedom. Among their serene and quiet retreats, the fevered, conventional life, brought face to face with the purity and the calm of Nature, reverts to its primitive simplicity, the mind recovers its original elasticity, and the heart glows with its native warmth. Every individual finds in them something to admire, and to suit the tendencies of his mind. To the patriot they are the monuments of history, which have attracted to themselves, by kindred sympathy, some of the most remarkable events that have diversified the life of nations—guardians of liberty, whose high, embattled ridges form an impenetrable rampart against the invading foe, and nourish within their fastnesses a hardy race, free as their own wild winds. To the poet they are the altars of Nature, on which the golden-robed sun offers his morning and evening sacrifice—footstools of God, before which his soul kneels, hushed in awe and reverence. To the philosopher they are the theatres in which the mightiest forces of Nature are seen in intensest action—the storehouses of earth's beauty and fertility. While to the devotional mind they are types of the stability of the Christian promises—emblems of the infinite, the eternal, and the unchangeable.

The fascination which they exercise extends to all that is connected with them. Their own sublimity and grandeur are reflected, as it were, upon all their productions; and the lowliest

object that hides under their shadow, or is nourished by their soil, acquires from that circumstance an importance which does not intrinsically belong to it. Hence the peculiar charm which all botanists find in the pursuit of Alpine botany. The plants which grow upon the rugged sides and the bleak, storm-scalped summits of the mountains cannot generally be compared, in point of variety and beauty of colouring, and luxuriance of growth, with the flowers of the plains. They are, for the most part, tiny plants, that, among their leaves of light, have no need of flowers—harmonizing in all their characters with their dreary habitats, and claiming apparently a closer affinity to the gray lichens and the brown mosses among which they nestle, than to their bright sisters of the valleys. But by their comparative rarity, by the magnificent and almost boundless prospects obtained from their elevated haunts, and by the exhilarating nature of the mountain breezes and scenery, they are surrounded by a halo of interest far exceeding that connected with woodland flowers; and a glowing enthusiasm is felt in their collection which cannot be experienced in the tamer and less adventurous pursuit of lowland botany.—*Hugh Macmillan, LL.D.*

The green slopes of Horeb, Hermon, and Carmel educated the prophets. David's school was among the hills and valleys of Palestine. They inspired him as mole-eyed science never inspires any man. They made a Divine poet for all time. In the verdant bosom of the hills of Nazareth Jesus spent His childhood and grew up to manhood. He knew that birds and lilies, corn-fields and olive-trees, expressed the thoughts of His Father. He was saddened and oppressed by men, and *very much* oppressed by religious men, but thrilled and soothed by Nature. He needed no other college for His twelve, nor any other church, than the banks of the Jordan, the mountain, the harvest-field, and the garden beyond the Kedron. He saw Nature momently evolving from God, and living because His life was in her.—*John Pulsford.*

From Dawn to Dawn in the Alps.

Only the Almighty Wonder-Worker could have wrought the marvels of the hills and vales.

Stand upon the peak of some isolated mountain at daybreak, when the night mists first rise from off the plains, and watch their white and lakelike fields, as they float in level bays and winding gulfs, about the islanded summits of the lower hills, untouched yet by more than dawn, colder and more quiet than a windless sea under the moon of midnight; watch when the first sunbeam is sent upon the silver channels, how the foam of their undulating surface parts and passes away, and down under their depths the glittering city and green pasture lie like Atlantis, between the white paths of winding rivers; the flakes of light falling every moment faster and broader among the starry spires, as the wreathed surges break and vanish above them, and the confused crests and ridges of the dark hills shorten their gray shadows upon the plain. Wait a little longer, and you shall see those scattered mists rallying in the ravines, and floating up toward you, along the winding valleys, till they couch in quiet masses, iridescent with the morning light, upon the broad breasts of the higher hills, whose leagues of massive undulation will melt back and back into that robe of material light, until they fade away, lost in its lustre, to appear again above, in the serene heaven,

like a wild, bright, impossible dream, foundationless and inaccessible, the very bases vanishing in the unsubstantial and mocking blue of the deep lake below. Wait yet a little longer, and you shall see those mists gather themselves into white towers, and stand like fortresses along the promontories, massy and motionless, only piled every instant higher and higher into the sky, and casting longer shadows athwart the rocks, and out of the pale blue of the horizon you will see forming and advancing a troop of narrow, dark, pointed vapours, which will cover the sky, inch by inch, with their gray network, and take the light off the landscape with an eclipse which will stop the singing of the birds and the motion of the leaves, together; and then you will see horizontal bars of black shadow forming under them, and lurid wreaths create themselves, you know not how, along the shoulders of the hills; you never see them form, but when you look back to a place which was clear an instant ago, there is a cloud on it, hanging by the precipices, as a hawk pauses over his prey. And then you will hear the sudden rush of awakened wind, and you will see those watch-towers of vapour swept away from their foundations, and waving curtains of opaque rain let down to the valleys, swinging from the burdened clouds in black bending fringes, or pacing in pale columns along the lake level, grazing its surface into foam as they go. And then, as the sun sinks, you shall see the storm drift for an instant from off the hills, leaving their broad sides smoking, and loaded yet with snow-white, torn, steam-like rays of capricious vapour, now gone, now gathered again; while the smouldering sun, seeming not far away, but burning like a red-hot ball beside you, and as if you could reach it, plunges through the rushing wind and rolling cloud with headlong fall, as if it meant to rise no more, dyeing all the air about it with blood. And then you shall hear the fainting tempest die in the hollow of the night, and you shall see a green halo kindling on the summit of the eastern hills, brighter—brighter yet, till the large white circle of the slow moon is lifted up among the barred clouds, step by step, line by line; star after star she quenches with her kindling light; setting in their stead an army of pale, penetrable, fleecy wreaths in the heavens, to give light upon the earth, which move together, hand in hand, company by company, troop by troop, so measured in their unity of motion, that the whole heaven seems to roll with them, and the earth to reel under them. And then wait yet for one hour, until the east again becomes purple, and the heaving mountains, rolling against it in darkness, like waves of a wild sea, are drowned one by one in the glory of its burning—watch the white glaciers blaze in their winding paths about the mountains, like mighty serpents with scales of fire; watch the columnar peaks of solitary snow, kindling downwards, chasm by chasm, each in itself a new morning; their long avalanches cast down in keen streams brighter than the lightning, sending each his tribute of driven snow, like altar smoke, up to the heaven; the rose-light of their silent domes flushing that heaven about them and above them, piercing with purer light through its purple lines of lifted cloud, casting a new glory on every wreath as it passes by, until the whole heaven, one scarlet canopy, is interwoven with a roof of waving flame, and tossing, vault beyond vault, as with the drifted wings of many companies of angels; and then, when you can look no more for gladness, and when you are bowed down with fear and love of the Maker and Doer of this, tell me who has

delivered His message unto men! —*John Ruskin.*

Sunshine and Rain in the Highlands.

'Scotland is like a wet pebble, with the colours brought out by the rain.'

I have heard Mr. Millais declare that three hours' sunshine in Scotland is worth three months' sunshine at Cairo; and the same authority, I believe, is responsible for the admirable aphorism that Scotland was like a wet pebble, with the colours brought out by the rain. Certainly the vividness of the colours one finds in the Western Highlands, especially in changeable weather, the dazzling whiteness of the clouds, the purple gloom of the Highlands in shadow, the brilliancy of the scorching sunlight on the silver-gray boulder, the yellow lichen, the crimson heather, and the clear tea-brown burn—all this is at once the delight and the bewilderment of the landscape artist, and must arise chiefly, one would think, from the fact that the atmosphere, instead of being loaded with the haze of continuous fine weather, is being continually washed clear by the Atlantic squalls.

This must account also for the intensity of the blue of the sky, which is a deep germander speedwell sort of blue, and has nothing in common with the pale turquoise blue of countries where far better weather prevails. As for the sunsets over these western seas, the splendour of them is beyond anything I have ever seen elsewhere—except, indeed, one evening in mid-Atlantic, and then the sea became of so extraordinary golden-green a colour, that even the 'commies' were drawn from their poker in the smoking-room to stare at it. In fact, that mid-Atlantic phenomenon was too extraordinary; it looked unnatural and theatrical, like the blue-fire light in the Grotto Azzuro at Capri.

Mr. Lockyer, to whom these sunsets in the West Highlands were something of a revelation, tells me he imagines that the moisture in the atmosphere must have something to do with the brilliancy of the colours; but there is also this to be remembered, that the place seems to have been constructed by a landscape artist for the express purpose of producing fine sunsets; for while the glow of the sky above is reflected in the sea beneath, the chances are that you find between these two breadths of light a long and mountainous island, the ruddy purple of which grows more and more sombre as the light above and below grows more wonderful.

On the other hand, it must be admitted that a steadily rainy day in the West Highlands, especially if you are at sea, is more devoid of colour and more empty and cheerless than anything that can be imagined. A waste of gray above, a waste of gray beneath; around you a soft, continuous 'smurr' of rain that drips from the sails on to the wet decks, and a few black figures in shining oil-skins—that is the picture. Then the long and low islands, like Coll and Tiree, grow more and more remote, or disappear altogether in the mist, and the higher, mountainous islands, like Rum and Skye, grow more awful and melancholy as the gloom gathers on their jagged peaks.

The world seems to have newly arisen from the waste of waters, for there is not a sign of life along the voiceless shores. And then, again, so changeable is this climate, hope revives in the afternoon when a touch of lemon-yellow becomes visible in the west.

The air feels warmer and drier. Clouds begin to break up, and heavy gray masses drift slowly inland across Arisaig and Ardnamurchan, up by Knoidart and Glenelg. Later on, the heavens open over the western horizon,

and a stormy sunset declares itself; the Atlantic seems on fire: Haleval and Haskeval, away in the north, are touched by the ruddy glow. But no squall comes tearing up; there is scarcely enough wind to fill the sails; the dusk of the evening finds everything smooth and still; after dinner, rugs and shawls are brought on deck. And then the moonlight night!—the heavens a clear violet, the moon golden and full, a line of light lying on the lapping waves, the radiance shining more palely as it strikes the deck and the tall masts. The sea and the islands and the shores seem all asleep, and there is not a sound but the soft 'Kurroo! kurroo!' of the unseen guillemots! but there is a sign of human life in the red star of Runa-Gual lighthouse; and perhaps in the silence the dark figure at the bow begins to hum a Gaelic song. If he does, be sure it is a song of farewell, for they have scarcely any other: it may be 'Farewell to Finnorie,' or 'Farewell to Lochaber, and farewell to my Jean;' or, 'Oh, boatman, a hundred farewells to you wherever it is you may be going!' —*William Black.*

Influence of Mountain Solitudes.

A lesson from the mediæval sentiments.

The idea of retirement from the world for the sake of self-mortification, of combat with demons, or communion with angels and with their King, authoritatively commended as it was to all men by the continual practice of Christ Himself, gave to all mountain solitude at once a sanctity and a terror, in the mediæval mind, which were altogether different from anything that it had possessed in the un-Christian periods. On the one side there was an idea of sanctity attached to rocky wilderness, because it had always been among hills that the Deity had manifested Himself most intimately to men, and to the hills that His saints had nearly always retired for meditation, for especial communion with Him, and to prepare for death. Men acquainted with the history of Moses, alone at Horeb, or with Israel at Sinai; of Elijah by the brook Cherith, and in the Horeb cave; or the death of Moses and Aaron on Hor and Nebo; of the preparation of Jephthah's daughter for her death among the Judea mountains; or of the continual retirement of Christ Himself to the mountains for prayer, His temptation in the desert of the Dead Sea, His sermon on the hills of Capernaum, His transfiguration on the crest of Tabor, and His evening and morning walks over Olivet for the four or five days preceding His crucifixion — were not likely to look with irreverent or unloving eyes upon the blue hills that girded their golden horizon, or drew down upon them the mysterious clouds out of the heights of the darker heaven. But with this impression of their greater sanctity was involved also that of a peculiar terror. In all this—their haunting by the memories of prophets, the presence of angels, and the everlasting thoughts and words of the Redeemer—the mountain ranges seemed separated from the active world, and only to be fitly approached by hearts which were condemnatory of it. Just in so much as it appeared necessary for the noblest men to retire to the hill recesses before their missions could be accomplished or their spirits perfected, in so far did the daily world seem, by comparison, to be pronounced profane and dangerous, and to those who loved that world and its work the mountains were thus voiceful with perpetual rebuke, and necessarily contemplated with a kind of pain and fear, such as a man engrossed by vanity feels at being by some accident forced to

hear a startling sermon, or to assist at a funeral service. Every association of this kind was deepened by the practice and precept of the time; and thousands of hearts, which might otherwise have felt that there was loveliness in the wild landscape, shrank from it in dread, because they knew that the monk retired to it for penance, and the hermit for contemplation. The horror which the Greek had felt for hills only when they were uninhabitable and barren, attached itself now to many of the sweetest spots of earth; the feeling was conquered by political interests, but never by admiration; military ambition seized the frontier rock or maintained itself in the unassailable pass, but it was only for their punishment, or in their despair, that men consented to tread the crocussed slopes of the Chartreuse, or the soft glades and dewy pastures of Vallombrosa.—*John Ruskin.*

The Chalk Cliffs.

Life is made up of insignificant things.

As the chalk cliffs in the South, that rear themselves hundreds of feet above the crawling sea beneath, are all made up of the minute skeletons of microscopic animalculæ; so life, mighty and awful, as having eternal consequences, life that towers beetling over the sea of eternity, is made up of minute incidents, of trifling duties, of small tasks; and if thou art not 'faithful in that which is least,' thou art unfaithful in the whole.—*A. Maclaren, D.D.*

The Hills and Plains.

Their early Nature associations help to mould the characters and the missions of men.

Ever as we have ascended from height to height and seen the world-picture grow beneath us, all the details of champaign valley, wood, rock, and sea gathering and forming into one whole of expansion and design, we have seemed to know why the tempter chose the mountain-top to set forth the kingdoms of the earth and the glory of them, and have felt a glory in the common heirship of creation which has absorbed, as the sun does the mists, all the petty desires and ambitions of mere possessions in the one grand thought, 'This is Thy work, O God! and Thou hast given to me, to all who look upon it, to walk therein and to see Thy power reflected thereon.' . . . The hills, too, have not only their sublime manifestations, but their associations. They have been the birthplace of free-born men and free-born thoughts, the refuge of free men flying from oppression and wrong. They have been the temples whereon rude faiths have piled up their altars. They have given their boldest images to poets, and psalmist and prophet have found in them the truest symbols of God and His might. Thou must seek the hills, but thy pathways will lead thee across the plains. Lesser in majesty than the hills; lesser in beauty, perhaps, than the valleys, they will have a dignity and an import in thy sight as the arena of man's toil, the fields wherein he drops his sweat, plants and digs that he may eat of the fruit of the ground and live. The first men were of the plains. There they led their flocks, there pitched their tents, sowed and gathered, and offered up their sacrifices. Thus they will have a sacredness in thine eyes. They will have a beauty, too: the beauty of luxuriance and fertility; the beauty of waving corn, of green grasses, of fragrant herbs, of running waters, of clustering vines and tree-tops, rich with leaves and heavy with fruit. They have not associations of strong thoughts or bold images, but they are transcripts of primeval

state — pastoral poems, eloquent of peaceful labour and simple destiny—types of Almighty goodness tempering the doom of toil. —*Blackwood's Magazine.*

Sunrise from a Mountain.

'*So silently yet irresistibly does the light increase, that it is a fit expression of Infinite Power.*'

Those, again, who have not seen a sunrise from the mountains have a great, perhaps the greatest, sight yet to encounter. There is the previous night ascent, with all its strange experiences, the dim twilight, the weird forms of rock and tree looming large through the mist, the moon struggling fitfully through the white clouds, the oppressive silence, the thin, keen air, and unwonted exercise, the sense of adventure with just a spice of danger in it—all this strings up the nerves and sends a thrill of excitement and expectation through the whole frame. The eye that has strained for three hours or more through the gloom is quick to detect the first faint streak of gray, and watches it slowly brighten, so slowly that it scarcely seems to grow. But still the gray spreads upwards, and creeps along the horizon; the stars die out one by one, and the moon begins to pale. The gray brightens into white, the white to primrose; and far up the sky, quite overhead, the light fleecy clouds have changed to an exquisite rose colour, hanging motionless between the black earth and the blue heaven — the first to catch the beams of the approaching sun. It is not until some time later that the horizon deepens into orange. A solemn feeling steals over one in watching this slow breaking of a summer morning. There is something almost awful in the gradual increase of the light, so slowly that it seems to tarry; so silently and irresistibly that it is a fit expression of Infinite Power. There is nothing else like it.—*London Quarterly.*

Mount Carmel.

'*The beauty of a thing is the gift and birth of associations.*'

Mount Carmel would possess peculiar charm if only because appertaining to ancient Galilee. Judea in the south, Samaria in the middle, have their special attractions, no doubt; but Galilee stands foremost in interest, having been the country in which our Lord lived till thirty years old, and in which He continued chiefly to reside. In Galilee, too, He first showed Himself after the resurrection, since it was here that most of the Apostles had their homes. Here, too, have their seat the circumstances which constitute the subject-matter of the three first Gospels, and very interesting it is to observe how the peculiar botany of the region crops up in the parables of these three: The vineyard and the fig-tree come happily enough in Judea, the scene of the ministrations referred to by St. John; in Galilee we have the corn-fields and the flowers. It is impossible to think of Carmel without remembering it as a daily spectacle with the disciples and their Divine Teacher, and without reassurance to the full that just as repose is found less in places than in the presence of persons we love, so the beauty of a thing is, after all, not so much intrinsic as the gift and outbirth of association. Cicero, one of those old Romans, who had their fifty deities, Jupiter at the head, and claimed universal dominion, laughed at the 'God of the Hebrews' because of the smallness of the territory He had allotted them. Other men, in later ages, have ridiculed Palestine because 'so little.' Never mind; it remains unimpeachably true that the value and glory of a country

consist not in its acres, or in the magnificence of its possessions, but in the solid excellence of its institutions; or, as in the present instance, in the consecration of its soil to the largest facts in human progress, and the purest that give impetus to human affection. For all 'religion' has relation to life—daily acts, and duties, and purposes—and the life of religion is to do good. Sweet and simple Carmel, that juts into the sea—a promontory beautiful with trees and flowers, and nothing more—holds a life within it as glorious as an empire's.—*L. H. Grindon.*

The Home-sick Mount.

Every scene of special beauty fills the soul with a peculiar home-sickness.

In the neighbourhood of Interlaken there is a rocky terrace called the Heimweh Fluh, which means the Home-sick Mount. It has received this poetical name from the circumstance that it is generally the last spot which the tourist visits before leaving this part of Switzerland, and when his thoughts are turned in the direction of home. Although of no great elevation, and accessible without fatigue even to the most delicate, it is nevertheless so favourably situated that it commands one of the finest views in the Bernese Oberland, far superior, indeed, to many obtained from loftier points. In front the whole valley of Interlaken leading up to Lauterbrunnen and Grindelwald is spread out, with its richly cultivated fields and picturesque villages, bounded by huge walls of rock on either side, and hemmed in on the horizon by the green slopes of the Wengern Alp, and rising beyond them the sublime peaks of the Eiger, Monch, and Jungfrau, covered with the purest snow. The immediate foreground is formed by the heights of the Abendberg, covered with dense woods of beech and pine, terminating at the summit in pastures of the brightest verdure, dotted with brown chalets; while on either hand alternate glimpses of the most witching and suggestive beauty may be obtained through the trees of the lakes of Brienz and Thun, with their magnificent setting of lofty mountains and precipices. The first time I stood on the spot the sun was setting, and words fail to describe the wondrous magic which his farewell beams threw over the scene, bringing out the varied colouring of wood, mountain, and field with an intensity of tone which I had never seen equalled, and lighting up the grand range of snowy peaks on the horizon with a radiance of the most vivid crimson.

I had often seen that most splendid of all the sights of the Alps, the Abendgluhen, or afterglow of sunset; but the exhibition of it that evening surpassed all that I had ever before witnessed. The snow of the Jungfrau glowed like molten gold in the very core of a furnace; the graceful Silberhorn gleamed transparent on its side like a huge garnet quivering in the celestial fire, and the Eiger and Monch shone on the edge of the cliffs like mighty beacons, kindling the sky far above them with the splendours of their own effulgence. It was a glorious transfiguration scene, earth clothing itself before my very eyes with the garments of heaven. Silent worship on such a mount seemed the reasonable service. While gazing upon this wonderful sight I felt deeply impressed with the suitableness of the name of the hill upon which I stood. It assumed a new significance and a higher meaning to my mind. The glorious panorama filled me with thoughts, not of my own earthly home, but of the heavenly home which is the bright inheritance of faith and love. I looked beyond the perishing hills that were illumined by the setting sun of

earth to the everlasting hills that summered high in the unfading light of eternity. Grand beyond the power of language to express, as was the spectacle unfolded to my gaze, my eye and my heart were not satisfied with seeing it. It created a longing which it could not gratify; it suggested thoughts and feelings that reached far beyond its utmost magnificence. As I gazed, the glow passed from peak to peak, the burning splendour cooled and waned into a weird gray hue, and at last the dead white mountains stood up against the pale blue sky like sheeted ghosts, ghastly in their coldness and unearthliness, and I longed for higher beauty, more enduring magnificence than this fleeting pageant afforded. The glory of earth inspired me with home-sickness for the surpassing and abiding glory of heaven.

Every spot where we have a brighter outlook than usual into the grandeur of Nature is a Heimweh Fluh. Every scene of special beauty fills the soul with a peculiar home-sickness which can find no cure in this world. The feeling of a hidden want, a sweet sacred trouble, a heavenly *mal du pays* attaches itself to every loftier revelation of the Creator's glory, and every more vivid realization of His wisdom and love in the works of His hands. Whatever takes us out of ourselves and lifts us above the cares and commonplaces of every-day life, and shows to us the great heart of Nature, and opens up vistas into the great beyond, linking our changing life with its unchangeableness, and our frailty with its enduring steadfastness—raises the sacred hunger in our souls. The bliss of the stinted draught makes us long for the overflowing fountain. The beauty of the footstool fills us with aspiring thoughts of the glory of the throne. And as beyond the snowy range of Alps incarnadined with the crimson light of setting suns, we see the higher and nobler range of the Alps of cloudland, taking their shape in the blue ether from the shapes of the mountains, over whose summits they lie, so beyond the grandest and most transcendent scenes of earth we see in imagination the ineffable scenes of eternity of which they testify.—*Hugh Macmillan, LL.D.*

Cheddar Cliffs.

Nature loves to blend quiet beauty with grandeur.

There is not a finer piece of cliff scenery in the British Islands. There is nothing to surpass it in Europe. Even a travelled American said of it, as he walked up the grand ravine, 'We have a Yosemite and a Niagara, but we have no Cheddar Cliffs.' The cliffs, at their base an almost unbroken wall of rock, but separated towards their summits into picturesque masses like towers of Cyclopean masonry, skirt one side of a long, winding ravine—a rift that runs into the very heart of the hills, not, as Collinson says, the work of Nature when 'in one of those moments when she convulsed the world with the throes of an earthquake she burst asunder the rocky ribs of Mendip and tore a chasm across its diameter of more than a mile in length,' but slowly sculptured by water, of whose action it bears abundant traces. The height of the cliffs is often overstated. A late inhabitant who measured them with a line and plummet found the highest point to be not more than three hundred and sixty feet above the road. But their beauty does not depend upon their altitude; Cheddar is one of those places which never disappoint, and of which no description can surpass the reality.

The weathered faces of rock are in many places too steep and smooth for any but the smallest plants to find a footing; but in

the crevices, and especially in the recesses high up among the cliffs, there flourishes a luxuriant growth. The dark foliage of the yew, the silvery leaves of the white-beam, and the varied tints of half a score of other hardy shrubs which, blended in picturesque confusion, have anchored themselves in the shattered buttresses, form, with the cool green of the ivy that clings everywhere in graceful draperies, an exquisite relief among the delicate gray of the time-worn limestone. Not a few flowers, too, find a home upon the rocks. In the summer the frail yellow poppy clings about their feet; abundant wall-flowers scent the air; soft blue harebells nestle in the grass. Sober wood-sage and bright stonecrops wander among the shattered fragments; while on all the ledges and in every crevice the delicate little Cheddar pink, pride at once of the cliffs and the country, shows its tender flush of rose on every buttress of the mighty wall. There is no fear of exterminating that. It grows mostly beyond the reach of the casual visitor. Maidenhair there is not, and probably never was; but ferns of many kinds fringe the rocky cornices with their graceful fronds. But the gorge has other tenants. Crowds of jackdaws haunt its rocky niches; and the babel of their thousand tongues, and the flutter of their dusky wings as they float far up against the blue sky, are for a great part of the year features never absent from it. Among the dark plumage of the daws flash the gray wings of the rock-dove; and the scream of the kestrel every now and then breaks in upon the chattering chorus. Years ago the lordly peregrine kept his castle with the rest; but both he and the raven, though not unknown, seldom revisit now their ancient haunts.

There are few allusions to the cliffs in old writers, who, indeed, seldom troubled themselves about the works of Nature; Camden makes merely a passing reference to the village. The earliest mention of the name is probably in Domesday. 'The king,' says the old Norman Survey, 'holds Cedre. King Edward held it. It has never paid tax, nor is it known how many hides there are in it.' The whole district was a favourite royal hunting-ground both before and after the Conquest. The bare brown uplands, which fringe the summits of the cliffs and reach far over the sterile hills, were densely covered then with noble forests, the haunt of those tall red deer which the Norman king 'loved as if he were their father.' One of the Saxon kings nearly lost his life there. Following a stag through the woods, and carried by the heat of the chase close to the perilous verge, he saw both the deer and the hounds, unable to pause in their career, hurled over the edge of the precipice, and himself narrowly escaped their terrible fate. The dwellers in the white hamlets scattered along the bases of the hills must have been long familiar with the howl of wolves among the wild ravines; and the curfew — still rung in some of these ancient villages—may well have been the signal to the fierce marauders to descend on the defenceless farms. The face of the country has seen much change since then. The far-reaching moor that from the mouth of the gorge stretches away until its shadowy rim fades into the gray horizon—then a swampy wilderness not seldom inundated by the sea, the haunt of crane and bittern, the lair of boar and aurochs—has been drained and tilled. The forest, except a few dwindling strips of stunted wood, harbour for fox and badger, has long since disappeared. But the tall cliffs remain. No hand but that of time has yet been laid on these tremendous ramparts. They have seen Kelt and Roman, Saxon and

Norman, pass along the road which sweeps like a winding river at their feet. It is historic ground. Every hill-top is crowned with its earthen rampart; every road follows the course of a Roman way. At Wedmore, a few miles out on the moor, are the massy foundations of Alfred's summer palace; beyond the low blue hills there are still ploughed up at Athelney fragments of tiles from the monastery which the great West Saxon king is said to have founded there in gratitude for his deliverance. Round the gray towers of Wells cling memories of Ken and Still, of Laud and Wolsey. The noble ruins of Glastonbury are haunted by dim traditions of Dunstan and King Arthur. Many a bold son of the district faced King James's men down there in the moor

'Along that fatal dyke;
Where Monmouth's boors, with hearts of proof
Kept Churchill's foaming horse aloof:
And scorned to fly, nor deigned to yield,
While, ere he fled the hopeless field,
Flashed their stout leader's pike.'

Behind the low hills above the gorge, by the village of Charterhouse, lie the faint vestiges of a vanished town. A Roman settlement was planted there among the Kangie lead-mines. The refuse which their imperfect appliances forced them to leave has been smelted and resmelted since then, and only a few years back the works were still in operation. Few signs are left of either conquerors or conquered. Foundations of buildings have been traced. Fine Samian ware and rude British pottery, coins and ornaments, tools and weapons, have been discovered in the Town Field. A broken tablet records that the Armenian legion was posted here. Huge blocks of lead still exist bearing the names of Vespasian and Antonine. Little else remains. But in all the country-side

'Some trace of imperial tenure, now,
Clashes at times on the peasant's plough:
Fragments of graceful vases
With gods and heroes traced;
Records of Roman triumph
In letters half effaced;
A tarnished ring, whose fiery gems,
Still on its circle set,
From the far sands of Indus brought
Gleam through their setting, rudely wrought,
As if the sky their hues that caught
Flamed in their glory yet.'

A Legend of the Mountain.

God has His own dower for the prophets of the race

'When the lofty and barren mountain,' says a legend I have somewhere read, 'was first upheaved into the sky, and from its elevation looked down on the plains below, and saw the valley and the less elevated hills covered with verdant and fruitful trees, it sent up to Brahma something like a murmur of complaint, "Why thus barren? why these scarred and naked sides exposed to the eye of man?" And Brahma answered, "The very light shall clothe thee, and the shadow of the passing cloud shall be as a royal mantle. More verdure would be less light. Thou shalt share in the azure of heaven, and the youngest and whitest cloud of a summer's sky shall nestle in thy bosom. Thou belongest half to us."

'So was the mountain dowered. And so, too,' adds the legend, 'have the loftiest minds of men been in all ages dowered. To lower elevations have been given the pleasant verdure, the vine and the olive. Light, light alone—and the deep shadow of the passing cloud—these are the gifts of the prophets of the race.'

Sunset off the Faulhorn.

The glory of God's handiwork makes God Himself inexpressibly dear to reverent souls.

All day there had been strange rifts in the clouds, and sudden

pictures of peaks or of abysses framed in white and gray; but towards seven o'clock the wind rose, and there was a grand outpour of colour upon everything: sky, clouds, and mountains.

Imagine yourself midway between heaven and earth. The sharp point of rock on which we stood hardly seemed more of earth than if we had been in a balloon. The whole space around, above, and below filled with wild, weird, spectral clouds, driving and whirling in incessant change and with tremendous rapidity; horizon none, but every part of where horizon should be, crowned with unimaginable shapes of unimagined colours, with rifts of every shade of blue from indigo to pearl, and burning with every tint of fire from gold to intensest red; shafts of keen light shot down into abysses of purple thousands of feet below; enormous surging masses of gray hurled up from beneath, and changing in an instant to glorified brightness of fire as they seemed on the point of swallowing up the shining masses above them; then, all in an instant, a wild gray shroud flung over us, as swiftly passing and leaving us in a blaze of sunshine; then a bursting open of the very heavens, and a vision of what might be celestial heights, pure and still and shining, high above it all; then, an instantaneous cleft in another wild cloud, and a revelation of a perfect paradise of golden and rosy slopes and summits; then, quick gleams of white peaks through veilings and unveilings of flying semi-transparent clouds; then, as quickly as the eye could follow, a rim of dazzling light running round the edges of a black castle of cloud, and flaming windows suddenly pierced in it. At one juncture a cloud stood still, apparently about two hundred yards off, and we each saw our own shadows gigantically reflected in it, surrounded by a complete rainbow arch, but a full circle of bright prismatic colours, a transfiguration of our shadows almost startling, each, moreover, seeing only their own glorification! When the whole pageant was past, we sang 'Abide with me,' and then dear old joyous 'Glory to Thee, my God.' — *F. R. Havergal.*

On the Hills.

The exhilarating influence of high situations.

What a sense of exhilaration and freedom is felt when, having left the city's din, the 'wrangling mart,' and the stern struggle for existence far behind, we follow the road that slopes obliquely upward, and mount into the purer atmosphere which covers as with an azure garment the sloping shoulders of the hills! The blood leaps in our veins, the pulse quickens, and we feel again as we did in childhood, when life was yet a joyous thing, ere the dreary leaden cloud darkened above our horizon, and shut us out from the heaven we loved. We are children once again as we climb, and we fancy we can hear again the sweet refrain of that old song with which we were familiar ere we entered on our present pilgrimage. The gates of the House Beautiful roll back before us; and as we ascend the altar-stairs of Nature's temple, the cares and troubles of our daily life fall from our shoulders as a dream fades from the memory. Our thought leaps up ahead of us into the free wide air, and is merged in the universal spirit of thought; while our slow footsteps follow far behind, our visible self struggling to overtake our invisible self. We have a feeling of curiosity to know what sight shall greet us when we have reached the summit, and view all the surrounding country spread out below. We are impatient to know what lies beyond the brow of the hill, of what nature the landscape

may be on the further side which is yet hidden from us. At last we reach the crest, but only to find that what had seemed the highest point is only a step towards a higher. We had pictured a fair valley lying beyond, with, perhaps, a stately river, upon whose banks the great trees stand like sentinels to guard the lowly bushes that bathe their lithe green boughs in the cool water. But, instead, our eyes travel up a steeper slope than that we have just climbed, and look towards another summit far above, which surely must be the loftiest point for miles around. Already the day is drawing to a close, and we must not attempt to scale that other height. What if we did? In all probability it would only be to see a higher height beyond — to find it but another step towards another summit.

So it is in the world of thought. We strive with all our energies to reach a certain point, having gained which we hope to stand, as Alexanders, with a conquered world beneath us. But when we overcome the difficulties of the way and gain the summit, we are sensible of a thrill of disappointment, for above us rises another peak unseen from the plain below. Again we climb, now by an easy path, and now up a sheer cliff, planting our hands and feet firmly on the narrow ledges, not daring to look down, but keeping our eyes bent upward with faith and hope to find a higher ledge where we may place our fingers. That summit gained, that problem solved, that truth bought with our very heart's blood, once more we find that it is only a step towards a higher summit, that it reveals another and more difficult problem, and shows us a greater truth beyond, which comprehends that we have made our own, and towards which we must struggle if we would not be cowards in our own eyes. Thought beyond thought, alp beyond alp, upward and ever upward lies the path of the seeker after truth for its own sake, the path of those who search into the deep things of God, who spell out the stories of the rocks and of the flowers, who unravel the secrets of the universe and probe the mysteries of life. Is there no summit? Is there nowhere a height which is the highest of all? Can we never hope to attain the topmost peak, to possess the soul of truth, to comprehend all things in heaven and earth? We watch the poet climb till he is almost lost in light; we see him stand upon the crest far up in the blue of heaven; but when we hope to hear his shout of victory, to see him wave the conqueror's flag, he sinks instead upon his knees in the presence of a loftier truth, the existence of which we are ignorant of; and with spent energies, and upturned yearning face lit from a source which is hidden from us, he enters the fuller life of another world, in which all mysteries are made clear to him, and the eternal truth revealed. The loftiest peak of all we may not climb here, for it is the comprehension of all truth, and of Him who is the truth. But in the coming life, to which this is but the preface — the half-lit entrance chamber—we may attain the end towards which we strive, by entering into the nature of Him who is the source of all truth, the summit and the way thither.

Back from the world of thought let us come to the modest hill-top to which we have climbed, and where we are standing with a sense of disappointment. But when we turn to go down we are confronted with all the glory of the west, in the contemplation of which we lose our disappointment, and feel that we have not climbed in vain. Low in the west lies the great sun, cradled on the crimson clouds, and bathing all the land before us in his mellow light. The sunset calm sinks into our hearts,

and we carry it back with us into the busy city, where the memory of the vanished glory helps to cheer us in our monotonous round of work.—*Thomas G. Paton.*

Thoughts in Mountain Scenes.

There is a singular blending of the impressive and the quieting in the influence of mountains on sensitive souls.

Strange that yonder huge mound of rock and earth should gather out of the sky hues softer than those of the violet! At set of sun it flushes into perfect rose. While I am now looking, the light of noon has inter - penetrated and etherealized the massive mountains, and they are so filled with light as to be almost invisible. They are more ethereally bright than the brightest clouds above them. And they too—how beautiful are clouds! What a noble range of cloud-built alps are now towering in the sky! Those mountains of another element, how they love to poise themselves over their stationary brethren of the earth!

Dark in colour, robed with everlasting mourning, for ever tottering like a great fortress shaken by war, fearful as much in their weakness as in their strength, and yet gathered after every fall into darker frowns and unhumiliated threatening; for ever incapable of comfort or healing from herb or flower, nourishing no root in their crevices, touched by no hue of life on buttress or ledge, but to the utmost desolate; knowing no shaking of leaves in the wind nor of grass beside the stream —no other motion but their own mortal shivering the dreadful crumbling of atom from atom in their corrupting stones; knowing no sound of living voice, or living tread, cheered neither by the kid's bleat nor the marmot's cry; haunted only by uninterrupted echoes from afar off, wandering hither and thither among their walls, unable to escape, and by the hiss of angry torrents, and sometimes by the shriek of a bird that flits near the face of them, and sweeps frightened back, from under their shadow into the gulf of air. And sometimes, when the echo has fainted, and the wind has carried the sound of the torrent away, and the bird has vanished, and the mouldering stones are still for a little time—a brown moth, opening and shutting its wings upon a grain of dust, may be the only thing that moves or feels in all the waste of weary precipice, darkening five thousand feet of the blue depth of heaven.

Are not all natural things, it may be asked, as lovely near as far away? Nay, not so. Look at the clouds, and watch the delicate sculpture of their alabaster sides, and the rounded lustre of their magnificent rolling. They were meant to be beheld far away; they were shaped for their place, high above your head; approach them, and they fuse into vague mists, or whirl away in fierce fragments of thunderous vapour. Look at the crest of the alp, from the far-away plains over which its light is cast, whence human souls have communion with it by myriads. The child looks up to it in the dawn, and the husbandman in the burden and heat of the day, and the old man in the going down of the sun; and it is to them all as the celestial city on the world's horizon, dyed with the depth of heaven, and clothed with the calm of eternity. There was it set, for holy dominion, by Him who marked for the sun his journey, and bade the moon know her going down. It was built for its place in the far off sky; approach it, and as the sound of the voice of man dies away about its foundation, and the tide of human life shallowed upon the vast aerial shore is at last met by the eternal 'Here shall thy waves be stayed,' the glory of its aspect

fades into blanched fearfulness; its purple walls are rent into grisly rocks; its silver fretwork saddened into wasting snow; the storm-brands of ages are on its breast, the ashes of its own ruin lie solemnly on its white raiment.—*John Ruskin.*

Among the Alps, when the day is done and twilight and darkness are creeping over fold and hamlet in the valleys below, Mont Rosa and Mont Blanc rise up above the darkness, catching from the retreating sun something of his light, flushed with rose-colour, exquisite beyond all words or pencil or paint, glowing like the gate of heaven. And so past favours and kindnesses lift themselves up in the memory of noble natures; and long after the lower parts of life are darkened by neglect or selfishness or anger, former loves, high up above the clouds, glow with divine radiance, and seem to forbid the advance of night any farther.—*H. W. Beecher.*

The Interest of Moorlands.

Nowhere can the sense of solitude be more perfectly realized.

The moorland is not altogether dependent for its beauty upon atmospheric effects. It hides within its jealous embrace many a lovely spot on which one comes unexpectedly with all the interest of discovery. There are little dells where a streamlet has lured up from the valley, by the magic of its charms, a cluster of rowan trees, whose red berries dance like fire in the broken foam of the waterfalls, or a group of tiny, white-armed birches that always seem to be combing their fragrant tresses in the clear mirror of its linns. There are moorland tarns, sullen and motionless as lakes of the dead, lying deep in sunless rifts, where the very ravens build no nests, and where no trace of life or vegetation is seen—associated with many a wild tradition, accidents of straying feet, the suicide of love, guilt, despair. And there are lochs beautiful in themselves, and gathering around them a world of beauty; their shores fringed with the tasselled larch, their shallows tessellated with the broad green leaves and alabaster chalices of the water-lily; and their placid depths mirroring the crimson gleam of the heather hills, and the golden clouds overhead.

I have often been struck, when wandering over the moors, with the wonderful harmonies of the various objects. The birds and beasts that inhabit the scene are clothed with fur or plumage of a brown, russet hue, to harmonize them with the colour of the heathy wastes, and thus to facilitate their escape from their enemies. Nor is this harmony confined to the form and hue of the living creatures—it is also strikingly displayed in their peculiar cries. All the voices of the moorland are indescribably plaintive—suggestive of melancholy musings and memories. No one can hear them, on the sunniest day, without a nameless thrill of sadness; and, when multiplied by the echoes through the mist or the storm, they seem like cries of distress or wailings of woe from another world. In them the very spirit of the solitude seems to find expression. None of our familiar song-birds ever wander to the moorland. It is tenanted by a different tribe, and the line of demarcation between them is sharply defined. In the valley and the plain the thrush and the chaffinch fill the air with their music; but as you climb the mountain-barrier of the horizon, you are greeted on the frontier by the wild cries of the plovers which hover around you in ceaseless gyrations, following your steps far beyond their marshy domains.

These are the out-posts — the sentinels of the wild—and jealously do they perform their office. No stranger appears in sight, or sets a foot within their territories, without eliciting the warning cry. Well might the Covenanters curse them, for many a gray head, laid low in blood by the persecuting dragoons, would have escaped, securely hidden among the green rushes and peat-bogs, but for their importunate revelation of the secret. Beyond the haunts of this bird stretches a wide, illimitable circle of silence, in which only a shrill solitary cry now and then is heard, rippling the stillness like a stone cast into the bosom of a stream, and leaving it, when the wave of sound has subsided, deeper than before. And how absolute is that silence! It seems to breathe—to become tangible. The solitude is like that of mid-ocean —not a human being in sight, not a trace or a recollection of man visible in all the horizon; from break of day to eventide no sound in the air but the sigh of the breeze round the lonely heights, the muffled murmur of some stream flashing through the heather, or the long, lazy lapse of a ripple on the beach of some nameless tarn.—*Hugh Macmillan, LL.D.*

NATURE IN GENERAL.

The Silence of Nature.

God, in the spiritual world, works no less mightily because He works in silence.

Go into the great forests of the Adirondacks and lie down at night by your camp-fire. A silence as of death overhangs the scene. Now and then one may hear a dropping of broken twig or leaf, the hum of an insect, the restless movement of a bird upon its perch. Occasionally the forest will be startled by the sudden sweep and crash of some gigantic plant-monarch as it falls, seemingly without cause, and awakes thunderous echoes on the silent night. The rising breeze, as it soughs and moans through limbs and leaves, will often break the stillness. But besides these external signs of life there is no voice to speak to you of that great work which Nature there is doing. And what is Nature doing? She is lifting up a forest of unnumbered trees towards the skies; she is forming timber that shall build our houses, span our rivers and streams with bridges, and frame the great ships that go down to the seas with our commerce. Forest building is a silent work. Thus it is through all the realm of creation; nor is it different in the kingdom of God's grace.—*H. C. McCook, D.D.*

The Gate of Nature.

Nature is God's outer gate of approach to us.

God has an outer gate of approach to us, as well as an inner gate. Nature is His outer gate. He comes in material substance to our material bodies. Through our senses, He enters our souls; through the gratification of our desires, His love glides into our hearts. Our wintry religion melts away and expires in His summer presence. In the new climate we sing and rejoice before Him. Our flesh is quite as eager as our souls, and our souls as eager as our flesh, to welcome Him in His new manifestation. There is strictly a coming of God every year. He comes anew into Nature's skies and Nature's earth. Every new spring is a revelation of our

Father. Let us see Him, feel Him nigh, in the flowering meadow, in the fragrant pine-wood, and in the happy birds, and warm towards Him as Jesus did.—*John Pulsford.*

The Constancy of Nature.

Our afflictions are but passing phases of experience.

I love to see the calm blue sky of October, the Indian summer, shining over the decayed foliage of the woodland, haloing with brightness what it can no more stimulate to life; for it is a prophecy of the renewal of spring that will give beauty for these ashes, and the oil of joy for this autumn mourning, and the garment of praise for the spirit of heaviness that marks the closing year. It tells me that while the grass withereth and the flower fadeth, the word of the Lord—upon which the stability of the seasons and the continuance of human life and joy depend—liveth and endureth for ever. The wild-flower grows every spring among the ruins of man's works, the green moss spreads its soft perpetual verdure over the crumbling castle, the garden blooms and smiles around the sepulchre, that we may be led to think of the faithfulness of God's covenant, which gives to our natural life every year seed-time and harvest, and insures to our soul-life that all our sorrows shall be transmuted into Divine shapes of beauty, and all our sighs turned into songs. —*Hugh Macmillan, LL.D.*

The Religion of Nature.

Nature has a distinctly religious aspect.

Nature is not only strong and beautiful, but has likewise a religious aspect. This fact was noticed in the very earliest times; appears in the rudest worship, which is an adoration of God in Nature. It will move man's heart to the latest day, and exert an influence on souls that are deepest and most holy. Who that looks on the ocean in its anger or its play; who that walks at twilight under a mountain's brow, listens to the sighing of the pines, touched by the indolent wind of summer, and hears the light tinkle of the brook, murmuring its quiet tune—who is there but feels the deep religion of the scene? In the heart of a city we are called away from God. The dust of man's foot and the sooty print of his fingers are on all we see. The very earth is unnatural, and the heaven scarce seen. In a crowd of busy men which hurry through its streets, or flow together at a holiday; in the dust and jar, the bustle and strife of business, there is little to remind us of God. Men must build a cathedral for that. But everywhere in Nature we are carried straightway back to Him. The fern, green and growing amid the frost, each little grass and lichen, is a silent memento. The first bird of spring, and the last rose of summer; the grandeur or the dulness of evening and morning; the rain, the dew, the sunshine; the stars that come out to watch over the farmer's rising corn; the birds that nestle contentedly, brooding over their young, quietly tending the little strugglers with their beak—all these have a religious significance to a thinking soul. Every violet blooms of God, each lily is fragrant with the presence of Deity. The awful scenes of storm, and lightning, and thunder, seem but the sterner sounds of the great concert, wherewith God speaks to man. Is this an accident? Ay, earth is full of such 'accidents.' When the seer rests from religious thought, or when the world's temptations make his soul tremble, and though the spirit be willing the flesh is weak; when the perishable body weighs down the mind

musing on many things; when he wishes to draw near to God, he goes, not to the city—there conscious men obstruct him with their works—but to the meadow, spangled over with flowers, and sung to by every bird; to the mountain, 'visited all night by troops of stars;' to the ocean, the undying type of shifting phenomena and unchanging law; to the forest, stretching out motherly arms, with its mighty growth and awful shade, and there in the obedience these things pay in their order, strength, beauty, he is encountered front to front with the awful presence of Almighty power. A voice cries to him from the thicket, 'God will provide.' The bushes burn with Deity. Angels minister to him. There is no mortal pang, but it is allayed by God's fair voice as it whispers in Nature, still and small, it may be, but moving on the face of the deep, and bringing light out of darkness.

'Oh, joy that in our embers
Is something that doth live,
That nature yet remembers
What was so fugitive.'

Theodore Parker.

No Waste of Energy in Nature.

Learn to distinguish between wise activity and wasteful action.

In all the exercise of Divine power there is no waste of energy. Economy in the use of forces is certainly a law of Nature. Would that man might learn this lesson! Much energy in church, in philanthropic endeavour, in political life, is simply wasted. It is wasted, not merely because misdirected, but because it is without direction and regulation. There is scarce a gift of Nature, so lavish of noblest resources to this young land (America), that we do not use like the veriest spendthrifts. We foolishly and mercilessly hew down our forests, wasting far more than we use. We exhaust our fat soils with reckless disregard of the future. Thus it is through all the circle of our national domain. . . . Shall we never learn to treasure the noblest gifts of Nature, those high faculties and forces which beat within the breast of man himself? We deplore the waste of forests and fields, and it is sad enough. But sadder far is the waste of which I speak, because utterly irreparable. Men may be forceful without being fussy.—*H. C. McCook, D.D.*

Benevolence in Nature.

'Nature is gratuitously kind.'

Generally speaking, the preservation of the happiness of sensitive creatures appears to be the great object of creative exertion and conservative providence. The expanding of our faculties, both bodily and mental, is accompanied with pleasure; the exercise of those powers is almost always attended with gratification; all labour so acts as to make rest particularly delicious; much of labour is enjoyment; the gratification of those appetites by which both the individual is preserved and the race is continued, is highly pleasurable to all animals; and it must be observed that instead of being attracted by grateful sensations to do anything requisite for our good or even our existence, we might have been just as certainly urged by the feeling of pain, or the dread of it, which is a kind of suffering in itself. Nature, then, resembles the law-giver who, to make his subjects obey, should prefer holding out rewards for compliance with his commands rather than denounce punishments for disobedience. But Nature is yet more kind—she is gratuitously kind; she not only prefers inducement to threat or compulsion, but she adds more gratification than was necessary to make us obey her calls. How well

might all creation have existed and been continued, though the air had not been balmy in spring, or the shade and the spring refreshing in summer; had the earth not been enamelled with flowers and the air scented with perfumes! How needless for the propagation of plants was it that the seed should be enveloped in fruits the most savoury to our palate, and if those fruits serve some other purpose, how foreign to that purpose was the formation of our nerves so framed as to be soothed or excited by their flavour! We here perceive design, because we trace adaptation. But we at the same time perceive benevolent design, because we perceive gratuitous and supererogatory enjoyment bestowed.—*Henry Lord Brougham.*

Nature as the Bridegroom.

Her mission is to convince of love.

In Nature God talks with us by pictures of beauty, and in the music of love. The good, the beautiful, and the musical are from one Spirit. Nature is the bridegroom, indulging and expressing the fulness of His affections in glowing imagery, in forms that delight the senses and the soul. Nature is the outsung poem of God's love, addressed equally to the eye, the ear, the smell, the taste, and the heart of His beloved. 'His delights are with the sons of men.'

What enchantments of loveliness, what warmth of colouring, what wealth of goodness, what exquisite odours, are comprehended in Nature's annual circuit! Out of coldness, dimness, and barrenness, the new wonder comes forth, and puts on charm after charm, until she has crowned the earth with fruit. Then she rests. She has fulfilled her end once more. She has made her children glad, and filled, and overfilled, their stores with her bounty.—*John Pulsford.*

Man's Sin spoiling Nature.

The ground is cursed for man's sake.

The consequences of sin reach not only to man's soul and body, but also to the fields which he cultivates, and to the whole of that Nature upon which he acts so powerfully, and which in turn reacts so powerfully upon him. In her remote virgin solitudes, Nature is indeed as fair and blessed as on the morning of creation. She shows there no shadow of imperfection, no sign of a curse. She carries out there as perfectly as at the first, so far as her own ends are concerned, all the purposes of God. But in the garden and in the field, wherever she comes into contact with man, and is made to minister to his uses, there Nature has passed under a blight, and she fulfils imperfectly towards him her varied ministries. Her wheels and his are out of gear, and therefore they continually clash. Her thorns and her thistles choke his cultivated plants. Her storms and her droughts destroy his harvests. The garden planted by the hand of the Lord has become a hard bare wilderness, in which no spot of verdure, no home of beauty, can be made to smile upon man without the sweat of his face.—*Hugh Macmillan, LL.D.*

The Sympathy of Nature with Man.

Dark scenes were associated with the cross of Jesus.

We feel a deep appropriateness in the sympathy of Nature with the crucifixion of our Lord; in the profound darkness that overspread the earth as the outer token of the spiritual darkness that overwhelmed His soul; and in the rending of the rocks that accompanied the rending of His mortal flesh and the separation between soul and body. Superstition has sought for further

proofs than those which Scripture gives of such sympathy, and imagined that it has found them in the continual trembling to this day of the leaves of the aspen when all around is still, as if in shuddering recollection of the use made of its wood for the construction of the cross; and also in the dark stains that appear ineffaceably on the leaves, and the crimson spots that mingle with the white blossoms on one of the commonest weeds of our cornfields, said by tradition to have grown beneath the cross. And the scarlet anemones, which blaze in spring-like embodied flames on the hills of Palestine, are called by the Christian residents 'blood-drops of Christ,' under the idea that these beautiful flowers were dyed with the blood that issued from our Saviour's pierced side. Unfounded as these superstitions are, it must be confessed, notwithstanding, that there is something in them that appeals to our natural sense of fitness. It is difficult to realize that Nature should hold on serenely in her accustomed way while her Lord was dying. We should have expected that the supernatural darkness would have continued all the time; that the fields would languish and the flowers fade in token of their deep sympathy with the death of Him who gave them all their beauty, and whose smile of blessing rested always upon them while He trod the earth. — *Hugh Macmillan, LL.D.*

Earth and Heaven.

Both are, in a sense, the mother of us all.

In virtue of our outer man, earth is the mother of us all; in virtue of our inner man, heaven is the mother of us all. If earth is motherly, heaven is unspeakably more motherly. Earth is a coarser, ruder substance, heaven a more refined substance. Nature is full of shadows and analogies of these two substances, the outer and the inner. Water, air, and light conceal interior and purer elements. Chaff inwraps bread-corn; shells, which are outer bodies for nuts, are of one substance; the nuts, which are inner bodies, are a much finer, sweeter substance. Every seed is a two in one, and dies to live; the coarser substance dissolves; the inner and finer develops its treasured-up forces in a new plant. Man is simply the highest, Divinest illustration of a universal law.—*John Pulsford.*

The Real Country.

A complete contrast with our everyday surroundings provides a true refreshing.

Going down into the country is going down the line until you come to a sleepy intermediate station; then stepping out of the carriage—also out of the nineteenth century; getting up behind a sleepy horse, and going on for miles without meeting even a cow; meandering on between banks of sprouting fern, and blossoming rustic tangle; now under arches of leaves, now in the open of glorious dreamland, the song above and the hushing rustle below only seeming to deepen

> 'Silence that, like a poultice, falls
> To heal the blows of sound.'

So on, on, until you come upon a village that lies in a grassy dip like a lark's nest in clover; then alighting to walk through a sleepy village green, at whose borders white gables striped with dark woodwork glimmer between trees; on, past the old man sitting asleep in the sun, but whose eyes, as you pass, open and roll 'with a slow bovine gaze'; on, past the pound, and the old gray ass standing inside it asleep, with a tuft of half-munched thistles in his mouth; and on, till in serene hush you come to the old church, its wooden

spire all on one side, its rusty weathercock true to the north, whatever winds may blow, and its tumbling tombstones powdered with orange and silver.—*C. Stanford, D.D.*

Alone with Nature.

A time of holiest impressions and sanctifying influences.

Here we feel the truth that is too bright even for the eagle-eye of reason to contemplate. Ambition seems a dream, philosophy a guess; our spirit seems to mount above its tenement, and to behold the passions, the faculties, the sciences, and the occupations of man, at that leisurely elevation where alone it can become acquainted with their relative value. Here we discover all the superiority of virtue over knowledge, and remember, with all that zest which feeling gives, even to the oldest truths, those fundamental principles of virtue which, in our days of feverish inquiry, we are accustomed to despise for their want of novelty.

As the thrilling music of the Christian churches first drew those tears from the eyes of St. Augustin, which he afterwards shed from a purer and loftier impulse, so here we are won back to the love of innocence by the poetry of Nature. She reproaches us with having so long preferred, to her infinite varieties of form and colour, of sound and fragrance, the coarseness of scenic imitations, and all the low artificial mockeries of her excellence, which the palaces of art present to us. She seems to open her arms, and invite us to 'return!' to blush for the meanness of our taste; to forsake the theatre, the picture-gallery, the library; and to study character in her towns and villages, beauty in her plains and valleys, sublimity in her mountains, and wisdom in the economy of her mighty system.—*G. Griffin.*

Oppressiveness of the Calmness and Order of Nature.

The oppressiveness is felt especially in times of sin and of sorrow.

Every conscience-stricken sinner feels himself alone in a world of law and order, isolated from the creation which still basks under God's smile and fulfils God's ends. Foxes have holes, and birds of the air have nests, but he, the sole transgressor, is an outcast, an exile, having no pillow for his head, no place of repose for his heart. Everything witnesses to him that he only is changed, that he only has introduced confusion and defilement into the works of God. Not a blade of grass or a grain of sand sympathizes in his transgression or helps him to bear his woe. The stars revolve in their courses, and the flowers blossom in their seasons with unfailing regularity, and he only has left the orbit of his being. Both heaven and earth stand forth as his accusers.

Dreadful is the impassive serenity, the beautiful unconsciousness of Nature, in the hour of sorrow. I remember standing beside one of the greatest of our artists while painting one of the greatest of his pictures. It was nearly finished. The subject of it was a murder committed under the impulse of love and jealousy in a lonely glen. I was greatly struck with the strange contrast between the background of beautiful trees and delicate wild-flowers, and the terrible struggle going on in the foreground. Nature seemed all unconscious of the dark crime that was being committed in her presence. Not a leaf trembled, not a blossom grew pale, not a shadow passed over the loveliness of bank and rock, not a murmur of the stream was hushed in awe and terror, because of the ravages of human passion in the midst of them. And this picture I thought

was a wide parable. The songs of every land have given touching expression to this want of congruity between the smiles of Nature and the tears and groans of man. —*Hugh Macmillan, LL.D.*

A Glimpse of Nature's Face.

Often the best ministry for worn and troubled hearts.

Who can tell how scenes of peace and quietude sink into the minds of pain-worn dwellers in close and noisy places, and carry their own freshness deep into their jaded hearts? Men who have lived in crowded, pent-up streets, through whole lives of toil, and never wished for change—men to whom custom has indeed been second nature, and who have come almost to love each brick and stone that formed the narrow boundaries of their daily walks—even they, with the hand of death upon them, have been known to yearn at last for one short glimpse of Nature's face, and, carried far from the scenes of their old pains and pleasures, have seemed to pass at once into a new state of being; and crawling forth from day to day to some green, sunny spot, have had such memories wakened up within them by the mere sight of sky, and hill, and plain, and glistening water, that a foretaste of heaven itself has soothed their quick decline, and they have sunk into their tombs as peacefully as the sun—whose setting they watched from their lonely chamber window but a few hours before — faded from their dim and feeble sight. The memories which peaceful country scenes call up are not of this world, or of its thoughts and hopes. Their gentle influence may teach us to weave fresh garlands for the graves of those we loved, may purify our thoughts, and bear down before it old enmity and hatred; but beneath all this there lingers in the least reflective mind a vague and half-formed consciousness of having held such feelings long before in some remote and distant time, which calls up solemn thought of distant times to come, and bends down pride and worldliness beneath it.—*Charles Dickens.*

The Law of Continuity in Nature.

There are no gaps, no lines of demarcation, no abrupt transitions, anywhere.

In our own world we find that the forces of Nature — motion, light, heat, electricity, magnetism, and chemical action—are all interchangeable in quality and quantity. And it has been surmised, with much plausibility, that even the attraction of gravitation itself, which binds the whole universe together, is only a link in the same physical chain.

In like manner the forms of Nature cannot be separated from each other. The mineral passes into the vegetable by the plant-like shapes of frost and snow, by the fibrous texture of asbestos, and by the siliceous or flinty envelopes of various humble forms of life. At their lowest points the animal and vegetable kingdoms seem to meet and mingle, so that we cannot tell, regarding some primitive organisms, whether they belong to one order or to the other, having been alternately regarded as plants by one naturalist, and as animals by another. The highest fixed forms of certain species correspond with different stages of development of other species still higher in the scale. Thus, a moss at an early stage assumes the form of a lichen, and a fern passes through the stage of the lichen and the moss before it takes on the distinctive appearance of a fern; and so with plants occupying higher positions. They mount to their perfection by the succes-

sive steps of a ladder of transitionary forms that constitute distinct plants outside. The heart of man passes through the perfect state of the heart of all other animals, and his brain assumes the successive type of the brain of the fish, the reptile, the bird, and the mammal, before it acquires the sublime character of a brain that is human.

If a law of continuity, then, pervades and unites all the things of this world, may we not suppose that the same principle will operate in the next world?—*Hugh Macmillan, LL.D.*

The Principle of Interchange.

Reciprocity is everywhere.

Nature is against exclusiveness. It is part of her plan that there shall be everywhere mutual giving and taking. You may observe this even in the tides. The tidal currents are perpetually shifting and redistributing the deposits along the sea-bottom; the Gulf Stream is as regularly transporting tropical products to temperate regions; and the polar currents carry with them icebergs and ice-floes laden with rocks and gravel, which are dropped on the sea-bottom as the ice melts away in warmer latitudes.

The Sensitive Purity of Nature.

The importance of keeping the innocence and simplicity of character.

Over the beauty of the plum and the apricot, there grows a bloom and beauty more exquisite than the fruit itself— a soft, delicate plush that overspreads its blushing cheek. Now, if you strike your hand over that, and it is once gone, it is gone for ever, for it never grows but once. Take the flower that hangs in the morning impearled with dew, arrayed as no queenly woman ever was arrayed with jewels. Once shake it, so that the beads roll off, and you may sprinkle water over it as carefully as you please, yet it can never be made again what it was when the dew fell silently upon it from heaven! On a frosty morning you may see the panes of glass covered with landscapes—mountains, lakes, trees, blended in a beautiful, fantastic picture. Now, lay your hand upon the glass, and by the scratch of your finger or the warmth of your palm all the delicate tracery will be obliterated! So there is in youth a beauty and purity of character, which, when once touched and defiled, can never be restored—a fringe more delicate than frost-work, and which, when torn and broken, will never be re-embroidered. A man who has spotted and soiled his moral garments in youth, though he may seek to make them white again, can never wholly do it, even were he to wash them with his tears. When a young man leaves his father's house, with the blessing of his mother's tears still wet upon his forehead, if he once loses that early purity of character, it is a loss that he can never make whole again.—*H. W. Beecher.*

Nature is ever Young.

Sin alone accounts for decay and death.

Nature is permanently young, and the flight of time leaves no shadow on hill or plain, on tree or stream. Out of the crumbling ruin that was old before history began, springs, every summer, a miracle of floral beauty with the dew of youth upon it; upon an old withered tree the foliage mantles every season as perfect as that which grew on its first tender shoot. Year after year, age after age, the daisies and primroses come to charm the new generation as they charmed the old. Only in the human world do the melancholy signs of old age appear.—*Hugh Macmillan, LL.D.*

God's Work and Man's Work.

God's work will bear looking closely into, but man's work will not.

There is just one striking difference between God's work and man's work.

And it is just this: Man's work never bears close looking into. We see the best of it at first. If we magnify it and take it to pieces we shall find it more and more imperfect the closer we look into it. Of course, this only applies to man's part of the work. Take, for instance, a beautifully fine piece of muslin. When you first look at it you quite wonder how fingers or machines were found to spin such fine threads. You admire the smoothness of the surface, and the regularity of the weaving. But put a bit of this same muslin under a magnifying-glass, and, behold! the fine threads are rough ropes, the smooth, even surface is full of ragged holes.

Or take a very fine sewing needle. It looks so smooth and shining, and the point is so fine, you can hardly understand how any hands made it so beautiful. But the tell-tale magnifying-glass gives a very different idea of it. Under it the needle becomes a rough, uneven skewer, and close to the fine point you admired so much stand out jagged notches, which look as if they must tear your fine muslin all to pieces if you tried to sew with it. But remember how your muslin also looked under the magnifying-glass. I think the rough skewer is a right good match for it, and that the holes in your muslin are quite large enough for it, notches and all. So work away and don't be afraid. Man can make his works to match each other fairly well, though they won't bear magnifying, so far as their beauty is concerned. So long as you choose your muslins and needles by the help of your own eyes and fingers, you'll generally find they'll work together in the long-run.

Now, man's part in the making of the needle and the muslin was just this: He shaped the needle out of the steel till he thought it looked fine and smooth enough for his purpose; and he spun the cotton into threads till they looked nice and even, and then wove them into the fine muslin. But it is in this shaping of the needle, this weaving of the threads, that the magnifying-glass shows us so much imperfection.

The iron (or steel) of which the needle is made, and the cotton from which the muslin is woven, will bear any amount of magnifying, and only show fresh beauty and marvellous finish the larger we make them. Both the iron and the cotton are God's work. So you see this is just the one grand difference between man's work and God's work. The more we look into the first, the less we like and admire it; the more we look into the last the more beautiful it is, and the more marvels we discover in it. I have drawn your attention to this fact about work to show you how little we unlearned folk really know about God's works in this world. We look at them, it is true, with our eyes every day, but this gives us but little knowledge of them. There is not a single thing which God has made which is not worth the most careful and patient study; and all the progress of civilization, and the so-called inventions of men, are really the results of just such observation and study.

It is that branch of man's learning called science to which we all owe so much nowadays. One part of this science is to take the things it sees around it, and to find out all it can about them, how they are made up, and what they are made of. The other part is to try to make up new things again, according to the rules and laws it has thus found out.

Scientific men are continually busy about one or other of these two businesses.

But you must not forget it is far easier to undo than to make up. You can unravel a stocking in a few minutes which took you many an hour to knit. You can pull out a seam with one motion of your arm which it took a great many stitches to run up.

And how often the children have come running to you with a ripped-up doll or a broken musical toy, and asked you with tears to put them together again. They wanted to find out 'how they were made,' and so pulled them to pieces; but, now, neither you nor they have the knowledge or means to put them together again.

Scientific men find this out too. Many and many a thing they can unmake, but there their work has to stop. For instance, those beautiful shining stones, called diamonds, are now known to be crystals of pure carbon. Carbon is another name for charcoal, and scientific men have gone so far that they can take a beautiful bright diamond and turn it into a little heap of black carbon. But, *as yet*, no efforts or experiments have taught them how to turn the heap of carbon back into the diamond. So you see there is a limit even to the labours of the most learned men; and it is well that it is so, because it keeps them humble-minded and reverent when they think about God, and feel how little after all they know concerning His wonderful works and laws.—*F. C. K. W.*

Nature as a Consoler.

We feel its soothing power only when we really need it.

Go out if you will, and walk above on the hillside in the evening; but if your favourite child lies ill at home, or your lover comes to-morrow; or at your heart there lies a scheme for the holding wealth, then you will return as you went out, you will have seen nothing. Only when there comes a blank in your life, when the old idol is broken, when the old hope is dead, when the old desire is crushed, then the Divine compensation of Nature is made manifest. When the day comes that you sit down broken, when in the present there is no craving, and in the future no hope, then, with a beneficent tenderness, Nature enfolds you. Then the large white snowflakes as they flutter down softly one by one, whisper soothingly, 'Rest, poor heart, rest!' It is as though our mother smoothed our hair, and we are comforted. The yellow-legged bee, as he hums, makes a dreary lyric, and the light on the brown wall is a great work of art, and the light through the leaves makes the pulses beat.—*Ralph Iron.*

Symbolism in Nature.

'Nature is full of our own human heart.'

How every tender as well as every grand sentiment comes reflected back to us from the beautiful objects of Nature! Therein lies their very power to enchant us. Nature is full of our own human heart. That rose—has not gentle woman leant over it, and left the reflection of her own blush upon the leaves of the flower? To the lover, I think, the rose is always half virgin, and but half rose. To the old man there is childhood in every bud. No hand so rude but that it gathers with the flower more and other beauty than what the dews of heaven had nourished in it.—*Thorndale.*

Restfulness of Nature.

The secret of restfulness lies in this: Nature never hurries.

Nature is restful and helpful because she never hurries. The

pressure of her great undertakings never tempts her to forsake for an hour the normal conditions of work. Seed-time and harvest come in their appointed time; each season has its special work; each day is brimful of life; but the vast enterprises move forward in such harmony that no eye, however keen, ever yet saw traces of effort. It is a harmony born of law; and under that law the life of man falls no less than the life of Nature. It is the God behind Nature whose presence and power we feel in her repose and restfulness; and our lives resting in Him may share the same peace which broods among the summer hills, and makes them to the weary worker broad pathways up to heaven.—'*Christian Union.*'

Nature and Art.

It is altogether impossible for the highest art to represent Nature efficiently.

All about me there is broad, scarce-flickering shadow on the grass, and stirring of sunlit tree-tops and vague buzzing of bees in the limes; and across the low ivied wall comes from the black, crumbly-stoned chapel faint music of organ and sweet-sounding voices, which swells and pierces through the silence (as a green reed-bud swells and pierces its soft, scaly core) and dies away, making you suddenly very conscious of twitter of sparrows and chattering of jack-daws; bringing suddenly close home to you, with the silence, a sense of solid reality. So, instead of saying what I wished, it seems to me most evident that there is nothing to say, that there could scarcely have been anything worth saying. It is enervate, I suppose; but so it is. I wonder how anyone can ever have felt inclined to write about art—how art can ever have been worth writing about. Everything around seems so incomparably more interesting, does it not, than art; so entirely beyond the power of writing to convey or imitate? Above, high up, there are two great branches of lime, apparently printed distinctly on to the pale blue sky, black wood dividing and subdividing, and projecting, green leaves and light yellow blossom, the sun shining straight through; it seems so simple. But try and paint it — those two branches, which seem at first so well defined, so close together, so closely clapped against the sky, do you now see how far apart they really are, how separated by a gulf of luminous air, how freely suspended, poised, at infinite distance, in the far-receding pale blue; those green leaves and yellow blossoms, which are not green nor yellow, but something shadowy and at the same time luminous, are clearly defined and yet undefinable; the sunshine, which we thought at first one plain beam of light, is now a white, vague sheen, a shimmer; now one light spark, one tremulous star between the leaves, or a waving network of rays, long, then short, white, coloured, iridescent, shaking, shifting, dancing. Paint it, describe it if you have a mind to, my friend the poet, my friend the painter; I have not.

This is one of those moments when reality, and the enjoyment thereof, fill one with a sense, self-contemptuous, sceptical, almost cynical, and yet pleasurable and stoically self-flattering in the recognition of our own importance, a pervading illogical sense of the futility, the unreality, the museum-glass-case uselessness of art. It seems as if art were enjoyed because it has been produced, not produced because it is to be enjoyed; as if mankind had acquired an elaborate pleasure in its own works because they are its own works; as if all of us, instead of passively receiving the impression of beauty in the same way that

we passively perceive the rustle of the branches, the twitter of the birds, the light upon the grass, our soul staying quietly, as it were, at home, and receiving these things as visits from Nature; went forth, when art appeals to us, on a sort of journey or grand tour, well provided with guide-book knowledge, schooled beforehand which road to take, what turnings of feeling to expect, what baggage of poetic and historic association to lug with us, what little mole-hill eminences of thought and feeling to stand upon, morally on tiptoe, looking down upon an artistic scene upon which we have never before set eyes, and which is yet as well known, as drearily familiar to us as is the inside of our pocket.—*Vernon Lee.*

Our Possessions in Nature.

He has Nature's charms for his own who has the power to appreciate them.

And I call this tree mine! Ten more generations will live and die beneath its shade; and yet I call this tree mine! And I can neither reach nor see that nest which a bird has built upon one of its highest branches. I call this tree mine, and I cannot gather one of its blossoms; and yet I call this tree mine! Mine! There is scarcely anything which I call mine which will not last much longer than I shall; there is not a single button of my gaiters that is not destined to survive me many years. What a strange thing is this *property* of which men are so envious! When I had *nothing of my own*, I had forests, and meadows, and the sea, and the sky with all its stars; since I purchased the old house and this garden, I have no longer anything but this house and this garden. Property is a contract by which you renounce everything that is not contained within four certain walls. I remember an old wood near to the house in which I was born; what days have I passed under its thick shade, in its green alleys; what violets have I gathered in it in the month of March, and what lilies of the valley in the month of May; what strawberries, blackberries, and nuts I have eaten in it; what butterflies and lizards I have chased and caught there; what nests I have discovered; how I have there admired the stars which in an evening used to appear to blossom in the tops of the lofty trees; and in the morning the sun which glided in golden dust through what a thick dome of foliage! What sweet perfumes, and what still sweeter reveries, have I there enjoyed! How often have I gone thither at the close of day to recline upon a little knoll covered with trees, to see the glorious sun set, his oblique rays colouring with red and gold the white trunks of the birch-trees which surround me! This wood was *not mine.* It belonged to an old bed-ridden marquis, who had, perhaps, never been in it in his life—*and yet it belonged to him.—Alphonse Kerr.*

Nature and Humanity.

Admiration of the beauties of Nature is not one of the original instincts of our humanity.

At any time, and under any circumstances of human interest, is it not strange to see how little real hold the objects of the natural world amid which we live can gain on our hearts and minds? We go to Nature for comfort in trouble, and sympathy in joy only to books. Admiration of those beauties of the inanimate world which modern poetry so largely and so eloquently describes is not, even in the best of us, one of the original instincts of our nature. As children we none of us possess it. No uninstructed man or woman possesses it. Those whose lives are most exclusively passed amid

the ever-changing wonders of sea and land are also those who are most universally insensible to every aspect of Nature not directly associated with the human interest of their calling. Our capacity of appreciating the beauties of the earth we live on is, in truth, one of the civilized accomplishments which we all learn as an art; and more, that very capacity is rarely practised by any of us except when our minds are most indolent and most unoccupied. How much share have the attractions of Nature ever had in the pleasurable or painful interests and emotions of ourselves or our friends? What space do they ever occupy in the thousand little narratives of personal experience which pass every day by word of mouth from one of us to the other? All that our minds can compass, all that our hearts can learn, can be accomplished with equal certainty, equal profit, and equal satisfaction to ourselves in the poorest as in the richest prospect that the face of the earth can show. There is surely a reason for this want of inborn sympathy between the creature and the creation around it—a reason which may perhaps be found in the widely-differing destinies of man and his earthly sphere. The grandest mountain prospect that the eye can range over is appointed to annihilation. The smallest human interest that the pure heart can feel is appointed to immortality.—*Wilkie Collins.*

Rude Men and Nature.

Man often intrudes on Nature to be only 'a jarring and a dissonant thing amid the general dance and minstrelsy.'

Birdcatchers are once more abroad in the fields. The close season for the protection of the little choristers of the country has come to an end, and the trains have during the past week dispersed London 'professionals' over the shires. They are to be met with everywhere, trudging along the rural lanes or, plying their trade seated at the woodside or under the hawthorns in the meadow, among the gorse or by the willow-shaded stream. It is always the sweetest spots, too, which they spoil by their presence. For the birds, the small poets of nature, love the prettiest bits of woodland, the daintiest nooks on hillside or valley. Thither the birdcatcher follows them relentlessly. There is not much poetry in the man himself. He does not even notice the beauty of the scene which he mars. But he knows these exquisite scraps of landscape are 'likely' places for the birds he wants, so he tramples his unthinking way over the blue chicory and the delicate moth-mullein, forces his corduroy-guarded person backwards into a hedge till the honeysuckle—sweet traitor that it is—droops down all over him in a concealing arbour, and the faint meadow-sweet, half crushed under his thick boots, springs back into its place and helps—alas! that conspirator should be so fair—to hide the enemy of the song-birds in his ambush. So the wolf, rough tenant of the grim ravine, bandit of the rocky pass, a creature of desolate spaces, follows the flock into the sweet tranquillity of the valley. Does it crouch in the shade to listen to the ring-dove's soft complaining, or lie along so close to the edge of the stream because the forget-me-nots grow there so thick and brightly blue? Not a bit of it. The murderer has but little fancy for note of bird or colour of flower. It is the lambs yonder romping round the twisted stem of the old hawthorn—polished with the rubbing of generations of sheep, and all woolly with their shreds of fleece—that the wolf has come to watch and lie in wait for. At first sight the birdcatcher reminds one of the beast of prey thus out of place.

The sight of him jars upon the eye and the mind too. He is a touch of crime, of sordid cruelty, in a vision of innocence and peaceful beauty.—*Richard Jefferies.*

Nature and Self-Culture.

Man's imagination and man's intellect need the purifying and elevating influences of Nature.

I cannot conceive of self-culture unless it includes the study of Nature, so as to render both the imagination and the intellect susceptible of its elevating and purifying inspirations. What better influence can flow in upon the soul of man than that primrose by the river's brim, and the cold white glacier that rolls with sure if imperceptible motion down the rugged alpine precipice? Music? There are wonderful cadences and modulations in the flow of the stream and the songs of birds, while indescribable harmonies are swollen by the myriad voices that go up from the eloquent earth. Art? It is to Nature that Art turns for her finest inspirations, from Nature that she borrows her subtlest combination of form and colour. Science? Nature is its well-head, its origin; at once its reason and its justification. Can there be a sweeter, a tenderer power than that of the pastoral meadows and the purple vineyards and the waving cornfields; or can there be a grander and sublimer effect than that of the mountain peak which cleaves like a golden arrow the dim vast blue, or of the far-spreading plain of ocean with its ever-shifting lights and shadows?—*W. H. D. Adams.*

Nature and Atheism.

'Atheism is a disease of towns.'

He who would say 'No God,' first turns away from hill and vale, verdant with waving woods or bright with waving corn; shuts out the sun, the moon, the stars from converse with his soul; buries himself in closets, where the wooing face of Nature is unseen, her beating heart unheard. There he weaves his chain of argument, constructs his family without a father, his universe that no purpose animates, no will controls; traces laws that reveal no holiness, and lead to a necessity that owns no law. Atheism is a disease of towns. Air and sunshine, the sight of the living tribes whom the hand supplies, the music of the winds and waves, one burst of sympathy with the mirth, the melody, the awe that are around us—these are its cure. In Nature God is felt. The consciousness of a present person awoke the reverence of the earliest times, and is stamped upon the superstitions of every race.—*James Hinton.*

Associations of Nature.

'Strong and many are the claims made upon us by our mother earth.'

Strong and many are the claims made upon us by our mother earth; the love of locality—the charm and attraction which some one homely landscape possesses to us, surpassing all stranger beauties, is a remarkable feature in the human heart. We who are not ethereal creatures, but of mixed and diverse nature; we who, when we look our clearest towards the skies, must still have our standing ground of earth secure—it is strange what relations of personal love we enter into with the scenes of this lower sphere. How we delight to build our recollections upon some basis of reality—a place, a country, a local habitation—how the events of life, as we look back upon them, have grown into the well-remembered background of the places where they fell upon us! Here is some sunny garden or summer lane, beautified and canonized for ever with the flood of a great joy; and here are

dim and silent places, rooms always shadowed and dark to us, whatever they may be to others, where distress or death came once, and since then dwells for evermore.—*Washington Irving.*

Adaptations of Nature.

The earth and the creatures that inhabit it wonderfully fit to each other.

Every department of vegetation is to be regarded as the very counterpart of, and as suited to, its respective tenants. The verdant field is the pasture-ground of flocks and herds, and of all the teeming armies of insect life that feed on its surface. Every forest is the roaming-ground of its own wild tenants. Every leaf is a play-ground and a pasture-ground for the numerous tribes that roam and feed and sport on its surface. Every flower, vocal with the songs of its merry tenants, is the resort or the residence of numerous families, of living creatures that seek pleasure or perfume, or nectarine sweets, or a floral shade, or shelter, in its soft and quiet bosom. Every variety of flower has its own peculiar inhabitants that seek in it protection, food, or pleasure.—*Read.*

Harvest-time.

God permits man to realize some of his hopes.

The harvest-time is the most delightful of all the seasons of the year. It is the time of fulfilled hopes and realized expectation, when the ruddy gleam of the ripened fruit succeeds the lavish wealth of blossoms, and he who went forth weeping, bearing precious seed, returns with rejoicings, bringing his sheaves with him. Someone has called it the sunset of the year; and assuredly no greater halo of glory marks the close of the day than radiates around each sunny hour of this precious season. Scenes of life and beauty crowd upon each other with a seeming rapidity as if there was no time to lose, each rendered more engaging by its very changeableness, and by the forecast of that desolation in which it will soon terminate. Days, and even, in this capricious climate, sometimes weeks, succeed each other, so perfect in their character of beauty, that they seem almost revelations of a higher existence, and merely to live is a sufficient happiness. The sky that bends over the landscape is of the sweetest blue, and is fraught with an unutterable peace; soft, playful gleams breaking through the fleecy clouds flit over wood and meadow, and give a tenderer tone to the universal sunshine. The white homesteads nestling on the hillsides are still and noiseless in the broad shadows of the trees that cluster round them, and that are just beginning to be tinged with the bright hues of decay; and so pure and serene is the air that the moon is seen like a pale phantom at mid-day, and the faintest far-off sounds are heard with surprising distinctness. The lowing of cattle and the bleating of sheep come from the crimson moorlands mellowed to an indescribable pathos of loneliness; and down in the valleys the tinkling of the scythes and the voices of the labourers seem like sounds from another world. An ideal air breathes around every object within the horizon; and the universal frame of Nature is stamped with the brightest image of its Maker, and earth might well be taken for a suburb of heaven.

Of all the many beautiful sights of this season, the most beautiful and interesting are the cornfields rippling in light and shade, like the waves of a sunset sea, away over valley and upland to the purple shores of the distant hills. They are the characteristic features of the season — the illuminated initials of Nature's autumnal page, whose golden splendour is variegated here and there with wreaths

of scarlet poppies, corn blue-bottles, and purple vetches. The landscape seems to exist solely for them, so prominent and important are they in it. Wherever they appear they are the pictures for which the rest of the scenery, however grand or beautiful, is but the mere frame. The earth looks like a table spread for this precious food which God's own hand has furnished. A hungry world, whose staff of life the corn forms, waits impatiently for the feast; and Nature, like a handmaid, seems to pause in her varied operations, and to concentrate all her energies upon the one task of bringing it to perfection. Familiar as it is to us, we greet it season after season with the same fresh enthusiasm. We enter fully into the old feeling which glowed in the great child-heart of Luther, when he returned home through the rich harvest-fields of Leipsic, 'How it stands, that yellow corn, on its fair taper stems; its golden head bent, all rich and waving there! The mute earth, at God's bidding, has produced it once again—man's bread.' The meanest and homeliest scene is redeemed and hallowed by the presence of the cornfields in it. It is holy ground; God has there made the place of His feet glorious. The old miracle of the multiplication of the loaves has been there performed anew, in a more gradual and less startling manner indeed, but not the less wonderful on that account. In the one case the processes of germination and development were suspended, and in a single moment a mere morsel became a sufficiency for thousands; in the other case the processes of Nature were allowed to go on for weeks and months until the single grains deposited in the earth became a waving harvest. The miracle of the loaves was a sudden putting forth of God's bountiful hand from behind the veil of His ordinary providence; the miracle of the harvest is the working of the same bountiful hand, only unseen, giving power to the tiny grains to drink the dew and imbibe the sunshine, and appropriate the nourishment of the soil during the long bright days of summer. I understand the one miracle in the light of the other. That marvellous scene in the wilderness of Capernaum comes to me as a revelation of a real but invisible world which is working silently day after day around me in this lonely Highland strath. It serves to open my eyes to wonders more vast and awful than its own outward phenomena. Paradoxical as it may seem, it teaches me to look with more reverence upon the ordinary ways of God's providence, and to receive with even more of deep thankfulness the bread that comes to me by what are called the common processes of Nature, than if it had been given to me directly by the hand of Jesus with no toil or trust of my own.

No one can gaze upon these golden cornfields without being influenced more or less by the pleasing associations with which they are connected. They strike their roots deep down into the soil of time; they are as old as the human race. They waved upon the earth long before the flood, under the husbandry of the 'world's gray fathers.' The sun in heaven has ripened more than six thousand of them. Progress is the law of Nature, and everything else obeys it, but the harvest-field exhibits little or no change. It presents nearly the same picture in this Western clime and in these modern days as it did under the glowing skies of the East in the time of the patriarchs. We see the same old familiar scene now enacted under our eyes, in every walk we take, which Ruth saw when she gleaned after her kinsman's reapers in one of the quiet valleys of Bethlehem, or which our blessed Saviour so frequently

gazed upon when wandering with His disciples in the mellow afternoon around the verdant shores of Gennesaret. The harvest-fields are the golden links that connect the ages and the zones, and associate together the most distant times and the remotest nations in one common bond of sympathy and dependence. They make of the earth one great home; of the human race one great family; and of God the universal Parent, to whom day after day we are encouraged to go with filial faith and love, not in selfishness and isolation, but in a fraternal spirit which embraces the whole world, asking not for ourselves only, but for all our brothers of mankind as well, 'Our Father which art in heaven, give us this day our daily bread.'—*Hugh Macmillan, LL.D.*

Aspects of Nature.

There are manifold ways of viewing Nature.

We stand in as many and as immeasurably different relations to Nature as to man; and as to the child she shows herself childlike and bends benignly down to his infant heart, so to the god she shows herself godlike, and attunes herself to his high spirit. We cannot say that there is *one* Nature without saying something excessive, exaggerated; and all attempts to arrive at truth by discussions and conversations about Nature do but remove us farther from the natural. Much is already gained, when the effort fully to understand Nature ennobles itself into a longing—a tender and humble longing, which even the cold, reserved temper soon learns to delight in, if once it feels secure of a more intimate acquaintance with her. There is a secret attraction toward all points, diverging from an infinitely deep centre within us. As wondrous Nature, sensible and insensible, lies round about us, we think every one of her features an exercise of this attractive power, a manifestation of the sympathy which exists between her and us; but behind those blue, distant mountains, one man seeks the home which they veil from his sight, the beloved of his youth, parents, brothers, sisters, old friends, dear recollections—another thinks that, far on the other side, unknown glories await him; he believes that a future, full of life and beauty, lies hidden there, and he stretches his hands wistfully toward that new world. Some few stand motionless and serene in the midst of the glorious spectacle; they seek to embrace it in its fulness and concatenation, but they forget not in the whole that radiant thread which runs through and enlinks its parts, and forms the holy crown of light; such spirits are blessed in the contemplation of this living and more than midnight depth of all-pervading beauty.

Thus arise manifold ways of viewing Nature; and if, in some, sensibility to her beauty is a joyous sensation—a banquet; in others we see it transformed into the most reverential religion, giving direction, support, and significancy to the whole of life. Even in the infancy of nations, such deep and earnest spirits have been found, to whom Nature wore the countenance of Deity; while other gay and joyous hearts thought of her only as a host, at whose bounteous table they might freely seat themselves. To them the free air was a cordial drink; the stars, lamps to illumine the nightly dance; plants and animals, costly and delicate viands; and thus did Nature present herself to their minds, not as a still and awful temple, but as a plenteous kitchen and merry banqueting-hall.

In an intermediate class between these two were others, whose view of Nature, though differing from the last, had yet reference to the

senses alone. These saw in actual Nature only a vast, but as yet wild and unreclaimed, park or pleasure-ground, and were busied, day and night, in creating patterns of a more refined and perfect nature. They divided themselves into companies for the accomplishment of the great work. Some sought to awaken mute and forgotten tones in air and wood; others stamped their conceptions and images of more beautiful forms on brass or stone; built up from the rock more stately piles for dwellings; brought to light hidden treasures from the clefts of the earth; tamed the wayward and lawless streams; peopled the inhospitable sea; carried plants of long-known and excellent virtue into desert zones; checked the wild overspread of forests and tended the nobler flowers and herbs; opened the earth to the life-giving motions of generative air and enkindling light; taught colours to blend and arrange themselves in beautiful pictures, and wood and meadow, fountain and rock, to unite in one lovely garden; breathed tones into the living members, unfolded their mysterious connection, and taught them to move in livelier and more joyous vibrations; adopted the defenceless animals which were susceptible of some touch of human culture, and cleared the woods of those noxious beasts which seemed like the monstrous births of a distempered fancy.

Soon did Nature assume a kindlier aspect; she was softer and more refreshing, and willingly hearkened to all the wishes of man. By degrees her heart began to have a human motion; her fancies were brighter; she became social, and freely applied to the friendly inquirer; and so the golden age appeared to be gradually returning, when she was the friend, the comforter, the priestess of men; when she lived among them, and her Divine society and intercourse raised them into immortals. —*Novalis.*

The Music of Nature.

Sensitive poetic souls are thrilled by the music of Nature.

It cannot be said that music is a human creation, and, as far as the substances of the world are concerned, a mere accident. As well can it be said that man creates the colours of the prism, and that they are not in the properties of the light, because he shapes the prism by his own mechanical art. Or if still we doubt, if it seems incredible that the soul of music is in the heart of all created being, then the laws of harmony themselves shall answer, one string vibrating to another, when it is not struck itself, and uttering its voice of concord simply because the concord is in it, and it feels the pulses on the air, to which it cannot be silent. Nay, the solid mountains and their giant masses of rock shall answer; catching, as they will, the bray of horns, or the stunning blast of cannon, rolling it across from one top to another in reverberating pulses, till it falls into bars of musical rhythm and chimes and cadences of silver melody. I have heard some fine music, as men are wont to speak—the play of orchestras, the anthems of choirs, the voices of song that moved admiring nations. But in the lofty passes of the Alps I heard a music overhead from God's cloudy orchestra, the giant peaks of rock and ice, curtained in by the driving mist, and only dimly visible athwart the sky through its folds, such as mocks all sounds our lower worlds of art can ever hope to raise. I stood (excuse the simplicity) calling to them in the loudest shouts I could raise, even till my power was spent, and listening in compulsory trance to their reply. I heard them roll it up through their cloudy worlds

of snow, sifting out the harsh qualities that were tearing in it as demon screams of sin, holding on upon it as if it were a hymn they were fining to the ear of the great Creator, and sending it round and round in long reduplications of sweetness, minute after minute, till, finally, receding and rising, it trembled, as it were, among the quick gratulations of angels, and fell into the silence of the pure empyrean. I had never any conception before of what is meant by 'quality' in sound. There was more power upon the soul in one of those simple notes than I ever expect to feel from anything called music below, or ever can feel till I hear them again in the choirs of the angelic world.—*Horace Bushnell.*

Grace and Beauty in Nature.

By communion with Nature souls may be trained to recognise true beauty.

From sympathetic communion with the commonest natural objects, the soul may be trained to an excellent perception of taste. The graceful motions of trees in a storm, or the curved lines of the retreating or advancing wave, as well as the lowest species of wild flowers, or fern life, may impart to the soul deep impressions of grace and beauty. With Nature the lesson is always ready, and only depends upon our capacity to receive it. . . . The love of Nature is by no means stamped out of the breast of the community; but it takes a form which requires peculiar and startling combinations of cliff, ravine, and sea to produce a deep impression. The wooded glen, with its outlet opening on the blue waters of a lake; the wave-beaten cells forming magic halls in the recesses of the rock; the sinuous hills clothed with woods, whose variegated arms seem to lift the straggling hamlet up to heaven—all these, more or less interspersed with garden lawns and wild ravines, are necessary to produce any impression upon the holiday excursionist in quest of enjoyment. A quiet little bit of rustic scenery, with a wooded lane in the foreground, and a village spire in the distance, such as would have charmed the eye of Constable, will produce in him no emotion whatever. The glorious break of day, or the ethereal transition from day to dusk, from dusk to night, or from night to dawn, occur around him without exciting one spark of the feeling of grandeur they are calculated to inspire. These are mere common-place changes, which have for the multitude no spiritual significance. Yet it is this investing of common objects with recondite meaning, this appreciation of the transitions rather than the more permanent states of Nature, which animates the breasts of her worshippers, and forms the best prelude to art culture itself. All pleasure, abstractedly considered, is good in itself; and no species of pleasure is hateful, considered as pleasure, but only so far as it may militate against other pleasures of a superior character. The sensualist is generally denominated 'a man of pleasure,' though he sacrifices to the gratification of a moment the happiness of an entire life, and cuts himself off from a wide region of enjoyment, of which his habits do not permit him to entertain the slightest conception. Instead of being a man whose hours are devoted to pleasure, he is in reality passing through life without tasting anything of the full harmony of its enjoyments. . . . By communing with the loftier type of excellence, nations as well as individuals are stimulated to constant efforts in the paths of social and moral regeneration. We cannot converse with the beautiful and true without infusing these qualities into the texture of our existence.—'*Practical Æsthetics.*'

A Psalm of Nature.

'O Lord, how manifold are Thy works! in wisdom hast Thou made them all' (PSA. civ.).

Let anyone open his pocket Bible at Psalm civ., when he happens to be, say, for instance, at the top of Great Orme's Head on a bright and breezy day, and he will have evidence enough of ancient inspirations from the voice of Nature. He will also find a wonderful illustration of that universality which is so noteworthy a characteristic of the Bible. For if this Psalm was first sung and written under an Eastern sky amongst palms or cedars or fig-trees, and overlooking the blue Mediterranean Sea, its thought, its language, its descriptions, its illusions are as articulate, as vivid, and as telling here in this Northern clime as they could have been in the sunny South.

This promontory, standing out into the ocean, and lifting us between sea and sky, gives a point of vision from which we readily respond to the rapture of the Psalmist, who beholds creation as the vesture of God. The Eternal is clothed with honour and majesty. He covers Himself with light as with a garment; He stretches out the heavens like a curtain. The winds that ripple this shining sea are as messengers carrying life and health to man and beast and tree. As we look back to the fluctuating outlines of mountain coast flecked with sunshine and shadowed with cloud, seamed with torrent beds and sheltering fruitful valleys, we are able to appreciate the lightness of touch and breadth of conception with which the Hebrew poet has sketched the land and water system of the earth. The deep foundations resisting millenniums of vicissitude—there they are in the craggy buttresses that stretch out from land to sea. The evidences of former floods, of ice-streams, and grinding glaciers are all around to those familiar with the landscape. 'Thou coveredst it with the deep as with a garment: the waters stood above the mountains. At Thy rebuke they fled; at the voice of Thy thunder they hasted away.' Down those deep shadows, here and there made tender by the glimmering green mist of the Easter-time, 'He sendeth the springs into the valleys, which run among the hills. They give drink to every beast of the field.' Far away on the horizon 'shadow streaks of rain' illustrate the words of the Psalmist, 'He watereth the hills from His chambers; the earth is satisfied with the fruit of Thy works.' And both mountain, field, and sea are enshrined beneath a canopy of changeful light and dark, which, like all the rest of creation, implicitly obeys Divine laws. The moon knows her seasons; the sun knoweth his going down. As the shadows creep along we can think of the beneficent darkness coming on, which gives rest and new life to man's higher nature, while it affords the secrecy and protection needed by lower forms of activity. 'Thou makest darkness, and it is night, wherein all the beasts of the forest do creep forth.' What enchantment can rival the swift change of scene which comes when the sun arises? 'They gather themselves together, and lay them down in their dens. Man goeth forth unto his work, and to his labour, until the evening.' Surely we may catch the rapture with which at this point of his survey of the divinely-ordered earth the Psalmist exclaims: 'O Lord, how manifold are Thy works! in wisdom hast Thou made them all; the earth is full of Thy riches.'

And with this the eye of the seer sweeps from land to sea—'this great and wide sea, wherein are things creeping innumerable, both small and great beasts. There go the ships!' In these last words

there is a wealth of meaning that could not have occurred even to the inspired Psalmist. On this promontory we are watching the commerce of a world — such a commerce as was inconceivable until the gentle lessons of Divine love made human brotherhood a reality, and laid securely the moral foundations for that interchange of advantages on which trade depends. Fulness of life in the sea, activity and joy on land, such is what the Psalmist sees in the works of God. 'These wait all upon Thee. Thou openest Thine hand, they are filled with good.' And now, in conclusion, mark how closely moral aspiration attends on true reverence. 'The glory of the Lord shall endure for ever; the Lord shall rejoice in His works.' —'*The Christian World.*'

This World a Temple of Mysteries.

We can ask so many questions that no one has power to answer.

The wonderful world in which we men pass this stage of our existence, whether the higher world of faith be open to our gaze or not, is a very temple of many and august mysteries. You will walk, perhaps, to-morrow afternoon into the country; and here or there the swelling buds, or the first fresh green of the opening leaf, will remind you that already spring is about to re-enact before your eyes the beautiful spectacle of her yearly triumph. Everywhere around you are evidences of the existence and movement of a mysterious power which you can neither see, nor touch, nor define, nor measure, nor understand. This power lives speechless, noiseless, unseen, yet energetic, in every bough above your head, in every blade of grass beneath your feet. It bursts forth from the grain into the shoot, from the branch into the bud; it bursts into leaf, and flower, and fruit. It creates bark and fibre; it creates height and bulk; it yields grace of form and lustre of colour. It is incessant in its labour; it is prodigal of its beauty; it is uniformly generous and bountiful in its gifts to man. Yet, in itself, what is it? You give it a name; you call it vegetation. And perhaps you are a botanist; you trace out and you register the variety of its effects, and the signs of its movement. But after all you have only labelled it. Although it is so common, it is not in reality familiar to you. Although you have watched it unthinkingly from your childhood upwards, and perhaps see in it nothing remarkable now, you may well pause in awe and wonder before it, for of a truth it is a mystery. What is it in itself—this power which is so certainly around you, yet which so perfectly escapes you when you attempt to detect or to detain it in your grasp? What is it, this pervading force, this life-principle, this incomprehensible yet most certainly present fact, but an assertion of the principle of mystery which robes the soil of God's earth with life and beauty, that everywhere it may cheer the faith and rebuke the pride of man? Yes, when next you behold the green field or the green tree, be sure that you are in the presence of a very sacrament of Nature. Your eye rests upon the outward and visible sign of an inward and wholly invisible force.

Or look at those other forces with which you seem to be so much at home, and which you term attraction and gravitation. What do you really know about them? You name them: perhaps you can repeat a mathematical expression which measures their action. But after all you have only named and described an effect; you have not accounted for, you have not penetrated into, you have not unveiled its cause. Why, I ask, in the nature of

things, should such laws reign around us? They do reign; but why? What is the power which determines gravitation? Where does it reside? how is it to be seized, apprehended, touched, examined? There it is: but there, inaccessible to your keenest study, it remains veiled and buried. You would gladly capture and subdue and understand it; but, as it is, you are forced to confess the presence of something which you cannot even as much as approach. And you yourselves—fearfully and wonderfully made as you are—what are you but living embodiments, alike in your lower and your higher natures, and in the law of their union, of this all-pervading principle of mystery? The life-power which feels and moves in your bodies successfully eludes the knife of the anatomist, as he lays bare each nerve and each muscle that contributes to the perfection of feeling and movement. Yet how much more utterly mysterious is your human nature when you examine its higher aspects; when you analyze mind and personality, and that marvellous mystery of language wherein thought takes nothing less than a physical form, and passes by means of a sensible vehicle from one immaterial spirit to another.—*Rev. H. P. Liddon, D.D.*

Compensations throughout Nature.

Everywhere evil and good are balanced.

Whatever be the varieties of human states and fortunes, some delicate turn of the balance makes them equal. The scale is in the hand of God. The thrush sings in the cottager's garden, and the skeleton hangs behind the gold tapestry. Even the mute creation clears up dark passages in the economy of the intellectual. For one gift bestowed, another is taken away. The bird of paradise has coarse legs. The eye of the bat is too weak for the gloom it inhabits, therefore the sense of touch is quickened; it sees with its feet, and easily and safely guides itself in the swiftest flight. The sloth has a similar provision. Look at it on the ground, and you wonder at the grotesque freaks of Nature; but follow it up a tree: watch it suspending its body by the hooked toes, and swinging from bough to bough, and you perceive its organization to be exactly suited to its wants. Paley notices the same principle of compensation in the elephant and crane. The short unbending neck of the first receives a remedy in the flexible trunk; the long legs of the second enable it to wade where the structure of its feet prevents it from swimming.

The changes of light and shade are tempered to insect sensibility. In the deserts of the torrid zone, the setting sun calls up myriads of little creatures that would perish in its full brightness: while, in the wintry solitudes of the North, sunset is the signal for repose. The lesson of compensation is taught by the humming of flies along the hedges. The flutterer of a day has no reason to complain of the shortness of its life. It was a thought of Malebranche, that the ephemera may regard a minute as we look upon a year. The delusion is its recompense.

And if we turn to the history and fortunes of men, a long series of balances keeps opening on the eye. The ear alone might be a motto for an essay. In South America, a cicada is heard a mile; a man only a few yards. Kirby has calculated that, if the voice increased in volume proportionably to the size of the body, it would resound over the world. Every inch must deepen the thunder; and two giants might converse with ease from the North Pole and the Ganges. The slightest

enlargement of stature would be watched with apprehension, and an island with one man of seven feet in it be altogether uninhabitable. Pope did not forget this providential adaptation of the organ to happiness:

'If Nature thundered in his opening ears,
And stunn'd him with the music of the spheres,
How would he wish that Heaven had left him still
The whisp'ring zephyr and the purling rill!'

Who will complain that he is more inaudible than the grasshopper?

Man has another compensation in the fineness of his ear. Dugald Stewart remarked of the warbling of birds that it gives pleasure to none of the quadrupeds; nor is it even certain if the music of one species gratifies another. Whoever heard a sparrow pause in his impertinent chirp, because a lark sprang wavering into song above his head? There is no reason to suppose that the owl considers his hooting in any degree less agreeable than the chant of the nightingale. If, therefore, we have a fainter tongue, let us look for and find our balance in a more sensitive hearing.

We see a sublime illustration of the theory in the nature and teaching of our religion.

The Bible is a history of compensation. The prophecies of the New Covenant were uttered in seasons of depression—at the fall of Adam, the separation of Abraham, the bondage of Israel, the giving of the Law by Moses, the captivity of Babylon. Cloud and rainbow appear together. There is wisdom in the saying of Feltham, that the whole creation is kept in order by discord, and that vicissitude maintains the world. Many evils—many blessings. Manna drops in the wilderness — corn grows in Canaan. Rarely two blessings, or two trials, console or afflict us at the same time. Human life is the prophet's declaration drawn out into examples: '*God stayeth His rough wind in the day of His east wind.*'

One curious and beautiful feature of the Divine scheme of compensation is seen in its changing our sorrows into instruments and channels of joy and comfort. The curtained chamber of sickness sows the barren field with flowers. A sick man seated in his garden, or tottering down a green lane for a few minutes, might suppose himself transported into the morning and sunlight of creation:

'The common air, the earth, the skies,
To him are opening Paradise.'

Plato relates that Socrates, on the day of his death, being in the company of his disciples, began to rub his leg, which had been galled by the chain, and mentioned the pleasurable sensation in the released member. The Greek prison represents the world; the philosopher, the Christian; the fetters, the calamities of life. When one of these is loosened, the soul experiences a feeling of delight. It is the leg of Socrates unchained. The iron enters into the soul, and afterwards the wound is healed. St. Paul tells the Corinthians that when he came to Macedonia his flesh had no rest: without were fightings; within were fears; but God comforted him by 'the coming of Titus.' So it is ever.

The future of a man is his recompense; something is promised which he desired, or something is withdrawn of which he complained. Hope is the compendium of compensation. The Eskimo, who numbers among his treasures a plank of a tree, cast by the ocean currents on his desolate shores, sees in the moon plains overshadowed by majestic forests; the Indian of the Oroonoko expects to find in the same luminary green

and boundless savannas, where people are never stung by mosquitoes. Thus the chain of compensation encircles the world. —*R. A. Willmott.*

Nature's Insensibility.

'Man shudders before Nature's remorseless insensibility.'

Man shudders before Nature's remorseless insensibility. He notices how little she makes of the dead, and how little she cares for the living—how she mocks at, and trifles with, sensibility, and with life. An earthquake swallows up tens of thousands of living men. The jaws of the gulf that opened to receive them swing back to their place, and forthwith flowers adorn the ghastly seam, as if in mockery of the dead who are buried beneath. A great ship founders in the ocean, freighted with a thousand living souls. As they go down, they raise one shriek of anguish that it would seem should rend the sky. But the cry is over, and the waters roll over the place as smoothly as though those thousand lives were not sleeping in death below. Of another life there are no tidings and few suggestions—a possibility, or perhaps a probability, but no hope.—*Noah Porter, D.D.*

All Things are writing their History.

'Every object of Nature is covered over with hints which speak to the intelligent.'

All things are engaged in writing their history. The planet, the pebble goes attended by its shadow. The rolling rock leaves its scratches on the mountain, the river its channel in the soil, the animal its bones in the stratum, the fern and leaf their modest epitaph in the coal. The falling drop makes its sculpture in the sand or stone. Not a foot steps into the snow, or along the ground but prints, in characters more or less lasting, a map of its march. Every act of man inscribes itself in the memories of his fellows, and in his own manners and face. The air is full of sounds, the sky of tokens, the ground is all memoranda and signature, and every object of Nature covered over with hints which speak to the intelligent.—*R. W. Emerson.*

The Charm of Country Life.

Interest and culture are gained in country associations.

A man who remembers his 'best hours,' and has not fallen out of harmony with Nature, will find life far more pleasant in the country than in the town. He will no doubt see the town occasionally, but his home will be in the country. How are the most cherished associations of home—apart from kinsfolk—to gather round a London street, a wilderness of brick and mortar, where no individuality can impress itself, and nothing that is ours, except the furniture, is to be seen? Home can best be created in the country, and that is the reason, among many others, why children—circumstances permitting—should always be brought up there. The word 'home' then means to them something much more than a place to eat and sleep in; their young minds are stored with recollections of all beautiful things in Nature, and of a thousand innocent amusements which the city child knows nothing of, although, by an undying instinct, he never ceases to pine for them. In the country, home strikes its roots deep into the heart. The children never forget the flowers they planted, the birds they were accustomed to watch, the little patches of garden which were given them to cultivate, the very sounds which are associated with the fields and woods. The time will come when these influences

will be invested with a strange and tender, perhaps with a pathetic interest; but all are for good. Sir Arthur Helps tells us that once, in the midst of a forest which he had to traverse on a journey, there came strongly into his thoughts the 'possibility of all care being driven away from the world some day.' A similar feeling must often have been with every man who has wandered much alone in solitary places, so incompatible do suffering and evil seem with the outward beauty and majesty of the great world of Nature. Some protection against the evil, some solace for the suffering, is provided for the young when a love of this great world is implanted in them. As life advances its power will strengthen rather than wane. Hard indeed must be the lot of the man or woman whose life is for ever bounded by the streets of a great city. Beyond lies the country, pure and tranquil, remembered well amid all the vicissitudes of after-years; and once there, the storms of life are moderated, even though they cannot be altogether hushed. In this precarious world it may not always offer happiness, but at least it will bring peace.—'*Quarterly Review*.'

The Constancy of Nature.

Man is ever passing; Nature keeps the same for all the generations.

More than three centuries and a half ago, in the mid-springtime of 1492, we are sure that the Angel of the Dawn, as he travelled with broad slow wing from the Levant to the Pillars of Hercules, and from the summits of the Caucasus across all the snowy Alpine ridges to the dark nakedness of the Western Isles, saw nearly the same outline of firm land and unstable sea; saw the same great mountain shadows on the same valleys as he has seen to-day—some olive mounts and pine forests, and the broad plains green with young corn or rain-freshened grass; saw the domes and spires of cities rising by the river-sides, or mingled with the sedge-like masts on the many-curved sea coast, in the same spots where they rise to-day. And as the faint light of his course pierced into the dwellings of men, it fell, as now, on the rosy warmth of nestling children, on the haggard waking of sorrow and sickness; on the hasty uprising of the hard-handed labourer, and on the late sleep of the night student, who had been questioning the stars or the sages, or his own soul for that hidden knowledge which would break through the barrier of man's brief life, and show its dark path, that seemed to bend no whither, to be an arc in an immeasurable circle of light and glory. The great river-courses, which have shaped the lines of men, have hardly changed; and those other streams, the life-currents that ebb and flow in human hearts, pulsate to the same great needs, the same great loves and terrors. As our thought follows close in the slow wake of the dawn, we are impressed with the broad sameness of the human lot, which never alters in the main headings of its history—hunger and labour, seed-time and harvest, love and death. —*George Eliot.*

The Refining Influence of Nature.

Nature gives the higher tone to thought and feeling.

The study of Nature as affecting figurative language, proverbial sayings, descriptive poetry applying to single objects, or extended scenery, and lastly, human nature itself in all its complicated ramifications, is a series of word-painted pictures, so plainly, simply, and yet graphically and truthfully drawn that they inform and instruct all minds, but not all minds with equal intensity. We thence infer that it is

hopeless to refine on this photographing process, considered in a literary point of view; and that no instruction can go beyond recommending the same course of delineation of the heavens, the earth, man, and all animate creation, as that which has been found from the earliest to the present period of our history to subserve all the purposes of language in communicating our thoughts, impressions, and sentiments in reference to ourselves and the universe. Nature, treated as a dry matter of fact, is, as it were, only so much either of living or dead materials; but in man there is a soul, a mind, intelligence, without which the grand features of universal creation would be to him a blank; and day or night almost a matter of indifference so long as he was housed, clothed, and fed. Savage tribes of the human race offer a near approach to this low scale of being. But in proportion to his mental condition, so does man become more and more refined, and more sensible to the grandeur, order, and beauty of surrounding creation. And here let it not be overlooked that it is a peculiar evidence of the poetic temperament to possess in a larger degree than ordinary that mental faculty distinguished as imagination and fancy, and to which he principally owes his pre-eminence in society. We sufficiently express its noble and distinguishing character under the somewhat objectionable term—inspiration, which conveys to ordinary minds the idea of supernatural interposition. Imagination and fancy are to poetry like those two great lights, the sun and the moon, to our universal parent—indispensable to its very existence. We have seen that there may be much good, plain descriptive poetry without much of the interposition of either; and poetry, when referring to Nature, is rarely spoken of otherwise than for any excellence it may possess in description. It never seems to have been ever so remotely suspected, hitherto, that imagination and fancy were capable of receiving any peculiar aid from the study of external nature. Whenever a poem of an imaginative character is indebted to Nature, then it is that the critic treats of Nature as communing with the poet, and the poet as looking into the very arcana of Nature, and expounding the marvels of its most secret recesses. This tone is never assumed in considering the most exquisite descriptive poem, there the poet is the mere painter; but let him throw into his subject the entrancing excellence of powerful imagination and glowing fancy, and immediately his work is no longer of this earth, but spiritual! No view of this interesting subject can be more untenable, or more likely to discourage progress or improvement if believed in, and attempted to be followed.—*Professor Dircks.*

It is enough to lie on the sward in the shadow of green boughs, to listen to the songs of summer, to drink in the sunlight, the air, the flowers, the sky, the beauty of all. Or upon the hill-tops to watch the white clouds rising over the curved hill-lines, their shadows descending the slope. Or on the beach to listen to the sweet sigh as the smooth sea runs up and recedes. It is lying beside the immortals, indrawing the life of the ocean, the earth, and the sun. I want to be always in company with these, with earth, and sun, and sea, and stars by night. The pettiness of house life—chairs and tables—and the pettiness of observances, the petty necessity of useless labour; useless, because productive of nothing, chafe me the year through. I want to be always in company with the sun, the sea, and the earth. These, and the stars by night, are my natural companions.—*Richard Jefferies.*

It is strange to observe the callousness of some men before whom all the glories of heaven and earth pass in daily succession without touching their hearts, elevating their fancy, or leaving any durable remembrance. Even of those who pretend to sensibility, how many are there to whom the lustre of the rising or setting sun; the sparkling concave of the midnight sky; the mountain forest tossing and roaring to the storm, or warbling with all the melodies of a summer evening; the sweet interchange of hill and dale, shade and sunshine, grove, lawn, and water, which an extensive landscape offers to the view; the scenery of the ocean so lovely, so majestic, and so tremendous; and the many pleasing varieties of the animal and vegetable kingdoms—could never afford so much real satisfaction as the streams and noise of a ball-room, the insipid fiddling and squeaking of an opera, or the vexations and wranglings of a card-table.—*Dr. J. Beattie.*

Has the wonder and the beauty died out of heaven like the setting of a sun that shall rise no more? The things that we have seen, can we now see no more? Hath there passed away a glory from the earth? Not so! The worship of Nature, the love and wonder at the world, our sense of all the universal harmonies—cosmic emotion so to call it—is neither crushed, nor dead, nor dying. It is as rich and radiant a part of our soul's food as ever in the days of Homer, or Hesiod, or Omar Khayyam, or Correggio, or Goethe, or Shelley.—*Frederic Harrison.*

It is our duty to surround ourselves with what is beautiful. For what a man sees constantly he assimilates into himself, and becomes influenced by it; and his first duty is to bring his soul as nearly into accord with the beauty of Nature as may be possible. For the same reason, negatively, we should reject as much as possible what is gross and ugly.

Shakespeare on the Beauty of Nature.

Shakespeare is as truly a poet of Nature as a poet of human nature.

Shakespeare was familiar with all beautiful forms and images, with all that is sweet or majestic in the simple aspects of Nature—with that indestructible love of flowers and odours, and dews and clear waters—and soft airs and sounds, and bright skies, and woodland solitudes, and moonlight bowers, which are the material elements of poetry—and with that fine sense of their undefinable relation to mental emotion which is its essence and vivifying soul—and which, in the midst of his most busy and atrocious scenes, falls, like gleams of sunshine, on rocks and ruins—contrasting with all that is rugged and repulsive, and reminding us of the existence of purer and brighter elements—which he alone has poured out from the richness of his own mind without effort or restraint, and contrived to intermingle with the play of all the passions, and the vulgar course of this world's affairs, without deserting for an instant the proper business of the scene, or appearing to pause or digress from love of ornament, or need of repose. Everything in him is in unmeasured abundance and unequalled perfection; but everything so balanced and kept in subordination as not to jostle or disturb, or take the place of another. The most exquisite poetical conceptions, images, and descriptions, are given with such brevity, and introduced with such skill, as merely to adorn, without loading the sense they accompany. Although his sails are purple and perfumed, and his prow of beaten gold, they waft him on his voyage, not less, but more rapidly and directly, than if they had been

composed of baser materials. All his excellences, like those of Nature herself, are thrown out together, and, instead of interfering with, support and recommend each other. His flowers are not tied up in garlands, nor his fruits crushed into baskets, but spring living from the soil, in all the dew and freshness of youth; while the graceful foliage in which they lurk, and the ample branches, the rough and vigorous stem, and the wide-spreading roots on which they depend, are present along with them, and share, in their places, the equal care of their Creator.

What other poet has put all the charm of a moonlight landscape into a single line? and that by an image so true to Nature, and so simple, as to seem obvious to the most common observation?

'See how the moonlight sleeps on yonder bank!'

Who else has expressed, in three lines, all that is picturesque and lovely in a summer's dawn? first setting before our eyes, with magical precision, the visible appearances of the infant light, and then, by one graceful and glorious image, pouring on our souls all the freshness, cheerfulness, and sublimity, of returning morning?

'See, love! what envious streaks
Do lace the severing clouds in yonder East:
Night's candles are burnt out,—and jocund Day
Stands tiptoe on the misty mountain-tops.'

Where shall we find sweet sounds and odours so luxuriously blended and illustrated as in these few words of sweetness and melody, where the author says of soft music:

'O it came o'er my ear like the sweet South
That breathes upon a bank of violets,
Stealing and giving odour.'

This is still finer, we think, than the noble speech on music in the 'Merchant of Venice,' and only to be compared with the enchantments of Prospero's island, where all the effects of sweet sounds are expressed in miraculous numbers, and traced in their operation on all the gradations of being, from the delicate Ariel to the brutish Caliban, who, savage as he is, is still touched with those supernatural harmonies, and thus exhorts his less poetical associates:

'Be not afraid, the isle is full of noises,
Sounds, and sweet airs, that give delight, and hurt not.
Sometimes a thousand twanging instruments
Will hum about mine ears, and sometimes voices,
That if I then had waked after long sleep,
Would make me sleep again.'

Who else, again, but this supreme master, would have thought, on the very threshold of treason and midnight murder, of bringing in so sweet and rural an image at the portal of that blood-stained castle?

'This guest of summer,
The temple-haunting martlet, does approve
By his loved masonry that heaven's breath
Smells wooingly here. No jutting frieze,
Buttress, nor coigne of vantage, but this bird
Has made his pendent bed, and procreant cradle.'

Nor is this brought in for the sake of an elaborate contrast between the peaceful innocence of this exterior, and the guilt and horrors that are to be enacted within. There is no hint of any suggestion, but it is set down from the pure love of Nature and reality—because the kindled mind of the poet brought the whole scene before his eyes, and he painted all that he saw in his vision. The same taste predominates in that emphatic exhortation to evil, where Lady Macbeth says:

'Look like the innocent flower,
But be the serpent under it.'

And in that proud boast of the bloody Richard :

'But I was *born* so high :
Our aery buildeth in the cedar's top,
And dallies with the wind, and scorns the sun.'

The same splendour of natural imagery, brought simply and directly to bear upon stern and repulsive passions, is to be found in the cynic rebukes of Apemantus to Timon :

'Will these moist trees,
That have outlived the eagle, page thy heels,
And skip when thou point'st out ? will the cold brook,
Candied with ice, caudle thy morning taste
To cure thine o'er-night's surfeit ?'

No one but Shakespeare would have thought of putting this noble picture into the taunting address of a snappish misanthrope—any more than the following into the mouth of a mercenary murderer :

'Their lips were four red roses on a stalk,
And in their summer beauty kissed each other.'

Or this delicious description of concealed love into that of a regretful and moralizing parent :

'But he, his own affection's counsellor,
Is to himself so secret and so close,
As is the bud bit with an envious worm,
Ere he can spread his sweet leaves to the air,
Or dedicate his beauty to the sun.'

And yet all these are so far from being unnatural, that they are no sooner put where they are than we feel their beauty and effect, and acknowledge our obligations to that exuberant genius which alone could thus throw out graces and attractions where there seemed to be neither room nor call for them. In the same spirit of prodigality, he puts this rapturous and passionate exaltation of the beauty of Imogen into the mouth of one who is not even a lover :

'It is her breathing that
Perfumes her chamber thus ! the flame o' th' taper
Bows towards her ! and would underpeep her lids
To see th' enclosed lights, now canopied
Under the windows, white and azure, laced
With blue of Heaven's own tinct—on her left breast
A mole cinque-spotted, like the crimson drops
I' the bottom of a cowslip.'

Nature is Eloquent.

'*The face of Nature is everywhere written over with Divine characters, which he who runs may read.*'

To the attentive ear all the earth is eloquent ; to the reflecting mind all Nature is symbolical. Each object has a voice which reaches the inner ear, and speaks lessons of wise and solemn import. The stream murmurs unceasingly its secrets ; the sibylline breeze in mountain glens and in lonely forests sighs forth its oracles. The face of Nature is everywhere written over with Divine characters which he who runs may read. But beside the more obvious lessons which lie as it were on the surface of the earth, and which suggest themselves to us often when least disposed for inquiry or reflection, there are more recondite lessons which she teaches to those who make her structure and arrangements their special study, and who penetrate to her secret arcana. She has loud tones for the careless and superficial, and low, suggestive whispers to those who hear with an instructed and attentive mind. She has beautiful illustrations to fascinate the childish, and solemn, earnest truths in severe forms to teach the wise. And those who read her great volume, admiring

with the poet and lover of Nature the richly-coloured and elaborate frontispieces and illustrations, but not arrested by these—passing on, leaf after leaf, to the quiet and sober chapters of the interior—will find in these internal details revelations of the deepest interest. As we step over the threshold, and penetrate into the inner chambers of Nature's temple, we may leave behind us the beauty of the gardens and ornamented parterres; but we shall find new objects to compensate us: cartoons more wonderful than those of Raphael adorning the walls; friezes grander than those of the Parthenon; sculptures more awe-inspiring than those which have been disinterred from the temples of Karnak and Assyria. In descending into the crust of the earth, we lose sight of the robe of vegetation which adorns the surface, the beauties of tree and flower, forest, hill, and river, and the ever-changing splendours of the sky; but we shall observe enough to make up for it all in the extraordinary relics of ancient worlds strewn around us and beneath our feet.

If the earth was a wise and eloquent teacher in the days of Job, and worthy even then of the most careful attention, how much wiser is she now, when the experience and attainments of nearly four thousand years have been added to her stores of knowledge; and when, in addition to all the information that has been accumulated in regard to her external appearance and physical laws, she has thrown open to our inspection an entirely new department of knowledge, revealed to us her inmost recesses, lifted up the dark curtain that concealed the history of primæval times, and permitted us to study in her rocks and fossils the revolutions of millions of years! So enlarged and illuminated, a most wonderful book is the book of the earth! Its pen is the finger of God. Its leaves are the various stratified rocks placed one above another which compose its crust, and which represent the element of time by their thickness, and remarkable events by their dislocation. Its letters are the fossil remains of plants and animals entombed in these rocks; the enduring traces left behind by the eruption of the volcano, and the tranquil lapse of the waves on the beach; shadowy memorials of life; faint but indelible footprints of creatures which crawled over the soft mud, whose very bones have perished; ripple-marks of primæval seas whose murmurs passed into silence countless ages ago; circular and oval hollows produced by showers of rain which no eye witnessed, and which fell on no waving cornfield or flowery meadow; impressions caused by viewless and intangible winds, indicating the strength of their currents, and the directions in which they moved; smooth and polished, or grooved and striated marks graven upon rocks by glaciers which the sunshine of forgotten ages had melted away. All these hieroglyphics, with which the stony leaves of the earth's great book are crowded, thick as the inscriptions on the buried bricks of Nineveh and the mummy-caves of Egypt, have been deciphered with remarkable accuracy by the geologist. They are to him as significant as the trail of his enemy is to the American savage, or the camel's track in the sand to the roving Arab. As the ancient civilization of the great empires of Egypt, Nineveh, and Babylon, has been recovered to us, and pictured in nearly all its original grandeur and completeness from the relics left behind in the mounds of Khorsabad and the temples of Memphis and Thebes, so from these remains of the pre-Adamite world we can reconstruct, in imagination, the successive scenery of its different epochs. Before the

eye of fancy, at the spell of some fossil or insignificant impression in a wayside stone, a combination of landscape scenery with which there is nothing analogous in the present condition of things, passes in review; and standing on this high vantage-ground of time, we can survey, by the help of those landmarks placed here and there for our guidance, the whole history of the earth, the whole series of creations which one after another appeared and vanished. —*Hugh Macmillan, LL.D.*

Joy in Nature.

The thoughts of men about Nature materially help us to the full enjoyment of Nature.

Our love of this rich and potent earth, our awe at this mysterious system which peoples space with a marshalled host of worlds, our sense of the profound unities and harmonies of the mighty whole, are now transfused with all the insight of the poets from Job and David, and Sappho and Theocritus, to Shakespeare and Shelley and Wordsworth, and Blake and Turner; together with all the thoughts of the philosophers from Pythagoras and Plato to Hegel and Comte; to Helmholtz and Darwin. Our sense of Nature never was so rich and deep as it is now; and it gains in richness and depth immensely when we are not asked to worship it, or to cast man's history and man's conscience and duty into its language (in short, to make it a religion), or, on the other hand, to see in it the mere mode of life of an absolute, perfect, and almighty will.—*Frederic Harrison.*

The Adaptations of Nature to the Human Mind.

There is kinness to thought as well as to emotion.

The varieties of Nature are adapted to the varieties of the human mind. The shady glen, with its rich foliage and melody of bird and stream, has its perfection of charms for a pure and pensive spirit like Cowper, the Christian poet. The towering Alps, skirted with pines, tipped with snow, and vermilioned into richest glory by the rising sun, as if a great seraph, with celestial torch, had suddenly lit up their lofty crests, have their Alpine beauty and sublimity, and awaken deep and lofty thoughts and emotions in a soul formed for the grand as well as for the lovely, like that of Coleridge, whose genius gave marvellous expression of its strength and brilliance in the glorious hymn descriptive of Mont Blanc.

Nature and Truth.

Nature ministers to revelation.

Combined with revealed truth is the evidence of Nature on every side: in our paths, our fields, our gardens, our woods; in cultivation and in the desert; in every fibre, root, stem, leaf, flower, or fruit, demonstrating the omnipotent, omnipresent, benevolent God, alluring and compelling our attention, rousing the torpid, and over-awing the proud by His terrors, yet cheering those who seek Him, with unbounded beneficence, and filling the heart of the humble with rapture and love. —*Duncan.*

Two Kinds of Natures.

The world of things has exclusive spheres for each kind of Nature.

There are in this world two kinds of natures: those that have wings and those that have feet—the winged and the walking spirits. The walking are the logicians, the winged are the instinctive and poetic. Natures that must always walk find many a bog, many a thicket, many a

tangled brake, which God's happy little winged birds flit over by one noiseless flight. Nay, when a man has toiled until his feet weigh too heavily with the mud of earth to enable him to walk another step, these little birds will often cleave the air in a right line towards the bosom of God, and show the way where *he* could never have found it.—*Mrs. H. B. Stowe.*

Nature and Man.

Man may well be humbled as he realizes how indifferent Nature is to his devices.

Nature is pitiless; she never withdraws her flowers, her music, her joyousness, and her sunlight, from before human cruelty or suffering. She overwhelms man by the contrast between divine beauty and social hideousness. She spares him nothing of her loveliness, neither butterfly nor bird. In the midst of murder, vengeance, barbarism, he must feel himself watched by holy things; he cannot escape the awful reproach of universal Nature and the implacable serenity of the sky. The deformity of human laws is forced to exhibit itself naked amid the dazzling rays of eternal beauty. Man breaks and destroys, man lays waste, man kills; but the summer remains summer, the lily remains the lily, the star remains a star.

Nature appeals to Mind and Heart.

'Round about the sphere of the intellect sweeps the horizon of the emotions.'

The circle of human nature is not complete without the arc of feeling and emotion. The lilies of the field have a value for us above their botanical one. A certain lightening of the heart accompanies the declaration that Solomon in all his glory was not arrayed like one of these. The sound of the village bell, which comes mellowed from the valley to the traveller upon the hill, has a value beyond its acoustical one. The setting sun, when it mantles with the bloom of roses the Alpine snows, has a value beyond its optical one. The starry heavens, as you know, had for Immanuel Kant a value beyond their astronomical one. Round about the sphere of the intellect sweeps the horizon of the emotions, from which our noblest impulses are derived.—*Professor Tyndall.*

God's Workmanship.

God's work is perfect at once; it needs no improving.

One of the most noticeable things concerning the beauty of God's work is this: that it is never *stuck on* as mere outside show, but grows out of the nature of the things. Men often make a thing ugly first, and then cover it up with paint, or plaster, or gilding to make it beautiful. God never does so. You will find no sham ornaments on His works. The shape He gives to each creature is just that which is fitted for it; and the colour with which He adorns it will never wash off. In His great workshop truth and beauty go together.—*E. R. Conder, D.D.*

The Elevating Mission of Nature.

It never satisfies; it always inspires.

Nature does not capriciously scatter her secrets as golden gifts to lazy pets and luxurious darlings, but imposes tasks when she presents opportunities, and uplifts him whom she would inform. The apple that she would drop at the feet of Newton is but a coy invitation to follow her to the stars. —*E. P. Whipple.*

Silent Contemplation of Nature.

Nature-moods only respond to quiet watchers.

Turner, the greatest Nature-painter of this or any other age, spent hours upon hours in mere contemplation of Nature without using his pencil at all. It is said of him that he was seen to spend a whole day sitting upon a rock, and throwing pebbles into a lake; and when at evening his fellow-painters showed him their day's sketches, and rallied him upon having done nothing, he answered them: 'I have done this at least; I have learnt how a lake looks when pebbles are thrown into it.' —*Charles Kingsley.*

Nature's Helpfulness.

That helpfulness directly depends on our receptivity.

One of the first elements—in fact, the chief one—in the full enjoyment of a walk by highway or rural lane, is a shining and receptive soul. Go out with joy, and be modest in your demands from Nature. Keep eye and ear and touch brightly awake. If in winter, let not the gleaming icicle of some waterfall frozen into silence escape you; nor the note of the robin; nor the spotless snow-wreath, with curves more delicate and graceful than ever were moulded by Phidias or Praxiteles; nor those glorious winter sunsets which the fingers of angels weave for us poor unworthy souls, in emerald, amber, and richest opal—the kind of sunsets that were alike Turner's admiration and despair. If in summer, do not let a bosky dell, in all its wealth of flowers and ferns, escape you. Put the lark's long melodious treble and the thrush's brief but luscious song into your heart. And if you leave the highway for a moment, and turn aside into the hazel-shadowed dale that is the casket for some stream-jewel, do not fail to catch the gleam from the kingfisher's breast and wings as he flashes from the brook's bed, and passes across the sunny glade, one sudden and winged glory of green and gold. If you have thus kept all your senses keen and appreciative in your tramp in the highway, or the lanes and dells leading therefrom, you shall find, in summing up at the end of your day, that Nature has been kind to you, and that, though she is shy to unsympathetic souls, yet she rewards those who meet her face to face with revelations of sight and sound that shall ever remain with them as gleaming memories. If you have left in the morning with all kinds of spiritual bats and owls and dismal night birds around your soul, after having had a walk of this kind, the chances in your favour are many that when you return in the evening you shall, metaphorically speaking, have many shining and soothing doves at your window.

Nature Perfect.

The ugly in Nature is man's idea, according to man's standard. Everything is beautiful when seen in the light of its mission.

I hold that there is a general beauty in the works of God, and therefore no deformity in any kind of species of creature whatsoever. I cannot tell by what logic we call a toad, a bear, or an elephant ugly, they being created in those outward shapes and figures which best express the actions of their inward forms, and having passed that general visitation of God, who saw that all that He had made was good, that is, conformable to His will, which abhors deformity, and is the rule of order and beauty. There is no deformity but in monstrosity, wherein, notwithstanding, there is a kind of beauty; Nature so ingeniously contriving the irregular parts as they became some-

times more remarkable than the principal fabric. To speak yet more narrowly, there was never anything ugly or misshapen, but the chaos; wherein, notwithstanding, to speak strictly, there was no deformity, because no form, nor was it yet impregnant by the voice of God. Now, Nature is not at variance with Art, or Art with Nature, they being both servants of His providence. Art is the perfection of Nature. Were the world now as it was on the sixth day, there was yet a chaos. Nature hath made one world, and Art another. In brief, all things are artificial; for Nature is the Art of God.—*Sir Thomas Browne.*

Happiness in Nature.

Every simple process of Nature brings a sense of pleasure to the creature that performs it.

It is a happy world, after all. The air, the earth, the water, teem with delighted existence. In a spring noon or a summer evening, on whichever side I turn my eyes, myriads of happy beings crowd upon my view. 'The insect youth are on the wing.' Swarms of new-born flies are trying their pinions in the air. Their sportive motions, their wanton mazes, their gratuitous activity, their continual change of place without use or purpose, testify their joy and the exultation which they feel in their lately-discovered faculties. A bee among the flowers in spring is one of the most cheerful objects that can be looked upon. Its life appears to be all enjoyment; so busy and so pleased: yet it is only a specimen of insect life, with which, by reason of the animal being half domesticated, we happen to be better acquainted than we are with that of others. The whole winged insect tribe, it is probable, are equally intent upon their proper employments, and, under every variety of constitution, gratified, and perhaps equally gratified, by the offices which the Author of their nature has assigned to them. But the atmosphere is not the only scene of enjoyment for the insect race. Plants are covered with aphides, greedily sucking their juices, and constantly, as it should seem, in the act of sucking. It cannot be doubted but that this is a state of gratification: what else should fix them so close to the operation, and so long? Other species are running about with an alacrity in their motions which carries with it every mark of pleasure. Large patches of ground are sometimes half covered with these brisk and sprightly natures. If we look to what the waters produce, shoals of the fry of fish frequent the margins of rivers, of lakes, and of the sea itself. These are so happy that they know not what to do with themselves. Their attitudes, their vivacity, their leaps out of the water, their frolics in it (which I have noticed a thousand times with equal attention and amusement), all conduce to show their excess of spirits, and are simply the effects of that excess. Walking by the seaside in a calm evening, upon a sandy shore, and with an ebbing tide, I have frequently remarked the appearance of a dark cloud, or rather very thick mist, hanging over the edge of the water, to the height, perhaps of half a yard, and of the breadth of two or three yards, stretching along the coast as far as the eye could reach, and always retiring with the water. When this cloud came to be examined, it proved to be nothing else than so much space filled with young shrimps in the act of bounding into the air from the shallow margin of the water, or from the wet sand. If any motion of a mute animal could express delight, it was this; if they had meant to make signs of their happiness, they could not have done it more intelligibly. Suppose, then, what

I have no doubt of, each individual of this number to be in a state of positive enjoyment, what a sum, collectively, of gratification and pleasure have we here before our view!—*Paley.*

Ye men of gloom and austerity, who paint the face of infinite benevolence with an eternal frown, read in the Everlasting Book, wide open to your view, the lesson it would teach. Its pictures are not in black and sombre hues, but bright and glowing tints; its music—save when ye drown it—is not in sighs and groans, but songs and cheerful sounds. Listen to the million voices in the summer air and find one dismal as your own. Remember, if ye can, the sense of hope and pleasure which every glad return of day awakens in the breast of all your kind who have not changed their nature; and learn some wisdom, even from the witless, when their hearts are lifted up, they know not why, by all the mirth and happiness it brings.—*Charles Dickens.*

Mutual Accommodation in Nature.

'Every object affords hospitality to every other object.'

Nature, in all her departments, is a system of mutual accommodation. Every object affords hospitality to every other object. I except, indeed, the whole class of parasites, whose existence is not only peculiarly objectionable, but exceedingly mysterious, and which seem to militate so much against the argument of design and the goodness of creation. For it cannot be said that they are hospitably received and entertained by their hosts. The connection between them is a compulsory one, and is inevitably disastrous to the entertainer. These parasites take all, and give nothing in return; they benefit no single created thing. And their existence seems to have no other purpose than to point out the moral, how loathsome and terribly degraded living creatures become that have ceased to support themselves, and prey upon others; how parasitism inevitably reduces form and function—alike in the mental and spiritual as in the physical world—to the lowest and basest point. No creature can abdicate its glorious individuality and independence with impunity. Nature stamps upon it her hall-mark of degradation. But there is another principle besides parasitism throughout Nature, viz., *commensalism.* It was applied, in the first instance, to a class of humble animals living in the sea that are taken under the protection of a higher class, feed at the same table, and associate together in the various pursuits of life, but have otherwise no connection with each other. The commensals partake of the same food with their hosts, but they do not feed upon them, do not make use of the pabulum that has been organized for them by passing through the system of their associates. There is a large number of these curious creatures, whose habits are exceedingly interesting and instructive. But the term that describes them might be extended so as to include plants as well as animals, on land as well as in the sea, which exhibit similar peculiarities. Ferns, lichens, and mosses are not parasites, for they do not injure the trees upon which they grow. They feed upon the same air and sunshine, and imbibe the same moisture, but they procure their own living independently of the structure which gives them support and protection. So, too, with the ivy, for though it attaches itself to the bark of a tree by thousands of rootlets, it does not derive its sustenance from the tree, but from the air and soil, by means of its genuine roots and green leaves; and if its stem be severed it will

die like any other plant. The ivy is, therefore, a commensal, and not a parasite. Perhaps the most beautiful and striking examples of commensalism are the large class of plants called epiphytes, which simply rest upon the trunks and branches of trees, and adorn them with wreaths and garlands, such as they themselves could not develop, beautifying the ancient structure with new bursts of bud and blossom, and casting even over death a vesture of loveliness which makes the end brighter than the beginning. Orchids are the most familiar representatives of this class. In dense tropical forests they live upon the decaying matter that accumulates on the boughs and in the forks of old trees; or they send out long aeriel roots that enter into and feed upon no soil; but extract nourishment solely from the moisture and carbonic acid gas of the atmosphere. They have huge gouty joints which contain a store of organized nourishment, from which the materials of the exquisitely-fashioned blossoms are drawn forth, and the insect-like shapes and colour of these blossoms, and the articulations of their stems, as well as their aerial habitat, point them out as the counterparts in the vegetable kingdom of the insects in the animal.

In tropical countries this system of mutual accommodation exists to a large extent. It is created by the exigencies of the situation. The luxuriance of tropical vegetation developed by the hot sun and steaming vapours forbids the strong assertion of individual life. Each must give way to a certain extent to its neighbour that is seeking a share of the same benefits, and pushing forward to the full blaze of sunlight. Hence many plants become of necessity epiphytal or commensal; and plants that are elsewhere sturdy and independent trees become there dependent and climbing. In such climates, where the struggle of life is keenest, Nature must be hospitable if she is to accommodate the vast variety of species which she calls into existence. Each individual must help another; and the higher must lift up the lower to something like its own level of advantage. In temperate climates, where the struggle is more with the elements than with living things, Nature must take in from the cold and storm many lowly and tender forms which would perish outright if left alone and undefended. The trees must do this timely service to the flowers and ferns that grow beneath their shade, and to the still lowlier plants that find a lodgment upon their trunks and branches. On the wild, inhospitable moor the hardy heather affords protection to thousands of humble forms of life which, without its shelter, would not have been able to exist. Even in the quiet valleys many species require the shade of the woods and forests, and when these are cut down and they are exposed to the full effect of the sunshine and the wind they perish outright. The same species, too, extend hospitality to each other. In temperate climates the most striking characteristic of plants is this gregarious or social tendency. They crowd together into tufts and colonies and clumps for the sake of mutual warmth and shelter; and strive, by combination, to ward off evils and achieve results which they could not do individually. The heather, by reason of its social habit, is enabled to live on the wild, desolate moorland; and the pine on the mountain crest maintains itself by the sympathy of its congregated fellows. Even the moss, which in mild and agreeable circumstances—in the deep shade of the wood or on the sheltered bank of the stream—becomes individual, in exposed situations forms large tufts and cushions, and spreads itself over a wide, continuous area. —*Hugh Macmillan, LL.D.*

RIVERS, STREAMS, ETC.

The Dependence of Rivers on Brooklets and Streams.

We are dependent on those around us in ways that we do not always duly see or acknowledge.

It is with us as it is with rivers. They are not dependent for their bright, broad, flowing waters on any one solitary spring or lake; but all along their course are constantly fed and swelled by numerous brooks and streams. Other lives are every day coming into contact with ours, and adding to their depth, intensity, and power. Some of these are like tiny rills, bringing to us but an insignificant influence, of which, at the time, we are hardly conscious; others are like wide currents, coming to us with a force which we cannot help feeling, and making a visible difference to the course of our life; but all of them are contributory to our growth, and all affect us materially for good or evil, for weal or woe.—*B. Wilkinson, F.G.S.*

The Friendship of Rivers and Men.

Ancient literature is full of mythological stories suggested by rivers.

Amongst all the features of the inanimate world, rivers have at once the longest and the most touching record of friendship to humankind. 'Inanimate world,' we say now; but it was not always thus that men felt about rivers. Time was when the flowing water seemed a living thing that had a soul. It issued from the urn of a god. It carried a divine energy with it. Its animating spirit was joyful in the placid summer, and showed anger in the wintry flood. To the river Spercheos, Peleus vowed an offering of Achilles' hair, if ever the youthful hero should return safe from Troy. With the Scamander, known in Olympus as the immortal Xanthos, Achilles fought for his life in a combat that must have been fatal to him if Hephœstus had not come to his aid with burning flames, that withered the river's strength and reduced it to plead for mercy. Homer's story of that fight, with the eager pursuit of Achilles by the raging stream; its appeal to its brother Simois for help, and its agony when smitten with the terror of fire, is one of the most vivid pictures of the 'Iliad,' and shows how intense and real was the impersonation of natural objects by the Greek imagination.

The honour thus done to rivers was only a late return of human gratitude for favours received in a long bygone age. It was along the banks of rivers that the earliest human races made their way, and picked up their living as they followed the current through otherwise pathless wilds. The flint weapons found along the ancient levels of the Somme, in France, opened up to science a new chapter in the history of mankind. That river, in a far-distant time, was a tributary of the Rhine, which then had to flow far to the north over now buried lands, receiving the Thames in its course before it met the sea. And this marvellous network of ancient rivers was the nursery of the earliest tribes of North-Western Europe. Its waters provided fish, its thickets sheltered the huge prey of those primæval huntsmen, and the high banks furnished caves for their rude abodes. Similarly, all over the world great rivers, such as the Nile and Euphrates, have been first the path of savage migrations, and then the highroad of empire. We need not wonder, therefore, that all ancient literature is full of

mythological stories, or poetic images, suggested by rivers. And perhaps the long association of our ancestors with such features of natural scenery has made their descendants specially susceptible to the beauties of flowing water.

The Persistency of the River.

Carry through what you propose.

A man's purpose of life should be like a river, which was born of a thousand little rills in the mountains; and when at last it has reached its manhood in the plain, though, if you watch it, you shall see little eddies that seem as if they had changed their minds, and were going back again to the mountains, yet all its mighty current flows, changeless, to the sea. If you build a dam across it, in a few hours it will go over it with a voice of victory. If tides check it at its mouth, it is only that when they ebb it can sweep on again to the ocean. So goes the Amazon or the Orinoco across a continent—never losing its way or changing its direction for the thousand streams that fall into it on the right hand and on the left, but only using them to increase its force, and bearing them onward in its resistless channel.—*H. W. Beecher.*

The River of Life.

The course of a river is full of suggestions of the progress of a human life.

Life bears us on like a stream of a mighty river. Our boat at first glides down the narrow channel, through the playful murmurings of the little brook, and the winding of the grassy borders. The trees shed their blossoms over our young heads, the flowers on the brink seem to offer themselves to our young hands; we are happy in hope, and we grasp eagerly at the beauties around us; but the stream hurries on, and still our hands are empty. Our course in youth and in manhood is along a wilder and deeper flood, amid objects more striking and magnificent. We are animated at the moving pictures of enjoyment and industry passing around us; we are excited at some short-lived disappointment. The stream bears us on, and our joys and griefs are alike left behind us. We may be shipwrecked—we cannot be delayed; whether rough or smooth, the river hastens to its home, till the roar of the ocean is in our ears, and the tossing of the waves is beneath our feet, and the land lessens from our eyes, and the floods are lifted up around us, and we take our leave of earth and its inhabitants, until of our further voyage there is no witness save the Infinite and Eternal.—*Bishop Heber.*

Choking the River-bed.

Worldliness may prevent the free flow of the river of Divine grace.

The help which is done on earth He doeth it all Himself. We and our organizations are but the channels through which this might is poured; and if we choke the bed with turbid masses of drift and heavy rocks of earthly thoughts, or build from bank to bank thick dams of worldliness compact with slime of sin, how shall the full tide flow through us for the healing of the salt and barren places? Will it not leave its former course silted up with sand, and cut for itself new outlets, while the useless quays that once rang with busy life stand silent, and 'the cities are solitary that were full of people'?—*A. Maclaren, D.D.*

Refreshing Power of Rivers.

'Rivers of water in a dry place' (Isa. xxxii. 2).

Let us stand on the banks of an Eastern river, and look around

as far as the eye can reach. It is the time of drought, and the channel is nothing but a bed of sand. The windows of heaven have been closed for nine long months, and the country is a parched and desolate waste. Not a blade of grass, or even a weed, is to be seen. The birds appear to have forsaken the spot, and the wild animals no longer come to quench their thirst. Death seems written upon all things. Can there ever be life in such a dreary spot, or can any renovating change pass over it?

A few hours, it may be, and the overcharged clouds burst over the distant mountains. There is a perfect tumult of wild elements, and with a rushing sound rivers of water pour down the plain. The channel marked out for them is filled from bank to bank with a foaming torrent which nothing can withstand. On, on it sweeps; and wherever it goes its mighty influence is felt, and its healing power known. The banks are quickly clothed with verdure; all Nature is refreshed and beautified; the whole aspect of the country has become changed. In some parts of India this change is more striking than in others, as no sooner has the volume of water passed away than the natives plant melons, gourds, and cucumbers in the damp soil; and so remarkably rapid is their growth in these tropical countries, that there is soon a garden in the bed of the river quite luxuriant in vegetation. In a few weeks at most, men, women, and children may be seen passing to and fro, and pressing up the banks, with baskets borne upon their heads of the ripe fruit and vegetables.—*C. W.*

The River.

Everything it reflects assumes ideal beauty in the reflection.

We stand now on the river's brink. It may well be called the Concord—the river of peace and quietness; for it is certainly the most unexcitable and sluggish stream that ever loitered imperceptibly toward its eternity—the sea. Positively I had lived three weeks beside it before it grew quite clear to my perception which way the current flowed. It never has a vivacious aspect except when a north-western breeze is vexing its surface on a sunshiny day. From the incurable indolence of its nature, the stream is happily incapable of becoming the slave of human ingenuity, as is the fate of so many a wild, free mountain torrent. While all things else are compelled to subserve some useful purpose, it idles its sluggish life away in lazy liberty, without turning a solitary spindle or affording even water-power enough to grind the corn that grows upon its banks. The torpor of its movement allows it nowhere a bright, pebbly shore, nor so much as a narrow strip of glistening sand, in any part of its course. It slumbers between broad prairies, kissing the long meadow grass, and bathes the overhanging boughs of elder bushes and willows or the roots of elms and ash-trees and clumps of maples. Flags and rushes grow along its plashy shore; the yellow water-lily spreads its broad flat leaves on the margin; and the fragrant white pond-lily abounds, generally selecting a position just so far from the river's brink that it cannot be grasped save at the hazard of plunging in.

It is a marvel whence this perfect flower derives its loveliness and perfume, springing as it does from the black mud over which the river sleeps, and where lurks the slimy eel, and speckled frog, and the mud turtle, whom continued washing cannot cleanse. It is the very same black mud out of which the yellow lily sucks its obscene life and noisome odour. Thus we see, too, in the world that some persons assimilate only what is

ugly and evil from the same moral circumstances which supply good and beautiful results—the fragrance of celestial flowers—to the daily life of others.

The reader must not, from any testimony of mine, contract a dislike toward our slumberous stream. In the light of a calm and golden sunset it becomes lovely beyond expression; the more lovely for the quietude that so well accords with the hour, when even the wind, after blustering all day long, usually hushes itself to rest. Each tree and rock and every blade of grass is distinctly imaged, and, however unsightly in reality, assumes ideal beauty in the reflection. The minutest things of earth and the broad aspect of the firmament are pictured equally without effort and with the same felicity of success. All the sky glows downward at our feet; the rich clouds float through the unruffled bosom of the stream like heavenly thoughts through a peaceful heart. We will not, then, malign our river as gross and impure while it can glorify itself with so adequate a picture of the heaven that broods above it; or, if we remember its tawny hue and the muddiness of its bed, let it be a symbol that the earthliest human soul has an infinite spiritual capacity, and may contain the better world within its depths. But, indeed, the same lesson might be drawn out of any mud puddle in the streets of a city; and, being taught us everywhere, it must be so.—*Nathaniel Hawthorne.*

I have found it an interesting thing to stand on the edge of a noble rolling river, and to think that, although it has been flowing on for six thousand years, watering the fields, and slaking the thirst of a hundred generations, it shows no signs of waste or want; and when I have watched the rise of the sun, as he shot above the crest of the mountain, or in a sky draped with golden curtains sprang up from his ocean bed, I have wondered to think that he has melted the snows of so many winters, and renewed the verdure of so many springs, and painted the flowers of so many summers, and ripened the golden harvests of so many autumns, and yet shines as brilliant as ever, his eye not dim, nor his natural strength abated, nor his floods of light less full for centuries of boundless profusion. Yet what are these but images of the fulness that is in Christ?—*Dr. Guthrie.*

The River Adonis.

The peculiarities of this river were the origin of the Feast of Tammuz (Ezek. viii. 14).

The river Adonis, now called by the native Arabs Nahr Ibrahîm, cuts its tortuous way through some of the wildest and most romantic scenery in Lebanon. Its fountain is beneath the brow of Sunnin, the second peak, for altitude, in the mountain range. Here a curved wall of limestone, nearly a thousand feet high, sweeps round the head of a sublime glen. From a dark cave at its foot a noble stream bursts forth, and leaps in sheets of foam over ledges of rock till it disappears in unseen depths below. Groves of pine and oak, intermixed with walnut and mulberry-trees, overshadow the boiling torrent, and clothe the banks of the ravine. On a little mound beside the fountain once stood the temple of Venus, now a confused mass of ruins. Not far distant is the little village of *Ajka*, the modern representative of the classic *Apheca*, where the fairest daughters of Syria were of old wont to assemble for the worship of their favourite goddess. This is the scene of the romantic tale of Venus and Adonis, and of the prototypes of those disgraceful rites of Tammuz to which Ezekiel refers. The river falls into the

Mediterranean a few miles south of Jebiel, the Gebal of the Hebrews, and Byblus of the Greeks, which was the chief seat of the worship of Adonis.—*Dr. Porter.*

The word *Tammuz* is found among the names of the months in use among the Jews after their return from Babylon. It was the month of the summer solstice, when in the East nature seems to wither and die under the scorching heat of the sun, to burst forth again into life in due season. Jerome says that the feast of Tammuz was identical with the Greek *Adonides*, or feasts of Adonis. It appears that the worship of Adonis had its headquarters at Byblos, in Syria, where, at certain periods of the year, the stream, becoming stained by mountain floods, was popularly said to be red with the blood of Adonis. As soon as the water of the river began to be tinged with blood colour, the women commenced their weeping, and when the red colour disappeared, the return of Adonis to life was announced, and sorrow was exchanged for joy. It is easy to recognise in this a form of Nature-worship; the death of Adônis symbolized the suspension of the productive powers of Nature, which were in due time revived. The excitement attendant upon the extravagances of alternate wailing and exultation were in complete accordance with the character of Nature-worship, which for this reason was so popular in the East, especially with women, and led, by inevitable consequence, to unbridled license and excess.

Rivers and Mankind.

The Bible is full of associations between rivers and men.

The literature of the Bible is in itself a sufficient illustration of the ancient friendship of rivers and mankind. Witness the fond memory retained of the four rivers of Paradise. The sacred authors lived in a country where the preciousness of water was very vividly realized by the inhabitants. Sometimes they learned it by their experience of great drought. But for the most part they knew their happy fortune by contrast with the neighbouring deserts. As their great prophet told them: 'The land whither ye go to possess it is a land of hills and valleys, and drinketh water of the rain of heaven.' Accordingly we find the Bible full of allusions to the beneficent, though sometimes also to the terrible, power of rivers. Indeed, the traveller down a river's course finds at every change in its winding channel some reminder of a Scriptural allusion. High up amongst the mountain-tops, where the spongy sod rustles everywhere with infant rills, yet concealed amongst the grassy roots, the bright expanse of heaven brings to mind the language of the psalmist, who, when he worshipped his God in some such natural sanctuary, thought of Him as One who 'covered Himself with light as with a garment.' How, then, did that poet conceive of the inner splendour of the Most High, to whom light was only a covering? But the mind of the sacred singer was more occupied with the beneficent energy of God, and in that mountain vision of his he followed the eager activity of God's created messengers as they sped on their errands throughout the world. Prominent by their speed and their sparkling brightness were the streams that fructified his native land. Here, down the edge of a cliff, the baby-river lightly springs, to begin in the hollow below its infant work of wearing away stones, and feeding ferns and mosses. Still, from vale to vale the stream descends, like infant innocence receding farther from its heavenly source. But as it goes it broadens out, and be-

comes not merely a gem of adornment, but a flood of blessing to the lower world into which it has descended. 'They give drink to every beast of the field, the wild asses quench their thirst.' So childhood ceases merely to sparkle, and grows into little offices of usefulness in household ways, long before it reaches the busy haunts of human industry. The soil grows richer where the streamlet flows, as household affections are deepened and fructified by the child. And now flowers are reflected in its current, and tall trees rise aloft. 'By them shall the fowls of the heaven have their habitation, which sing among the branches.' So as childhood verges into youth, the poetic sentiment is awakened, if only in an inarticulate warble. 'The time of the singing of birds is come, and the voice of the turtle is heard in the land.' How cheerful is the river-side in its lower reaches, where cottages are perched upon its banks, and happy children play with it as a familiar friend! In describing the morning hour, the poet Laureate turns to a river-side to set the dawn of light and labour in its most attractive guise:

'Bright Phosphor, fresher for the night,
By thee the world's great work is heard
Beginning, and the wakeful bird;
Behind thee comes the greater light:

'The market-boat is on the stream,
And voices hail it from the brink;
Thou hear'st the village hammer clink,
And see'st the moving of the team.'

The clattering mill, and toiling oars, and lumbering barge show that the river has got into its work-a-day life. No rest for it henceforth until it mingles with the sea! After innocent infancy and sentimental youth comes labouring manhood. And as we think of a whole generation of youthful toilers going forth into the world's harvest, we feel, in a new sense, the pathos as well as the hopefulness of the psalmist's words, 'Man goeth forth to his work and to his labour until the evening.'—*W. C. Proctor.*

The River and the Ocean.

Death is but the tide on the river of life.

I have had a beautiful thought since Eugène went home, which I think God gave me to keep me happy and trustful about our parting. I stood upon one of the bridges that crosses the river—the Seine, you know—and I watched the ships go out with the tide. The little ships, the big ships, the pretty ships, the black grimy ugly ships: on, on, they went, over those waters, and the deep, strong flowing tide seemed to hurry in its work of carrying them far, far away, out of sight; and I said to the river—for I was very lonely without my love, Eugène, my dear husband, and I knew he loved the waters so—that it seemed to me the waters could understand me, so I said, 'O waters, why do you hurry so away, away with the ships on your bosom?' And I thought I heard a voice come up from the bosom of the Seine, which said, 'Jeannette, poor lonely Jeannette! do you not know that I must hurry? for long before I reach the seas with my floating burden, there will be others waiting to go seaward, and so I go to and fro, for my master is God, and they who serve God must not loiter.'

Then I knew the message that God had sent me by the river. Death was but His tide on the river of life, carrying our loved ones out into the glorious sea of God's fuller life. One tide has taken out my darling, my Eugène; but by-and-by, when it has gone to and fro a few more times, it shall come back for me, and then—and then—oh, who can say all

the joy, all the glory, of that meeting! Did not the great Paul himself say, 'Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love Him'? And now I go once a week to Paris, and I stand upon that bridge, and I look upon that tide, and I know, I feel, that Eugène is nearer to me than I once thought. I do not know how long it will be ere I go to him upon God's tide, but I shall be happy, and till then I would serve Him, and make others happy too. Life has many sides to me, as my river has many scenes. Once I went in a boat with Eugène many miles down towards the sea. We passed the noisy, busy workplaces and the bustling towns; then would come calm, cool, lovely, quiet meadows. Sometimes happy bands of playing children, sometimes the funeral passing to the church, sometimes gay flowers on the banks, at others dark wildernesses of fever marsh; but the boat went through all in its passage to the sea. Thus must my life be, doubtless, but it will lead to God and to Eugène.—*From the Cruise of the 'Silver Spray.'*

The Old Story of the Thames Valley.

Every life carries within it a wonderful story, partly tragic, partly comic.

An author who has recently written some descriptive papers upon the geology of the London district, has called special attention to the singular changes which have passed over what is called the Thames Valley. This was, as he says, excavated at a period 'when the winters of England were of an Arctic severity. In the spring the thaws of the accumulated snows filled the valley with waters of a torrential volume and velocity. Thus the slopes were wasted, and the channel deepened year after year.' On the north, for a long distance, the side of the valley has undergone little alteration up to the present time, but on the south a series of alterations, of elevations and depressions, have taken place through the lapse of centuries, so that it is believed by several geologists that the now existing outlet which connects the Thames with the sea was opened up by a grand convulsion; while previous to that, the stream not only ran in a different course, but also spread over many times the breadth it now occupies. A point is indicated at Cliffe, near Gravesend, where a ridge was cut through, and a new channel formed, which now connects the Thames with the North Sea.

And, under some part of the present bed of the river, the yet existing remains of an ancient forest prove how the Thames has swerved from its channel. It lies at a depth of some twenty feet below high-water mark. 'The tree-trunks are found lying flat in immense numbers, and the peat is almost exclusively composed of the twigs and leaves of trees. The marsh clay has covered the forest for a thickness of from three to eight feet. The channel into which the river has been confined cuts through it in such a way that the peat and trees come out at low water on either bank.' —*'Saturday Afternoon Rambles round London.'*

A Parable of a River.

It is always perilous to pray for wrong and unworthy things (Psa. cvi. 15).

Chactas, the blind old sachem in Chateaubriand's Wertherian romance, is made to bring the story to an end by relating a parable to his woe-fraught young listener. It tells how the Meschacebé, soon after leaving its source among the hills, began to feel weary of being a simple brook, and so asked for snows from the mountains, water from the torrents,

rain from the tempests, until, its petitions granted, it burst its bounds and ravaged its hitherto delightsome banks. At first the proud stream exulted in its force, but seeing erelong that it carried desolation in its flow, that its progress was now doomed to solitude, and that its waters were for ever turbid, it came to regret the humble bed hollowed out for it by Nature, the birds, the flowers, the trees, and the brooks, hitherto the modest companions of its tranquil course.—*Jacox.*

The River nearing the Sea.

As life advances complex necessities arise.

The year which we are entering will bring with it fresh temptations and perplexities. The tendency of life is not towards a greater smoothness and simplicity, rather is it towards a growing complexity and an increasing strenuousness. Before us lie not only new dangers and trials, but these heightened and intensified. Such must accompany a swiftly-progressive civilization. Whatever the year may or may not have in store for us, it will demand more vigorous thought, it will bring more eager activities. It has been said that life is like a river which, as it nears the sea, gathers smoothness along with its increasing volume. But may it not be said of the river which nears the sea that, while it has outgrown the noisy rippling and the eddying currents of its earlier course, it has become the occasion and the sharer of graver things? Along its banks rise busy towns and ceaseless industries, upon its bosom sail the laden ships of every flag, across its waters flits the restless life of an eager multitude, far down to its depths reach the ocean's swell and the unbound furies of the hurricane. So it is with life. It outgrows, perhaps, its early impetuosity, its careless *abandon;* but it assuredly passes into a deeper and more varied intensity. So shall we find it this coming year. Life travels now with ever-increasing speed and along ever-changing tracks. It is true of all of us that we have to give ourselves more and to give ourselves longer to the work of life than used to be demanded. And to say that is also to say that we are all subjected to more and keener dangers. So, whether our path is to lead through prosperity and happiness, or through adversity and sorrow, it will be strewn with occasions of temptation, perplexity, doubt; it will have its precipitous dangers, here of sensuous self-satisfaction, there of cynical callousness, yonder of tragic heart-break.

On a Thames Bridge.

'There is no moral to a great city like the river that washes its walls.'

How many hearts have stilled themselves on that spot, for one dread instant of thought—of calculation—of resolve—one instant, the last of life! Look at night along the course of that stately river, how gloriously it seems to mock the passions of them that dwell beside it. Unchanged, unchanging — all around it, quick death and troubled life; itself smiling up to the gray stars and singing from its deep heart as it bounds along. Beside it is the senate, proud of its solemn triflers; and there the cloistered tomb in which, as the loftiest honour, some handful of the fiercest of the strugglers may gain forgetfulness and a grave. There is no moral to a great city like the river that washes its walls.—*Bulwer Lytton.*

The Rhone and the Arve.

It is possible to meet with others, flow on with them, and yet not blend.

For all other rivers there is a surface, and an underneath, and a

vaguely displeasing idea of the bottom. But the Rhone flows like one lambent jewel; its surface is nowhere, its ethereal self is everywhere, the iridescent rush and translucent strength of it, blue to the shore and radiant to the depth.

Fifteen feet thick, of not flowing but flying water; not water, neither—melted glacier, rather, one should call it. The force of the ice is with it, and the wreathing of the clouds, the gladness of the sky, and the continuance of Time.

Waves of clear sea are, indeed, lovely to watch, but they are always coming or gone, never in a taken shape to be seen for a second. But here was one mighty wave that was always itself, and every fluted swirl of it constant as the wreathing of a shell. No wasting away of the fallen foam, no pause for gathering of power, no hopeless ebb of discouraged recoil; but alike through bright day and lulling night, the never-pausing plunge, and never-fading flash, and never-hushing whisper, and while the sun was up, the ever-answering glow of unearthly aquamarine, ultramarine, violet blue, gentian blue, peacock blue, river-of-paradise blue, glass of a painted window melted in the sun, and the witch of the Alps flinging the spun tresses of it for ever from her snow.

The innocent way, too, in which the river used to stop to look into every little corner. Great torrents always seem angry, and great rivers too often sullen; but there is no anger, no disdain, in the Rhone. It seemed as if the mountain stream was in mere bliss at recovering itself again out of the lake sleep, and raced because it rejoiced in racing, fain yet to return and stay. There were pieces of wave that danced all day as if Perdita were looking on to learn; there were little streams that skipped like lambs and leaped like chamois; there were pools that shook the sunshine all through them, and were rippled in layers of overlaid ripples, like crystal sand; there were currents that twisted the light into golden braids, and inlaid the threads with turquoise enamel; there were strips of stream that had certainly above the lake been mill-streams, and were looking busily for mills to turn again; there were shoots of stream that had once shot fearfully into the air, and now sprang up again laughing that they had only fallen a foot or two; and in the midst of all the gay glittering and eddied lingering, the noble bearing by of the midmost depth, so mighty, yet so terrorless and harmless, with its swallows skimming instead of petrels, and the dear old decrepit town as safe in the embracing sweep of it as if it were set in a brooch of sapphire.—*John Ruskin.*

I stood some years ago near the fair city of Geneva, where two great rivers meet, but do not mingle. There the Rhone—the arrowy Rhone—rapid and beautiful, pours out its waters of that heavenly blue, which it is almost worth a pilgrimage to see; and there the Arve, frantic and muddy, partly from the glaciers from which it is so largely fed, and partly from the clayey soil that it upheaves in its impetuous path, meet and run on side by side for miles, with no barriers, save their own innate repulsions, each encroaching now and then into the province of the other, but beaten back instantly into its own domain. Like mighty rival forces of good and evil do they seem, and for long—just as it is in the world around us—for long the issue is doubtful; but if you look far down the stream, you find the frantic Arve is mastered, and the Rhone has coloured the whole surface of the stream with its own emblematic and beautiful blue. I thought, as I gazed upon it, that it was a remarkable illus-

tration of the conflict between truth and error; and in meditating upon this subject, in thinking of the flow of the healing waters, and reading that they should flow into the sea and heal it, the whole thing rose up before me, fresh and vivid, as a thing that happened yesterday.—*W. M. Punshon.*

The Spoiling Work of Rivers.

'*A nation whose land the rivers have spoiled*' (Isa. xviii. 2).

Great injury has often been done to the lands contiguous to large and rapid rivers, especially when inundations have happened. Various occurrences of this nature are mentioned by different travellers which clearly show the meaning of the prophet in these words. Sonnini relates a circumstance of this kind, to which he was a witness in passing down the Nile. He says, 'The *reis* and the sailors were asleep upon the beach; I had passed half of the night watching, and I composed myself to sleep, after giving the watch to two of my companions, but they, too, had sunk into slumber. The *kanja*, badly fastened against the shore, broke loose, and the current carried it away with the utmost rapidity. We were all asleep; not one of us, not even the boatmen stretched upon the sand, perceived our manner of sailing down at the mercy of the current. After having floated with the stream for a space of a good league, the boat, hurried along with violence, struck with a terrible crash against the shore, precisely a little below the place from whence the greatest part of the loosened earth fell down. Awakened by this furious shock, we were not slow in perceiving the critical situation into which we were thrown. The *kanja*, repelled by the land, which was cut perpendicularly, and driven towards it again by the violence of the current, turned round in every direction, and dashed against the shore in such a manner as excited an apprehension that it would be broken to pieces. The darkness of the night, the frightful noise which the masses separated from the shore spread far and wide as they fell into deep water—the bubbling which they excited, the agitation of which communicated itself to the boat, rendered our awakening a very melancholy one. There was no time to be lost. I made my companions take the oars, which the darkness prevented us from finding so soon as we could have wished; I sprung to the helm, and encouraging my new and very inexperienced sailors, we succeeded in making our escape from a repetition of shocks by which we must at length all have inevitably perished; for scarcely had we gained, after several efforts, the middle of the river than a piece of hardened mud, of an enormous size, tumbled down at the very spot we had just quitted, which must, had we been but a few minutes later, have carried us to the bottom.—'*Travels in Egypt.*'

SEEDS.

The Plant in the Seed.

In this lies the hope of the future for the plant.

Every particular seed contains within itself the life of the plant, just as one's own true life resides in the spiritual body. Our leaves and blossoms drop away with autumn; the white snows descend upon our brows, its flakes tremble in the wind; the colours fade; the force declines; presently the whole of the poor, old, worn-out

frame sinks helplessly in the dust, never to rise again; but who or what *is dead!* Cross the dark river, which in the material world is represented by winter, and then all that is worth having is found safe and shining in the sweet lineaments of renewed youth.—*L. H. Grindon.*

Smallness is often the disguise of the infinite. You may count the apples on the tree, but who can count the trees in the apple? you may reckon the acorns on the oak, but not the oaks in the acorn.

The Seed erecting itself into a Tree.

The life-power in a thing can triumph over the force of gravity.

Take the case of a seed erecting itself into a tree—one of the great trees of California, for example, twenty-five feet in diameter, and four hundred and fifty feet high. A part of the matter, it is true, is not lifted from the ground, but is gathered from the air itself. As regards the part carried up in the sap of the tree, possibly the body of the tree, consisting of a number of capillary tubes, may be imagined to carry up such quantities of water and food by the mechanical force called capillary attraction. But a dead tree has the same capillary tubes as a living; why, then, does not the sap ascend in a dead tree? Besides, it has been found by an experiment that is fatal to this conjecture, that a grape-vine, cut off in the spring, will force up a column of sap against a superincumbent column of water forty-three feet high. This prodigious pressure upward, exceeding, by one third, the pressure of our atmosphere, has little resemblance, it must be agreed, to capillary attraction. Dismissing this solution we are left in a degree to conjecture. Perhaps the result is accomplished by alternate contractions and dilatations, too delicate to be perceptible, in the veins of the wood; or it may be accomplished by similar contractions and dilatations in the little sponges at the ends of the roots. In either case the machinery is played by the life-power of the tree, as the heart by the life-power of the human body. Be the solution what it may, this at least is clear, that gravity has been somehow mastered, and that no mere laws of matter can account for it.—*Horace Bushnell, D.D.*

Nature's Seed-sowing.

Nature sows more abundantly than man.

Always there is seed being sown silently and unseen, and everywhere there come sweet flowers without our foresight or labour. We reap what we sow; but Nature has love over and above that justice, and gives us shadow and blossom and fruit that spring from no planting of ours. — *George Eliot.*

Scattered Seeds may not prove to be Lost Seeds.

Seeds of truth may find their fitting soil after many days.

A handful of seeds may be dropped on some pebbly beach, but the dry sand and coarse shingle will not give them even the faintest chance of growing. The next tide, however, may wash them out to sea, and after drifting on week after week, and league after league, they may be cast upon the soft and loamy shore of some remote and desolate island, and, finding there congenial lodgment, may strike out their rootlets, and erelong, by their luxuriant growth, the wilderness may become a garden. You think that the good seed of the word of God which you have sown has fallen on very unpropitious soil,

and will never take root and bring forth its appropriate fruit. But wait awhile, judge not too rashly; let patience have its perfect work. Some tide of the Divine Spirit may come and convey the seed you have scattered, where, contrary to all your expectation, it will germinate and yield a rich crop of blessing.—*B. Wilkinson, F.G.S.*

Leaves, Tendrils, and Flowers.

Everything has its place and its mission.

There is need, as we know, of the utmost energy of all. There is need of the particular differences of all. We cannot compare the relative value of the leaves, and the tendrils, and the flowers in the vine; it is healthy, and vigorous, and fruitful because all are there. We cannot clearly define the minute features by which leaf is distinguished from leaf, or flower from flower; but we can feel how the whole gains in beauty by the endless combination of their harmonious contrasts. From the figure we turn to ourselves; and when we look upon our own restless and ambitious strivings; upon our efforts to seem to be what we are not; upon our unceasing mimicries of those about us; upon our impatience of the conditions of our little duties; can we venture to think that we have learnt, as we may yet learn, the first lesson of the vine?—*Brooke Foss Westcott, D.D.*

The Vitality of Seeds.

'Every seed is a storehouse of sleeping life.'

The preservation of the vital spark in seeds, and its sudden burst into vegetable fire when kindled under the laws that at once protect and call it forth, is exemplified as well as we could desire, in the most ordinary operations of horticulture. When the parent plant decays, those little germs in which, with a loving farewell, it wraps up its best energies, along with incredible capacity for bright colour, and sweet smell, and grateful taste, are collected by the gardener, carefully dried, and put away; every seed, he well knows, is a storehouse of sleeping life, which, with the return of spring, if placed where rain and sunshine can pay alternate visits, will leap into green infancy of fair blossom or wholesome vegetable. Nothing more is wanted to prove the *fact;* but over and above this ordinary, familiar proof, there is a class of occurrences less known than they deserve to be, which are calculated to excite our wonder to the utmost. Properly ripened seeds, if placed in certain conditions, are literally *immortal.* That is to say, they are capable of retaining their growing-power indefinitely; not merely for a few years, not merely for a few centuries, but for thousands of years—how long, indeed, no man can say. The earthy crust of our planet appears to be stocked in every part with seeds that have been produced in years gone by, scattered upon the surface, and subsequently covered up with soil. Whenever the ground is disturbed, either by the plough, or by the spade of the railway excavator, or for any purpose which causes its depths to be overturned, that portion which was many feet below being thrown to the surface, and exposed to the air, the sunbeams and the moisture of dew and rain, immediately there springs up a crop of young plants, certainly not originating in seeds only just then brought from neighbouring fields, and as certainly from seeds that have been lying in the soil for ages.

What a provision have we here for the perpetual renewal of the earth's green carpet! Let blight, or locusts, or the cold grip of an

inexorable frost, change it to brown barrenness, the simple upheaval of a few feet of soil would soon furnish material for clothing it anew. God never leaves Himself without a witness. The world is never so drowned but some little ark swims upon the water's top with a treasury of new blessedness; and could we conceive it possible that desolation should afflict the earth's surface, under the laws of natural calamity, we are assured that from the granaries below there would soon flow an abundant restoration. — *L. H. Grindon.*

Sowing in the Waters.

'*Cast thy bread-corn upon the waters*' (ECCLES. xi. 1).

The Egyptian husbandman sows his seed, according to its nature, at various stages of the inundation (of the Nile). Rice, for instance, is thrown upon the water when it has become confined within the limits of the little square beds into which the soil is divided for the purpose. These beds are separated by narrow causeways, or paths of raised earth, upon which the labourer treads, dry shod, as he passes from bed to bed in the prosecution of his task. It is probably to this or a similar process that Solomon has reference. Waters, in the plural, sometimes indicates a division of water; that is, numerous rivulets or pools of water. These remarks are applicable not to Egypt alone, for the same process may be observed in all parts of Western Asia as far eastward as Persia, wherever cultivation is carried on by irrigation, and the land is divided into small beds.—*Van Lennep.*

Sowing in India and China.—Were you going at the right season to Mysore or China, you would see thousands of people planting the corn of those countries. They sow it in the mud, or on the dry soil, and then immediately they turn on a flood of water, so that the whole field becomes a shallow pond. You would think the seed was drowned. But wait a few weeks, and then go and view one of these artificial lakes, and from all its surface you will see green points rising, and day by day that grass shoots taller, till at last the water is no more seen, and till eventually the standing pool has ripened to a field of rich and rustling grain. So that, in its literal sense, the farmers of these lands are every year fulfilling the maxim of the text. For should the spring come on them, and find their supply of rice-corn scanty, instead of devouring it all, they will rather stint themselves, they will rather go hungry for weeks together, and live on a pinched supply; for the bread which they cast on the waters this spring creates the crop on which they are to subsist next autumn and winter; and they are content to cast it on the waters now, for they are sure to find it after many days.

Bread-Fruit in the South Seas.—Suppose that you are in the South Sea Isles, where the bread-fruit grows,* and that by chance, or on purpose, you scatter some of its precious bunches on the sea. At the moment you may feel that they are lost; but should the winds and waters waft them to one of those reef islands with which such seas are thickly studded, the wandering seeds may get washed ashore, and beneath those brilliant suns may quickly grow to a bread-fruit forest. And should some disaster, long years after, wreck you on that reef, when these trees are grown and their clusters ripe, you may owe your sustenance to the bread which you cast on the waters long ago.

Such is God's husbandry. Do

* The cultivated sort, however, has seldom any seed.

the right deed. Do it in faith, and in prayer commend it to the care of God. And though the waves of circumstance may soon waft it beyond your ken, they only carry it to the place prepared by Him. And whether on an earthly or a heavenly shore, the result will be found, and the reaper will rejoice that he was once a sower.

Rotting Seeds.

'The seed is rotten under their clods' (JOEL i. 17).

This is the first new stroke of pathos which the poet adds to his previous description; but mark how he multiplies stroke on stroke. As though it were not enough to lose all mirth in the passing day, the heart of the people is torn with apprehension for the future. The very grain in the earth has 'rotted under the clods,' so that there is no prospect of a crop in the coming year to compensate for the loss of this year's harvest. Smitten by the burning rays of the sun, denied the vivifying touch of dew or rain, the germ has withered in the seed. The husbandmen, hopeless of any reward for their toils, fold their hands in indolent despair; they suffer their garners to moulder away, their 'barns' to fall. Why should they repair barn and storehouse, when 'the corn is withered,' even the seed-corn?—*Samuel Cox, D.D.*

SOIL.

The Materials of the Soil.

Lowly things may find lowly, but useful, service.

All-important as the soil is, the sources of it are most lowly. Worn-out and otherwise wasted things—faded, fallen leaves, that mournful mound of death that rose so high last autumn when the sharp sudden frost struck down in one night the glory of my cannas and caladiums that were matching the stature of Goliath—buried all of them out of my sight upon the morrow; scattered over these the ashes from my funeral pile of autumn prunings; and finally grosser gleanings from the pasture, where the kine gathered and lowed at night. Out of disorder, out of death, out of repulsiveness, out of ruin, is gathered the choice food of a new fair life that is to be. And one who sits sowing seed in such a soil, mindful of its elements, can but start and ask, Does God plant His seed thus? Does that grow all the better when it falls into a heart where disappointment and death have done their work? Can the dead leaves of our once beautiful things minister even through dying to something still brighter? Can the chastening that lopped our too luxuriant growth, and turned many a promise into ashes: can that give precisely the precious element without which our flower, that is to be, would miss somewhat of health and brilliancy?—*Sarah Smiley.*

Formation of Soil in the Plain of Shinar.

The absence of things counted essential may indicate special fitness for a precise and temporary purpose.

Both stone and lime appear to have been wanting in the plain which so powerfully attracted the survivors from the flood; but their very absence was almost enough to prove the soil one of surpassing fertility. In countries like Scotland, overspread chiefly with the more ancient rocks, stone, as we all know, is almost everywhere procurable in any quantity; but

where, as in England, the newer formations prevail, brick to a great extent takes the place of stone for building purposes, and it becomes almost universal, unless, indeed, superseded by mud, on the deltas of Asiatic rivers, or wherever else in the East deep alluvial soil is found. In journeying through the Indian province of Berar, between Ellichpore and Oomrawutee, you meet with a plain recalling that of Shinar, and may walk for many miles without finding a single stone upon the road; while if you descend one of the deep ravines channelled out by streams during the rainy season, the probability is, that instead of coming upon exposed sections of rock, you will find, foot after foot as you go down, nothing but a rich loam as black as that of a European garden. Its fertility is inexhaustible, and there are plants—for example, the cotton-bush—which scarcely come to perfection in any other soil. The crops and vegetation generally are said to be, if possible, still more luxuriant in Lower Bengal, where deposits of mud from the great rivers so completely conceal the rocks that, as has been well remarked, had the whole world possessed a similar structure, the science of geology would in all likelihood never have existed. The absence of stone, then, from the plain of Shinar spoke well for the richness of its soil.

So did the want of lime for the production of mortar, necessitating the employment of bitumen in its room. The all-provident Creator, who long ago laid up the primeval forests of the globe in the form of coal-seams for the future use of man, has not, so far as we know, left a country of any extent without limestone. Though the materials to frame it may have been of the most flimsy and apparently unsuitable kind, such as the stalks of lily-like animals, bits of dilapidated coral, or fragments of broken shells, yet, in the hand of the Divine Architect, these have amply sufficed to furnish solid beds of limestone, whence whole cities have been built. In India, indeed, if you look over the whole series of deposits, from the oldest to the most recent, you will be apt to think that the important rock above mentioned has been almost entirely withheld. And such, in truth, was the case well-nigh to the last moment, geologically speaking, when, by the production of a substance called *kunker*, not unlike the travartin of Rome, generally just under the vegetable mould, the important omission was supplied. Only in one case could we conceive lime procured with difficulty—namely, when all the formations, with whatever mineral wealth they may contain, are buried under a great depth of alluvial soil; and the mud of the Euphrates must have done this with the entire rock strata of the Babylonian plain. In other words, we are again led to the conclusion that the soil of Shinar must have been a deep, rich, alluvial loam. And though parts of it may now be arid and waste, yet travellers agree that the repairs of the old canals for irrigation would restore to it the fertility it had while Babylon was in the height of its glory—a fertility of which, as is well known, ancient authors have left the most glowing accounts. — '*Family Treasury.*'

The Goodwin Sands.

Their dryness and hardness, when the tide is low, is only an alluring deception.

In the high tides barques of light draught will float over Goodwin quicksands; in summer, at low tide, the venturing boys and young people will play cricket thereon; but neither can remain long in the neighbourhood. The time comes when the sands are

covered with but a thin surface of water, and beneath is the shifting, loose, wet earth, more dangerous and treacherous than spring-tide ice; and then it is that to touch is to be drawn in, and to be drawn in is death. So it is with bad company.

Quicksands illustrate the power of evil.

A good illustration of the treacherous and dangerous nature of quicksand was seen at Norristown, Pa., some time ago. A man was at work deepening a well, when first one foot, and then the other, became fast in some soft sand, and he felt himself slowly sinking deeper and deeper. Fortunately a rope fastened to the windlass was given him immediately, and he succeeded in fastening it under his arms. An attempt was made to pull him out, but he shouted that they must stop, or his limbs would be pulled apart. Finally, after a great deal of effort, some of the sand around him was dug out, and the man was rescued. He had been in the perilous position seventeen hours, and beef-tea and other stimulants had been lowered to him. People cannot be too careful to avoid quicksand, as it is found frequently along the sea-coasts and near the mouths of rivers, and is unable to support the weight of a person.

Dust.

Freedom from vexations largely depends upon the plane on which we live.

Dust, by its own nature, can rise only so far above the road; and birds which fly higher never have it upon their wings. So the heart that knows how to fly high enough, escapes those little cares and vexations which brood upon the earth, but cannot rise above it into that purer air.—*H. W. Beecher.*

The Making of Man.

'The Lord God made man of the dust of the ground' (GEN. ii. 7).

Note this exact and significant word, the *dust*. Formation out of the dust; this is all that experimental science can teach. Yes; but there is something beyond experimental science. Dust will not alone suffice to explain the mystery of life. Dust is not the whole of *me*. As the grain of dust, which is man, and which man is, becomes better and better known to us, we find that it is informed by a principle which no scientific instrument can grasp or analyze. The formula must be completed before we can understand man's twofold nature. Hence the text goes on: 'And God breathed into his nostrils the breath of life, and man became a living soul.' That breath of life is the spirit. The dust comes within the range of positive knowledge. This much of the universe can be tested in a laboratory. This much of man can be clinically analyzed. The investigation can be carried on to a great length, but so long as the 'breath' is left out there is no 'living soul.' Where life begins our knowledge ceases. The literary creator ought to conduct his operations upon this model. In spite of all changes of taste and fashion, man remains essentially the same, with his eternal need of sympathy and hope. It is the fashion in our day to forget these great fundamental truths, because we are passing through a period of transition and universal uncertainty. The soul, deprived of its God, wanders about in search of a guide, as swallows, drifting before stormy winds, sink into the marshes to perish in the cold and darkness. Try to tell them that there is a place of shelter where wounded birds can find warmth and life and healing, and you will see them gather together and prune their

wings for the long flight across arid deserts following the guiding voice.—*M. Melchior de Vogue.*

The Swiftness of Sand-storms.

Sudden elevation and prosperity is seldom lasting.

At seven in the morning we left Assa Hagga, our course being due north. At one o'clock we alighted among some acacia-trees at Wady el Halboub, having gone twenty-one miles. We were here at once surprised and terrified by a sight surely one of the most magnificent in the world. In that vast expanse of desert, from west and to north-west of us, we saw a number of prodigious *pillars of sand* at different distances, at times *moving with great celerity*, at others stalking on with majestic slowness; at intervals we thought they were coming in a very few minutes to overwhelm us; and small quantities of sand did actually more than once reach us. Again they would retreat so as to be almost out of sight, *their tops reaching to the very clouds.* Their tops often separated from the bodies; and these, once disjoined, *dispersed in the air*, and did not appear more. Sometimes they were broken near the middle, as if struck with a large cannon shot. About noon they began to advance with considerable swiftness upon us, the wind being very strong at north. Eleven of them ranged alongside of us about the distance of three miles. The greatest diameter of the largest appeared to me, at that distance, as if it would measure ten feet. They retired from us with a wind at south-east, leaving an impression upon my mind to which I can give no name, though surely one ingredient in it was fear, with a considerable deal of wonder and astonishment. It was in vain to think of flying; the swiftest horse, or fastest sailing ship, could be of no use to carry us out of this danger, and the full persuasion of this riveted me as if to the spot where I stood, and let the camels gain on me so much in my state of lameness, that it was with some difficulty I could overtake them. —*Bruce's 'Travels.'*

To-day we had experience of the Khamseen. When the heat had become so intolerable that all moved forward silently in dull patience, some, perhaps, with a secret wonder whether they should ever breathe easily or feel any muscular strength again, a strong wind sprang up suddenly from the south. Though it was as hot as a blast from an oven, and carried clouds of sand with it, I must say I felt it a great relief. I was aware that the sensation of relief could not last; for the drying quality of this wind was extraordinary and immediately felt upon the skin. Still, the sensations under the evaporation were those of relief for the moment, and before they were over, we stopped, and could get under the shelter of our tents. The thirst which this wind caused was, of course, great; but we had plenty of water and oranges. I was surprised, after all I had read, to see how like a thick fog an atmosphere full of sand can be. The sand was not coarse enough to be felt pattering upon the face, though it accumulated in the folds of one's dress; but it filled the air so as to completely veil the sunshine, and to hide altogether the western boundary of the Wady, and all before us. The eastern mountains, near whose base we were travelling, rose dim and ghostly through this dry, hot haze. We were to have proceeded to Wady Ghurundel, where there is a small spring and a palm or two; but this wind caused us to halt sooner, for the advantage of a sheltering sand-hill.—*Miss Martineau.*

The Arabs make the following statements with regard to these winds: They assert that their progression is in separate or distinct currents, so that the caravan, which, in its march in the desert, sometimes spreads to a great breadth, suffers only partially in certain places of the line, while intermediate parts remained untouched; that sometimes those only who happen to be mounted on camels are affected, though more commonly such as are on foot; but that both never suffer alike; that lying flat on the ground till the blast passes over is the best method of avoiding the danger; but that the attack is sometimes so sudden as to leave no time for precaution. Its effects sometimes prove instantly fatal, the corpse being livid, or black, like that of a person blasted by lightning. At other times it produces putrid fevers, which prove mortal in a few hours.

TREES.

The Slow Up-building of Great Trees.

Type of the growth of holy character.

Nor can we forget in looking at these old giant trees saved from the forest primeval, that someone else has waited and watched. This slow and solid building up of the column of a great tree has a grandeur entirely unique in nature. The vast cathedral column was hewn slowly and skilfully, and it therefore has its majesty; but these grew with only God's own hand to shape them, and He was content to build even slower than we build, with here a little and there a little. One little life-cell followed another, and then one more little fibre slowly stretched its line from the expanding leaf down to the hidden root, and at last out of weakness it was made strong, so that the awful fury of the tempest and the wrath of the whirlwind are hurled against it in vain. Exquisite and almost perfect type of the growth of holy character, of the building up in strength and beauty, of man in the likeness of God! The silent, constant appropriation of all the supplies within its reach, the working of them into its own being, the converting of all things that touch it within, into its own greatness, is the same process alike in the tree and in the soul of man. —*Sarah Smiley.*

The Tree represented in the Leaf.

That which we essentially are appears to view in even the smallest action that we do.

The outline of a tree in full summer foliage may be seen represented in the outline of any one of its leaves; the uniform cellular tissue which composes the flat surface of the leaf being equivalent to the round irregular mass of the foliage. In fact, the green cells which clothe the veins of the leaf, and fill up all its interspaces, may be regarded as the analogues of the green leaves which clothe the branches of the tree; and although the leaf be in one plane, there are many trees, such as the beech, whose foliage, when looked at from a certain point of view, is also seen to be in one plane. Tall pyramidal trees have narrow leaves, as we see in

the needles of the pine; while wide-spreading trees, on the other hand, have broad leaves, as may be observed in those of the elm or sycamore. In every case the correspondence between the shape of the individual leaf and the whole mass of the foliage is remarkably exact, even in the minutest particulars, and cannot fail to strike with wonder everyone who notices it for the first time. Not only in trees, but in shrubs, grasses, and all herbaceous plants, we find the same typical correspondence between the leaf and the whole plant; we find the plant pattern repeated in the leaf pattern. Every individual plant furnishes a special illustration of it, and in some instances the resemblance is very extraordinary, placing it beyond doubt that it is intentional, and not accidental—design, and not mere coincidence. —'*Scientific Symbols.*'

Christian Growth.

The power of temptation lessens as life advances.

The precious sago palm, when young and tender, is covered with strong sharp thorns, which effectually guard it from injury by wild animals. As soon, however, as the tree, shooting on high, grows strong, and is no longer a tempting morsel to wild hogs and other animals, the thorns fall off. It is very often thus with young Christians. They frequently display an asperity and sharpness in their treatment of the ungodly that answers something in their case to the thorns of the sago palm. There is a use in this. They are inexperienced in the Christian life, and especially are liable by reason of their youth to be snared and enticed by the world's blandishments. This very roughness and angularity is a great preservative, in erecting around them, as it were, a bristling fence, and cutting them off from contact with dangerous foes. But as faith and love grow, as experience is gained, and they become established in grace, their life, though not a whit less faithful, becomes less severe and forbidding. The power of many temptations which especially beset the young, as the pilgrim's path is further pursued, becomes necessarily lessened with the lessening beat of the calmer pulse of age. The head, that once might have been turned by pride, with advancing years has been tutored to 'wise meekness' by long and invaluable discipline. Now that they are not in so much danger from the world as formerly, the thorns fall off.

There is a similar train of thought to be met with in the poet Southey's verses on the 'Holly.' This tree somewhat resembles the sago palm, in that its lower leaves only are armed with thorns, while those which rise out of reach are quite smooth. Unlike our palm, however, these thorns on the leaves near the ground never fall off with age, but continue to the last.—*Rev. James Neil, M.A.*

Decayed Root and Withering Branches.

'Keep thy heart with all diligence, for out of it are the issues of life.'

As when the root of a tree perisheth, the leaves keep green for a little; but within a while they wither and fall off: so love, which is the root and heart of all other duties, when that decayeth, other things decay with it. The first works go off with the first love—at least, are not carried on with such care, and delight, and complacency, as they should be (Manton). Swiftly other works follow, withering in their turn, for the fatal blow has been struck, and failure of every good thing is

but a matter of time. Could the love of saints to Jesus utterly die out, all their virtues must die also, for love is the root of all. Our main concern must be as to the root. The heart must be alive with gracious gratitude, or the leaf cannot long be green with living holiness.—*C. H. Spurgeon.*

The Scandinavian Yggdrasil.

The tree that represents the past, the present, and the future.

Of all arboreal divinities, the most elaborate is the Yggdrasil of Scandinavian cosmogony. The tree, an ash apparently, overspreads the universe. One of its three roots covers the abode of Hel, goddess of the dead; another supports the home of the frost-giants, the third encircles the earth. Beside it sit the three immortal Norns, maiden queens of the past, the present, and the future, watering it daily from the well of Mirmir, in whose waters are all wisdom and genius. 'Its boughs, with their buddings and disleafings, events, things suffered, things done, catastrophes, stretch through all lands and times. Is not every leaf of it a biography, every fibre there an act or word? Its boughs are histories of nations. The rustle of it is the noise of human existence, onwards from of old. It grows there, the breath of human passion rustling through it; or storm-tossed, the storm-wind howling through it like the voice of all the gods. It is Yggdrasil, the Tree of Existence. It is the past, the present, and the future; what was done, what is doing, what will be done; the infinite conjugation of the verb *to do*. Considering how human things circulate, each inextricably in communion with all—how the word I speak to you to-day is borrowed from all men since the first man began to speak—I find no similitude so true as this of a tree. Beautiful—altogether beautiful and great!' As in many cases, so in this, the ancient faith, abandoned by grown men, reappears in the prattle and the games of children. Just as the mediæval miracle play has subsided into the squeak and antics of the street Punch; just as the adoration of the Magi is unconsciously belittled in the gilt and silvered ornaments, the sweetmeats, the kings and queens of the twelfth cake—so belief in tree-sacredness and tree-worship survives to-day in the Christmas-tree hung with offerings at Yule-tide, acceptance of tree generative force in the nursery superstition which traces 'little strangers' to the parsley-bed.—*Rev. W. Tuckwell.*

Trees and Birds.

The explanation of some things lie in their subsidiary uses.

The relation between birds and particular trees is especially interesting. It would seem, indeed, as if some trees grew dense, and matted together their branches that they might thus afford a secure asylum for little birds. This would appear to be the final cause of the lime-tree—to give a single example—which, instead of spreading out its boughs and branches widely like other trees, crowds them together, and so fills up the vacant spaces with slender little twigs that the whole centre of the tree forms an impervious labyrinth of brushwood, within which the little bird is safe from the pursuit of its foes.—*Hugh Macmillan, LL.D.*

Trees planted by Accident.

Nature carries out her design by using the accidental labours of living creatures.

Tho accident of the individual may be the design of Nature. We

see this illustrated again and again in the lives of men, and in the history of nations. In the forest we may clearly observe Nature's governance of accidents. Many noble oaks have been planted by the squirrel, who unconsciously yields no inconsiderable boon to the domains he infests. Towards autumn this provident little animal mounts the branches of oak-trees, strips off the acorns, and buries them in the earth, as a supply of food against the severities of winter. He is most probably not gifted with a memory of sufficient retention to enable him to find every one he secretes, which are thus left in the ground, and springing up the following year, together with others which he accidentally drops, finally grow into magnificent trees. The nut-hatch, in an indirect manner, also frequently becomes a planter. Having twisted off their boughs a cluster of beech-nuts, this curious bird resorts to some favourite tree, whose bole is uneven, and endeavours, by a series of manœuvres, to get it into one of the crevices of the bark. During the operation it oftentimes falls accidentally to the ground, and is caused to germinate by the moisture of winter. Many small beeches are found growing near the haunts of the nut-hatch, which have evidently been planted in this accidental manner. Thus, without design on their part, the squirrel and the nut-hatch are most influential planters of the two finest trees of the forest. When we gaze with awe and admiration upon the grandest oak and the most splendid beech in the landscape, we may reflect that those two trees may actually owe their existence to two trifling accidents—the one being that of a bird with a nut, and the other being that of a squirrel with an acorn—which happened more than a century ago.—'*Scientific Symbols.*'

Nip the Lower Shoots.

Severe pruning work is needful in the training of character.

If our faith is to grow high and bear rich clusters on the topmost boughs that look up to the sky, we must keep the wild lower shoots close nipped. It is no holiday task to cast out devils — self-indulgent men will never do it. Loose-braced, easy souls, that lie open to all the pleasurable influences of ordinary life, are no more fit for God's weapons than a reed for a lance, or a bit of flexible lead for a spear-point. The wood must be tough and compact, the metal hard and close-grained, out of which God makes His shafts.—*A. Maclaren, D.D.*

'Eucalyptus Globulus.'

Some persons resist evil by their secret healthy influence.

M. Gimbert, who has been long engaged in collecting evidence concerning the Australian tree 'Eucalyptus globulus,' the growth of which is surprisingly rapid, attaining besides gigantic dimensions, has addressed an interesting communication to the Academy of Sciences. This plant, it now appears, possesses an extraordinary power of destroying miasmatic influence in fever-stricken districts. It has the singular property of absorbing ten times its weight of water from the soil, and of emitting antiseptic camphorous effluvia. When sown in marshy ground it will dry it up in a very short time. The English were the first to try it at the Cape, and within two or three years they completely changed the climatic condition of the unhealthy parts of the colony. A few years later its plantation was undertaken on a large scale in various parts of Algeria. At Pardock, twenty miles from Algiers, a farm situated on the

banks of the Hamyze was noted for its extremely pestilential air. In the spring of 1867 about thirteen thousand of the eucalyptus were planted there. In July of the same year—the time when the fever season used to set in—not a single case occurred; yet the trees were not more than nine feet high. Since then complete immunity from fever has been maintained. In the neighbourhood of Constantine the farm of Ben Machydlin was equally in bad repute. It was covered with marshes both in winter and summer. In five years the whole ground was dried up by fourteen thousand of these trees, and farmers and children enjoy excellent health. At the factory of the Gue de Constantine, in three years a plantation of eucalyptus has transformed twelve acres of marshy soil into a magnificent park, whence fever has completely disappeared. In the island of Cuba this and all other paludal diseases are fast disappearing from all the unhealthy districts where this tree has been introduced. A station-house at one of the ends of a railway viaduct in the Department of the Var was so pestilential that the officials could not be kept there longer than a year. Forty of these trees were planted, and it is now as healthy as any other place on the line. We have no information as to whether this beneficent tree will grow in other than hot climates. We hope that experiments will be made to determine this point. It would be a good thing to introduce it on the west coast of Africa.—'*Medical Times and Gazette.*'

A Rotten Tree.

The state of the heart is not always revealed by the outward conditions.

You are walking through a forest. On the ground across your path lies stretched in death a mighty tree, tall and strong, fit mast to carry a cloud of canvas and bear unbent the strain of tempests. You put your foot lightly on it; and how great your surprise when, breaking through the bark, it sinks deep into the body of the tree; a result much less owing to the pressure of your foot than to the poisonous fungi and foul, crawling insects that had attacked its core. They have left the outer rind uninjured, but hollowed out its heart. Take care your heart is not hollowed out, and nothing left you but a crust and shell of an empty profession. Shallow rivers are commonly noisy rivers, and the drum is loud because it is hollow.—*Dr. Guthrie.*

Variations in the Rings of Tree-trunks.

Times of spiritual drought are times of failing spiritual growth.

It is deeply interesting, in counting the circles of a section of some old tree, to note the variations, some circles being almost imperceptible for narrowness, and some so broad that you fear almost to have counted two as one. As you count the outer circles, your memory, reaching back to those years, can show a cause for this difference. The years of drought are the years of little growth. For the tree as for our spirits, it holds true that 'a man can receive nothing except it be given him from heaven.' There are surely seasons when one can make little increase save under exceptional circumstances—such as those of a tree by the riverside which shows little variation. It drew supplies from an abiding source. Precisely this sweet secret it is that finds expression in the first psalm: 'He shall be like a tree planted by the rivers of water.' They who live near the Lord, who delight themselves in His law, and meditate

on it day and night, are ever growing and fruitful. — *Sarah Smiley.*

The Cinchona Tree.

The law of compensation works to provide everywhere an antidote for every poison.

The Quinquinas (genus Cinchona, family Rubiaceæ) are medical plants, than which none are more precious. They grow along the Eastern slope of the Andean Cordilleras in the republic of Venezuela, New Granada, Ecuador, Peru, and Bolivia. The bark is the most effective of all febrifuges, and is endowed with very valuable tonic and depuratory properties. Sir Samuel Baker, in an address to the British Association at Dundee, pronounced it the traveller's best friend, the powerful weapon with which he could securely enter the African wilderness, and successfully contend against its demon-host of fevers and agues. And as if by a kind of compensation, the tropical forests, which contain so many poisonous fruits, produce such trees as these.—'*Scientific Symbols.*'

The Origin of the English 'Weeping Willows.'

How much may result from following the leading of a thought!

Some may know the story of the first *weeping willow*, introduced into England by the poet Pope, who found one twig in a Turkish basket of figs that had been given him, putting out a bud; and having planted it in his garden, reared it to a tree, whence all those beautiful trees in this country have been propagated. The weeping willow of Twickenham is no more; but its graceful offspring, bending over many a stream, live far and wide. So many a thought, slight in the outset, conveyed or sprung up by seeming chance, has led to inventions the most important, or endeavours the most valuable, or has had other influences most extensive.—*Sheppard's 'Trees; their Uses and Biography.'*

The Majesty of the Lebanon Cedar (Psa. civ. 16).

The secret of the grandeur is the strong rooting.

The cedar is the tree *par excellence* of the Bible—the type of all forest vegetation. Religion and poetry have sounded its praises so loudly and repeatedly that it has become the most renowned natural monument in the world. For untold ages it covered the rugged slopes of Lebanon with one continuous forest of verdure and fragrance, and formed its crowning 'glory.' The ravages of man, carried on century after century in the most ruthless manner, laid its proud honours low; and now only a few scattered groves survive amid the fastnesses of the highest valleys to tell of the splendour that had perished. But what a magnificent relic the one grove of Kadisha is! Each huge trunk, scarred and hoary with the elemental strife of hundreds of years, still spreads out its great gnarled boughs laden with emerald foliage and exquisite cones, 'full of sap' in the freshness of undying youth, so that we cannot wonder at the superstition of the awestruck Arabs, who attribute to the cedars not only a vegetative power which enables them to live eternally, but also a wise instinct, an intelligent foresight, by means of which they understand the changes of the weather, and provide accordingly. No temple of Nature can be grander than the interior of that grove, where the natives of the neighbouring villages celebrate mass annually in June. It is a spot

unique on earth. The sacred associations of thousands of years crowd around one there. In the fragrance of the cedars comes up the richness of Bible memories; each sight and sound suggest some incident alluded to by psalmist or prophet, and a feeling of awe and reverence, such as few other scenes can inspire, fills the soul to overflowing. There, at an elevation of six thousand feet, with their roots firmly planted in the moraines of extinct glaciers, with their trunks riven and furrowed by lightnings, with the snows of Lebanon gleaming white through their dusky foliage, with the stillness of earth's mightiest powers asleep around them, who can fail to feel the force of the Psalmist's words, 'The trees of the Lord are full of sap; the cedars of Lebanon which He hath planted?'—*Hugh Macmillan, LL.D.*

No Uniformity in the Growth of Trees.

Wherever there is life it will make its own forms of expression.

By unity we do not mean uniformity. There is none; there can be none in the free universe of God. You have it not in Nature. You may go out into the waving woodland, when death is on the trees, and you may prune their riotous growth, and mould, and shape, and cut them into something like a decent, a decorous uniformity; but the returning spring, when it comes, will laugh at your aimless labour. Wherever there is life there will be found variety of engaging forms which attract and fascinate the eye. We do not mean uniformity, therefore —the harmony of voices, or the adjustment of actions—the drowsy repetition of one belief, or the harmonious intonation of one liturgy; but we mean 'the unity of the spirit in the bond of peace.' —*W. M. Punshon.*

Trees in Summer and Winter.

Love is the perfection of all the graces.

What trees are in summer—covered with leaves and blossoms, exhaling perfume, and filled with merry birds that sing out of their hidden choirs — are conscience, veneration, fear even, when they are shined upon by love; but, without love, any of these faculties is like that tree in winter, through which the wind whistles, and the storm—gaunt, leafless, bloodless. —*H. W. Beecher.*

Instincts of Perception and Measurement in Trees.

Life in things impels them to meet the requirements of life.

A tree which is fond of water, when planted near some brook, will set off all its principal roots in that direction. How does it know the water to be there? And how does it know that it will be able to reach the border of it? To say, in popular phrase, that the water attracts the roots in that direction, is to invent a new and very remarkable sort of attraction. An attraction that pulls at roots in the ground, and turns them at the point of starting, is a something created to account for the fact in question, which is even more difficult than the fact itself. Mr. Madison, for example, had an aqueduct of logs which, in reaching his house, passed by a tree specially fond of water, at a considerable distance from it. Abreast of the tree there was an augerhole in the log that had been filled with a plug of soft wood. Exactly thitherward the tree sent off a long stretch of roots, which forced their way through the plug, choking up the passage, and were there found drinking like so many thirsty animals. Was it, then, the

soft wood plug that attracted these roots? It certainly should be on the attraction principle; for the water was just as near at other points as here.

It is said that a strawberry planted in sand, with good earth a little way off, will turn its runners all in the latter direction; and that if the good earth is too far off to be reached, the plant will make no effort on that side more than on the other, which is equivalent to saying that the plant has, in its life-principle, an instinct of measurement. It does not measure the ground, and then itself, and then compare the two; but it has an adaptive power by which, without comparison, it graduates its action by its possibilities.—*Horace Bushnell, D.D.*

Tap-rooted Trees.

The advantages of early piety.

The young should bear in mind, not only that it is easier to become pious in early life, but also that the piety itself will have in it more of strength and stability than that which may be of later growth. There are some trees that send out in their youth a deep descending root, and are called in consequence tap-rooted. These trees have a much firmer, stronger grip of the soil than others, and hence, in the time of storm, when others are torn out of their places by the wind, and flung down upon the ground, they stand erect, with comparatively little loss. If you would have in after-life a piety which shall be stable enough to withstand the fierce gusts of temptation that will come sweeping around you, then it is essential that now, in the season of youth, when growth is swift and decided, you strike deep down into the rich soil of God's truth the strong roots of a living, healthful faith.—*B. Wilkinson, F.G.S.*

Tree-roots are all in the Dark.

Spiritual life is nourished in secret conflicts.

The tree that waves its branches so freely in the great expanse, and spreads out its leafy surface towards heaven, so eager for light and for heat, struck its root in secret, underground, in great darkness and bondage. Take heed that you do not undervalue your time of spiritual darkness and conflict. The joy of eternity often strikes its root in very bitterness of spirit. Meekly fulfil all your groaning, and patiently abide your time in darkness—'looking unto Jesus.' Do you know that you would not so painfully feel your darkness, if the holy sunlight did not underlie it? The diviner the sunlight at the centre, the painfuller is the encompassing night.—*John Pulsford.*

Pine-trees in Autumn.

Types of the Christian who keeps his greenness as he grows.

The pine-trees make the glory of late autumn. They were barely noticed in the crowded green of summer; now they stand up in all their majesty. And along the more open hill, how beautiful are the groups of fir and cedar! How deep and rich their noontide shadows on the grass! What were autumn and winter without our evergreens; and what were age without the sympathies and affections that no time can chill, and that never can reach their highest value save through some other loss?

Did you ever think out the import of that beautiful promise in Isaiah: 'Instead of the thorn shall come up the fir-tree?' Hosea says, 'I am like a green fir-tree.' In my mind, the association of this tree with that which it is like is so vivid that I soon forget the fir-tree, for the reverence that comes

over me for the good and great of earth. In all that we are now looking at, of whatever height, you notice that each has a leader pointing directly upward. That always says to me, 'This one thing I do.' 'One thing have I desired of the Lord, that will I seek after.' The Christian has always one heavenly aim higher than all others. And then beneath that leader, in what perfect balance and symmetry the boughs spread out—like the fully rounded, much-embracing life that should be ours! As with each new year the leader rises higher, so is a new circle of boughs formed, and every old circle widened—like the ever-increasing interests, and growing breadth of sympathy, which are so sure to follow a true devotedness to God.

'Where Thou art most
Beloved, is room for all! the heart grows wide
That holdeth Thee! a heaven where none doth press
Upon the other.'

Sarah Smiley.

The Manchineal Tree.

In God's world things are entrusted with the mission of destruction. To poison is God's work for some things.

Of the poisonous plants of South America, an interesting one is the manchineal (Hippomane mancenilla). This tree thrives best, it is said, on the seashore. It bears a profusion of very pretty fruit, resembling in form and colour the red apple (the Spanish manzanilla), and exhaling an agreeable lemon-like odour. They are, therefore, scarcely less beguiling than Dead Sea fruits; but they are also very poisonous, yet less deadly than the milky juice which flows from the slightest incision made in the tree's thick and grayish bark. This juice, received into the stomach, or introduced into the blood through a wound, slays the victim with awful quickness. If it do but touch the skin, it excites a violent irritation, and raises swellings or boils of the worst description. The very vapour which it emits causes a painful itching in the eyes, the lips, and the nostrils. It was formerly asserted that to sleep under the shade of a manchineal tree was certain death, but the naturalist Jacquin, in the interests of science, courageously made the experiment, and proved the falsity of the story. —'*Scientific Symbols.*'

Resuscitation of Yew-trees.

Continuous life involves renewals of life.

When an aged yew-tree gets into a state of decay, and is unable to keep up life by an exogenous growth of regular annual rings, layers of alburnum descend from above to the ground; new wood is formed, and the old bole is thus actually enveloped and preserved, while from this new wood branches and foliage arise, and the old tree assumes a juvenescent aspect, except where the old decaying bole is visible before it is quite entombed by its living offspring. The Welsh churchyards are gloomy with yews. The presence of the yew, with its perpetual verdure and enduring vitality, symbolized the everlasting life that was to succeed the mortality of the grave, and yew branches were also used in processions of the Church and at funerals. This sufficiently accounts for the partiality of the Welsh to the yew (*yw*, ever living), for they were never celebrated for the use of the bow in their intestine and predatory warfare.—*Edwin Lees, F.R.S.*

No Envy in the Trees.

'*Each is a variety of God's goodness.*'

There is no envy among the trees. Each is beautiful and good. Each is satisfied to bear its own

fruit — apple, peach, pear, fig, orange, citron, pomegranate. Each has its own distinction of form, colour, fragrance, and flavour. Each is a variety of God's goodness. Thou crownest the trees with *Thy goodness.—John Pulsford.*

The Hollow Elm-tree.

The need of deep-rooting in Christ.

Many a stately elm that seems full of vigorous life, for all its spreading boughs and clouds of dancing leaves, is hollow at the heart, and when the storm comes goes down with a crash, and men wonder, as they look at the ruin, how such a mere shell of life, with a core of corruption, could stand so long. It rotted within, and fell at last because its roots did not go deep down to the rich soil, where they would have found nourishment, but ran along near the surface, among gravel and stones. If we would stand firm, be sound within, and bring forth much fruit, we must strike our roots deep in Him who is the Anchorage of our souls and the Nourisher of all our being.—*A. Maclaren, D.D.*

The Comb Spine Palm.

An emblem of hope, the anchor of the soul.

A palm called the comb spine palm grows in the midst of dense forests. It has a crown of leaves so heavy that the slender trunk is wholly unequal to the task of supporting it. Yet by a beautiful provision the tree is enabled to stand erect and grow upwards. A stem, or continuation of the trunk, rises to a considerable height through the leafy plume that generally terminates the growth of other palm-trees. This stem is furnished at the end with hooks or grapnels, by which it lays hold upon the giant branches of some overshadowing tree, and is thus supported and rendered stable. This anchor thrown on high, entering within the leafy curtain of the growth above, keeps the palm from falling or being blown away. Behold an image of the Christian's hope! He, too, has a crown, 'an exceeding great and eternal weight of glory,' which his own feeble powers are not able to sustain. But just such a means of support as we have described has been given him. When heart and flesh fail, and his spirit sinks within him, he may reach the arm of a confident hope far above, and thus lay hold on the immutable promises of God. 'Hope of salvation,' 'hope in Christ,' 'a good hope through grace,' this steadies and strengthens the soul. A happy steadfast expectation of eternal life proves to the child of God an unfailing stay. Anchors are generally cast below, but that of the Christian is thrown on high. Thus the Apostle says of those who have fled for refuge to lay hold upon the hope set before them, 'which hope we have as an anchor of the soul, both sure and steadfast, and which entereth into that within the veil.'—*Rev. James Neil, M.A.*

The Trees ever rising into the Sky.

In everything there is an effort to get into liberty.

There is an effort in everything to get into liberty, which, indeed, is the evidence that the breath of God is the centre and soul of everything. Even the trees, which are rooted so tenaciously in the earth, show a winged tendency. They throb and throb until they open themselves into light and liberty. They wing themselves with leafy garments, that they may inbreathe the sunbeams and flutter in the air. Look at the orchids, how they put out their wings, eastward, westward, northward, southward, in their longing

for the liberty of the sky. There is neither root nor seed that is willingly imprisoned in its earthy body.

O ye souls of men, and especially ye souls of women, are ye willingly imprisoned in your material bodies? Forms of earthly existence very inferior to you are in the effort to get into liberty. There is a pulse in every creature, in every plant, throbbing towards a life beyond itself. Buried seeds must open and shoot upward, though they die in the struggle. The electric force within them expands, bursts its limits, and makes for itself a freer, lighter body. It must leave its house of bondage, and evolve a new body which shall breathe and wave in the sunlight. It is the story of the whole creation.—*John Pulsford.*

The Leaf-bud of Beech-trees.

Wrapped up in Christ is the supply of all our need.

Gather off your beech-trees in the budding spring days a little brown shell, in which lies tender green foliage, and if you will carefully strip it you will find packed in a compass, that might almost go through the eye of a needle, the whole of that which afterwards in the sunshine is to spread and grow to the yellow-green foliage which delights and freshens the eye. So in Christ—to be unfolded through slow generations, in accordance with human experience and wants—is all that men can know, or need to know, concerning God and themselves, and the relations of both—their duties, their hopes, their fears, and their love. —*A. Maclaren, D.D.*

Various Forms of the Trees.

Variety in opinion is a sign of mental life.

I am suspicious of that church whose members are one in their beliefs and opinions. When a tree is dead it will lie any way; alive, it will have its own growth. When men's deadness is in the church, and their life elsewhere, all will be alike. They can be cut and polished any way. When they are alive, they are like a tropical forest—some shooting up like the mahogany tree; some spreading like the vine; some darkling like the shrub; some lying, herb-like, on the ground; but all obeying their own laws of growth—a common law of growth variously expressed in each —and so contributing to the richness and beauty of the wood.—*H. W. Beecher.*

Trees holding both Earth and Sky.

Christians are bound to maintain a twofold relation to earth and to heaven.

Very beautiful and suggestive is the law by which the trees hold fast their connection with the earth while ascending towards heaven. Roots draw upwards the finest essences of the earth out of their imprisonment; while the branches, with their breathing leaves, draw down the virtues of the heavens. Tree-development depends on the co-operation and unity of ascending and descending currents of energy.

How could the trees produce heaven's fruit for the use of the world if their roots quitted their hold of the earth? Very cunningly the trees breathe their escape from the soil; and, at the same time, very tenaciously, very determinedly, cling to it. With the same breath, they say, we will leave the earth, and yet we will not quit it. We will go in for the ascensive life; but the higher we go, the more deeply will we root ourselves in the earth; and they do both.—*John Pulsford.*

The Rings marking Tree-growth.

Moral progress in the human race is not always continuous.

The historic unity, the unity of one generation with another which has been, and with another which hereafter will be, is as yet unfamiliar to most men. The tree may help us to learn it. Cut down the tree, and you will read its history in the rings of its growth. We count and measure them, and reckon that so long ago was a year of dearth, so long ago a year of abundance. The wound has been healed, but the scar remains to witness to its infliction. The very moss upon its bark tells how the trunk stood to the rain and the sunshine. The direction of its branches reveals the storms which habitually beat upon them. We call the whole perennial, and yet each year sees what is indeed a new tree rise over the gathered growths of earlier time, and die when it has fulfilled its work. And all this is true in the society of men. We are what a long descent has made us. Times of superstition and misgovernment and selfish indulgence have left, and ever will leave, their marks upon us. There are unhealthy parts on which the cleansing light has not fallen. There are distorted outgrowths which have suffered from want of shelter and want of care. And there are, too, let us thank God for it, solid and substantial supports for developments yet to come; great boughs, as it were, towering heavenward, through which our little results of life may be borne aloft; ripe fruits which may be made the beginnings of wider vitality through our service. Here, indeed, does the word find its perfect fulfilment: 'One soweth, and another reapeth.'—*Brooke Foss Westcott, D.D.*

The Pine-tree.

Illustrating the universality of moral truth.

Moral truth is, in its universality, like the pine-tree. Societies have claimed it as being especially their own, as some naturalists have claimed the pine-tree as a feature of Northern climes. But both are wrong. As to the pine, it is represented in all zones, from the cedars of Lebanon to the juniper-tree and fir-bushes of the Scandinavian mountain-tops. To use Oken's significant expression, they form 'the mountains' roof.' They stretch upwards from the wide plains and steppes of sand, leaving the foliage-covered trees below them. Where, says Dr. Masius, the granite builds its towers to the clouds, and the waters leap thundering from the rocky hollows, there this array of lances is planted, and the black banners wave. They climb to the highest summits, and when all other vegetation is extinct, the dwarf-pine (*Pinus pumilio*), laid level with the ground, still creeps on. The blast rages amid its hair and shaggy beard of moss, and makes rough work with its grotesquely outward-stretched arms, close-pressed to the earth; but the gnome does but twine its branches in a yet closer embrace, and fasten with iron strength on the stones of the moor, in which it has planted deep a hundred roots which nothing can tear out. Thus it is with moral truth. It is not merely indigenous. It is universal. There are particular trees, as there are certain forms of speculative and political truth, which can survive only in a limited region; the one being fitted only for a peculiar atmosphere, as the other is adapted only to circumscribed types of mind. But moral truth flourishes amongst all the mental productions of man, as the

pine amongst the vegetation of the world. You see it in every zone. It must thrive, because it is suited and intended for the world.—'*Scientific Symbols.*'

Thorns are Undeveloped Buds.

Noble possibilities are in all men, and they would respond to culture.

Most thorns on trees and plants are really buds, which, under higher cultivation, and more favourable circumstances, would have become fruitful branches. Even that troublesome little flower, the rest-harrow, which in wild and uncultivated land is covered with sharp and considerable thorns, when growing in rich corn-fields puts forth larger leaves, and loses all its spines.

This affords a striking emblem of the powers of man. Uncultivated, and in their natural state, these are, too often, but barren, wounding thorns. Take one of earth's busy toilers, who is possessed of much natural prudence, energy, and perseverance—germs of a noble character. And yet, when the growth of his soul has been stunted, you shall see him early and late toiling only for gain, till his heart becomes utterly cold and selfish, and the whole manner of the man sharp, hard, and thorny. But it has been well said, 'The love of money is the love of God run wild.' Let this man be brought under the power of Divine grace, transplanted from the sterile fields of mammon into the garden of God, and the wisdom, diligence, and untiring zeal of the worldling find a new and holy direction. The true man, the ideal man of God-likeness, develops, the harsh life becomes gentle, and the hard spirit is softened to sympathizing and unselfish love.—*Rev. James Neil, M.A.*

Thorns are among the most striking examples of failure on the part of Nature to reach an ideal perfection. They are not essential organs, perfect parts, but in every case altered or abortive structures. They are formed in two different ways. When the hairs that occur on the stem of a plant are enlarged and hardened, they form rigid opaque conical processes such as those of the rose and the bramble. The so-called thorns of these plants are not, however, true thorns, but prickles, for they have only a superficial origin, being produced by the epidermis only, and having no connection with the woody tissue. They may easily be separated from the stem without leaving any mark or laceration behind. True thorns, or spines, on the contrary, have a deeper origin, and cannot be so removed. They are not compound hardened hairs, but abnormal conditions of buds and branches. A branch, owing to poverty of soil, or unfavourable circumstances, does not develop itself; it produces no twigs or leaves, it therefore assumes the spinous or thorny form, terminating in a more or less pointed extremity, as in the common hawthorn. In some cases, as in the sloe, we see the transformation going on at different stages; some branches bearing leaves on their lower portions and terminating in spines. A bud by some means or other becomes abortive; there is a deficiency of nutriment to stimulate its growth; it does not develop into blossom and fruit. Its growing point, therefore, is hardened; its scaly envelopes are consolidated into woody fibre, and the whole bud becomes a sharp thorn. It is a remarkable circumstance that whenever man cultivates Nature, and then abandons her to her own unaided energies, the result is far worse than if he had never attempted to improve her at all. There are no such thorns found in a state of Nature as those produced by the ground

which man once has tilled, but has now deserted.—*Hugh Macmillan, LL.D.*

Trees growing all round.

The hindrance of society to human growth.

God designed men to grow as trees grow in open pastures, full-boughed all round; but men in society grow like trees in forests, tall and spindling, the lower ones overshadowed by the higher, with only a little branching, and that at the top. They borrow of each other the power to stand; and if the forest be cleared, and one be left alone, the first wind which comes uproots it.—*H. W. Beecher.*

Growth of Trees: Branch and Stem.

'Each leaf pays a small tribute for its support to the stalk which sustains it.'

Lest there should be danger of any number of leaves being too oppressive for their bearer, each leaf sends a small quantity of wood down the stalk to add to its thickness. This slender thread of woody matter, by a process of which no botanical account is in existence, is continued through the branch, and down the stem, with so perfect an order and regularity that even in thrusting forward into the root it does not lose its energy, until, 'mining through the darkness, it has taken hold in cleft of rock or depth of earth as extended as the sweep of its green crest in the free air.' Upon some understanding of this fact all true and delicate drawing of branch and stem depend; for it is this downward growth and thickening that is visibly expressed in the fibres and ridges of the trees, not the upward growth from year to year. It is because the leaves must have free space to drop their slender strands of wood, that they will not grow exactly over the heads of one another, but circle round the spray in a threefold, fourfold, or fivefold order of ascension; so that this fact explains the law of spiral curvature. The little ridges and inequalities at the junctions of spray with branch, and branch with stem, are likewise dependent on it; and these laws of vegetation it is the duty of the draughtsman to express. Claude and Salvator missed them; the instinct of Turner never missed them. Now for the stem. 'How do trees make their trunks?' They are not born with heads like flowers, but have to make their own heads. They do not *grow* like flowers, but are edified like towers; a branch does not stretch itself out as a leech stretches its body, but is built up by shoots of equal length, story by story. Now, if these shoots grew upright, and were founded on one another, instead of each in turn casting out their terminal buds in various directions, it would be easy to see that the formation of the tall trunk would only be matter of time. But trunks are not so formed. They do not grow up as bare poles to a certain height and *then* spread into a crown of branches; the youngest sapling has its crown, and is, in fact, a miniature tree. The shoots spread off in all directions as soon as the tree is above ground; and the supplies of wood by the leaves, though they account for the thickening, do not account for the lengthening, of the stem. The question has never before been solved. The central trunk is built by gradually casting off those lower boughs which cannot thrive because of the shade and damp thrown upon them by their happier brethren above: year by year they drop, but *vitam in vulnere ponunt;* they leave their fibrous strength in the trunk, and time erases the scar they left in perishing.—'*London Review.*'

Crab-apple Trees.

The use of harsh environments.

Harsh environments, disagreeable circumstances, have their utilities. The sticky stems of some plants, the bristles of others, the bitter wax of the ear, have their defensive value. Would the crab forego his shell, or the chestnut its rough overcoat? These things have their human imitations. An ingenious owner of an orchard of sweet apple-trees surrounded it with a fringe of trees bearing a beautiful but bitter fruit. He knew the predatory young rascals of the neighbourhood would judge the interior by the margin. One important illustration of the service rendered by rough environments is found in our Lord's use of parables and 'hard sayings.' Clearly they served the end of awakening healthy curiosity, stirring up the sluggish mind, rousing up within the sleepy hearers the query, 'What?' 'Why?' 'How?' —the inward questioning which is the morning star of knowledge.—*E. Butler.*

Orange-trees.

The fruit grows better as the trees grow older.

As the orange-tree increases in age, so the fruit improves in quality, the younger trees bearing fruit with a thicker rind and abundance of seeds. As the tree becomes older the skin becomes thinner, the fruit much more juicy, and the seeds diminish in number. Some of the old neglected trees bear fruit of the thinnest skin and most luscious flavour. Some of the trees at the Azores bear at a very great age; some in one garden were a hundred years old, still bearing plentifully a highly-prized, thin-skinned orange, full of juice and free from pips. The thinness of the rind of a St. Michael's orange and its freedom from pips depend upon the age of the tree. Here, then, we clearly see a genuine illustration of improvement with age. It typifies the mind of the thinker. In the early fruit of the thinker's mind we have many specimens of thoughts which, though of the right sort, are, perhaps, not perfectly mellow and refreshing. But as the years run on, a man's thoughts become more and more perfect, and compare most favourably with those which are produced by younger minds. Landor entitled one of his books 'The Last Fruit of an Old Tree.' It was the ripe production of a splendid mind at its best.—'*Scientific Symbols.*'

Trees struck by Lightning.

The Gospel teaches there is gain in poverty.

When some giant tree is struck by the lightning's flash and scorched to death, its shattered trunk and torn boughs have not been destroyed by the action of fire from without. The tree, it is true, has been subjected to the direct action of the most intense heat—a heat proportioned to the terrible brilliancy of the electric illumination, which we call lightning. But the action of this heat is rendered fatal by the condition of the tree itself. The dismemberment of its body and branches, which extends to every part, results from the sudden conversion into steam of all the moisture it contains in sap and wood. The instant expansion that thus takes place by the power of the generated steam, rends the tree to pieces, just as under very similar circumstances it would burst even a vessel of wrought iron. Thus the giant of the forest falls a victim to its rich and flourishing condition. The greener and fairer the tree, the more its vein-like tissues swell with those nourishing juices that

build up a life which has the promise of hundreds of years, the more inevitable and crushing is its ruin. It is not otherwise with human greatness and prosperity. While misfortune's stroke finds less upon which to feed in the case of the poor and lowly, whose very poverty is in this respect a protection, its effects are far more deadly on those with whom all is flourishing. Lazarus in his want is far less exposed to the shocks of trial than Dives in his wealth. The humble fishermen of Galilee could, humanly speaking, better face the loss of their all than could the rich and amiable young man, who indeed desired an interest in Christ, but felt that his fortunes were too splendid to be sacrificed even for heaven—'for he had great possessions.' It is one of the chief and peculiar glories of the philosophy of the Gospel that it teaches us not only the dignity, but the *gain* of poverty, thus extracting its double sting. 'Hath not God chosen the poor of this world, rich in faith, and heirs of the kingdom which He hath promised to them that love Him?' Deeper and more real than we are sometimes apt to suppose is the meaning of the Master's words when, speaking of a state of which He had actual experience, He said, 'Blessed be ye poor.' — *Rev. James Neil, M.A.*

The Banyan-tree.

An illustration of the power of self-development.

One of the most striking examples of vegetable growth is to be found in the *Ficus Indica*, or banyan, which may be described as a green tree, growing in its native soil, and having the property of spreading itself to an immense extent.

From the branches of the banyan, small thread-like fibres descend, and these, after being blown about by the winds for some time, reach the earth, take root, and at length become pillars of support to the parent stem. The natives of India, to steady the tendrils in their downward course, are in the habit of fastening to them stones or other weights, by means of which they more quickly reach the earth. This tree is esteemed so sacred by them, that tombs and mosques are often shaded by it; and had they no other temple, they could worship their gods beneath its widely-spreading branches. This may be easily accounted for with the Hindoos, as the Sanscrit name Brahma, the name of the Supreme Being in their religious worship, is derived from a word signifying 'to grow,' 'to expand,' and has been explained by some as 'the widely-expanded Being.'

There is a banyan, celebrated above many others, on the banks of the Nerbudda, which increased to such an extent that it was at last capable of sheltering an army of several thousand men. In another place there is a large extent of ground which, from probably one tree, has become an almost impenetrable little forest.

The Judas-tree.

An illustration of the deceitfulness of sin.

In this tree the blossoms appear before the leaves, and they are of brilliant crimson. The flaming beauty of the flowers attracts innumerable insects, and the wandering bee is drawn to it to gather honey. But every bee that alights upon the blossoms imbibes a fatal opiate, and drops dead from among the crimson flowers to the earth. Beneath this enticing tree the earth is strewed with the victims of its fatal fascinations. That fatal plant that attracts only to destroy is a vivid emblem of the deceitfulness and deadliness of sin. For the poison of sin's bewitching flowers there is but

one remedy. It is found in the 'leaves of the tree of life' that groweth on Mount Calvary.—*Theodore L. Cuyler.*

The Blossoming Almond-tree.

The type of vigilance and watchfulness.

The almond-tree is light and graceful, with a small and delicate leaf, and is very extensively grown, being planted in gardens and along the hedges of vineyards. It is the earliest tree to blossom, and was for that reason called by the Romans the 'vigilant' or 'watchful' tree, indicating its readiness to take advantage of the first mellowing of the season. Its numerous white blossoms burst forth in the month of January, before the leaf-buds appear; and being set off by the fresh grass of that season of the year, the almond-trees then present a snowy appearance, not unlike so many hoary heads scattered over the fertile valleys.—*Van Lennep.*

The Grace of the Elm-tree in Winter.

If a man is noble, adversity can only make him appear more noble.

But look now at the grace of my elm-tree. See the bold springing arms and interlacing boughs, now that the last leaf is gone, and mark that bright aureola of flame that circles its lofty trunk, where the crimsoned stems of the creeper are still clinging. How the eye never wearies in following all the perfect tracery against the blue sky! It has seemed to me almost more delightful than the summer greenness. And have you never seen in adversity the true man stand out like that, not only in majesty, but in grace, quite unharmed by the loss of all that was adventitious, and never until then fully seen and known?—*Sarah Smiley.*

Trees take Time for their Perfecting.

Slowness in moral development is no cause for anxiety.

Let none of us be discouraged; for it takes time for seeds, and trees, and souls to put on their beautiful garments. Israel waited long, toiled hard, and suffered much before coming out of Egypt; but in process of time the day of deliverance came. Again, they waited long, and sighed often, in the captivity of Babylon; and many died in captivity; but the day came that the survivors came forth with mirth and singing.

And as certainly, on the wings of every hour, our new spring is coming, when, clothed in beauty, we shall break forth into song. Our wedding garment is weaving out of the Lord's light, in the warm weather of our expectant souls. Divine virtues, like flowers, are unfolding; angels are coming to make their nests in our bosoms, and lead in our new delights.—*John Pulsford.*

The Wych-elm.

The first tree to feel the approach of winter.

The wych-elm manifests the approach of winter earlier than any other tree. It becomes ruined and denuded by a touch of the frosty air, and contributes no splendour, no beauty, to our autumnal scenery, as its leaves curl up, become brown, and flutter from their sprays as early, when growing in exposed situations, as the middle of September. This character of itself marks a difference from the common elm, which preserves its verdure, except from accidental causes, long after this period, and with a fine mellow yellow hue, contributing a full share with other trees to the character and splendour of autumn. The wych-elm is an emblem of the susceptible, tender human

character. The soul of such a man is highly sensitive to all external impressions. The first frosty touch of a great sorrow shakes his life to its centre. Men of a more robust type are chastened by sad events; and, mellowed by chequered experiences, live on to the tranquil maturity of their existence. But he, unfortunately, cannot face the rough blasts of adversity, and perishes at once under their cruel chilling influence. Even the cold breath of slander sometimes bears for him a sentence of death.—'*Scientific Symbols.*'

The Canary Laurel.

A type of Christ, the source of continual refreshment.

In one of the islands of the Canary Group known among the people as 'Blackland,' on account of its arid and desert-like character, there flourished for a long time a single tree of a species of Indian laurel, possessed of the property of condensing from the air a great quantity of moisture, which it afterwards gave off very abundantly from the surface of its leaves. When all around was dry, the droppings from this invaluable tree formed a small pool of water at its foot. In times of drought it was of the greatest service. To the poor natives its refreshing qualities seemed miraculous. They tended it with every care, and called it the 'holy tree.'

Christ the Lord is such a tree of life in the midst of earth's arid desert. He is an ever-dropping, undiminishing fountain, whereat whosoever drinks shall never be athirst. As the water dripping from the tree was partly drawn from the fountains of the skies, and partly from sources hidden in the earth, so Christ came to reveal secrets hidden with God, and to draw out of human nature its most beautiful and blessed things, and open up fountains of the highest aspiration of man's immortal soul.—*Rev. James Neil, M.A.*

Olive-groves.

Children are likened to olive-plants (Psa. cxxviii. 3).

'Follow me,' says a recent traveller in Palestine, 'into the grove, and I will show you what may have suggested the comparison.' Here we have hit upon a beautiful illustration. This aged and decayed tree is surrounded, as you see, by several young and thrifty shoots, which spring from the roots of the venerable parent. They seem to uphold, protect, and embrace it. We may even fancy that they now bear that load of fruit which would otherwise be demanded of the feeble parent. Thus do good and affectionate children gather round the table of the righteous. Each contributes something to the common wealth and welfare of the whole—a beautiful sight, with which may God refresh the eyes of every friend of mine.—'*Biblical Natural Science.*'

The Architecture of Forest Trees.

From them has been taken the idea of a Gothic church.

The Gothic church plainly originated in a rude adaptation of the forest trees, with all their boughs, to a festal or solemn arcade, as the bands about the cleft pillars still indicate the green withes that tied them. No one can walk in a road cut through pine-woods without being struck with the architectural appearance of the grove, especially in winter, when the bareness of all other trees shows the low arch of the Saxons. In the woods, on a winter afternoon, one will see as readily the origin of the stained-glass window,

with which the Gothic cathedrals are adorned, in the colours of the western sky, seen through the bare and crossing branches of the forest; nor can any lover of Nature enter the old piles of Oxford and the English cathedrals without feeling that the forest overpowered the mind of the builder, and that his chisel, his saw and plane, still reproduced its forms, its spikes of flowers, its locust, its pine, its oak, its fir, its spruce. The Gothic cathedral is a blossoming in stone, subdued by the insatiable demand of harmony in man. The mountain of granite blooms into an eternal flower, with the lightness and delicate finish, as well as the aërial proportions and perspective, of vegetable beauty.—*R. W. Emerson.*

Trees Beautiful all the Year Round.

Christian life should always be beautiful, but seem to grow more beautiful as it nears its close.

In their changeful beauty trees possess a peculiar advantage over all other forms of vegetation. Though they are always ornamental, yet, whether viewed alone, or seen in wild sylvan masses, they look the loveliest in Nature's decay. Fair are the woods in spring, when first their leafy boughs unfold the bright and exquisitely tender verdure of a new life. Fairer still they seem in the deep beauty of their summer foliage, with its tints of richest green, extending cool and inviting shades, and filling the air with the soft sweet music of their rustling leaves. But fairest by far are the trees in the fall of the year. Well has it been said: 'As the golden autumn steals over the forest, comes the period of its richest glory—that in which the painter revels, vainly tasking his palette for its imitation; and though these bright hues are the tokens of decay, the foliage has a glory in its approaching dissolution, unknown to it in youth and vigour.' Then the birch shines one mass of burnished gold. The beech is resplendent with brightest tints of orange. The 'ensanguined dogwood,' after a purple stage, passes into the most intense crimson. Many rich brown hues adorn the oak; the maple family assume a splendid mantle of variegated colour; while, in addition to these,

'A thousand tints
Which Flora, dressed in all her pride of bloom,
Could scarcely equal, decorates the groves.'

Thus is it in the life of the believer. It is brighter and more lovely towards its close. 'The path of the just is as the shining light, that shineth more and more unto the perfect day.' He may truly take up the language of the Apostle: 'Though our outward man perish, yet the inward man is renewed day by day.' Bright as he appears in the spring-time of conversion, or in the summer beauty of developed Christian character, it is in the autumn hours of approaching decay that the child of God is seen in his fairest colours. His last days are his best, for then his departing spirit seems to receive a hallowing foretaste of the glory it is about to enter.—*James Neil, M.A.*

The Tree of Life.

Interesting legends are associated with this tree.

The tree called *Arbor vitæ* (Tree of Life) is found sculptured on ancient Egyptian tombs, as a symbol of belief in another existence beyond the grave. The curious point about it is that it should receive this name in preference to any other tree. Some have supposed that this is due to the fact that while an evergreen it loses its fresh colour, assuming

a much darker shade in winter, and renewing its bright green hue in spring.

In an old rare book, called 'Adam's Repentance,' is the following legend concerning it: Seth, the third son of Adam, went to the gate of Paradise at the request of his dying father, and there received from the angel in charge three seeds of the tree of life, which he put in the mouth of Adam when he buried him. From these grew three saplings, from which were taken the wood for Moses' rod, and that by which the waters of Marah in the desert were sweetened. The temple of David was also built of the wood of these trees, and the bench on which the heathen sibyls sat when they prophesied the coming of Christ. Moses' rod was planted in Canaan, and also became a tree, from which the cross of Christ, the new tree of life, was made, and the eternal life, lost in Adam, is regained. This legend is fully portrayed in a picture on the altar of a church in Leyden.

It is, perhaps, founded on a simpler story, told by Sozomen, the ecclesiastical historian, that at Hermopolis, in Egypt, stood the tree Persis, the fruit, leaves, and bark whereof possessed wonderful healing qualities. When the Virgin Mary, on her flight to Egypt with the infant Jesus, rested under this tree, it bowed its whole length in humble reverence to Jesus as the true Lord of life and health.

In the Middle Ages it was said that whosoever would eat of the wood of this tree of life would be preserved from weakness and decrepitude, and would be rendered invincible as Achilles. It was also said that to eat of its foliage would cause one to forget all hunger and care. This is probably true, but the tree would not then be one of life, but one of death. The active principle in the leaves is poisonous, and is not now used as medicine, except by the homœopathists, under the name of *Thuja*.

Discontent in Trees.

Everywhere we find the signs of incompleteness.

The tree which blossoms is not as content as it appears. The perfume and the beauty so perfect to us are not ultimate to the tree. Nor do we hear the tones of consummation in the call of the cuckoo, the cry of the peewit, the wail of the sea-gull, the lowing of kine, or the neigh of the horse. A scale of music has an incomplete completeness; there is always a higher and a lower. Even lightning seems in search of a fleetness fleeter than its own, and the very sun has yearnings in its beams to turn the planet into a flower. Nothing can individually know entire harmony, because everything is contributing towards one harmonious whole not yet complete; each shares the incompleteness and the possibility of completion. Thought cannot realize all possibilities, just because all possibilities are not yet realized. We must think up to the facts we know, and cover the rest with faith.—*William Tirebuck.*

The Brittle Branch.

Many Christian professors prove untrustworthy in the time of trial.

In the summer of 1870 a young man, who lay under the shadow of one of the elm-trees in the forest of Windsor, was killed by the falling down upon him of one of the largest branches. There was no storm of wind at the time; on the contrary, the air was calm and motionless, and not a leaf in the forest stirred; the branch was not old and rotten; on the contrary, it was fresh, full of sap, and covered with rich green foliage. This strange thing not unfrequently happens to the elm during the

long continuance of dry and sultry weather, which has the effect of making its wood brittle, so that the branches part easily from the tree, and fall down by their own weight. How many professing Christians are made fickle and unsteadfast during a period of trial, so that they lose their hold of the Church, and fall away from it at once, while apparently green and flourishing! — *Hugh Macmillan, LL.D.*

The Varying Evergreens.

Each man is adapted to his place and work.

We hear of evergreens in the burning tropics, and evergreens amid the snows of the bitter North. The lofty palm is the evergreen of the land of the sun. Its woody stem, equally firm and pliant, unencumbered by a single branch, rises like a tall, slender mast, and it is thus enabled to withstand the whirlwinds peculiar to this region. At its summit it spreads out its rich crown of leaves, summer and winter. These form a huge and graceful parasol, by which, not only its own fruit, but also the growth of the ground below, is shaded from the fierce rays of the cloudless sun. The grand and sombre fir-tree, on the other hand, which lives in the North amid ice and snow, branches close to the ground, and roof-like drops its boughs at their extremities, exposing its fruit above to every glimpse of sun, and from its form allowing the ponderous snow, which would otherwise crush it, to glide down off the smooth polished leaves. One has well said, 'If the palm were a pyramid like the pine, it would fall before the first storm of the tropics; if the pine were tall and shaped like a broad parasol the snow and ice of the North would break it by their heavy weight. Yet both the burning tropics and the Arctic zone have their evergreens. At the South it is the towering palm that protects with its gigantic leaves all that lives against the fierce heat, and lets the ground be covered with green creepers and countless ferns, to keep it fresh and cool. At the North it is the dark pine, whose lofty dense pyramid and ample branches, covered with ghastly moss, protect in like manner the ground underneath, so that the reindeer and man may find there abundance of soft dry leaves, and thick layers of downy moss.

Behold in this illustration how Almighty God makes use of very different agents to carry out the self-same work—namely, that of extending the protecting shelter of Divine redeeming love to a lost world. It may be seen from the very first. Now He sends forth simple fishermen just as they have risen up and left their humble employ; and now, on the same errand, He commissions Saul, the learned and trained rabbi. Matthew, the despised tax-gatherer, and Luke, 'the beloved physician,' both have their place in the same work. Bunyan, the rude and illiterate tinker, and Lady Jane Grey, the refined and cultured noble, were equally His instruments to the one great end. And not only do natural parts thus widely differ amongst the true servants of God, but also spiritual gifts. The Apostle Paul devotes the whole of the twelfth chapter of the First Epistle to the Corinthians to this subject. One, he says, has more especially the word of wisdom, another the word of knowledge, another faith, another gifts of healing, etc. But all these worketh that one and the selfsame spirit, dividing to every man severally as He will. This is a deeply important truth. We are all exceedingly apt to misjudge or undervalue those whose gifts or graces differ from our own; and we do well to lay to heart that there are 'diversities of gifts, but

the same spirit; and there are differences of ministries, but the same Lord.'—*James Neil, M.A.*

Nebuchadnezzar's Tree

(Dan. iv. 10, etc.).

Only a broad-leaved tree has the power of putting forth fresh branches.

Trees of the pine and fir tribes, when cut down, do not send up fresh stems, like broad-leaved trees in general; but their roots immediately begin to decay. . . . The magnificent cedar of Lebanon might have been looked upon by Nebuchadnezzar as a suitable emblem of his own glory and power, but it cannot have been this tree that he saw in his dream—a tree that grew 'and was strong, and the height thereof reached unto heaven, and the sight thereof to the end of all the earth.' Had it been a resinous tree, a cedar, pine, or fir, it would have been in vain to have left the 'stump of his roots in the earth,' until 'seven times' would 'pass over him,' expecting that vitality would again show itself. It must, therefore, have been a broad-leaved tree, having the power, which trees of the fir tribe do not possess, of forming fresh buds, and putting forth fresh branches at any part of the stem, and at any time when the flow of sap has been accidentally stopped. This idea is confirmed by the statement that it was a fruit-producing tree, affording 'meat for all.' Bearing fruit, and growing afresh when cut down, are properties that apply conjointly to some trees, and there are other trees to which neither of them can properly apply.—*Gorrie.*

Sacred Trees.

By a natural instinct men peopled the trees with beneficent spirits.

The palm, the oak, and the ash are, according to a timely and interesting article in the *Deutsche Rundschau*, the three trees which, since times immemorial, were held to be sacred trees. The first among them, which figures on the oldest monuments and pictures of the Egyptians and Assyrians, is the date palm (*Phœnix dactilifera*), which was the symbol of the world and of creation, and the fruit of which filled the faithful with divine strength, and prepared them for the pleasures of immortality. 'Honour,' said Mahommed, 'thy paternal aunt, the date palm, for in Paradise it was created out of the same dust of the ground.' Another Mahommedan tradition of a later period says that when Adam left Paradise he was allowed to take with him three things: a myrtle, because it was the most lovely and the most scented flower of the earth; a wheat-ear, because it had most nourishment; and a date, because it is the most glorious fruit of the earth. This date from Paradise was, in some marvellous way, brought to the Hejàz; from it have come all the date-palms in the world, and Allah destined it to be the food of all the true believers, who shall conquer every country where the date-palm grows.

The Jews and the Arabs again looked upon the same tree as a mystical allegory of human beings, for, like them, it dies when its head (the summit) is cut off, and when a limb (branch) is once cut off it does not grow again. Those who know can understand the mysterious language of the branches on days when there is no wind, when whispers of present and future events are communicated by the tree. Abraham of old, so the rabbis say, understood the language of the palm.

The oak was always considered a 'holy' tree by our own ancestors, and, above all, by the nations of the North of Europe. When Winifred of Devonshire (680-754 A.D.) went forth on his wanderings through Germany to preach the Gospel, one of his first actions was

to cut down the giant oak in Saxony, which was dedicated to Thor and worshipped by the people from far and near. But when he had nearly felled the oak, and while the people were cursing and threatening the saint, a supernatural storm swept over it, seized the summit, broke every branch, and dashed it—'quasi superni motus solatio'—with a tremendous crash to the ground. The heathens acknowledged the marvel, and many of them were converted there and then. But the saint built a chapel of the wood of this very oak, and dedicated it to St. Peter.

But the sacred oaks do not seem to have always done their duty. Thus, for instance, a famous oak in Ireland was dedicated to the Irish saint Columban, one of the peculiarities of the tree being that whoever carried a piece of its wood in his mouth would never be hanged. After a time, however, the holy oak of Kenmare was destroyed in a storm. Nobody dared gather the wood, except a gardener, who tanned some shoe leather with the bark; but when he wore the shoes made of this leather for the first time he became a leper, and was never cured.

In the abbey of Vetrou, in Brittany, stood an old oak-tree which had grown out of the staff of St. Martin, the first abbot of the monastery, and in the shade of which the princes of Brittany prayed whenever they went into the abbey. Nobody dared to pick even a leaf from this tree, and not even the birds dared to peck at it. Not so the Norman pirates, two of whom climbed the tree of St. Martin to cut wood for their bows. Both of them fell down and broke their necks.

The Celts and Germans and Scandinavians, again, worshipped the mountain ash (*Fraxinus*), and it is especially in the religious myths of the latter that the 'Askr Yggdrasil' plays a prominent part. To them it was the holiest among trees, the 'world tree,' which, eternally young and dewy, represented heaven, earth, and hell. According to the Edda, the ash yggdrasil was an evergreen tree. A specimen of it (says Adam of Bremen) grew at Upsala, in front of the great temple, and another in Dithmarschen, carefully guarded by a railing, for it was, in a mystical way, connected with the fate of the country. When Dithmarschen lost its liberty the tree withered, but a magpie, one of the best prophesying birds of the North, came and built its nest on the withered tree and hatched five little ones, all perfectly white, as a sign that at some future time the country would regain its former liberty.

Lessons from the Vine.

1. *A Figure of the Mystical Body of Christ.*—Each season, at the close of the year, the shoots or annual plants of the vine die completely; but though dead, and composed of very perishable materials, they escape decomposition, owing to the roots of the new buds with which they are tipped growing over them, enclosing them altogether on every side. They are thus hermetically encased in the tree, which is like a cluster of coral—each new generation of living organisms springing from the remains of a past generation—to the growth and increase of which, as in the common coral structure, there can be no limit, except from external circumstances, on account of this peculiarity of its construction. This affords a very beautiful and appropriate type of the mystical body of Christ, made up, like the natural tree, of countless separate plants. The union between Christ and His people, belonging to every age and country and class, is of the closest and most vital description. Each member has his own individuality

and personal existence, and yet, living or dead, he is a component and integral part of one common stock. Just as each part of the growing vine resembles each other, so each Christian bears at every stage of growth some likeness to Christ, which is becoming more and more complete, by the inward vital law of life and growth.—*Hugh Macmillan, LL.D.*

2. *Uselessness of Vine-wood.*—When about to plant a vineyard, the husbandman selects and cuts the most promising branches of one year's growth of the variety best suited to his purpose. These he soaks for a number of days in spring water until the buds begin to burst forth, when he plants them in rows some eight feet apart. The stems are generally not allowed to grow up higher than two feet, though in some places they are six feet high. The branches are pruned every spring, being cut close to the stem, and when not needed to thatch the top of the earth-wall, are burned to put them out of the way, as *they are too porous and light* to serve any purpose. Among the poor dry vine-branches are used for heating the water for washing; and in the neighbourhood of large towns they are made into charcoal, which does not give out heat enough for cooking purposes, but is used in the houses of the wealthy to heat the *tandoor*, or warming apparatus.—*Van Lennep.*

3. *The Spring-time for Grafting.*—The season in which grafting the vine is most successful, viz., the spring-time, just previous to the rising of the sap, indicates that no period is so suitable for the operations of grace, as the spring-time of life, when the heart is fresh and tender, and the mind easily impressed by Divine things.

4. *The Envy of the Vine* (*a Parable*).—The vine one day complained of the severity of its destiny. It envied the condition of the reed. 'I am planted,' it said, 'amidst parched rocks, and am obliged to produce fruits full of juice. Whereas, in the valley, the reed, which bears nothing but dry shag, grows at its ease by the brink of the waters.' A voice from heaven answered: 'Complain not, O vine, of thy lot. Autumn is coming on, when the reed will perish without honour on the borders of the marshes; but the rain will go in quest of thee in the mountains, and thy juices shall cheer the heart of man.'

The Fruitful Olive.

'*His beauty shall be as the olive-tree*' (Hos. xiv. 6).

Conspicuous amongst other trees by its bushy growth and ashy foliage, the fruitful olive chequers the sandy soil and clothes the mountain slopes of Northern Judah. At once one of the best-known and highest-valued of European fruit-trees, it starts with spontaneous vigour from the arid earth, and contends for beauty with the terebinth and palm in the sunny valley of Esdraelon.

Introduced to mankind at the re-creation of the world (Gen. viii. 11), and honoured with commendation in the oldest recorded parable (Judg. ix. 8), it lives in the metaphors of prophet, historian, and poet; and while shading in Gethsemane (the place of fatness) the agonies of a Saviour, it alone anticipates immortality in the streets of the New Jerusalem (Rev. xi. 4); and, apart from its Biblical associations, it will ever be venerated for its benefits and advantages. In early spring the glittering blossoms of the olive convert for a time every garden into a glacier of fragrant, undulating, vegetable snow; indeed, so prolific is its inflorescence, that it is calculated that not one half of

the flowers ever arrive to maturity (Deut. xxviii. 40). Then later in summer the changeful play of its pointed leaves, dull green above, and silvery gray below, relieve by their form and colour the grassless hills of Palestine, while the stems afford food and shelter to the myriad sparrows 'who lodge in the branches thereof.' Lastly, in autumn, when the vine leaves are shrivelled and the fields are parched, the boughs of the olive bend beneath their oily burden, and the gatherers, beating with long rods the loaded tree, while their half-nude children catch the falling berries, attest by their joyfulness the fitness of the old tradition which in Judea makes the olive the chosen tree of the Lord, and in Greece the best gift of the goddess of wisdom.*

Nor is its usefulness, like that of most other fruit-trees, confined to its immediate products; the timber, which is agreeably veined, and fragrant to the smell, is sufficiently durable to render it very valuable in a country not remarkable for timber trees. As a reference to the Book of Kings will show, parts of the most costly edifices were constructed of it preferably to fir. The oil is nutritious, palatable, and medicinal; from its smaller branches an excellent charcoal is prepared, and the dried foliage forms a useful litter for cattle.

There is something strongly indicative of health and vigour in the fresh look of a flourishing olive-tree; but especially when a grove of them is seen together, and the sun shining on their glossy leaves. The trunk is of a moderate height, and gnarled in a picturesque manner; the foliage is of a deep and peculiar green, and under a passing breeze the uppermost leaves turn round and show a fine silvery hue. Hence the full meaning of the words, 'His beauty shall be as the olive-tree;' and again, 'The Lord called thy name, A green olive-tree, fair, and of goodly fruit.' It is not the evergreen verdure of the tree merely that is referred to, but its health and vigour. Where could we find a better emblem of the Church in a flourishing condition than just such a grove of olives as this, with the peaceful notes of the turtle-dove poured forth from the midst, and the sun's living light over all, like the Sun of righteousness shining over His peaceful Church?—*Bonar.*

It does not strike me as very beautiful; but perhaps one's eye needs to be educated before it can distinguish properly, and decide correctly, on such questions, in new and strange circumstances.

No doubt, to me, this noble grove, spreading like a silver sea along the base of the hills, and climbing their ascending terraces, is perfectly charming, and it speaks of peace and plenty, food and gladness. The olive-tree and its fruit make the face of man to shine in more senses than one. To a stranger it is necessarily destitute of these pleasing associations; but to me it is at all times both charming and refreshing to ride through such a grove when clothed with flowers, or when bowed down with

* According to the Greek mythologists, on the foundation of Cecropia, Minerva and Neptune disputed for the honour of naming the city, and the council of gods having decreed that that claimant should have the preference who bestowed on the inhabitants the most useful gift, Neptune, striking his trident angrily on the ground, produced a horse; when Minerva, smiling with disdain, and copying his action with her spear, brought forth the olive, which was decided to be the more valuable gift, as the emblems and arts of peace are preferable to those of war. The city was henceforth named, from one of her epithets (Αθηνα), Athena, and became the capital of Greece.

fat and oily berries.—'*The Land and the Book.*'

The olive is scarcely to our Western eyes a beautiful tree; but to the Oriental the coolness of the pale blue foliage, its evergreen freshness, spread like a silver sea along the slopes of the hills, speaks of peace and plenty, food and gladness. The trunk, too, gnarled and wrinkled, often hollow and scathed, yet yielding abundant crops to the extremest old age, and renewing it from the inside, suggests the idea of perpetual youth. It is never more picturesque than when the old stem begins thus to restore its growth, when apparently held together by the bark alone.—*Tristram.*

White Branches of the Barked Fig-tree.

Observation of this peculiarity was a masterstroke of the poet (JOEL i. 7).

The prophet Joel, in describing the ravages of a swarm of locusts, speaks of them as alighting on the fig-trees, peeling off the bark with their teeth, and then leaving them entirely white, after completing this work of devastation. From the prophet singling out the fig-tree as exhibiting this appearance, one would suppose the wood of this tree to have a peculiar whiteness, which other trees do not possess in the same degree. On meeting with the fig-tree for the first time, I was curious to ascertain whether this expectation was well founded or not. I broke off some of the tender twigs, removed the bark, and was pleased to find that the result confirmed my conjecture. Though I examined several other trees with reference to the same point, I satisfied myself that no one of them would present to the eye so remarkable an object as the fig-tree, with its bark stripped off from top to bottom. To look over a landscape and see a multitude of these trees leafless, newly peeled, exposing to view the white wood, so peculiar to them as compared with other trees, would impress the spectator strongly with an idea of the desolating power of the locust; it was a masterstroke of the poet to fix on that circumstance for the purpose of conveying such an idea.—*Professor Hackett.*

The Mischief wrought in a Tree by One Worm.

There is ruinous power in a single sin (ECCLES. ix. 18).

During the summer of 1853 (writes a gentleman) I was an invalid, and was induced, on the recommendation of my physician, to go to the hydropathic establishment at Sudbrook Park, near Richmond, in Surrey. During my sojourn there, I was one day walking through the romantic grounds and park with some friends and the proprietor, Dr. Ellis, when the doctor drew our attention to a large sycamore-tree, decayed to the core. 'That fine tree,' said he, 'was killed by a single worm.'

In answer to our inquiries, we found that about two years previously the tree was as healthy as any in the park, when a wood-worm, about three inches long, was observed to be forcing its way under the bark of the trunk. It caught the eye of a naturalist who was staying at the establishment, and he remarked, 'Let that worm alone, doctor, and it will kill the tree.' This seemed very improbable, but it was agreed that the black-headed worm should not be disturbed.

After a time it was found that the worm had tunnelled its way a considerable distance under the bark. The next summer the leaves of the tree dropped off very early, and in the succeeding year it was a dead, rotten thing, and the hole made by the worm might

be seen in the very heart of the once noble trunk.

'Ah,' said one who was present, 'let us learn a lesson from that dead tree. How many, who once promised fair for usefulness in the world and the Church, have been ruined *by a single sin!*'

The Tree nearly cut through.

There is sometimes need for sternest dealings in the training of character.

'I have heard Mr. Cecil mention, with much feeling,' says his biographer, 'many deep and secret conflicts of mind, with which he was exercised while at college; added to which he had to meet many insults, which profligate men offer to piety. Under these impressions, he was one day walking in the gardens, where he observed a very fine pomegranate-tree, cut almost through the stem near the root. On asking the gardener the reason of this, "Sir," said he, "this tree used to shoot so strong that it bore nothing but leaves: I was therefore obliged to cut it in this manner; and when it was almost cut through, then it began to bear plenty of fruit." The gardener's explanation of this act conveyed a striking illustration to Mr. Cecil's mind, and he went back to his room comforted and instructed by this image.'

The Hospitable Oak-tree.

The grandest things may be adorned and beautified by the simplest.

The oak is of all trees—of all living things—the most hospitable; and in this respect it is well chosen as the badge of England, which has the proud distinction of affording a refuge to every political outcast and victim of ecclesiastical tyranny throughout the world, and fosters by its love of freedom and constitutional government every type and variety of human life. A whole book might easily be written upon the multitude of living things that obtain food and shelter from the oak. The natural history of its inmates and boarders is like that of a garden or, indeed, a county. Some creatures are peculiar to it, and find their home nowhere else; and to many more that are free to come and go, it extends a kindly welcome. Were it to perish altogether from off the face of the earth, many insects and plants would disappear utterly. The insect population alone of the oak tree, including beetles, butterflies, and a great variety of tiny creeping things which none but a naturalist cares for, or is aware of, would furnish materials for study of a most interesting and absorbing kind for many summer weeks together. When we do not see themselves, we see the evidence of the existence and working of the insects in the great variety of curious galls which they produce upon the trunk and branches —oak-apples that hang on the twigs like some mysterious unknown fruit, and are as wondrously fashioned, although excrescences and abortions of the vital sap, as the legitimate acorn-cups and eggs themselves; and beautiful golden-brown spangles that crowd all the under-surface of the withering leaves in autumn like the seeds, or the 'fairy's money' as it is called, on the back of the ferns, thus linking the oak-leaf and the fern-leaf — the highest and the lowest type of vegetation—together in the wondrous unity of Nature by a strange similitude of appearance.

But it is among the plants that we find the most beautiful occupants of the oak-tree. The ivy climbs up its trunk, which affords admirable support for its myriads of little feet. and changes its glossy leaves, as it creeps higher and higher, from the deeply-cut angular pattern to the oval and pointed one; and at the top it waves its

airy sprays among the oak-leaves, and produces beside the acorns at the extremities of the branches the light green flowers that blossom only when the plant has nothing to cling to, and must shift for itself; as if Nature were taking care that when the life of the individual was in danger, the life of the race should at least be made sure. Then there is the mystic mistletoe, with all its dim and sacred associations with the Druid worship of our remote ancestors. It clings still closer to the oak, for it is not an epiphyte like the ivy—merely making use of the tree for support, and finding its own food independently from the soil and air—but a partial parasite that strikes its root into the substance of the oak, and while to some extent feeding upon its prepared juices, is capable of showing a little independent spirit and working for its own support, as is evident from the fact of its having green leaves, which, however pale, can still decompose, to some extent, the sunshine into materials of growth. The mistletoe is thus a partial boarder of the oak; it gets, so to speak, its principal meal from it, while for its lighter refreshment it is dependent upon its own resources. A beautiful emblem truly it is, thus growing on our royal English tree. According to the suggestive mythology of our ancestors, which had, indeed, much in it of the deeply philosophical, as well as of the practical and religious, the oak was Hesus, the god best and greatest, strongest and everduring; and the mistletoe was man, weak and poor, but living in him and clinging to his everlasting arms. It would be difficult to enumerate the various kinds of mosses, lichens, and ferns that show a preference for the oak, and share its grand and liberal hospitality. Its trunk seems as if made to harbour those lowly liliputian members of the vegetable kingdom, whose quaint forms and envious properties harmonize so well with the fairy scenery of midsummer night dreams. Unlike the smooth bark of the beech, made to keep all visitors aloof, the bark of the oak is full of furrows, crevices, irregularities, porches, and outbuildings as it were, where wandering seeds find lodgment, and first tender growths can secure their hold against scorching sunbeam and cruel wind. The huge patriarch, hoary with years, whose life-time bridges across the whole history of England, allows the tiny imps of vegetation that are but of yesterday—the perpetual infants, so to speak, of plant-life—freely to clamber over its roots and arms, and hang upon its rugged bosses which time has used so cruelly, reducing them almost to bone and muscle, their emerald bracelets of moss, their plumes of polypody ferns, and their rosettes of lichen, adorning the magnificent old grandfather of the woods with the ornaments of youth and beauty! What a wonderful picturesqueness do these lowly forms of life, crowding around the oak as it grows in years and in size, give to it! They richly repay the hospitality they receive in the added charm which they impart to the forest patriarch. They show an exquisite sympathy even with its weaknesses, hiding its defects by their fairy sprays, and covering its dead members with a lovely pall of vegetable velvet. It teaches us thus the touching lesson that the grandest things in Nature may be made more beautiful and picturesque by the simplest; as the greatest man may be indebted for his chief happiness to the smiles and the prattle of the little children that climb on his knee. Even to the fairy shapes that played among these mystic forms of plant-life, when the world was younger and more credulous, the oak was more hospitable than any other tree. The Dryads took their name from

it, and flitted in and out among the flickering shadows cast by its leaves upon the ground, and gave to those whose eyes were purged with the eye-salve of faith to see them, glimpses of a realm fairer and brighter than the common human world of care and toil. And how open to all the flowers and shrubs of the wild-wood are its wide-spreading arms! The grass may grow up to the very foot of its trunk unreproved by any dark frowning shadow cast by its leaves. The hyacinth may make a fragrant mist of blue about its roots, and the primrose need not blanch its sunny cheek as it creeps up to its venerable bole; and all the seasons may bring their varied gifts to bloom and fade within its circle without let or hindrance. Royal as it is, there is no solitude or exclusiveness of royalty about it. Rather does its dignity consist in its hospitality; and its nobility is indicated by its freeness of access and kindly and generous welcome to all that may hold within it the sacred principle of life. The gates of its hospitality, like the Bokharian nobleman's, are 'nailed open.' Sturdy and independent as it is, there is thus no object that is more closely linked with the general life of Nature, that blends more harmoniously with the operations which different creatures carry on for their own advantage, and makes of them one genial system of mutual benefit.—*Hugh Macmillan, LL.D.*

Lessons from the Palm-tree.

1. *An Emblem of the Righteous.*—An ordinary teacher would, perhaps, turn to the parallel passage in the first Psalm, in which the righteous man is compared to a tree planted by running waters; and after his class had read it, he would pass on to the next verse. But search out the botanical and the local properties of this noble emblem, and how interesting will be the chain of truths which the search develops! Mark its *position.* It stands in the desert, a spot where there is little water, where the fatigues of travelling are excessive, and where the landscape presents to the eye an unvarying surface of sand. Mark the *source of its fertility.* It has invariably water at its root. You may have to dig deeply, but sooner or later you will find the fertilizing spring whence life is drawn up into the trunk, and sap distributed throughout the branches. Mark its *shadow.* Large feathery leaves radiate from its crown, which make a natural umbrella, beneath which the scorched traveller finds refreshing repose. Mark its *fruit.* Upon its top you will find a quantity, which becomes more luxuriant and abundant as the tree gets older. Mark, lastly, its *powers of reproductiveness.* Fell it to the earth, and presently another palm will spring up from its roots, taller in stature, fresher, if possible, in appearance, and more plentiful in fruit. Here, then, we have five blessed truths taught. There is the Christian's position. He is a pilgrim upon earth. In the midst of a waste and howling wilderness he springs up, a tree of righteousness of God's planting. There is his spring of life. God's Spirit—'Whoso drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall be in him a well of water springing up into everlasting life'—dwells within him, to break his heart when it is hard, to warm his heart when it is cold, to comfort his heart when it is troubled—to be within him a source whence 'all holy desires, all good counsels, and all just works do proceed.' There is, moreover, his protective influence. 'The Lord blessed the household of the Egyptians for Joseph's

sake.' The widow of Sarepta was maintained in comfort for eleven months, in a time of dearth, because there dwelt with her a prophet of the Lord. 'Come with us,' said Moses to Hobab, 'and we will do thee good; for the Lord hath spoken good concerning Israel.' There is his fruitfulness. He is no desert heath, dry in its stem and prickly in its leaf; no gourd, springing up in a night and perishing in a night; no fig-tree, broad in its leaf, but often a barren cumberer. No; he is a palm bearing fruit—more fruit as time matures him; and you will find in him 'whatsoever things are pure, whatsoever things are just, whatsoever things are true, honest, lovely, and of good report.' Mark, lastly, his reproduction—his resurrection. Men shall carry him to his grave, but he shall emerge therefrom in a beauty which man in his innocence never wore; in a magnificence which angels in their greatness never displayed; and with a purity which shall fill even the mind of a holy God with exceeding joy. If we may find 'books in the running brooks, sermons in stones, and good in everything,' I am persuaded that we may also find 'tongues in trees.' —*J. F. Serjeant.*

2. *The Model of Uprightness* (Psalm xcii. 12; Jer. x. 5). — Nothing is more picturesque in Oriental landscapes than the towering palms, with their long straight stems tapering upwards to the height of ninety or a hundred feet, and these surmounted with their dozen or more drooping feathery leaves, each about twelve or fourteen feet in length, which have been not inaptly likened to plumes of gigantic ostrich feathers. Upright indeed are these majestic trees, but graceful in the extreme, and forming a picture in themselves wherever seen. What would the boundless tracts of sand be without them? Where would the weary traveller rest and refresh himself when seeking shelter from the burning rays of an Eastern sun? What would even have been the twelve wells of water at Elim without the threescore and ten palm-trees which overshadowed them?

Not only upright are these beauteous trees, but without a branch or stepping-stone from their base to their feathery tops. A stranger in the land looks upward and wonders how they are ever scaled in search of the delicious cocoa-nuts, or for the toddy which fills the small earthen vessels tied round their tops; but the monkeys have taught man the way, and the natives of India, with belts round their waists and their feet strapped together, ascend and descend the long straight stems with the greatest ease. Upright but clothed with symmetry, useful and ornamental in the highest degree, the eye rests on them with unwearied pleasure, and the heart must acknowledge the hand that made them to be Divine.

3. *The Abundant Supply of the Date-palm: a type of the Varied Service rendered by the Christian.* —For an all-embracing and complete supply of human wants, at least in a simple state of society, perhaps the date-palm is unrivalled. The natives in the oasis of the great Sahara desert literally depend upon it for meat and drink, for clothing and for lodging. Dressed in a variety of ways, its fruits serve as sustenance not only to man, but also to his cattle, his horses, sheep, and goats. The sap drawn from the trunk of the tree affords him an agreeable drink when fresh, and a dangerously intoxicating beverage when fermented. The soft, flexible inner bark he weaves into baskets, twines into strong thread, and even adapts for purposes of clothing. The timber frames of houses he makes of the hard external

wood of the trunk, and their roofs he forms of the broad leaves of the tree covered over with clay and weighted with stones. Thus there is absolutely no part of the date-palm which may not be made useful to mankind; and the natives who understand it could sustain life literally with no other sustenance. Amongst its other virtues the palm is remarkably prolific. It begins to bloom in December, and continues to put forth blossoms until March. The earliest fruit is ready about June; but successive generations of blossoms continue to ripen until the month of November. Thus it may be said to be active in production throughout the whole year; it never rests for a single month. Every seventh year, however, is a sort of Sabbatic period, in which it is said to take some relaxation. But this can scarcely be accepted literally. No tree produces equally throughout all the years of its life; and the statement made about the palm may be taken as meaning that, on the average, a poorer crop than usual may be expected every seventh year. The amount of fruit produced also during each year is very considerable. Each tree is said to yield on an average four or five hundredweight. The tree is generally regarded as an instance of beauty, or rather, perhaps, of grace. To English eyes it lacks the swelling curves and soft verdure of our woodland scenes. Its attractions are wholly of a foreign sort. But the aspiring simplicity of its stem contrasted with the feathery pendants of its crown, and the rich clusters of fruit drooping from the summit, form altogether a striking picture, characteristic of Eastern lands. That Palestine was especially associated in the minds of the ancients with the palm-tree is sufficiently proved by the name Phœnicia, which is derived from it. There is also a well-known medal of the Roman Emperor Vespasian, on which Judea is represented by the emblem of a maiden weeping under a palm-tree.—'*Sunday Magazine*.'

4. *The Independence of Circumstances by Reason of the Vigour of Inward Life.*—Look now at those stately palm-trees, which stand here and there on the plain, like military sentinels, with feathery plumes nodding gracefully on their proud heads. The stem, tall, slender, and erect as Rectitude herself, suggests to the Arab poets many a symbol for their lady-love; and Solomon long before them has sung, 'How fair and how pleasant art thou, O love, for delights! this thy stature is like to a palm tree' (Song of Solomon, vii. 6, 7). And Solomon further says, 'The righteous shall flourish like the palm-tree. Those that be planted in the house of the Lord shall flourish in the courts of our God. They shall bring forth fruit in old age' (Psa. xcii. 12-14).

The royal poet has derived more than one figure from the customs of men and the habits of this noble tree with which to adorn his sacred ode. The palm grows slowly but steadily, from century to century, uninfluenced by those alterations of the seasons which affect other trees. It does not rejoice overmuch in winter's copious rain, nor does it droop under the drought and the burning sun of summer. Neither heavy weights which men place upon its head, nor the importunate urgency of the wind, can sway it aside from perfect uprightness. There it stands, looking calmly down upon the world below, and patiently yielding its large clusters of golden fruit from generation to generation. They bring forth fruit in old age. The allusion to being planted in the house of the Lord is probably drawn from the custom of planting beautiful and long-lived trees in the courts of temples and palaces, and in all 'high

places' used for worship. This is still common; nearly every palace, and mosque, and convent in the country has such trees in the courts, and being well protected there, they flourish exceedingly. Solomon covered all the walls of the 'holy of holies' (1 Kings vi. 29) round about with palm-trees. They were thus planted, as it were, within the very house of the Lord; and their presence there was not only ornamental, but appropriate and highly suggestive; the very best emblem, not only of patience in well-doing, but of the reward of the righteous—a fat and flourishing old age, a peaceful end, a glorious immortality!—*W. M. Thomson, D.D.*

The Grove of Egeria.

'All who have influenced men permanently for good have drawn their inspiration from lonely haunts sacred to meditation.'

On the left, at the back of the Cœlian Hill, is a valley covered with verdure, wonderfully quiet and rural-looking, though within the walls of a city. In this valley once stood the famous grove where Numa Pompilius had his mysterious interviews with the nymph Egeria. A spring still bubbles forth beside a cluster of farm-buildings, which is said to be the veritable Fountain of Egeria. The temple of the muses, who were Egeria's counsellors, was close by; and the name of the gate of the city, *Porta Capena*, was in all likelihood a corruption of Camena, the Latin name for muse, and was not derived, as some suppose, from the city of Capua. The spot outside the present walls, formerly visited as the haunt of the fabled nymph, before the discovery of the site of the Capena gate fixed its true position—beautiful and romantic as it is—was only the nymphæum of some Roman villa, used as a place of retirement and coolness in the oppressive heat of summer. Of all the legends of Rome's earliest days, none is more poetical than that which speaks of the visits of Numa to this mysterious being, whose counsels in these sacred shades were of such value to him in the management of his kingdom, and who dictated to him the whole religious institutions and civil legislation of Rome. Whatever historical basis it may have, the legend has at least a core of moral truth. It illustrates the necessity of solitude and communion with higher powers as a preparation for the solemn duties of life. All who have influenced men permanently for good have drawn their inspiration from lonely haunts sacred to meditation—ever since Moses saw the burning bush in the desert, and Elijah bowed his strong soul to the majesty of the still, small voice at Horeb.

The romance of the grove of Egeria was, however, dispelled when the valley was turned into a place of imprisonment for the Jews. Domitian drove them out of the Ghetto, and shut them up here, with only a basket and a wisp of hay for each person to undergo unheard-of privations and miseries. The horticultural gardens, where the shrubs and plants are grown that ornament the public squares and terraces of the city, now occupy the site of the celebrated grove. The shrill scream of the railway-whistle outside the gate, and the smell of the gas-works near at hand—these veritable things of the present century—are fatal to all enchantments, and effectually dissipate the spell of the muses and the mystic fragrance of the Egerian solitude. But wonderful is the persistence of a spring in a spot. Continually changing, it is the most changeless of all things. For ever passing away, it is yet the most steadfast and enduring. Derived from the fleeting vapour—the emblem of inconstancy—it outlasts the most

solid structure of man, and continues to well up its waters even when the rock beside it has weathered into dust. The Fountain of Egeria flows to-day in the hollow of the Cœlian Hill as it flowed two thousand years ago, although the muses have fled, and the deities, Picus and Faunus, which Numa entrapped in the wood of Aventine, have gone back to their native skies with Jupiter; and mammon and philosophy have exorcised that unseen which once presented so many beauties and wonders to the imagination of man.—*Hugh Macmillan, LL.D.*

Poplars as Lightning-conductors.

Nature teaches us how we may defend ourselves from her destructive forces.

Respecting the protection of dwellings, I should like to make widely known a suggestion for their protection of an altogether pleasant and inexpensive kind. It is the fact that poplars in general, and especially Lombardy poplars, have been proved to be the best tree conductors of electricity. Lombardy poplars are the best, because with the poplar affinity for lightning, they have tall, pointed, narrow forms and a remarkable uprightness of growth, together with an abundance of small but closely-set spray. So soon as the tree has risen beyond the woodwork of the roof, if kept, say, not less than twelve feet from the wall of the building, a most perfect conductor will have been established; and if several Lombardy poplars are planted around a house, but away from the paths, so much the better. I have never seen an explanation offered of the reason why poplars are such good conductors of electricity—for mark that when other trees are destroyed the Lombardy poplars will harmlessly take the lightning discharge—but I am of opinion that the extreme moistness of these trees is the reason, combined with the abundance and with the peculiar arrangement of the moist branches. There is no doubt, I think, that lightning when striking a tree does not strike it with one direct and isolated flash, but that the body of the fluid is instantly divided at the moment of striking into almost as many parts as there are branches to receive it. In such trees as the oak and the elm, where in the lower parts there are first the trunk and then large limbs without any covering of twigs or smaller branches, the electric fluid, separated at first by the most topmost twigs, rushes downwards to the channels formed by the dryer limbs and trunk. Forced suddenly and accumulated into these confined and ungenial passages there is not room for the easy course of the discharge, and disruption ensues. In proof of this theory, it will be remembered that the whole head of a tree is not infrequently broken off by lightning just where the trunk joins the limbs—at the fork—and the trunk and larger limbs always are the sufferers. Now, it will be noticed that the ramification of the Lombardy poplar is, if untouched by the meddling gardener, very peculiar. From base to top the trunk is surrounded by closely-set, densely-clothed branches, or rather branches and twigs, which point upwards. Hence the action of this tree upon a lightning cloud might be likened to that of a sponge. It breaks the force of a discharge by absorbing the fluid, so to speak, at a thousand points, all of which, from their extreme moistness, are excellent conductors. But care must be taken not to plant a Lombardy poplar on one side of a house when there is a pond, a marsh, a stream, or any collection of water immediately on the other side. In such a case a lightning flash might diverge from the tree midway and go through the house to the more attractive water pure and simple;

but a pond at the foot of the tree would be an advantage; it would furnish a point of attraction for the electric fluid, and it would make the tree flourish.

The Mission of the Oak-tree.

They never die who can render service after death.

An oak-tree for two hundred years grows solitary. It is bitterly handled by frost; it is wrestled with by ambitious winds, determined to give it a downfall. It holds fast and grows alone. 'What avails all this sturdiness?' it saith to itself. 'Why am I to stand here useless? My roots are anchored in rifts of rocks; no herds can lie down under my shadow; I am far above singing-birds, that seldom come to rest among my leaves; I am set as a mark for storms, that bend and tear me; my fruit is serviceable for no appetite; it had been better for me to have been a mushroom, gathered in the morning for some poor man's table, than to be a hundred-year oak, good for nothing.' While it yet spoke, the axe was hewing at its base. It died in sadness, saying, as it fell, 'Weary ages for nothing have I lived.' The axe completed its work. By-and-by the trunk and root form the knees of a stately ship, bearing the country's flag round the world. Other parts form keel and ribs of merchantmen, and, having defied the mountain storms, they now equally resist the thunder of the waves, and the murky threat of scowling hurricanes. Other parts are laid into floors, or wrought into wainscoting, or carved for frames of noble pictures, or fashioned into chairs that embosom the weakness of old age. Thus the tree, in dying, came not to its end, but to its beginning of life. It voyaged the world. It grew to parts of temples and dwellings. It held upon its surface the soft tread of children and the tottering steps of patriarchs. It rocked in the cradle. It swayed the limbs of age by the chimney-corner, and heard, secure within, the roar of those old, unwearied tempests that once surged about its mountain life. Thus, after its growth, its long uselessness, its cruel prostration, it became universally helpful, and did by its death what it could never have done by its life. For, so long as it was a tree, and belonged to itself, it was solitary and useless, but when it gave up its own life, and became related to others, then its true life began. How solemn is that sentence of Christ, 'And I, if I be lifted up, will draw all men unto Me'! Not while He lived, not by His direct force, but only when pierced — broken — slain — buried, should His influence issue forth, and death should become the throne of His power. So will it be with us if we are Christ's. Paradoxes upon this truth lie all through the New Testament, and one may walk on them, like stepping-stones, from side to side. Sorrow is joy. Death is life. Weakness is strength. Loss is gain. Defeat is victory. The world's mightiest men, the very monarchs of its joy, were those who died deaths daily.—*H. W. Beecher.*

Superstitions associated with Oak-trees.

Not only did the heathen delight to build temples and rear altars in the tops of the mountains, as these ruins testify (Hazor), but they worshipped their idols under every green tree, and especially under thick oaks. They do so still, in a modified form. The oaks (at Hazor) under which we now sit are believed to be inhabited by Ian and other spirits. Almost every village in these wâdies and on these mountains has one or more of such thick oaks, which are sacred, from

the same superstition. Many of them are believed to be meokûn (inhabited) by certain spirits called Benat Yacobe—daughters of Jacob—a very strange and obscure notion. The common people are afraid of these inhabited trees, and when they pass them hang on the branches a rag torn from their clothes, as an acknowledgment of their presence, and a sort of peace-offering to avert their anger. I have seen scores of such thick oaks all over the country, but could never obtain intelligible explanation of the notions or traditions upon which this widespread custom is based. It has rather seemed to me to be an indistinct relic of ancient idolatry, which the stringent laws of Mohammed banished in form, but could not entirely eradicate from the minds of the multitude. Indeed, the Moslems are as stupidly given to this superstition as any other class of the community.—*Thomson.*

The Elder-tree.

An illustration of the strength of meekness.

This timber is the softest, and can without difficulty be split, cut, and wrought, and yet experience proves that it does not rot in water. The greater part of the city of Venice stands upon piles of elder, which, sunk in the sea, form the foundation of massive buildings.

It is the same with meek hearts. There is no better foundation for important undertakings of public or private utility, than that intelligent modesty which is gentle indeed, and ready to yield as far as a good conscience will allow, but which, nevertheless, lasts and continues stable, in the flood of contradiction. — *Gothold's 'Emblems.'*

The Ivy and the Mistletoe.

1. *External, not Vital, Association.*—Just where I was sitting there stood a great elm-tree, with clusters of green ivy climbing up it, and clinging round to it close to the tree, and clasping it more lovingly than even its natural branches did. But yet the ivy was not one with the tree; it only made use of the tree for ends of its own. It had its roots, with which it drew up sap out of the earth; it had a life of its own, and leaves of its own, and flowers of its own; while the branches of the elm had no life but the life of the tree, and no leaves nor sap but what they received from their parent. Ay, and it is possible for a man to be near to the Saviour, leaning on Him, and clinging to Him, and yet, after all, to be only ivy instead of a branch in Himself.

And I noticed not far from the elm a sturdy poplar, and there hung on it a green sappy mistletoe. Thinks I, there is yet another sermon to me. That little growing thing is still nearer to its tree than the ivy is to its elm, for it drinks the very sap of the poplar, and lives, in a way, on the poplar's life. And yet it is not a part of the tree. It has a life of its own, and roots of its own, and flowers and berries of its own. . . . And we may seem to be in Jesus, growing in Him as a mistletoe grows on the poplar, or growing beside Him, and climbing up on Him, as the ivy climbs on its tree, but unless we be branches in Himself, and live by His very life, bringing forth *His* fruits to *His* glory, we shall be cut off and cast into the fire.—*'Orfie Sibbald and his Difficulties.'*

2. *That which adds to Appearance may be destructive of Life.*—In the gardens of Hampton Court you will see many trees entirely vanquished and well-nigh strangled by huge coils of ivy, which are wound about them like the snakes about the unhappy Laocoon.

There is no untwisting the folds; they are too giant-like and fast fixed, and every hour the rootlets of the climber are sucking the life out of the unhappy tree. Yet there was a day when the ivy was a tiny aspirant, only asking a little aid in its climbing; had it been denied then, the tree had never become its victim, but by degrees the humble weakling grew in strength and arrogance, and at length it assumed the mastery, and the tall tree became the prey of the creeping, insinuating destroyer. The moral is too obvious. Sorrowfully do we remember many, many nobler characters which have been ruined little by little by insinuating habits. Drink has been the ivy in many cases.

Fruitful Trees.

God expects the trees of grace to bring forth much fruit.

When He comes He will turn up your leaves; and look that, like the tree of life (Rev. xxii. 21), we bear fruit every month, or that we be like the lemon-tree, which ever and anon sendeth forth new lemons as soon as the former are fallen down with ripeness; or the Egyptian fig-tree which, saith Solinus, beareth fruit seven times a year; pull off a fig and another breaks forth in the place shortly after.—*Trapp.*

The Alder-tree.

Human life indebted to the influence of dark hours.

Human life were a poor thing but for its hidden sorrows, its unnoted martyrdoms, its unpraised self-sacrifices. The brighter hours, with all their richness and rapture, have deep roots in the sadder ones; they grow out of these as the alder-tree grows out of the depths of the valley, drawing from the dark waters the strength and the beauty it yields to the summer sun. —*M. Linskill.*

The Profusion of Trees and Leaves.

God makes the most gracious impression of His infinite fulness.

What profusion there is in God's works! When trees blossom, there is not a single breastpin, but a whole bosom-full of gems; and of leaves that have so many suits that they can throw them away to the winds all summer long. What unnumbered cathedrals has He reared in the forest shades, vast and grand, full of curious carvings, and haunted evermore by tremulous music; and in the heavens above how do stars seem to have flown out of His hands faster than sparks out of a mighty forge!—*H. W. Beecher.*

Grapes from the Barren Soil of Palestine.

The virtue in us may overcome the disabilities that surround us.

Generally the vines of Palestine are allowed to lie on the ground; but as that is often covered thickly with small stones, the grapes do not come into contact with the soil. Sometimes they are laid on piles of stone, or upon rocks, which everywhere abound. It is only in rare instances that they are supported on sticks, probably because it is so expensive to obtain wood for the purpose. Grapes appear to grow of themselves. One might easily believe that they take pleasure in growing. Certain it is that from that barren soil they extract some of the most delicious products that men ever looked upon or tasted. The large clusters are from twelve to eighteen inches in length, but the grapes hang upon them loosely, otherwise the stem could not support the weight. I am sometimes asked, 'If vines grow so rapidly there, do they not attain great size and age?' The largest vine that I have ever seen in Palestine was twelve inches in diameter. This

was six or more feet from the roots. So far as my personal observation goes this was of extraordinary size. As a rule I think that they are not large, and as to their age I have no means of knowing. The natives say that they will continue bearing for one hundred years. What I have said of the hills of Judea will apply as well to the country east of the Jordan, to Edom, Moab, Gilead, Bashan, Damascus and its fertile plains, and to the great regions—mountains and valleys—farther north. In many parts of the country, where for centuries there have been no settled inhabitants, we find traces of vineyards, and here and there an ancient winepress or vat dug in the solid rock. The 'hedge,' the 'tower,' and the 'winepress' are just as necessary parts of a vineyard now as they were in our Lord's time. The towers are rude stone structures where the watchman stays; and the hedges are stone fences covered, where it is possible, with brambles and thorn-bushes to prevent all access to the field. While a tower is a necessity in every vineyard, there are some vineyards, situated in less exposed places, that have no hedge about them. The watchman—sometimes he has a companion, or it may be his family are with him—remains at his post day and night until the grapes are gathered. This is a necessary precaution, for wild beasts will devour and destroy, and men will steal. Foxes are very destructive to the vines (see Song Sol. ii. 15), and in the vineyards about Hebron hundreds of these animals are caught every year. Although guarded so carefully, the owners, or those in charge of the vineyard, are, as a rule, at the 'time of fruit,' very generous with their grapes, and will give the stranger all he wishes to eat. My observation in a grape-producing region is, that at the time of vintage everybody is good-natured, generous, and happy. This is one result of the 'teerosh' which some people think is harmless. — *S. Merrill, D.D.*

WORLD AND EARTH.

The Universe.

Has it always brought to man the impression of a Divine mind?

If we ask ourselves what was the earliest impression produced by the spectacle of the universe on the mind of man, we can no longer, like Milton, imagine him standing alone upon the grass of Eden, and answering with adoring thoughts the gaze of the vaulted sky. The solemn tones of the Puritan poet give forth quite another music from any that really lay at heart in the childhood of the world, yet it is admitted on all hands—not less by those who ridicule than by those who revere the tendency—that, to the eye of primitive wonder, the visible scene around would at first seem to be alive; day and night to have in them the lights and shades of thought; summer and winter to be pulsations of a hidden joy and grief; the eager stream to be charged with some hasting errand; and the soft wind to whisper secrets to the forest leaves. This sympathy with the action of nature—this ideal interpretation of the world—which looks through the physical picture of things, and is touched by more than their physical effect, is, moreover, a specially human characteristic, confessedly due, not to the endowments which we share with the other animal races, but to the higher gifts of a constitution in advance of theirs. It is, therefore, an enriching faculty, and not a

deluding incapacity from which the happier brutes are free. Say what you will of the superstitions to which it may lay us open, who can contemplate its primitive manifestations without a profound, though it be now a compassionate sympathy? And when, among the prehistoric vestiges of man upon this earth, we find already a grotto for his dead, where, after the farewell funeral feast, he shuts them in, with their weapons by their side and their provisions for their journey into unknown fields, who does not feel in these simple memorials a pathetic dignity which other natures do not approach?

In the apprehension, then, of the human observer, using his most human faculty, this visible world is folded round and steeped in a sea of life, whence enters all that rises, and whither return the generations that pass away.

This is religion in its native simplicity, so far as it flows in from the aspect of the physical scene around, and ere it has quitted its indeterminate condition of poetic feeling, to set into any of the definite forms of thought which philosophers have named. Doubtless it is an ascription to Nature, on the part of the observer, of a life like his own; in the boundless mirror of the earth and sky, he sees, as the figures of events flit by, the reflected image of himself. But for his living spirit, he could not move; and but for a living spirit, they could not move. Just as when, standing face to face with his fellows, he reads the glance of the eye, the sudden start, or the wringing of the hands, and refers them home to their source within the viewless soul of another; so with dimmer and more wondering suspicion, does he discern, behind the looks and movements of nature, a mind that is the seal of power and the spring of every change. You may laugh at so simple a philosophy; but how else would you have him proceed? Does he not, for this explanation, go straight to the only cause which he knows? He is familiar with *power* in himself alone; and in himself it is *will;* and he has no other element than will to be charged with the power of the world. Is it said to be childish thus to see his own life repeated in the sphere that lies around him, and to conceive of a God in the image of humanity? to project, as it were, his own shadow upon the space without, and then render to it the homage of his faith. The objection might naturally enough be urged by a disciple of Schelling or Cousin, who supposed himself able to transcend his personal limits, and take immediate cognizance of the Infinite and Absolute. But surely it comes ill from those who have carried to its extreme length the Protagorean maxim, that 'man is the measure of all things'; who have laid it down as a rule that we know nothing but our own feelings and ideas; and who have construed back even the material world into an ideal reflex of the order and permanence of our sensations.

The objection, however, is as little considerate as it is consistent. For if we are to conceive of mind at all, elsewhere than at home, where are we to find the base of our conception, the meaning of the words we use, if not in our own mental consciousness? Not in religion only, but in every sphere of understanding, self-knowledge is the condition and the limit of other knowledge; and if there were laws of intellect, or affections of goodness, other than our own, they must remain for ever foreign to our apprehension, and could be no objects of intelligent speech. Be it an order of thought of which we see traces beyond us, or a purpose of righteousness, or an expression of power, we have no means of imagining it at all, except as homogeneous with our own. Either, therefore, the

very structure of our highest faculties is unsound, and the constitution of our reason itself condemns us to unreason; or else the likeness we see between the world within and the world without, in its idea and its causality, reports a real correspondence, the answering face of the Divine and the human, communing through the glorious symbolism between.

It is, at all events, acknowledged as a fact, that this religious interpretation of the world is natural to man, and therefore holds him, till it is dispossessed by some superior claimant, with a certain right of pre-occupation. Next, it must also be admitted, that, simply as an hypothesis, it is adequate to its purpose, *i.e.*, that, if tried through the whole range of the phenomena, it provides a sufficient cause for all. It may be open to an objector to say that an infinite Divine Will, eternally acting through the universe, is *more* than we want, to give account of what we find; but he cannot say that it is *less*. It supplies an inexhaustible fund of causality, equal to every exigency, and incapable of being thrown upon engagements which it cannot meet. It is only when you add on to it superfluous explanations of your own; when you affect to know, not only the power within, but also the reason why; when you presume to read the particular motives whence this or that has sprung; when you charge the lightning-flash with vengeance, or treat a blighted harvest as a judgment upon sin; when you discuss the course of a comet, or a trembling equilibrium of the planets, as a preparation for the judgment-day; when, in short, you fill the fields of space with the fictions of your spiritual geography, and pledge them, without leave, to act out the situations of your drama, that you are sure to be brought to shame, and turned into the outer darkness prepared for the astrologers. But keep to the modesty of simple religious faith, which, however sure of the ground and essence of things, knows nothing of the phenomena, and lets science sort them as it will; say humbly, 'How this and that may be, I cannot tell, nor am I in the secret why it is not the other; I only know it is from Him who shines in the whole and hides in the parts;' and, stand where you may in time or place, you hold the key of an eternal temple, on which none can put a lock you cannot open.—*James Martineau, LL.D.*

The Age of the Earth.

The story of the earth is a series of deaths and resurrections.

Perhaps, in reality, the earth is both old and young. Young? If she is not young at present, perhaps she *will* be so in future. Old? If she is not old at this moment, perhaps she *has* been old, and has a fair chance of becoming so again. In fact, she is a Phœnix that is known to have secret processes for rebuilding herself out of her own ashes. Little doubt there is but she has seen many a birthday, many a funeral night, and many a morning of resurrection. For, listen: where now the mightiest of oceans rolls in pacific beauty, once were anchored continents and forests. Where the south pole now shuts her frozen gates inhospitably against the intrusions of flesh, once were probably accumulated the ribs of empires; man's imperial forehead, woman's roseate lips, gleamed upon ten thousand hills; and there were innumerable contributions to antarctic journals almost as good (but not quite) as our own. Even within our domestic limits, even where little England, in her south-eastern quarter, now devolves so quietly to the sea her sweet pastoral rivulets, once came roaring down, in pomp of waters, a regal Ganges, that drained some hyperbolical continent, some

Quinbus Flestrin of Asiatic proportions, long since gone to the dogs. All things pass away. Generations wax old as does a garment; but eternally God says, 'Come again, ye children of men.' Wildernesses of fruit and worlds of flowers are annually gathered in solitary South America to ancestral graves; yet still the Fauna of earth, yet still the Flora of earth, yet still the Sylva of earth, does not become superannuated, but blossoms in everlasting youth. Not otherwise by secular periods, known to us geologically as facts, though obscure as durations. Tellus herself, the planet, as a whole, is for ever working by golden balances of change and compensation, of ruin and restoration. She recasts her glorious habitations in decomposing them; she lies down for death, which perhaps a thousand times she has suffered; she rises for a new birth, which perhaps for the thousandth time has glorified her disc. Hers is the wedding-garment, hers is the shroud, that eternally is being woven in the loom of *Palingenesis*. And God imposes on her the awful necessity of working for ever at her own grave, yet of listening for ever to His far-off trumpet of resurrection.—*De Quincey*.

Earth Prepared for Man.

'He created it not in vain, He formed it to be inhabited.'

I have already referred to the sombre, unproductive character of the earliest terrestrial flora with which we are acquainted (Old Red). It was a flora unfitted apparently for the support of either graminivorous bird or herbivorous quadruped. The singularly profuse vegetation of the coal measures was, with all its wild luxuriance, of a resembling cast. So far as appears, neither flock nor herd could have lived on its greenest and richest plains; nor does even the flora of the Oolite seem to have been in the least suited for the purposes of the shepherd or herdsman. Not until we enter on the Tertiary periods do we find floras amid which man might have profitably laboured as a dresser of gardens, a tiller of fields, or a keeper of flocks and herds. Nay, there are whole orders and families of plants of the very first importance to man, which do not appear until late even in the Tertiary ages. Some degree of doubt must always attach to merely negative evidence; but Agassiz, a geologist, whose statements must be received with respect by every student of the science, finds reason to conclude that the order of the *Rosaceæ*—an order more important to the gardener than almost any other, and to which the apple, the pear, the quince, the cherry, the plum, the peach, the apricot, the nectarine, the almond, the raspberry, the strawberry, and the various brambleberries belong, together with all the roses and the potentillas—was introduced only a short time previously to the appearance of man. And the true grasses—a still more important order, which as the corn-bearing plants of the agriculturist, feed at the present time at least two-thirds of the human species, and in their humbler varieties form the staple food of the grazing animals—scarce appear in the fossil state at all. They are peculiarly plants of the human period.—*Hugh Miller*.

The Fair World.

Every son of God ought to feel at home in his Father's house.

If the world is God's, every true man ought to feel at home in it. Something is wrong if the calm of the summer night does not sink into the heart, for the peace of God is there embodied. Something is wrong in the man to whom the sunrise is not a Divine glory, for therein are embodied the truth, the simplicity, the might of the

Maker. When all is true in us we shall feel the visible presence of the Watchful and Loving; for the thing that He works is its sign and symbol, its clothing fact.—*George Macdonald.*

A Man's World.

Every man really makes his own world.

A man's world is pretty much what the man himself makes it. It is true in psychology that what the mind itself contributes to the making of a conception is at least as important as what the outer world supplies for that conception. And it is no less true that the things which constitute our social or moral or religious world are affected as much by our own shaping of them within ourselves as by the bare materials of them which exist outside of ourselves. Shakespeare is not the same to any two readers; each reader has his own Shakespeare—a Shakespeare formed by the growth into the reader's mind of those elements in Shakespeare which are akin to the mind of the reader. And so it is with every single object which is presented to human thought. Each sees the object, but each puts something of himself into his seeing. The same blue sky is shining with joy for one, and is calmly pitiless for another. The world of Nature takes on the aspect of our moods, and what we think of the world of men is but the reflection of what we know of ourselves. If we are convinced that truth and faith and purity have died out of the world, it is a sure sign that we are sadly in need of reformation ourselves. If we recognise nobility in another, it is an evidence that the best within ourselves is not yet dead. This power, this habit, of shaping our world into our own image, carries with it a certain responsibility. When we are most firmly convinced that what the world needs is some sharp reformation, we ought first to question ourselves how much of the wickedness we see is really the world's, and how much of it is only the shadow of ourselves. Before our world can grow better, we must grow better ourselves; and we never have a right to insist that the world shall purify itself, until we first have done what we could do toward its purification, by taking heed to the correction of our own ways.

The world we live in is at once convenient and beautiful. This house, which our Father in heaven has provided for His children during their sojourn in time, is at once substantially furnished and exquisitely ornamented. This world—the heavens above, and the earth beneath, and the waters under the earth—behold, it is all very good. It may be assumed as an axiom, that its Maker is pleased when we use it, enjoy it, and admire it. Nothing is more gratifying to a contriver and constructor, than an appreciation of his work by intelligent observers. We have had artists of our own flesh and blood, who took it ill when their genius were neglected, and well when they were examined and approved. How much more shall the Framer of the world, who is also the Father of our spirits, be pleased when we study, understand, and appreciate His work! He, who has given us the seeing eye and the shining light, intends that the organ should be exercized upon the object. In like manner, He who has fashioned and decorated this world as a habitation for rational creatures, expects them to exercize their faculties upon the architecture of their dwelling-place. —*Rev. W. Arnot.*

The Figure of the Earth.

Many Bible expressions can only be explained by the ideas which the Jews had of the shape of the earth.

The word in Genesis which we translate firmament, properly sig-

nifies a solid surface, and the Jews imagined the blue of the sky to be solid. When it rained, they thought the water passed through holes pierced in this surface. These openings are the 'windows of heaven,' or the 'fountains of the deep.' The earth was to the Jews, as to the whole ancient world, the centre of the universe, and all the stars revolved round that immovable centre. The Jew looks upon the earth as a circular plane. God is seated above this plane, the circumference of which had been originally traced by Him on the abyss. The four cardinal points are called the ends of the heavens, the four sides or corners of the earth, or the four winds. In order to point to them, the Jew does not turn to them as we do, but to the east. He looks towards the east; to his right is the south; to his left is the north; and behind him the west. Jerusalem is in the centre of the round, flat disc which forms the earth. The surface of this plane is divided into two parts; the land of Israel, and that which is not the land of Israel. Its inhabitants are divided in the same way into Jews and Gentiles, those without and those within. The land of Israel was in the centre of the disc, surrounded on all sides by the world. At the edge of the disc was the sea, the great sea upon which no one had yet ventured far. It encircled the round plane, and as it washed the shores of pagan countries, these were sometimes called the 'region of the sea.' Rabbi Solomon said, 'All the outer region is called the region of the sea, with the exception of Babylon,' and Rabbi Nissim says, 'It is imperative to call all that is outside the land of Israel, the region of the sea.'

What idea the Jew had of the size of the disc of the earth, it is impossible to say. He could not have had more than a vague conception of the extent of the Roman Empire, and probably supposed that beyond its frontiers lay an uninhabited desert, then the sea, and beyond that there was nothing.

Other Universes.

The revelations of astronomy fill us with solemnizing thoughts of the glory and power of the Universal Creator.

Men were long deceived in regard to space—they thought this earth all important in space, whereas now they know it to be the merest point compared with the solar system; this system the merest point compared with the distances separating star from star; and the whole of the system of stars utterly lost in unfathomable depths of space. Men were deceived with regard to time—they thought the duration of this earth represented all time, was, at least, central in time; they know it now to be the merest second compared with the duration of the solar system; the duration of this a mere moment compared with the uncounted æons, of whose progress the star-depths tell us; and even these as nothing compared with the eternities of past and future time amid which they are lost. May it not well be, then, that as men have deceived themselves with regard to both space and time, so also have they deceived themselves with regard to the very structure of the universe itself? May it not well be that the solid, liquid, and vaporous forms of matter with which alone we are acquainted are not the only forms of matter which exist? May there not be a higher order of universe, of which the suns and planets of the universe we know of are but as the atoms and molecules? May there not be a lower, or rather a rarer, order of universe, as much finer in texture, so to speak, as that imagined higher order is in a sense grosser? But we know that there is a rarer order of universe—the ether of space—

which permeates our universe, flowing through the densest solids as the breeze passes through the forest trees. The waste energies of stars and planets are expended in the ether of space. May they not subserve within it important purposes, though we may not be able to conceive how? May they not continually revivify that universe, while in turn our universe is continually refreshed and restored by receiving supplies of energies passed on to us from a higher order of universe? And thus from higher and higher orders of universe, absolutely without end on one side, to lower and lower orders as absolutely without end on the other side, there may be constant interchange of energy, instead of the dying out of any one among these various orders of material universe.

All this is outside science. For science deals with what we know of, what we can observe, analyze, and investigate, while these interchanges of life and energy we can never analyze or test. But thus it is in whatever direction we investigate the universe. On all sides we reach the unknown, the unknowable. We approach in every case the threshold of infinity—infinite space, infinite time, infinite power, and infinite variety. In dealing with infinity we are dealing with what is for us absolutely inconceivable, though its existence is absolutely certain.—*Proctor.*

Our Mother Earth.

'It is strange what relations of personal love we enter into with the scenes of this lower sphere.'

Strong and many are the claims made upon us by our mother earth; the love of locality—the charm and attraction which some one homely landscape possesses to us, surpassing all stranger beauties, is a remarkable feature in the human heart. We who are not ethereal creatures, but of mixed and diverse nature, we who, when we look our clearest towards the skies, must still have our standing-ground of earth secure—it is strange what relations of personal love we enter into with the scenes of this lower sphere. How we delight to build our recollections upon some basis of reality—a place, a country, a local habitation; how the events of life, as we look back upon them, have grown into the well-remembered background of the places where they fell upon us; here is some sunny garden or summer lane, beautified and canonized for ever with the flood of a great joy; and here are dim and silent places, rooms always shadowed and dark to us, whatever they may be to others, where distress or death came once, and since then dwells for evermore.—*Washington Irving.*

Earth and Man.

God has precisely prepared the earth for man.

How wonderful in universal adaptation to man's need, desire, and discipline is God's daily preparation of the earth for him, with beautiful means of life. First a carpet to make it soft for him; then, a coloured fantasy of embroidery thereon; then, tall spreading of foliage to shade him from sun-heat, and shade also the fallen rain, that it may not dry quickly back into the clouds, but stay to nourish the springs among the moss. Stout wood to bear this leafage; easily to be cut, yet tough and light, to make houses for him, or instruments (lance-shaft, or plough-handle, according to his temper); useless it had been, if harder; useless, if less fibrous; useless, if less elastic. Winter comes, and the shade of leafage falls away, to let the sun warm the earth; the strong boughs remain, breaking the strength of winter winds. The seeds which are to prolong the race, innumerable according to the need, are

made beautiful and palatable, varied into infinitude of appeal to the fancy of man, or provision for his service; cold juice, or glowing spice, or balm, or incense, softening oil, preserving resin, medicine of styptic, febrifuge, or lulling charm: and all these presented in forms of endless change. Fragility or force, softness and strength, in all degrees and aspects; unerring uprightness, as of temple pillars, or undivided wandering of feeble tendrils on the ground; mighty resistances of rigid arm and limb to the storms of ages, or wavings to and fro with faintest pulse of summer streamlet. Roots cleaving the strength of rock, or binding the transience of the sand; crests basking in sunshine of the desert, or hiding by dripping spring and lightless cave; foliage far tossing in entangled fields beneath every wave of ocean—clothing with variegated, everlasting films, the peaks of the trackless mountains, or ministering at cottage doors to every gentlest passion and simplest joy of humanity.—*John Ruskin.*

The Order of the Universe.

A revelation of the working of a Divine mind.

The power that preserves order in the realm of physics is not the power of matter but of mind,—order between atom and atom, between mass and mass, between a single mass and a whole group of them, between one group of masses and another group, between bodies at rest and bodies in motion, between one group in motion and other groups in motion; order within one homogeneous mass, between molecule and molecule; order between masses differing in their properties, between element and element, between compound and compound, between solids and liquids, between liquids and gases; order between mineral and vegetable, between vegetable and animal; and order still when, upon leaving the realm of bodies without life, we rise into a higher region, a region wherein body still continues to be important, but only in the measure in which the canvas of the painter or the marble of the sculptor is important, namely, as the ground on which mind, in its differing degrees of strength, can display itself and act upon other minds, be they of equal grade or be they of other grades, inferior or superior: for as all body is not the same body, so is not all mind the same mind; as there is one body of the beast, another of the fish, another of the man, so is there one mind to one creature, and another to each diverse kind of sentient being. In this higher land of life we find order between an animal and those of its own kind, order between those of its kind and those of other kinds, order between lower animals and higher ones, order between both of these and man, order between man and the vegetables, between man and the minerals, order within the body between one member and another — between eye and ear, between hand and feet, between lung and nostril, between larynx and lip, between heart and brain. —*William Arthur.*

The Beauty of the World.

Suggestive of the beauty of His thoughts from whom all lovely things have come.

But few people realize how grand a world this is. Its flowers are God's thoughts in bloom; its rocks are God's thoughts in stone; its dewdrops are God's thoughts in pearl. The world is God's child—a wayward child indeed. It has wandered off through the heavens. But about eighteen hundred and ninety years ago, one Christmas night, God sent out a sister world to call that wanderer back, and it hung over Bethlehem only long enough to get the promise of the

wanderer's return, and now that lost world, with soft feet of light, comes treading back through the heavens. The hills, how beautiful they billow up, the edge of the wave white with foam of crocuses! How beautiful the rainbow, the arched bridge on which heaven and earth come and talk to each other in tears after the storm is over! How nimble the feet of the lamp-lighters that in a few minutes set all the dome ablaze with brackets of fire! How bright the oar of the saffron cloud that rows across the deep sea of heaven! How beautiful the spring with bridal blossoms in her hair! I wonder who it is that beats time on a June morning for the bird-orchestra? How gently the harebell tolls its fragrance on the air! There may be grander worlds, swarthier worlds, larger worlds than this; but I think that this is the most exquisite world, a mignonette on the bosom of immensity.—*Talmage.*

The Earth and the Book.

Both Books appeal to man as a spiritual being.

God made the present earth as the home of man; but had He meant it as a mere lodging, a world less beautiful would have served the purpose. There was no need for the carpet of verdure or the ceiling of blue; no need for the mountains, and cataracts, and forests; no need for the rainbow; no need for the flowers. A big, round island, half of it arable, and half of it pasture, with a clump of trees in one corner, and a magazine of fuel in another, might have held and fed ten millions of people; and a hundred islands, all made on the same pattern, big and round, might have held and fed the population of the globe. But man is something more than the animal which wants lodging and food. He has a spiritual nature, full of keen perceptions and deep sympathies. He has an eye for the sublime and the beautiful, and his kind Creator has presented, has provided man's abode with affluent materials for these nobler tastes. He has built Mont Blanc, and molten the lake in which its image sleeps. He has formed Niagara's thunder, and has breathed the zephyr which sweeps its spray. He has shagged the steep with its cedars, and besprent the meadows with their kingcups and daisies. He has made it a world of fragrance and music—a world of brightness and symmetry—a world where the grand and graceful, the awful and the lovely, rejoice together. In fashioning the home of man, the Creator had an eye to something more than convenience, and built, not a barrack, but a palace—not a union workhouse, but an Alhambra; something which should not only be very comfortable, but very splendid and very fair; something which should inspire the soul of its inhabitants, and even draw forth the 'very good' of complacent Deity.

God also made the Bible as the guide and oracle of man; but had He meant it as a mere lesson-book of duty, a volume less various and less attractive would have answered every end. A few plain paragraphs, announcing God's own character and His disposition towards us sinners here on earth, mentioning the provision which He has made for our future happiness, and indicating the different duties which He would have us perform—a few simple sentences would have sufficed to tell what God is, and what He would have us to do. There was no need of the picturesque narrative and the majestic poem, no need of the proverb, the story, and the psalm. A chapter of theology, and another of morals; a short account of the incarnation and the great atonement, and a few pages of rules and directions for the Christian life,

might have contained the vital essence of Scripture, and have supplied us with a Bible of simplest meaning and smallest size. And in that case the Bible would have been consulted only by those rare and wistful spirits to whom the great hereafter is a subject of anxiety, who are really anxious to know what God is, and how they themselves may please Him? But in giving that Bible, its Divine Author had regard to the mind of man. He knew that man has more curiosity than piety, more taste than sanctity; and that more persons are anxious to hear some new, or read some beauteous thing, than to read or hear about God and the great salvation. He knew that few would ever ask, 'What must I do to be saved?' till they came in contact with the Bible itself, and therefore He made the Bible not only an instructive book, but an attractive one; not only true, but enticing. He filled it with marvellous incident and engaging history, with sunny pictures from old-world scenery, and affecting anecdotes from the patriarch times.

He replenished it with stately argument, and sententious wisdom, and proverbial pungency. He made it a book of lofty thoughts and noble images, a book of heavenly doctrine, but withal of earthly adaptation. In preparing a guide to immortality, Infinite wisdom gave not a dictionary, nor a grammar, but a Bible—a book which, in trying to catch the heart of man, should captivate his taste; and which, in transforming his affections, should also expand his intellect. The pearl is of great price; but even the casket is of exquisite beauty. The sword is of ethereal temper, and nothing cuts so keen as its double edge; but there are jewels on the hilt, and exquisite inlaying on the scabbard. The shekels are of the purest ore; but even the scrip which contains them is of a texture more curious than that the artists of earth could fashion it. The apples are gold; but even the basket is silver.—*Dr. J. Hamilton.*

England a Small Model of the World.

True interest and beauty may be found in small things.

Old England itself contains an example of nearly everything strange and beautiful that belongs to the world. Not upon the majestic scale, there is not room; but, omitting the glacier and the active volcano, we have, in miniature or illustratively, whatever in other countries is simply more brilliant or of greater dimensions, without being in any way different either in substance or in method. This rule applies not only to inorganic nature, but to the dominant ideas of zoology and botany. And the miniature is always intelligible and meaningful, and plenteously so; and, best of all, it is ample alike to satisfy and give permanent delight, since wealth consists not in the abundance of one's possessions, but in skill and disposition to employ what we have wisely. If in old England,

> 'This precious gem set in the silver sea,'

a man cannot find enough, as to diversities, for his constant thought and pastime, he will never get it abroad. Let him see as much of the world as he can, by all means, for knowledge' sake; England is still the synthesis and epitome, assuming, of course, that there is sense, and heart, and taste enough to believe in the little as well as the big, and sagacity enough to suck honey, like the bees, from the 'common things' of life. The common things are more important to us than the *un*common, since directly we let slip the sweet and childlike art of recognising beauty in the simple and familiar, that

moment does our capacity for splendours begin to shrivel.—*L. H. Grindon.*

Heaps of Mould.

There are disagreeable, trouble-making Christians.

Walking in my garden in the early spring, I noticed the sward all dotted over with little heaps of mould. On removing some of these with my foot, I observed that each of them had been thrown up by an earth-worm, of whose existence I had not otherwise dreamt. 'Ah!' I thought to myself, 'how many people are there in our churches like these earth-worms, who are never seen in any active Christian experience, and the only proof of whose existence is to be found in the dirt they raise!'—*B. Wilkinson, F.G.S.*

Weather to Suit Various Soils.

God makes our souls' atmospheres vary to suit differing dispositions.

The same weather does not fit every soil; that drought which burneth up the hotter grounds, comforteth those that are more chill and cold. If one man had another's blessings he would soon run wild, as another would grow desperate if he had our crosses. Therefore the infinite wisdom of the great Governor of the world allots everyone his portion.—*Manton.*

Changeable Earth.

It is difficult to read human experience aright.

Ah! this beautiful world! Indeed I know not what to think of it. Sometimes it is all gladness and sunshine, and heaven itself lies not far off. And then it changes suddenly, and is dark and sorrowful, and clouds shut out the sky. In the lives of the saddest of us, there are bright days when we feel as if we could take the great world into our arms and kiss it. Then come the gloomy hours, when the fire will neither burn on our hearths or in our hearts; and all without and within is dismal, cold, and dark. Believe me, every heart has its secret sorrows which the world knows not, and oftentimes we call a man cold when he is only sad.—*Longfellow.*

WATER.

The Peril Wrought by Stagnant Water.

'Indolence breeds morbid conditions in every part of the soul.'

The mischief of water is not that it does not run, but that, not running, it corrupts, and corrupting, breeds poisonous miasma, so that they who live in the neighbourhood inhale disease at every breath. The mischief of indolence is not that it neglects the use of powers and the improvement of the opportunities of life, but that it breeds morbid conditions in every part of the soul. An indolent man is like an unoccupied dwelling. Scoundrels sometimes burrow in it. Thieves and evil characters make it their haunt; or if they do not, it is full of vermin. A house that is used does not breed moths half as fast as a house that, having the beginnings of them, stands empty. Woe be to them who take an old house and carry their goods into it! A lazy man is an old house full of moths in every part.—*H. W. Beecher.*

Water in a Landscape.

The idea of something flowing is a relief to the prevailing stillness.

A landscape without water is to me almost as dull as a landscape without sunshine. When it becomes familiar it becomes oppressive, because there is no movement in it. I love the idea of something flowing onwards, ever onwards beyond our ken, as life itself flows on into the mystery of eternity. Give me a tiny streamlet, trilling and sparkling its solitary way down a glen-side, or a river rushing through the arches of a bridge, or a glimpse of sea in the distance, and it is enough. I feel no loneliness, no despondent sickness of soul, where thought has a visible outlet, and can float away on the waters from the monotony of the present time into the dim region of things unseen, and take its fill of fancies.

Neither sweet woodland nor blue cloud-piercing hills have for me this strange fascination; for dreams and aspirations of youth they suffice, but when the days of our life lie half behind us, this syren-singing in our ears has ceased to beguile or charm, and we listen for the voices which speak more faithfully, if less pleasantly, of the world and its halting accidents.

Reflection is given best in Still Waters.

In quietness we become transformed and bear God's image.

The still waters are those which reflect in an unbroken image the clear face of the heaven over them; if you do but trouble those waters the image is broken; if you stir them greatly it is gone; and to bear His image we too must be still—yea, all growth is silent. It is not in the lordly storm, or in the overmastering hurricane, that Nature puts forth her power of growth and increase. It is rather amidst the drenching dews, in the still dawning of the spring-time, that the leaf unfolds itself, and the tender shoot steals upwards. And these works of Nature are all symbols of the inner growth. In times of quietness the heart unfolds itself before God. If you would grow in grace enter into thy closet and shut to thy door upon the world—upon that world which gets the closest to thee, and haunts thee so familiarly; shut it most of all upon thy busy, unresting self, and then God shall speak to thee. It may be He will commune with thee as He has never done before, and reveal unto thee the secret of His presence. How silent, surely, is an angel's heart when God is nigh; how is self hushed there; how (as some earthly vapour by the sun) is every power of His mighty being drawn up into adoration!—*Bishop Wilberforce.*

The Luxury of Water.

A beverage brewed for us by our Heavenly Father.

Did you ever feel the tongue dry, the lips parched, and the throat feverish, and then, bringing a goblet filled with pure water to your lips, do you remember the sensation as it trickled over your tongue and gurgled down your throat? Was it not a luxury? Surely, it is a luxury to quench thirst in pure spring water. Here is a beverage brewed for us by our Heavenly Father—brewed, too, in beautiful places, and not amid the smoky fires, the horrid stench, and rank corruption that fester around the brewhouse and distillery. Our Father brews a drink for His own children in lovely places, down in yon grassy dell, where the red deer wanders and the child loves to play; down there where the brooks murmur and the rills give out their music; there He brews pure water, far

away on the mountain top, whose granite peak glitters like gold in the sunlight; away again, on the wide wild sea, where the hurricane howls its mournful melody, and the storm sends back the chorus, sweeping the march of God!

There brews He beautiful water! And beautiful it always is! You see it glistening in the dewdrop; you hear it singing in the summer rain; you see it sparkling in the ice gem when the trees seem loaded with rich jewels! Look at it as it glitters in the hoar frost on which the sun is shining? Beautiful water!—dancing in the hailstorm, leaping, foaming, dashing in the cataract, sparkling in the fountain!

Beautiful water! See how it weaves a golden gauze for the setting sun, and a silvery tissue for the midnight moon! Watch it descending in the feathery snowflake, or painting with fairy pencil flowers and leaves upon the window-pane, or covering with a mantle of white the wintry world! Look as it trickles down the mountain side, like silver ribands, mixing with the heather bloom! Mark it settling on the mountain top, till it seems as if it lifted up its glorious face to kiss the very heavens! Beautiful water!—rolling up the valley in the cloud mists, or weaving the gorgeous rainbow—its warp, the rain-drop of the earth; its woof, heaven's bright sunbeam!

Beautiful water! There is no blood-stain in its crystal depths, no madness and no murder in its foam! It never broke a mother's heart; it never ruined a reputation; it never sent a poor wretch shrieking to the gallows. No poison bubbles on its brink! Never did pale-faced wife, or starving child, or broken-hearted mother, weep into it a bitter tear; never did drunkard howl back from his death-bed a fearful curse upon it! There is no curse upon it. Sing songs of ruby wine if you will; hand round the goblet if you choose; but

'Give water to me, bright water to me;
It cooleth the brow, it cooleth the brain,
It maketh the weak man strong again.'

Young women, in the glory of your womanly beauty, speak out and tell us; young men, in the majesty of your intellectual power, stand up and tell us. Have we not common sense on our side when we would dash from the lips of the young for ever the drink that debases and degrades, and give them as their best and purest beverage the gift of God, brewed in beautiful places for His children! Because our principle is lawful, and good, and expedient, and reasonable, and sensible, I say we shall succeed. I shall not live to see it, but when I die I pray God that it may be in harness, battling for the cause, with Excelsior! for my motto, in the hope that a better day is coming, and in the humble reverent faith that God will speed the right.—*J. B. Gough.*

Changing Light on the Waters.

The fleeting nature of our life and its joys.

Did you ever stand upon the shore on some day of that 'uncertain weather when gloom and glory meet together,' and notice how swiftly there went racing over miles of billows a darkening that quenched all the play of colour in the waves, as if suddenly the angel of the waters had spread his broad wings between sun and sea, and then how in another moment as swiftly flits away, and with a burst the light blazes out again, and leagues of ocean flash into green, and violet, and blue. So fleeting, so utterly perishable, are our lives for all their seeming solid permanency. 'Shadows in

a career,' as George Herbert has it—breath going out of the nostrils. —*A. Maclaren, D.D.*

A Steadily-flowing Stream.

Repentance may be excited by realizing how irrecoverable passing life is.

In a beautiful German lyric repentance is represented as having been awakened by gazing from a bridge upon a river as it rolled along in its steady course. The reflection of the beholder was, 'Not a wave rolls back again!' suggesting the thought that the running water is an image of human life, which is daily running away, and not a day returns or can possibly be recovered.

The Reviving Power of Water.

'*Through the scent of water it will bud*' (JOB xiv. 9).

There is something inimitably tender and affecting in this comparison which Job has drawn between the vivacious and reproductive powers exhibited in some departments of the vegetable creation, and the brittle texture of the human frame. What renders it so peculiarly touching is, that it was not made by an Eastern writer, indulging in a voluntary fit of heaviness beneath the shade of a fig-tree, to infuse a greater measure of pathos and interest into his composition, but by one who saw the work of destruction proceeding in his own body, which was rankling with boils and sores, from the crown of the head to the sole of the foot. But let us turn from a sentimental consideration of the words, and look at their physical truth and propriety; let us weigh them in the balance of philosophy, for they will bear it. If a tree be cut down, the stock will sprout again through the scent of water. The word translated 'scent' might, with more aptitude for the present occasion, be rendered steam, or vapour, that is, moisture combined with a certain portion of heat. Nor is there any abuse of language in calling the exhalation which rises from a river at noon, and the odorous effluvium which is thrown from a plant into the air, by the same name; for in many cases a degree of moisture is mixed with the scented particles. This appears to be the reason why many flowers smell most in the evening, and others only during those hours. We should not be far from the truth in saying that the little fragrant atoms are conveyed to the senses as they floated upon the wings of invisible steam or vapour. We may hence assert with truth that the sacred writer, in calling a scent and steam by the same name, has done so with a very happy reference to philosophical propriety. We are accustomed to regard vegetables as nourished by the water which their roots imbibe from the soil, and as cheered by the warmth of the sunbeams. But the watery aliment which they absorb in the shape of vapour is shown by many observations to be of the highest importance to their well-being. Gardeners, aware of this fact, keep not only the foliage, but the floors of their stoves and hothouses constantly moist, and find by experience that this practice is more conducive to the health and vigorous condition of the plant than the mere watering of the earth about the roots.

In hot climates travellers often observe the most succulent plants thriving with every apparent comfort upon the most arid and sunburnt soil. In the parched deserts of Africa, where the quantity of rain in a century scarcely rises to the height of an inch, the most juicy vegetables are often found growing to an astonishing height. This scent of water, as our version has it, is constantly floating in the atmosphere in a quantity which upon an average depends upon the

heat of the climate, and is thus everywhere ready to allay the thirst of the weary plants; and which, whether it be condensed into showers and dew, or whether it glides unseen in the form of transparent vapour, ministers without partiality to the wants of the meanest plant that buds in the desert, and the cedar, that rears its stately crown in the midst of the forest. To enable the leaves thus to drink up the 'scent of water,' or vapour, for the benefit of the individual, the leaves have their surfaces opened by a countless number of minute slits, which offer a free passage into the cellular substance. These openings may be seen, by the help of a magnifier, in the leaves of the lily, and plants related to it, where they are of a much greater size than in many other tribes. In the leaf of the iris they run in rows lengthwise, and in shape remind us of those small windows, or narrow openings, which light the stairs in towers of old country churches. Through these apertures the subtile tides of vapour ebb and flow, according as the plant is in need, or has a superabundance of moisture. Here, then, we have an incidental allusion to three philosophical facts: The existence of an invisible vapour diffused throughout the atmosphere, which is the foundation of some of the most important phenomena that make up the science of meteorology; the suitability of this vapour for the nourishment of plants, which is proved by the observations of our daily experience; the existence of passages through which this vapour may find its way into vessels within the plant.—*Visitor.*

The Sound of Running Water.

The cause of the sound illustrates the power of little things.

The very nature of the sound of running water pronounces its origin to be the bursting of bubbles; the impact of water against water is a comparatively subordinate cause, and could never of itself occasion the murmur of a brook; whereas in streams which Dr. Tyndall has examined, he, in all cases where a ripple was heard, discovered bubbles caused by the broken column of water. Now, were Niagara continuous, and without lateral vibration, it would be as silent as a cataract of ice. In all probability it has its 'contracted sections,' after passing which it is broken into detached masses, which plunging successively upon the air-bubbles formed by their precursors suddenly liberate their contents and thus create the *thunder of the waterfall.*—'*Curiosities of Science.*'

The Traveller's Tree yielding Water.

A type of Christ, the Tree of Life.

There is a tree somewhat resembling a palm, but allied to the *Klusa* or Banana family, known by the name of the Traveller's Tree, which grows in the Island of Madagascar in hot and comparatively waterless regions. It has a very handsome and regular appearance, the large leaves starting out like wings from opposite sides of the trunk so as to resemble an extended fan. The stalk of each leaf rises immediately above the one below, and forms at its base a large cavity where a considerable quantity of moisture is collected and preserved. The thirsty native has but to raise his spear, and, on piercing the thick, firm end of the leaf-stalk, obtains a welcome and abundant supply of cool, pure, fresh water, even in the hottest and driest season of the year.

Christ the Lord is such a tree of life in the midst of earths and desert. Thus by the voice of His prophet He cried long ago, 'Ho every one that thirsteth, come

ye to the waters,' and in the day of His flesh repeated the gracious invitation saying, 'If any man thirst, let him come unto Me and drink.'—*Rev. James Neil.*

Whirlpools.

Illustrative of the seductive power of temptation.

The Colorado River is noted for 'swirls,' so called. They occur everywhere, but only at high stages of water. A bubble arises from the bottom, and breaks with a slight sound on the surface. The water at the point begins a rotary motion, so small that an inverted teacup might cover it. Larger and larger grows the circle, till a surface of forty feet in diameter is in motion, spinning round a funnel-shaped hole in the centre, two or three feet across at the top, and coming to a point in the depths below. Often a large tree floating down the stream is caught, and its foremost end thrust in the air twenty or thirty feet, while the other passes underneath, the exposed end to be slowly drawn down again and to disappear. Some soldiers — deserters from Camp Mohave — passing through the ravine in a skiff, immediately below the fork, suffered their craft to run into a swirl. One of their crew, at the first intimation of danger, threw himself overboard beyond the charmed circle; and as he swam away, he turned his head and saw the boat spin round and round until, one end being drawn into the vortex and the other upheaved in the air, it slowly sank, as it revolved, into the turbid bosom of the river, its human freight to be seen no more; for the Colorado River does not give up the dead —no corpses lodge on its shores. How many such fatal whirlpools there are on the river of life! How many teachers and scholars have been sucked down by vanity, or intemperance, or other sins, that in their insidious advance give warning of their terrible ending!

A Whirlpool on the Coast of Norway.

A type of the youth caught and drawn into destruction by vicious habits.

On the coast of Norway there is an immense whirlpool, called by the natives Maelstrom, which signifies the navel, or the centre of the sea. The body of waters which form this whirlpool is extended in a circle about thirteen miles in circumference. In the midst thereof stands a rock, against which the tide, in its ebb, is washed with inconceivable fury, when it instantly swallows up all things which come within the sphere of its violence. No skill of the mariner, nor strength of rowing, can work an escape. The sea-beaten sailor at the helm finds the ship, at first, go in a current opposite to his intentions; his vessel's motion, though slow in the beginning, becomes every moment more rapid; it goes round in circles, still narrower, till at last it is dashed against the rock, and entirely disappears for ever. And thus it fares with the thoughtless and hapless youth that falls under the power of any vicious habits. At first he indulges with caution and timidity, and struggles against the stream of vicious inclinations; but every relapse carries him down the current, the violence of which increases, and brings him still nearer to the fatal rock in the midst of the whirlpool, till at length, stupefied and subdued, he yields without a struggle, and makes shipwreck of conscience, of interest, of reputation, and of everything that is dear and valuable in the human character.

INANIMATE NATURE: III.—THINGS UNDER THE EARTH.

EARTHQUAKES, VOLCANOES, ETC.

The Mission of Nature's Convulsions.

An argument for the Divine benevolence is derived from the disturbed, broken, and overturned condition of the earth's crust.

To the casual observer, the rocks have the appearance of being lifted up, shattered, and overturned. But it is only the geologist who knows the vast extent of this disturbance. He never finds crystalline, non-fossiliferous rocks, which have not been more or less removed from their original positions; and usually he finds them to have been thrown up by some powerful agency into almost every possible position. The older fossiliferous strata exhibit almost equal evidence of the operation of a powerful disturbing force, though sometimes found in their original horizontal position. The newer rocks have experienced less of this agency, though but few of them have not been elevated or dislocated. Mountainous countries exhibit this action most strikingly. There it is shown sometimes on a magnificent scale. Entire mountains in the Alps, for instance, appear not only to have been lifted up from the ocean's depths, but to have been actually thrown over, so as to bring the lowest and oldest rocks to the top of the series. The extensive range of mountains in this country (America), commencing in Canada, and embracing the green mountains of Vermont, the Highlands of New York, and most of the Alleghany Chain as far as Alabama, a distance of some twelve hundred miles, has also been lifted up, and some of the strata, by a lateral force, folded together, and then thrown over, so as now to occupy an inverted position. Let us now see wherein this agency exhibits benevolence.

If these strata had remained horizontal, as they were originally deposited, it is obvious that all the valuable ores, minerals, and rocks, which man could not have discovered by direct excavation, must have remained for ever unknown to him. Now, man has very seldom penetrated the rocks below the depth of half a mile, and rarely so deep as that; whereas, by the elevations, dislocations, and overturnings that have been described, he obtains access to all deposits of useful substances that lie within fifteen or twenty miles of the surface; and many are thus probably brought to light from a greater depth. He is indebted, then, to this disturbing agency for nearly all the useful metals, coal, rock-salt, marble, gypsum, and other useful minerals; and when we consider how necessary these substances are to civilized society, who will doubt that it was a striking act of benevolence which thus in-

troduced disturbance, dislocation, and apparent ruin into the earth's crust.

Another decided advantage resulting from this disturbing agency is the formation of valleys. If we suppose the strata spread uniformly over the earth's entire surface, then the ocean must envelop the whole globe. But, admitting such interruptions in the strata to exist as would leave cavities, where the waters might be gathered together into one place, and the dry land appear, still that dry land must form only an unbroken level. Streams of water could not exist on such a continent, because they depend upon inequalities of surface; and whatever water existed must have formed only stagnant ponds, and the morasses which would be the consequence would load the air with miasmas fatal to life; so that we may safely pronounce the world uninhabitable by natures adapted to the present earth. But such, essentially, must have been the state of things, had not internal forces elevated and fractured the earth's crust. For that was the origin of most of our valleys; of all the larger valleys, indeed, which chequer the surface of primary countries. Most of them have been modified by subsequent agencies; but their leading features, their outlines, have been the result of those internal disturbances which spread desolation over the surface. We are apt to look upon such an agency as an exhibition of retributive justice rather than of benevolence. And yet that admirable system for the circulation of water, whereby the rain that falls upon the surface is conveyed to the ocean, whence it is returned by evaporation, depends upon it. It imparts to all organic nature, life, health, and activity; and had it not thus ridged up the surface, stagnation and death must have reigned over all the earth. In the unhealthiness of low, flat countries, at present, we see the terrible condition of things in a world without valleys. Can we doubt, then, that it was the hand of benevolence that drove the ploughshare of ruin through the earth's crust, and ridged up its surface into a thousand fantastic forms?—*E. Hitchcock, D.D.*

Earthquakes in Palestine.

God partly trained His people through the ministry of the more awful forces of Nature.

Palestine lies almost in the centre of one great volcanic region of the earth's surface, that, namely, which includes the basin of the Mediterranean, and the provinces of Western or Central Asia. Traces of that volcanic action are found in every direction. The black basaltic rock of the Haurân, the hot springs of Tiberius, and Emmaus, and Gadara, the naphtha fountains near the Dead Sea, the dykes of porphyry and other volcanic rocks that force their way through the limestone, the many caves in the limestone rocks themselves—all these show that we are treading on ground where the forces of the hidden fires of the earth have been in times past in active operation. We are, that is, in a zone of earthquakes.

On some of these earthquakes, tremendous in their phenomena, and in the extent of the desolation caused by them, we have full details, in earlier and even in contemporary history. The Jewish writer, Josephus, speaks of one which occurred B.C. 31, as having destroyed many villages, and countless flocks and herds, and human lives, which he estimates (with somewhat, perhaps, of Oriental vagueness as to statistics) now at ten, and now at thirty thousand. Herod and his army, who were then carrying on war against the Arabs, were only saved by their being encamped in tents, and so free from the peril of falling houses. As it was, he had to com-

bat the panic and depression which it spread through his troops, and, with something of a sceptical epicureanism, to assure them that these natural phenomena were not signs of greater evils to come, but were calamities by themselves, having no connection with any others that followed or preceded them.

Within the last thirty years again the shocks of an earthquake were felt over the whole of Syria, in Beirout, Damascus, Cyprus; Safed was almost utterly destroyed; Tiberias was left little better than a heap of ruins, and one-third of the population perished, to the number of a thousand. Rivers forsook their beds and left them dry for hours. The hot springs that flow into the Sea of Tiberias were largely swollen in volume, and the level of the lake was raised.

One such convulsion has left its impress on the history of the kingdom of Judah. It seems to have been the first great earthquake in the history of Israel. It occurred in the time of Uzziah (Amos i. 1; Zech. xiv. 5). There is no trace of anything of the kind in the period of the Judges, or in the earlier history of the Kings.—*Dean Plumptre.*

The New Zealand Terraces.

Nature seems to delight in surprising us by the creation of unusual and beautiful things.

The lake Tarawara lay unruffled in the sunshine, tree and mountain peacefully mirrored on the surface. The colour was green, as of a shallow sea. Heavy bushes fringed the shore. High wooded mountains rose on all sides of us as we left the creek, and came out into the open water. Presently we were in an arm of the lake which reached three miles further. At the head of this we landed, by the mouth of a small river, and looked about us. It was a pretty spot, overhung by precipitous cliffs, with ivy-fern climbing over them. A hot spring was bubbling violently through a hole in the rock. The ground was littered with the shells of unnumbered cray-fish which had been boiled in this caldron of Nature's providing.

We took off our boots and stockings, put on canvas shoes which a wetting would not spoil, and followed our two guides through the bush. After a winding walk of half a mile, we came again on the river, which was rushing deep and swift through reeds and Ti-trees. A rickety canoe was there, in which we crossed, climbed up a bank, and stretched before us we saw the White Terrace in all its strangeness; a crystal staircase, glittering and stainless as if it were ice, spreading out like an open fan from a point above us on the hillside, and projecting at the bottom into a lake, where it was perhaps two hundred yards wide. The summit was concealed behind the volumes of steam rising out of the boiling fountain, from which the silicious stream proceeded. The stairs were about twenty in number, the height of each being six or seven feet. The floors dividing them were horizontal, as if laid out with a spirit-level. They were of uneven breadth: twenty, thirty, fifty feet, or even more; each step down being always perpendicular, and all forming arcs of a circle of which the crater was the centre. On reaching the lake the silica flowed away into the water, where it lay in a sheet half-submerged, like ice at the beginning of a thaw. There was nothing in the fall of the ground to account for the regularity of the shape. A crater has been opened through the rock a hundred and twenty feet above the lake. The water, which comes bubbling up from below, is charged as heavily as it will bear with silicic acid. The silica crystallizes as it is exposed to the air. The water continues to flow over the hardened surface,

continually adding a fresh coating to the deposits already laid down; and, for reasons which men of science can no doubt supply, the crystals take one particular form. The crystallization is icelike, and the phenomenon, except for the alternate horizontal and vertical arrangement of the deposited silica, is like what would be seen in any northern region, when a severe frost suddenly seizes hold of a waterfall before snow has fallen and buried it.

We were dragged off the White Terrace in spite of ourselves, but soon forgot it in the many and various wonders which were waiting for us. Columns of steam were rising all around us. We had already heard, near at hand, a noise like the blast-pipe of some enormous steam-engine. Climbing up a rocky path through the bush, we came on a black gaping chasm, the craggy sides of which we could just distinguish through the vapour. Water was boiling furiously at the bottom, and it was as if a legion of imprisoned devils were roaring to be let out. 'Devils' Hole,' they call the place, and the name suited well with it. Behind a rock a few yards distant we found a large open pool, boiling also so violently that great volumes of water heaved and rolled, and spouted, as if in a gigantic saucepan standing over a furnace. It was full of sulphur. Heat, noise, and smell were alike intolerable. To look at the thing, and then escape from it, was all that we could do.

We were now to be ferried across the lake. The Pink Terrace, the object of our voyage, opened out before us on the opposite shore. It was formed on the same lines as the other, save that it was narrower, and was flushed with pale rose-colour. Oxide of iron is said to be the cause, but there is probably something besides. The water has not, I believe, been completely analyzed. A youth took charge of us, and led us up the shining stairs. The crystals were even more beautiful than those which we had seen, falling like clusters of rosy icicles, or hanging in festoons like creepers trailing from a rail. At the foot of each cascade the water lay in pools of ultramarine, their exquisite colour being due in part, I suppose, to the light of the sky refracted upwards from the bottom.

The marvel of the Terrace was still before us. The crater at the White Terrace had been boiling; the steam rushing out from it had filled the air with cloud; and the scorching heat had kept us at a distance. Here the temperature was twenty degrees lower; there was still vapour hovering over the surface, but it was lighter and more transparent, and a soft breeze now and then blew it completely aside. We could stand on the brim and gaze as through an opening in the earth into an azure infinity beyond. Down and down, and fainter and softer as they receded, the white crystals projected from the rocky walls over the abyss, till they seemed to dissolve, not into darkness, but into light. The hue of the water was something which I had never seen, and shall never see again on this side of eternity.

Not the violet, not the harebell, nearest in its tint to heaven of all Nature's flowers; not turquoise, not sapphire, not the unfathomable ether itself could convey to one who had not looked on it a sense of that supernatural loveliness. Comparison could only soil such inimitable purity. The only colour I ever saw in sky or on earth in the least resembling the aspect of this extraordinary pool was the flame of burning sulphur.* —*From Froude's 'Oceana.'*

* This description of one of the so-called 'freaks of Nature' is specially interesting, because, soon after Froude's visit, the whole was obliterated, and the entire scenery of the district changed by a tremendous volcanic convulsion.

The Grandeur of Volcanoes.

Volcanoes have in every age suggested the terrors of hell.

At a great distance most volcanoes look just like pointed cones vomiting flames or vapours by a very narrow fissure. But when patience and courage have carried us to the rugged crests of their burning mouths, or when we have penetrated their sides, we are astonished at the scenes of grandeur which present themselves to our eyes in the midst of these frightful and dangerous abysses, where the heat and deleterious gases threaten to suffocate the traveller. I had felt astonished at the dimensions of the ancient craters of France and Italy, the one filled up with lakes, the other transformed into forests. I experienced the same feeling in exploring Vesuvius and Etna; but nothing in their fiery mouths can be compared with what is found in America. The immense crater of Orizaba, according to Baron Müller, is not less than twenty thousand feet in circumference. Persons standing on the opposite sides of it are almost invisible to each other.

On another mountain in Mexico we find again a crater of very remarkable dimensions. It is that of Popocatepetl. Placed on the summit of a crest in the Cordilleras, from whence can be seen at the same time the two seas which bathe America, and in the distance Mexico, encircled by its fairy lake, this crater, which is nearly circular, is, according to M. Boscovitz, five thousand feet in its longest diameter. The gullet of this giant has never been disturbed since the discovery of the New World; but in former times it must have thrown out flames abundantly, as thick beds of its ashes are found for more than twenty leagues round about. Where it has been possible for them to accumulate, their mass sometimes displays a depth of more than fifty metres (about 164 feet). The top of this volcano is covered with eternal snow, and by a strange contrast, its once blazing summit, now almost extinct, has become an emblem of the alliance between the rigours of winter and the empire of fire. The crater of Popocatepetl is about one thousand feet deep. The descent, which is effected by the assistance of a cord wound on a windlass, is made for the purpose of seeking sulphur. Arrived at the bottom we find a mass of snow, and long stalactites of ice which hang from its walls, or occupy the soil in every place where the sun does not reach, and which are not heated by the jets of hot vapour seen springing up here and there. Some writers think that Cortes obtained sulphur from this mountain to make powder when he ran short of it. What is more certain is, that some of his daring companions tried to reach the crater, and that they failed the first time.

The crater of Masaya, which struck the first conquerors of the New World with terror, seems to be even larger. Oviedo, who visited it, was appalled. He relates that in its depths there is a space so vast that a hundred horsemen could easily manœuvre in the presence of a thousand persons. Moreover, at that time there could be seen a furnace where a burning wave rose and fell at intervals, which the pious explorer of America estimated at about six times as long as it would take to repeat the *Credo*. As he moved away from the precipice quite stupefied, he exclaimed, 'I cannot believe that a Christian could contemplate such a spectacle without thinking about hell, and repenting of his sins.'

These fire-belching mouths have always alarmed the inhabitants of volcanic countries, and everywhere they have been compared to the

Gulf of Tartarus. The crater of the mountain we have just spoken of was called by the ancient Americans 'caciques,' the hell of Masaya.—*F. A. Pouchet, M.D.*

A Curious Thermal Spring.

Nature sometimes provides what is usually left to man's invention.

There is a thermal spring at ten minutes' walk to the east of the town (Niksar, in Asia Minor). The water comes out of the ground in two different places, about fifty yards apart, and over each spring is a stone structure apparently very ancient. Unlike the mineral springs of Broosa, and most others in Asia Minor, this contains no sulphur, but is permeated with a strong solution of some alkali. Its temperature is only about 150° Fahr., and its colour is slightly white. In taste it differs but little from ordinary water; but it possesses powerful cleansing properties. The dirtiest cotton or woollen fabric, after standing a few minutes in the water, becomes as clean as new. The worst spots, however, have to be softened by rubbing with a little sand. Here the women of the whole town wash the clothes of their households; and the place is always so crowded, while many of these women are washing the only suit they own, that a male visitor has no chance to see the place except towards sundown, when they are met coming home. Christian and Turkish women generally work there indiscriminately, but the former alone come to the place on Fridays, and the latter on Sundays. They are able by means of this water to dispense with soap, which is quite unknown here; nor is any washing of clothes ever done at home. The water, however, is not sufficiently hot to kill the vermin; the clothes are spread out to dry upon the surrounding bushes, and as the vermin crawl in myriads upon the ground, they naturally take the first opportunity offered them by a clean garment in order to return to town. This spring does not appear to be used for bathing purposes, for the stone structures erected over it contain no bathing tubs or basins, but only circular shallow troughs with flat stones for beating the clothes.—*Van Lennep.*

Subterranean Gases.

Mighty forces are working in secret, but they resemble forces with which we are familiar.

M. Fournet, in his description of the metalliferous gneiss near Clermont, in Auvergne, states that all the minute fissures of the rock are quite saturated with free carbonic acid gas, which gas rises plentifully from the soil there and in many parts of the surrounding country. The various elements of the gneiss, with the exception of the quartz, are all softened, and new combinations of the acid with lime, iron, and manganese are continually in progress. Another illustration of the power of subterranean gases is afforded by the Stufas of St. Calogero, situated in the largest of the Lipari islands. Here, according to the description published by Hoffman, horizontal strata of tuff, extending for four miles along the coast, and forming cliffs more than two hundred feet high, have been discoloured in various places, and strangely altered by the 'all-penetrating vapours.' Dark clays have become yellow or often snow-white, or have assumed a chequered or brecciated appearance, being crossed with ferruginous red stripes. In some places the fumeroles have been found by analysis to consist partly of sublimations of oxide of iron; but it also appears that veins of chalcedony and opal, and others

of fibrous gypsum, have resulted from these volcanic exhalations. M. Virlet gives an account of the corrosion of hard, flinty, and jaspideous rocks near Corinth by the prolonged agency of subterranean gases, and Dr. Daubeny describes the decomposition of trachytic rocks in the Solfatara, near Naples, by sulphuretted hydrogen and muriatic acid gases. Although in all these instances we can only study the phenomena as exhibited at the surface, it is clear that the gaseous fluids must have made their way through the whole thickness of porous or fissured rocks which intervene between the subterranean reservoirs of gas and the external air. The extent, therefore, of the earth's crust which the vapours have permeated, and are now permeating, may be thousands of fathoms in thickness, and their heating and modifying influence may be spread throughout the whole of this solid mass. We learn from Professor Bishoff that the steam of a hot spring at Aix-la-Chapelle, although its temperature is only from 130° to 167° Fahr., has converted the surface of some blocks of marble into a doughy mass. He conceives, therefore, that steam in the bowels of the earth, having a temperature equal to or even greater than the melting-point of lava, and having an elasticity of which even Papin's digester can give but a faint idea, may convert rocks into liquid matter. These wonderful facts might suggest useful thoughts to the despots of the world. Despotism interdicts the expression of political convictions, and seeks to bury them under the adamantean weight of oppressive decrees of colossal cruelty. But it is an unerring moral law that the warm aspirations of a virtuous people shall—like the subtle subterranean gases—arise to freedom, and, despite all impediments, dissolve in due time even the hard and hoary foundations of injustice.

Subterranean Rivers.

Buried errors are wont to reappear in new generations.

It is very remarkable that errors which are buried in one generation often arise and are current in subsequent generations. You think they have disappeared for ever, but, lo, they are again in motion yonder. They remind us of the subterranean courses of some of the rivers which we meet with, more particularly in the Secondary Limestone districts of some countries. Styria and the neighbourhood of Trieste are examples. Suddenly emerging in large volumes from the bases of a lofty mountain, the waters flow across rich alluvial plains, and are then as suddenly lost in the cavities of another mountain, again to issue forth to the light of day in a distant region after their subterranean course.

The Salutary Influence of Volcanoes.

They are necessary to the preservation of the globe from ruin.

A volcano is an opening made in the earth's crust by internal heat, which has forced melted or heated matter through the vent. An earthquake is the effect of the confined gases and vapours, produced by the heat upon the crust. When the volcano, therefore, gets vent, the earthquake always ceases. But the latter has generally been more destructive of life and property than the former. Where one city has been destroyed by lava, like Herculaneum, Pompeii, and Stabiæ, twenty have been shaken down by the rocking and heaving of earthquakes.

If we confine our view to the terrible desolations wrought by earthquakes and volcanoes, we can hardly avoid the conclusion that

they are terrific exhibitions of God's displeasure towards a fallen and guilty world. But if it can be shown that the volcanic agency exerts a salutary influence in preserving the globe from ruin—nay, is essential to such preservation—we must regard its incidental destruction of property and life as no evidence of a vindictive infliction, nor of the want of benevolence in its operation. And the remarkable proofs which modern geology has presented of waste accumulations of heated and melted matter beneath the earth's crust, do make such an agent as volcanoes essential to the preservation of the globe. In order to make out this position, I shall not contend that all the earth's interior, beneath fifty or one hundred miles, is in a state of fusion. For even the most able and decided of those geologists who object to such an inference, admit that oceans of melted matter do exist beneath the surface. And if so, how liable would vast accumulations of heat be if there were no safety-valves through the crust to rend asunder even a whole continent? Volcanoes are those safety-valves, and more than two hundred of them are scattered over the earth's surface, forming vent-holes into the heated interior. Most of them, indeed, have their valves loaded, and the effort of the confined gases and vapours to lift the load produces the terrific phenomena of earthquakes and volcanoes. But if no such passages into the interior existed, what could prevent the pent-up gases from accumulating till they had gained strength enough to rend a whole continent, and perhaps the whole globe, into fragments? Is it not, then, benevolence by which this agency prevents so dreadful a catastrophe, even by means that bring some incidental evils along with them?—*E. Hitchcock, D.D.*

Fear Produced by Earthquake.

Explained by its influence on our belief in the solidity and fixity of the earth.

In speaking of the cause of 'the indescribable, deep, and quite peculiar impression which the first earthquake that we experience makes upon us,' *Humboldt* says: 'The impression here is not, I believe, the consequence of any recollection of destructive catastrophes presented to our imagination by narratives of historical events; what seizes upon us so wonderfully is the disabuse of that innate faith in the fixity of the solid and surest foundations of the earth. From early childhood we are habituated to the contrast between the mobile element water, and the immobility of the soil on which we stand. All the evidences of our senses have confirmed this belief. But when suddenly the ground begins to rock beneath us, the feeling of an unknown, mysterious power in Nature coming into action and shaking the solid globe arises in the mind. The illusion of the whole of our earlier life is annihilated in an instant. We are undeceived as to the repose of Nature; we feel ourselves transported to the realm, and made subject to the empire, of destructive unknown powers. Every sound—the slightest rustle in the air—sets attention on the stretch. We no longer trust the earth upon which we stand. The unusual in the phenomenon throws the same anxious unrest and alarm over the lower animals. Swine and dogs are particularly affected by it; and the very crocodiles of the Orinoco, otherwise as dumb as our little lizards, leave the shaken bed of the stream and run bellowing into the woods. To men the earthquake presents itself as an all-pervading, unlimited something. We can remove from an

active crater, from the stream of lava which is pouring down our dwelling we can escape; with the earthquake we feel that whithersoever we fly we are still over the hearth of destruction. Such a mental condition, though evoked in our very innermost nature, is not, however, of long duration. When a series of slighter shocks occur in a district one after another, every trace of alarm soon vanishes among the inhabitants. On the rainless coasts of Peru nothing is known of hail, nor of explosions of lightning and rolling thunder in the bosom of the atmosphere. The subterraneous noise that accompanies the earthquake there comes in lieu of the thunder of the clouds. Use and wont for a series of years, and the very prevalent opinion that dangerous earthquakes are only to be apprehended two or three times in the course of a century, lead the inhabitants of Lima to scarcely think more of a slight shock of earthquake than is thought of a hailstorm in the temperate zone.

FOSSILS.

Fossil-creatures.

In every age the animals are developed in adaptation to the Nature-conditions surrounding them.

To the tribe of Saurians probably belongs the long-extinct reptile only found in a fossil state, and known by the name of *pterodactylus*. This animal of a bygone world had a short tail, an extremely long neck, and a very large head. The jaws were armed with some sixty equal and pointed teeth. The second toe of the fore-foot was so elongated as to make the foot double the length of the trunk, and probably served to support some membrane which enabled the animal to fly. Enormous eyes enabled it to see in the dark twilight. Some specimens must have had a spread of wings exceeding sixteen feet.

Great writers speak of flying dragons. Some of them also mention dragons with a crest or beard, which can only apply to the *Iguanas*, properly so called, belonging to the same family as the dragons. In these the head is covered with plates, and the body and tail with scales, while along the entire length of the back is a range of spines, or rather, recurved, compressed, and pointed scales; and under the throat is a pendent compressed dewlap, whose edge is supported by a cartilaginous process of the hyoid bone. Each jaw is surrounded with a row of teeth, while two small rows are on the posterior edge of the palate. An iguana, common in South America and the West Indies, measures about five feet in length. To the same family belongs the enormous fossil reptile known as the *Iguanodon*, a monstrous lizard, sixty or seventy feet long; its form resembling the iguana of the West Indies, with the addition of a horn, situated like that of the rhinoceros, and of about the same size.

Other monstrous animals, found as fossils, were equally or even more terrific in appearance, but as precisely adapted to the conditions of their existence. We even know what those conditions were through the peculiar organs and weapons of these creatures. The *hylosaurus*, or forest-lizard, had a row of scaly fringes on its back seventeen inches long, which it had the power of erecting when advancing to attack its enemy, or to seize its prey. The *megalosaurus* exhibited

the structure of the crocodile and monitor, from forty to fifty feet in length. The *plesiosaurus* united to the head of the lizard and the teeth of the crocodile, a neck of enormous length resembling the body of a serpent, with a body and tail of the proportions of an ordinary quadruped, and the paddles of a whale. The *ichthyosaurus*, or fish-lizard, was the ruling monster of the waters. In some of these the eye must have been twelve inches long, and nine broad, protected by scales. The jaws, armed with one hundred and eighty conical teeth, were, in the larger species, six feet long, the whole length of the animal being thirty feet.

Footprints.

And, departing, leave behind us
Footprints on the sands of time.'

In our own islands footmarks of Sauroid animals have been detected in the coalfield south of Edinburgh, and the impressions of the feet of another reptilian animal have been found in the coalfield of the Forest of Dean. The American geologists have evidences, in their lowest Silurian (Potsdam) beds, of numerous trails of animals, probably crustaceans, by which a film of mud or sand, formed by one tide, was tracked and burrowed before another covered the impressions, and left them to future ages as proofs of layers deposited on the shores of former lands. Some of the coal sandstones in the environs of Manchester, exhibit on their surfaces the clearest indications of having been shore-deposits, certain tracks having been marked on them by animals which must have crawled at ebb-tides. Longfellow speaks of 'footprints on the sands of time,' and here they are literally. In a metaphorical sense we may trace also through the centuries the footprints of our intellectual giants. They are seen in our literature, in our picture galleries, in our sculpture, in our architecture and our laws.

MINERALS, STONES, METALS, ETC.

The Mineral Kingdom.

The Divine wisdom and forethought are seen both in the variety of the minerals and in the places of their location.

In order to produce wholesome and convenient dwellings, men require many materials. If these materials had been scattered over the face of the earth, it must have been covered with them; and no room would have been left for animals and plants. Our earth is happily free from such incumbrance. Its surface has been left open, and it may be cultivated, and traversed by its inhabitants without any hindrance. Metals, stones, and a hundred other matters, which we continually use, are shut up under our feet in immense cellars, where we find them whenever we want them. These matters are not hidden in the centre of the earth, not at an inaccessible depth, but are purposely brought near the surface, and placed under a vault, which is at once thick enough to produce sufficient nourishment for men and animals, and thin enough to be easily dug through, when we need to go down and bring up some of the innumerable articles deposited in this vast magazine.

All the substances in the mineral kingdom may be divided into four classes, each of which has its dis-

tinguishing characteristic. The first includes earths. This name is given to those bodies which cannot be dissolved either by fire, or in oil; which are not malleable, and which stand the action of the fire without losing any of their substance. To this class belong, not only the simple earths, but also stones, which are composed of these earths. There are two kinds of stones, the precious, and the common. The latter are the most numerous, and present themselves to us in masses, different in form, size, colour, and hardness, according to the earths, sulphurs, etc., of which they are composed. Precious stones are also in great variety. Some are perfectly transparent, and appear to be the most simple. Others are more or less opaque, according as they are composed more or less of heterogeneous particles.

Salts form the second class in the mineral kingdom. They include those bodies which are soluble in water, and which leave a relish on the tongue. Some melt in the fire, and others remain in it unaltered. They are divided into acids, which are sharp and sour; and alkalies, which leave on the tongue a bitter, burning, and lixivial taste. These have the property of changing all blue vegetable liquors into green. From an exact and proper mixture of these two salts with each other, neutral salts are produced. Among these the common, or kitchen salt is reckoned, which is either extracted from the earth, or prepared with sea-water, or obtained by the evaporation of brackish fountain-water, in large caldrons over a fire. All these salts are one of the principal causes of vegetation. They also serve probably to unite and strengthen the parts of plants as well as of other compound bodies. Finally, they produce fermentations, the effects of which are very different and numerous.

The third class of the mineral kingdom comprehends inflammable bodies, to which the general name of bitumens has been given. They burn in the fire, and when they are pure they dissolve in oils, but never in water. These bodies are distinguished from other minerals by containing more of that inflammable quality which renders those substances combustible, where they are found in sufficient quantity. There is less or more of this substance in almost all bodies.

The fourth class of the mineral kingdom contains metals. These are bodies much heavier than the others; they become fluid in the fire, but resume their solidity when cold. They are bright and malleable. Among metals some are found which, when melted, suffer no diminution of weight, nor any other sensible alteration; these are termed perfect metals. Of this sort there are three, gold, silver, and platina. The other metals, which are called imperfect, are destroyed more or less speedily by the action of the fire, and commonly change into a calx. One of them, lead, has the property of being converted into glass, and of vitrifying all the other metals, gold and silver excepted. The imperfect metals are five in number, viz., quicksilver, lead, copper, iron, and tin. But there are other bodies which are distinguished from metals, not being ductile, nor malleable; these are called semi-metals, and are nine in number, viz., arsenic, molybdena, tungsten, manganese, nickel, cobalt, bismuth, antimony, and zinc. It is necessary, however, to remark, that to the above list of nine, lately are added, four new semi-metals, uranite, sylvanite, titanite, and menachanite.

The whole mineral kingdom is the workshop of Nature, where she labours in secret for the benefit of the world. No naturalist has yet been able to surprise her in any of her operations, and steal from her the art with which she assembles,

prepares, and composes her salts, earths, bitumens, and metals. If we cannot guess how Nature employs the substances which are daily produced, it is not less difficult to discover how the parts associate, combine, attenuate, and finally form the different bodies which the mineral kingdom presents to us.

We have but a very imperfect knowledge of the surface of the earth; and we are still less acquainted with the interior parts. The deepest mines are not more than about 630 fathoms, which is not the six thousandth part of the earth's semi-diameter. This alone is sufficient to show how impossible it is to have an exact and perfect knowledge of Nature, and the formation of the different substances in the mineral kingdom. Happily, in the use which we make of the gifts of Nature, it is of little consequence whether we exactly know their origin and first principles or not. It is enough that we have the knowledge necessary to apply them to our use.

We know enough to glorify our Creator, seeing that we are convinced that there is not a point, either on or under the earth's surface, where His power, wisdom, and goodness are not particularly manifested.—*Sturm.*

Is a Stone the Oldest of all Things?

It may be pleaded that water is older than stone.

It is told in the life of Sir John Herschel, the great astronomer, that when he was a boy he asked his father on one occasion what he thought was the oldest of all things. The father took up a small stone from the garden walk, and said: 'There, my child! there is the oldest of all the things that I certainly know.' But the astronomer in saying this, surely spoke without due consideration. The stone tells of something far older than itself; for what was it that made the stone—broke it off from its parent rock—and rounded it to its present shape? Was it not water? The substance of the stone was deposited originally as mud at the bottom of some primeval sea; and it was shaped by the action of the waves, or by the running waters of the river. Water, therefore, is older than the stone, older than the mountains and hills which have from time immemorial been taken as the emblems of what is everlasting. It is the oldest of all material things, and also that which will endure the longest. And in this respect, as in all other respects, is it not an emblem of the Gospel, which was foreordained before the foundation of the world? It is the old water of life of which Jacob drank, and of which the Apostles and all Christians since have drunk, that we come to the well of salvation from time to time to drink. And the water is all the more precious that it comes to us from eternal sources, associated with the memories of many ages and generations. The Gospel is all the more impressive that it belongs to all time, to all eternity; that it sets before the eye of the frail and perishing sons of men the eternal counsels and the absolute unchanging purposes of God. But while thus old, the Gospel is ever fresh and new, just as water is the oldest and yet the newest of all things. It has the same suitableness, the same power of adaptation to the wants and circumstances of to-day, that it had to the wants and circumstances of the first Christians nearly two thousand years ago. — *Hugh Macmillan, LL.D.*

The Self-centredness of Coal.

Some persons receive and absorb all the good that comes within their reach.

A piece of coal does not reflect any light; all the light that falls on it is swallowed up and kept to

itself. This is what makes it look so black, so dark, so disagreeable. Selfish, miserly people are like coal in this respect. They don't reflect or scatter about them anything they receive. Whatever God gives them they swallow up and keep to themselves. And the sparkling diamond and the dull, ugly-looking piece of coal are not more different from each other than liberal, generous-hearted Christians, like Lady Huntingdon and John Wesley, are different from such miserly people as most of us know, I dare say.—*Rev. Richard Newton, D.D.*

Neglected Quarry Stones.

Our place in the Temple of God we ought to fill.

Travellers sometimes find in lonely quarries, long abandoned, or once worked by a vanished race, great blocks squared and dressed, that seem to have been meant for palace or shrine. But there they lie, neglected and forgotten, and the building for which they were hewn has been reared without them. Beware, lest God's grand temple should be built without you, and you be left to desolation and decay. —*A. Maclaren, D.D.*

Granite Foundations of the Earth.

Everything known in connection with the formation of the earth impresses upon us the wisdom and power of the Creator.

The earth's crust is known to the depth of eight or ten miles. It is supposed, from calculation, to extend nearly twenty miles lower. The globe itself is believed to have been at the beginning a mass of metal resembling quicksilver, and to have been launched into space in a state of extreme heat, being first, by a natural process, covered with rust and then with water. The first really solid ground is thought to have been *granite*—a hard, fire-baked substance, prepared in the interior furnace of the globe for the pavement of the water-covered earth, and pressed, while in a soft state, by some enormous weight occasioned by the hot and burning metals that rested over it. Its hard, stony masses afterwards, by some mighty agency, were forced up to the surface, some portions being left under the waters, while others were driven up through them, and formed mountains and hills. This granite was subsequently covered by earths placed on it by the Creator, so as to form the earth's crust. The granite itself is formed out of eight of the sixty materials found in the crust of the globe, these forming three distinct bodies (quartz, mica, and feldspar), each so constituted as to answer the purposes for which it was required, viz., to form by its union with other substances a solid pavement, suitable to go round the globe. Streams of electricity are supposed to have accompanied the mighty forces that lifted the granite, in mountain piles, up through the waters, causing it to crack and rend into four-sided blocks. The granite thus uplifted at various periods of the world's existence, was made the great storehouse whence mud, sand, and fragments have been supplied for the building up of the greater number of our rocks, its blocks grinding one against another, and its mountain surfaces being broken and crumbled into dust by the united action of frost, wind, and rain. The particles rolled down the rocky steeps, and falling into innumerable rills, trickling down the mountain's side, were washed by them into the valleys below to meet the river-floods, where they were ground and smoothed, through constant friction, into masses of sand, mud, and rubble, which were swept into the ocean, and driven still onwards by tides and currents, till they gradually sank down and formed flat beds or strata. Some of these

strata are thousands of feet in depth. These were hardened into rock by the pressure of new beds over them, by the effects of heat, and by dissolved iron or lime percolating in water through the masses. Some of the loosened particles of granite falling into the surrounding waters are believed to have been spread in beds over the hot ocean floor, or piled up in hollow places between the sea-mountains; and having been there baked by the hot granite, to have formed what are called crystalline rocks of gneiss and mica slate, sometimes two miles in depth; while clay slate, several hundred feet in thickness, was further made from the same materials, and divided into its thin plates by the electric fluid having been sent through the mass of the slate mud. The earth is said in Scripture to have been 'founded upon the seas and established upon the floods' (Psalm xxiv. 2), an ocean of water having been the original covering of the globe, before the rocks were heaved up through its waters. In another sense, the earth is said to be without foundations, being hung 'upon nothing' (Job xxvi. 7), and kept in its place while moving round the sun, by the two opposite centripetal and centrifugal forces. —*T. Robinson, D.D.*

Salt a Product of Geological Ages.

God's merciful forethought provided for the supply of man's necessities.

A considerable portion of the salt of commerce is prepared by the artificial evaporation of sea-water. But the more primitive method was wholly dependent upon the fervour of the sun's rays. That primitive method indeed has provided for us the chief supplies which furnish the salt of commerce. The rock-salt found imbedded within the earth, and which is so extensively mined for domestic use, bears evidence of having been formed by the evaporation of lakes or seas at more or less remote geological periods. The character of the crystals themselves, the stratified nature of the deposits with their interposed beds of clay, and the marine shells often occurring abundantly in the surrounding rocks of contemporary periods, all point to this simple solution of the presence of such vast quantities of salt rock. The ancient convulsions of the soil that shut off great bays or arms of the sea from the general ocean, and left their waters in vast natural salt-pans to evaporate beneath the rays of the sun and the action of the wind, have produced for us the masses of mineral salt.—*H. C. McCook, D.D.*

The Story of the Great Coal Forests.

The decay of vegetation, which has served its first mission, provides material for the supply of human need in new eras.

The first layers that cooled down became covered with a luxuriant vegetation, the fossilized remains of which now constitute our coal-beds—antediluvian forests, which the genius of man extracts from the depths of the earth, to serve the wants of industry and his own dwellings. During this period the whole surface of the globe was covered with strange and dense forests, where proudly reigned a host of plants, the representatives of which at the present day play but a very humble part. Here were palms and bamboos, there gigantic Lycopodia, which, now humble, creeping, herbaceous plants, at that time bore straight stems, towering to a height of eighty to a hundred feet. Then came the Lepidodendra, the stem of which reminds one of a reptile's scaly cuirass. Lastly came trees of the family of our Coniferæ, their boughs laden with fruit.

These vast primeval forests, which the course of ages was to

annihilate, sprang up on a heated and marshy soil, which surrounded the lofty trees with thick compact masses of herbaceous aquatic plants, intended to play a great part in the formation of coal. The luxuriant vegetation of the coal period was certainly favoured by the enormous heat which the terrestrial crust still preserved, as also by the dampness of the atmosphere, and very probably by the great abundance of carbonic acid which it then contained. At the present time the atmosphere only contains a thousandth part of carbonic acid, whereas, according to A. Brongniart, there were at the carboniferous period seven to eight parts in a hundred. This acid being an indispensable part of the food of plants, to which it gives up all its carbon, its presence easily explains the great development of the antediluvian forests of this period.

Although a thick and magnificent mantle of foliage covered the globe, everything wore a strange, gloomy aspect. Everywhere rose gigantic horse-tails (Equiseta) and ferns, drawing up an exuberance of life from the fertile and virgin soil. The latter in their aspect resembled palms, and at the least breath of wind waved their crowns of finely-cut leaves like flexible plumes of feathers. A sky, ever sombre and veiled, oppressed with heavy clouds the domes of these forests; a wan and dubious light scarcely made visible the dark and naked trunks; on all sides reigned a shadowy and indescribable hue of horror. This rich covering of vegetation, which extended from pole to pole, was sad and silent, as well as strangely monotonous. Not a single flower enlivened the foliage, not one edible fruit loaded its branches. The echoes remained absolutely mute, and the branches without a sign of life, for no air-breathing animal had as yet appeared amid these savage scenes of the ancient world.

After having lent life to the primitive ages of the globe, these strange forests completely disappeared in the lapse of ages, and they have now become almost impossible to recognise, owing to the transformations they have undergone in Nature's immense subterranean storehouses. There can, however, be no doubt about the matter. It is clearly the débris of these antique forests of our gradually cooled-down planet that constitutes the coal of the present time. Science, carrying its torch even into the dark regions from whence this débris proceeded, has discovered all its constituent parts. Amid the black and gleaming masses of the coal strata, abundant impressions have been found of the plants which produced the antediluvian combustible.

But by what mysterious phenomena was this extraordinary transformation effected? At first it was thought that the forests of the coal era had been overthrown or borne away by the violence of currents, and that their trunks, locked together, after having floated about like immense rafts, had collected in creeks, and there become changed into layers of coal. But this theory, though seductive from its simplicity, is inadmissible, because the trunks, in spite of their bulk, would yield only a very thin layer of coal. M. Elie de Beaumont, on the other hand, thinks that it was the compact, herbaceous vegetation enveloping the great plants of the coal forests which played the principal part in the production of coal, and that by its ceaseless renewal and change the coal was produced by a transformation analogous to that which our aquatic plants undergo when transformed into turf. This theory offers a better explanation of the abundance and thickness of the coal-seams. We do not exactly make out the nature of the chemical phenomena which must have taken place during such a funda-

mental metamorphosis; but what is clear is, that this was principally effected under the influence of the immense pressure and great heat which the plants experienced during the time they were submerged under water, owing to the subsidence of the soil on which they had lived and died.—*F. A. Pouchet, M.D.*

Gravitation Mastered.

Nature finds abundant illustration of law counteracting the working of law.

If there be a law of Nature which is universal it is surely gravitation. Stones never rise into the air, unless a force superior to gravitation lifts them; and if thrown into the air by force, they alight again as soon as the force is spent which threw them up.

But look at the trees, how they persist, in spite of the law of gravitation, in lifting themselves out of the earth, holding themselves perpendicularly, and throwing out branches skyward, in great freedom!

To the stones who do not know the secret, it is a perfect miracle, that the trees lift themselves towards heaven, and make such a flourish of their liberty. Bury a pebble, and it will obey the law of gravitation for ever. Bury an acorn, and it will obey a higher law; and that law is in itself. Is the law of gravitation suspended? Never for one moment. But in the buried acorn, and the buried wheat corn, there is a *vital force* which is superior to the attraction of the earth.—*John Pulsford.*

Rain-marks in Stone Slabs.

The permanence of early impressions.

It is the law of the human nature that, when it is beginning to grow, it shall be soft as wax to receive all kinds of impressions, and then that it shall gradually stiffen, and become hard as adamant to retain them. The rock was once all fluid, and plastic, and gradually it cools down into hardness. If a finger-dint had been put upon it in the early time, it would have left a mark that all the forces of the world could not make, nor can obliterate now. In our great museums you see stone slabs with the marks of rain that fell hundreds of years before Adam lived; and the footprint of some wild bird that passed across the beach in those old, old times. The passing shower and the light foot left their prints on the soft sediment; then ages went on, and it was hardened into stone, and there they remain, and will remain for evermore.—*A. Maclaren, D.D.*

The Binding Power of Silica.

The Christian Church is strong just in the degree in which it is pervaded by the spirit of love.

As the silica binds the loose and separate pebbles into a compact conglomerate hard enough to endure the wear and tear of city traffic, so Christian love cements persons of various characters and dispositions into a firm, harmonious whole, which the rude contacts of the world fail to disturb or break. —*B. Wilkinson, F.G.S.*

Wedges Splitting Rocks.

Stubborn things yield to the persistent application of small and quiet influences.

Workmen in the stone quarries sometimes find a very hard kind of rock. They pick little grooves for the iron wedges, and then with great sledge-hammers drive and drive the wedges into the flinty rock. And yet, once in a while, they fail to divide the solid mass. The iron wedges and the sledges prove useless, and the workmen wonder at the stubborn rock. But there is yet another way. The

iron wedges are removed from the narrow grooves. Then little wooden wedges, of a very hard fibre, are selected. Now you begin to shake your head and think, 'Well, if *iron* wedges will not do, how is it possible for *wooden* wedges to be used successfully?' Just wait until we explain. The sharp, well-made, wooden wedges are first put into water. They are then inserted in the grooves tightly, while wet, and water is kept in the grooves, and no sledge is needed to drive them. They would break under the severe blows of the ponderous hammer. But the workmen just let the wet wedges alone. They will do what the driven iron fails to do. How so? The damp wood swells. The particles must have room to enlarge. And the granite hearts of the rocks cannot withstand this silent influence. In a little while this solid rock parts from top to bottom, and the workman's will is accomplished. It is so, often, in other things. What noise and visible effort fail to do, some quiet power, when applied, will surely achieve. Teachers may remember this fact in mechanics, and manage some very stubborn natures by the application of the silent forces. The iron and the sledge-hammers often fail; but tears, prayers, and a patient example never fail. — *Alexander Clarke, D.D.*

Varieties of Translucency in Minerals.

Some men seem to stand on the line between the worldly and the Christian.

There are two varieties of translucency in minerals. In the first light seems to penetrate the entire mass, but not enough even to produce semi-translucency. The difficulty seems to have been that the particles, when the mineral was in a state of formation, were not thoroughly dissolved, and therefore could not be so arranged by the laws of crystallography as to allow the light to pass freely through. And yet it seems as if the work had been nearly accomplished. The examples are fibrous gypsum and rose quartz.

The mineral aptly represents the man who seems to stand alone on the line between the world and the Christian. There is so much that is good that you are disposed to class him with the latter. But you cannot see through him, and there is too much room left for guile and artifice to hide themselves, and unexpectedly to divulge unlovely traits of character, so that you stand in distrust of him. — *E. Hitchcock, D.D.*

The Distribution of Metallic Ores.

An argument for the benevolence of the Deity may be derived from the manner in which the metallic ores are distributed through the earth's crust.

It can hardly be doubted by the geologist that nearly every part of the earth's crust, and its interior, too, have been some time or other in a melted state. Now, as the metals and their ores are usually heavier than other rocks, we should expect that they would have accumulated at the centre of the globe, and have been enveloped by the rocks so as to have been for ever inaccessible to man. And the very great weight of the centre parts of the earth, almost twice that of granite, leads naturally to the conclusion that the heavier metals may be accumulated there, though this is by no means a certain conclusion; since at the depth of thirty-four miles air would be so condensed by the pressure of the superincumbent mass as to be as heavy as water; water at the depth of 362 miles would become as heavy as quicksilver; and at the centre steel would be compressed into one-fourth, and stone into one-eighth, of its bulk at the surface. Still it is most probable that the materials

naturally the heaviest would first seek the centre. And yet, by means of sublimation, and expansion by internal heat, or the segregating power of volcanic action, or of some other agents, enough of the metals is protruded towards the surface, and diffused through the rocks in beds, or veins, so as to be accessible to human industry. Here, then, we find Divine benevolence, apparently in opposition to gravity, providing for human comfort.

I have said that these metals were accessible to human industry. And it does require a great deal of labour, and calls into exercise man's highest ingenuity to obtain them. They might have been spread in immense masses over the surface; they might all have been reduced to a metallic state in the great furnace, which we have reason to suppose is always in blast, within the earth. But then there would have been no requisition upon the exertion and energy of man. And to have these called into exercise is an object of greater importance to society than to supply it with the metals. God, therefore, has so distributed the ores as to stimulate man to explore and reduce them, while He has placed so many difficulties in the way as to demand much mental and physical effort for their removal. Man now, therefore, receives a double benefit. While the metals themselves are of immense service, the discipline of body and mind requisite for obtaining them is of still greater value. This is the combined result of infinite wisdom and benevolence.

If I mistake not, there is such a relation between the amount of useful metals and the wants of society as could have resulted only from Divine benevolence. The metal most widely diffused, and the only one occurring in all the rock formations, from the oldest to the newest, is iron, the metal by far the most important to civilized society. This is also by far the most abundant, and easily obtained. It often forms extensive beds, or even mountain masses upon the surface. All the other metals are confined almost exclusively to the older rocks. Among them lead, copper, and zinc are probably most needed, and accordingly they are next in quantity, and in the facility with which they may be explored. Manganese, mercury, chrome, antimony, cobalt, arsenic, and bismuth are more difficult to obtain; but the supply is always equal to the demand. In the case of tin, silver, platinum, and gold, we find some interesting properties to compensate in a great measure for their scarcity. Gold and platinum possess a remarkable power of resisting those powerful agents of chemical change which destroy everything else. They are never oxidized in the earth, and with a very few exceptions the most powerful reagents leave them untouched, while platinum will not yield in the most powerful heat of the furnace. Gold, silver, and tin are capable of an astonishing extension, whereby they may be spread over the surface of the more abundant metals to protect and adorn them; and since the discovery of the galvanic mode of accomplishing this, so easily is it done, that I know not but a gold or silver surface is to become as common as metallic articles.—*E. Hitchcock, D.D.*

The Pervasive Value of Iron.

'The magnetic attraction of the iron of sorrow draws all hearts together.'

Iron enters largely into the composition of our earth. It gives stability to its rocks and fertility to its soils. It helps to form the pillars on which the whole vast superstructure rests, whose massive strength resists alike the weathering of the storms and the battering of the waves. It is apparently

also the substance that is most prevalent in other worlds, judging from the evidence of the aërolites that fall upon our earth, which are composed almost entirely of iron. It is the material by the aid of which, more than all others, man has been able to subdue the earth to his own uses, and to raise on it those wonderful works which have made him what he is, only a little lower than the angels. Iron is also the source of much of the beauty of the world. It is with the strongest of her substances that Nature adorns her fairest. It gives their rich and varied colouring to the rocks and the jewels. The amethyst and the ruby gleam with its magic hues. Marble owes to it not only the lovely coloured veins that pervade it, but even its own formation, for it is the presence of magnetic iron that starts the crystalline process which changes the rude limestone into the brilliant marble. Iron paints the flowers of the field with their crimson dyes, gives the scarlet colour to the human lips, and the vivid blush to the cheeks. Iron also is the best of all tonics and medicines, restoring to the pale, flaccid body the ruddy vigour of health it has lost.

As great as are the use and importance of iron in the field of Nature, so great are the use and importance of its spiritual counterpart in the sphere of human life . . . the iron that enters into the soul is a rich experience, a saving health, and becomes a part of our vitality.—*Hugh Macmillan, LL.D.*

Rain-marks in Sandstone.

Sin is sure to leave its mark behind it.

The great stone book of Nature reveals many strange records of the past. In the red sandstone there are found in some places marks which are clearly the impressions of showers of rain, and these so perfect that it can even be detected in which direction the shower inclined, and from what quarter it proceeded, and this ages ago. Even so sin leaves its track behind it, and God keeps a faithful record of all our sins.

Savoury Salt.

Salt may illustrate the savouring influence of Christianity on the nations.

It is quite as true of material saving as of spiritual salvation, that Christians are the salt of the earth. Had there been ten righteous men in Sodom, the Lord would have spared that city for the tens' sake. No doubt the condition which could not then be met has often since been the ground for preserving communities and cities. We shall never know, until eternity uncovers the fact to us, how greatly the presence of God's people has been the means of diverting judgments, and calamities from men. At the origin of Christianity the world was in a peculiar condition. The nations which had theretofore dominated the race were in a condition of decay. The then known world was embraced within the Roman Empire; and the outlying nations, although subdued by the iron hand of their Roman masters, were tied in loose affinity to their central government. Rome itself was undergoing a decline which was rapidly accelerating with each decade of time. The received religions of the old world were fast losing their hold upon human faith. The minds of men were completely unsettled as to the nature and obligation of religion and the verity of immortality. Then came Christianity (the salt of the earth), with its positive truths, its conditions of absolute obedience and surrender, its untroubled look into the future, and unquenchable confidence in God's love for the miserable, and gift of a happy immortality to the believing. It formed a rallying centre for the best elements of mankind in every nation of the Roman Empire. In

the crash and convulsions of the ensuing ages, when everything good seemed buried under the general ruin, and the race appeared lost, Christianity saved society from total wreckage. Around it as a principle of life gathered all the salvable elements of the world, and out of the ruins there rose slowly, steadily, and at last with mighty accelerated vigour, that colossal power, the Church of Jesus, which ever since has maintained a dominating influence within the circles of civilized men. This Christianity saved society in the primitive centuries of our era.

Thus it has always been, and thus it is to-day. The religion of Jesus Christ is the salt of the earth. It has sweetened and purified the fountains of human life, and caused the lands through which it flows to put forth beauty and fruitfulness. This is the truth which inspires the efforts of the Church to send the Gospel to the uttermost bounds of earth. We believe that the world needs Christianity, that there is nothing to take its place—nothing that can savour society and stay the progress of decay except that holy faith which has made our own lives sweet with holy obedience and bright with the hope of heaven.—*H. C. McCook, D.D.*

A Vision of a Golden Island.

Better have life as God provides it, than as man's greed desires it.

I vainly desired wealth. One evening in early summer I was near our village green when I exclaimed aloud, 'If I were but like that philosopher's stone which turned all it touched into gold—anything for gold!' Presently, I suppose I must have become entranced, for I found myself on a golden island, which was my own possession. Here was no need to repeat my wish, everything being already gold. The trees were gold, so not a bough waved in the breeze; there could be no refreshing shade. Birds were on the branches, but there was of necessity no song. Fruit looked abundant, yet it could, of course, never be eaten. Flowers, which no hand could pluck, were in plenty without fragrance. Animals stood or lay in the distance; not one moved. Men and women sat without a single smile or look of recognition. There appeared, as it were, a lake, though what should have been its waters availed neither for drinking nor bathing. There was the golden soil, and what could ever grow from that? I could lose nothing certainly, for nothing changed, but then all was always fixed. How soon would I have sold my golden island if only I could thus have purchased an escape from it for ever! The ardour of this desire at length restored me to myself. Now the trees were in full beauty; their leaves were dancing. The birds were carolling. I could gather handfuls of the wild flowers at my feet. A pretty little girl offered me two strawberries from her basket. Youths and maidens were in pleasant companionship. A brook gurgled laughingly not far off. It was a rich soil, and the grass most verdant. I had been in the midst of gold without any life. I rejoiced to find myself again in life, though without any gold.—*S. Neale.*

Zinc and Quicksilver.

God's discipline may be needed to fit us to receive God's Gospel.

Amalgamating some zinc plates with quicksilver for a small battery, I found that while the zinc plate remained dry it had no sort of affinity for the mercury, and when I poured a little of it on the plate it instantly rolled off. But how differently the zinc stood affected to the quicksilver after it had been dipped for half a minute

in diluted acid! Then it greedily drank up and absorbed into its very substance the quicksilver which was brought into contact with it, and the two became one. I was struck with it as an illustration of the doctrine that only the convicted sinner has any true affinity for the Gospel of God's grace. God is surely dipping me into the acid and keeping me in it. Oh, may I now drink in and absorb the blessed utterances of the Gospel, being regenerated by them!—*Orfie Sibbald and his Difficulties.*

Steel-filings and the Magnet.

Christ draws men away from their earthly surroundings.

If steel-filings be mixed with dirt and a magnet be applied, it will attract the steel to itself, and draw it away from the grosser particles. Thus does Christ draw men from that which is earthly and polluting.

The Romance of Coal.

Truth is stranger than Fiction.

The coal on the fire; the table at which I write—what are they made of? Gas and sunbeams, with a small percentage of ash, or earthy salts, which need hardly be taken into account.

Gas and sunbeams! Strange, but true.

The life of the growing plant—and what that life is who can tell?—laid hold of the gases in the air and in the soil; of the carbonic acid, the atmospheric air, the water, for that too is gas. It drank them in through its rootlets; it breathed them in through its leaf-pores, that it might distil them into sap, and bud, and leaf, and wood. But it had to take in another element, without which the distillation and the shaping could never have taken place. It had to drink in the sunbeams—that mysterious and complex force which is for ever pouring from the sun, and making itself partly palpable to our senses as heat and light. So the life of the plant seized the sunbeams, and absorbed them, buried them in itself—no longer as light and heat, but as invisible chemical force, locked up for ages in that woody fibre.

So it is. Lord Lytton told us long ago, in a beautiful song, how

> 'The Wind and the Beam loved the Rose.'

But Nature's poetry was more beautiful than man's. The wind and the beam loved the rose so well that they made the rose—or, rather, the rose took the wind and the beam, and built up out of them, by her own inner life, her exquisite texture, hue, and fragrance.

What next? The rose dies; the timber tree dies, decays down into vegetable fibre—is buried, and turned to coal; but the plant cannot altogether undo its own work. Even in death and decay it cannot set free the sunbeams imprisoned in its tissue. The sun-force must stay, shut up age after age, invisible, but strong; working at its own prison-cells; transmuting them, or making them capable of being transmuted by man, into the manifold products of coal—coke, petroleum, mineral pitch, gases, coal-tar, benzole, delicate aniline dyes, and what-not, till its day of deliverance comes.

Man digs it, throws it on the fire, a black, dead-seeming lump. A corner, an atom of it, warms till it reaches the igniting point; the temperature at which it is able to combine with oxygen.

And then, like a dormant live thing, awaking after ages to the sense of its own powers, its own needs, the whole lump is seized, atom after atom, with an infectious hunger for that oxygen which it lost centuries since in the bosom of the earth. It drinks

the oxygen in at every pore, and burns.

And so the spell of ages is broken. The sun-force bursts its prison-cells, and blazes into the free atmosphere, as light and heat once more, returning in a moment into the same forms in which it entered the growing leaf a thousand centuries since.

Strange it is, yet true. But of Nature, as of the heart of man, the old saying stands—that truth is stranger than fiction. — *C. Kingsley.*

A Temple of Precious Stones.

An Arab tradition connected with the Fall of Man.

'This tradition which I tell you,' said Reis Hassen, 'is many centuries old.'

It states that there was in Paradise a temple built up of precious stones. Man dare not utter its splendours. Deep in the midst of the plains of Eden it stood, angel-built, a dazzling sanctuary. Our first parents sang their vesper songs in the twilight shadows of its courts; for there were pillared halls and cloisters of emerald and pearl, where fountains sprang aloft in the silent noon; and long luminous vistas where, hand-in-hand, those first two lovers walked in sinless beauty. Then there were pinnacles and domes of sapphire, blazing in the sunlight by day, and glittering in the starlight by night. From court and terrace waters welled out, and iris-crested cascades fell down to cool shady dells of asphodel below; for the temple was placed far within the privacies of that valley of Eden, whence the four rivers flowed eastward.

However, sad to relate, upon the day Adam fell, this glorious temple was shattered into a million of fragments, and sown broadcast over the earth. These fragments we now light upon and gather up with cost and care, and call them rubies, emeralds, sapphires, and diamonds; but they are, after all, only parts of that primeval palace. The sunset splendours and the diadems of princes, the Milky Way in the heavens, and the spray that sparkles in the entanglements of a maiden's hair, are alike but the costly dust of that lost sanctuary—the sad remembrances of a departed Eden.

Adaptation of Metals.

God's forethought has supplied all man's needs.

For an extended idea of the value of suppletory elements we may look at Nature's metalliferous laboratory. We observe that when strength is wanted we have the giant iron at our beck and call. An obdurate, unwieldy servant in his rougher shapes, we tame him through fire, and make his dull force yield to our skilful weakness. Powerful in our knowledge, we summon this metal to sustain our houses and bridges, our rivers, and we bend and roll, and twist and fashion it as we please for a thousand useful purposes. Do we want a medium to help on commerce by superseding clumsy barter? There is gold. Is heaviness required? It is to be found in platinum. Or lightness? There is aluminium. Or softness? There is lead. Or brittleness? There is antimony. Or fluidity? There is mercury. While for a combination of many qualities useful in domestic life there are copper and tin. One metal appears to have been created to supplement the deficiencies of another. This iron, strong though it be, yields to the gnawing attacks of air and moisture. But by sheathing it in a film of zinc or tin—metals which, though comparatively weak, are yet less sensitive to air and moisture — iron gains the priceless quality of endurance. By the skilful union of various other metals in different proportions, the chemist knows how they may be

adapted to almost every purpose. In the various departments of human activity we may also observe the vast advantages of supplemental forces, The dreams of the poet are balanced by the acts of the statesman. The creations of the painter are strengthened by the sermons of the preacher. The fire of the orator is tempered by the wisdom of the philosopher. The enthusiasm of the mob is controlled by tbe serenity of law. These forces are all intrinsically good; and that good is fortified by reason of the fact that, being suppletory, they all strengthen each other.

The Formation of Crystals.

Christian character is a thing of quiet growth.

It is with the building up of Christian character as with the formation of crystals. In order that a crystal may be properly and perfectly formed, at least three things are necessary: There must be ample time in which all unnecessary fluid can be dissipated, and the components parts of the crystal come gradually together; there must be sufficient room for all the angles and planes of the crystal to attain their regular size; and there must be the absence of agitation so that all the points and proportions of the crystal shall be evenly and symmetrically formed. Christian character, when it is what it ought to be, is more beautiful than any crystal that Nature's laboratory ever produced; and in order that it may reach its perfectness, time is necessary. It is a thing of quiet growth; it has to rise gradually, and by many stages, into form and beauty; to hurry through religious processes will be to mar and spoil the result; we must 'let patience have her perfect work.' And space is as needful as time. If we shut ourselves up in a narrow place, if we go away from the broad open world and confine ourselves to a monk's seclusion, to a hermit's solitude, we shall be cramped and restricted; and, while some parts of our character may become finely and delicately developed, others will be stunted and dwarfed, and the character, as a whole, will be anything but perfect. The absence of agitation, too, is important. Whatever may be going on upon the surface of our life to interrupt its tranquillity, deep down in the depths of the spirit in which character has its beginnings, and from which it grows, there must be the unruffled calm which trust in the Father's will, and power, and purposes never fails to inspire; otherwise our character will be built up by fits and starts, and so will lack the fulness of harmony, symmetry, majesty, which it ought to possess. —*B. Wilkinson, F.G.S.*

Opaque Minerals.

Illustrations of thoroughly bad characters.

The completely opaque mineral, such as coal, transmits not one ray of light, and all within is of course entirely concealed—fit representative of a character thoroughly bad, within and without; the only thing about it that we like is that there is no attempt to assume a borrowed dress in order to conceal the deformity within; the principles are bad, and the conduct is bad, and nothing but Divine grace can transform the dark and shapeless mass into order, transparency, and beauty.—*E. Hitchcock, D.D.*

The Needle and its Pole.

Souls touched with the Divine life persistently turn towards Christ.

'The needle that hath been touched with the loadstone may be shaken and agitated, but it never rests until it turns towards the pole' (Manton). Thus our heart's

affections, when once magnetized by the love of Christ, find no rest except they turn to Him. The cares and labours of the day may carry the thoughts to other objects, even as a finger may turn the needle to the east or west, but no sooner is the pressure removed than the thoughts fly to the Well-beloved just as the needle moves to its place. We are unable to rest anywhere but in Jesus.—*C. H. Spurgeon.*

Wearing the Stones.

God's patient grace can triumph over hard natures.

Stones are charged with the worst species of hardness—'as stubborn as a stone,' it is said;—and yet hardest stones submit to be smoothed and rounded, under the soft friction of water. Ask the innumerable myriads of stones on the sea-shore, what has become of all their angles, once so stern and sharp, and of the roughness and uncouthness of their whole appearance. Their single reply is, Water wrought with us, nothing but water, and none of us resisted! Hear, then, the sermon of the pebbles: You are souls, and we are pebbles; water is water, and God is God; if we yield to be fashioned by water, and you do not yield to be fashioned by God, be not surprised that the very stones should cry out against you. —*John Pulsford.*

Vegetable-life glorifying Minerals.

A type of the uplifting and regenerating of the human race.

What an uplift the mineral world finds in the vegetable world! The heavy, lethargic mineral mounts toward heaven in the growing corn and in the grass: unless the mineral principle were in it, the meek grass would be too meek to lift itself out of the earth. In every tree and leaf of the forest, in every loveliness of the garden, there is a basis of flint and metal. The mineral, in the plant, becomes spirited; and the plant, through the mineral, puts on strength. One glory lifts all matter and makes it aërial. Matter takes wing, branching skyward from the trees, and mounting and singing skyward with the lark. The time comes that the glory which involves itself in vegetable and animal substance, enters into a sharp contention with the material element, and liberates itself. But all matter thus becomes more and more refined and wonderful. The regeneration of man is not exceptional. Under one great law, the physical regeneration of the globe, and of all things in it, are making as much progress as the human race; they are indeed moving on simultaneously with the regeneration of the race.—*John Pulsford.*

A Piece of Chalk.

The course of Nature is a gradual progression.

All the great classes of animals, beasts of the field, fowls of the air, creeping things, and things which dwell in the waters, flourished upon the globe long before the chalk was deposited. Very few, however, if any of these ancient forms of animal life were identical with those which now live. Certainly not one of the higher animals was of the same species as any of those now in existence. The beasts of the field in the days before the chalk were not our beasts of the field, nor the fowls of the air such as those which the eye of man has seen flying, unless his antiquity dates infinitely further back than we at present surmise. If we could be carried back into those times we should be as one suddenly set down in Australia before it was colonized. We should see mammals, birds, reptiles, fishes, insects, snails, and the like clearly recognisable as such, and yet not

one of them would be just the same as those with which we are familiar, and many would be extremely different.

From that time to the present the population of the world has undergone slow and gradual but incessant changes. There has been no grand catastrophe — no destroyer has swept away the forms of life of one period and replaced them by a totally new creation: but one species has vanished and another has taken its place: creatures of one type of structure have diminished, those of another have increased, as time has passed on. And thus while the difference between living creatures of the time before the chalk, and those of the present day appear startling if placed side by side, we are led from one to the other by the most gradual progress, if we follow the whole course of Nature through the whole series of those relics of her operations which she has left behind.—*Professor Huxley.*

Atoms and Forces.

There is a strict limitation on what it is possible for man to know.

Atoms and Force, then—atoms, possibly but a manifestation of force — do these furnish wherewithal to construct or explain the universe as we find it? Are we at liberty, as intelligent and honest thinkers, to believe that force, being supposed constant in quantity, and atoms, supposed immutable and indestructible, may be eternal and uncaused? Or do forces in their correlation and balanced action, and atoms in their total inertness and uselessness if any one kind of them be isolated, their boundless activity and usefulness in combination, bear as distinctly as a steam-engine, a painting, a lighthouse, or any other human work, those marks of ideal unity and voluntary design which are the very autograph of mind? And, further, supposing atoms eternal and uncaused, can any possible quantity, quality, and relation of atoms and atomic forces account for the most important part (to us) of the universe—*ourselves?* Granting mind, we can in a certain sense explain the material universe; because all the phenomena of sensation, which are the sole channel through which the news of an outside universe reaches us, and on which all our reasonings about it rest, are in the last analysis purely mental modifications of our own consciousness. But, granting atoms and forces, we cannot advance a step towards the explanation of self-conscious thought, feeling, and will. A fathomless chasm, which no imaginable apparatus of molecular vibration can bridge, yawns between the air-waves impinging on the nerves of hearing and the delicious sensations of melody and harmony; between the light-waves affecting the optic nerve and the radiant glory of colour and delicate beauty of form.

To ordinary common sense the supposition that by any modification of matter we can explain mind, is absurd; because matter, as perceived or conceived by us, has none of the properties of mind; and mind as perceived or conceived by us, has none of the properties of matter. Nevertheless, keen and powerful intellects are found maintaining that these two substances, diverse by every criterion we can apply, are at bottom identical. In the whole of Nature, they tell us, we discover nothing but matter and force. Matter we know, and force we know; but what is spirit? It is a strange oversight for a philosopher to forget to count himself. Yet who does not see that in the words, '*we* find,' '*we* know,' that very element is interpolated in thought which is verbally denied? Atoms cannot say to themselves, *We are atoms.* Heat and gravitation and chemical affinity cannot

say to one another, *We are force.*—*E. R. Conder, D.D.*

Obtaining Crystals.

Good things are gained by united trust and toil (PROV. ii. 4, 5).

A lesson that we learn from the clear crystal is that to get a thing worth keeping you must work and pray for it. How do you suppose I obtained my clear crystals? Did I pick them up in the street? No, no more than you can pick up nuggets of gold in the streets of Denver. Some people think that if they get into the mountains they can pick up choice crystals anywhere. That is a great mistake. You might travel for miles in the mountains without seeing anything worth picking up.

I will tell you how I found some of my crystals, those from New York, for example. I rode sixty miles on the cars, then six miles in a stage, then walked a mile, then I took a hoe or sharp stick and dug a good many hours in the dirt and among the rocks. My hands were scratched by the sharp stones; my face and clothes were covered with dirt; I became weary and hungry and thirsty. It took hard work.

I could tell you a good many stories of long tramps and hard work in the mountains to find crystals. If you would find beautiful crystals you must not be afraid of the dirt, nor of hard digging, nor of long tramps, nor of scratched hands, nor of hunger and thirst. But you are more than paid for all these things when you see the beautiful crystals rolling out of the dirt or bursting out of their strong prison cells.

And I think that if you would find the beautiful crystals that God has made it is a good thing to pray as well as dig. A friend of mine was asked how it was that he succeeded in finding so many beautiful crystals when he went to hunt for them. He replied like this: 'When I go after minerals I pray over the matter. I ask God to help me find some of the beautiful things that He has made, things that I love all the more because my heavenly Father made them, and that I will try to use to His glory, and then, after praying over it I dig just as hard as I can.'

It would not do any good to pray for them unless he was also willing to hunt and dig. God helps them who help themselves. 'Trust in God and keep your powder dry.' Pray hard and dig hard.

Now this rule applies to any good thing that we are striving after. Do you want an education? Pray for it. Ask God to help you to get it, to open the way for you to study, and then work and dig for it as hard as you can. Have you some plan that you want to carry out? Take it to the Lord in prayer, and if you are satisfied that it is according to His will, then work for it just as hard as you can, and God will work with you. Leave no stone unturned and God will turn the big stones. Do you want to understand that wondrous thing, the fear of the Lord? Do you wish to find that precious gem, the knowledge of God? 'Seek her as silver and search for her as for hid treasure.' How earnest men are in seeking for silver and gold! What long journeys they take! What privations they endure — loneliness, hunger, thirst and weariness! What dangers they encounter—the falling rock, the swollen streams, the snow-slide, wild beasts, and wilder men! How patient they are, hunting sometimes for years before they find anything!—*Cross.*

The Blarney Stone.

Old superstitions have a wonderful tenacity of life.

Five miles to the west of the city of Cork, in a valley where

two streams meet, is the little village of Blarney, with its castle whose fame is widespread. For high in the north-eastern side of that castle is a stone, and he who is adventurous enough to reach it, and has faith enough to kiss it, will be sure to possess thenceforth a gift of marvellous efficacy. Honeyed words will flow from his lips, persuasive power will hang on his utterances, he will win his way everywhere and with everybody, and when mankind, and much more womankind, are taken captive by the witchery of his tongue, they say, 'He has kissed the Blarney Stone.' There are two stones which each claim to be the real talisman—one on the summit of the castle being about two feet square, with the date of 1703; the other, that which records the date of the building, 1446. Thanks to Mr. Jeffery, anyone may kiss the former. To kiss the latter the votary must be let down twenty feet by a pulley and tackle. Try the first. If it works the charm, well, if not, let no amount of 'blarney' induce you to attempt the other.

Coral.

Out of its death comes the beginning of island life.

When a coral reef, says *Chamisso*, is of such a height as to be almost wholly uncovered at low water, the zoophytes discontinue their toils. Below the line which they have traced you there discover a continuous stony mass, composed of shells, molluscs, and echinidæ, with their bristling spikes and fragments of coral connected by a calcareous sand proceeding from the pulverization of the shells. It often happens that the heat of the sun penetrates this calcareous mass when it is dry, and causes it to split open in many places; the waves then possess sufficient force to divide it into blocks of coral about six feet long by three or four and a half broad, and to hurl them upon the reef; this operation terminates in the elevation of such a crest that the high tides only wash over it at certain periods of the year. The calcareous sand does not experience any further change, and offers to the seeds brought thither by the waves a soil wherein vegetation flourishes with sufficient rapidity to speedily overshadow its dazzling white surface. Whole trunks of trees, transported by the rivers from other countries and other islands, find there at length, after a protracted voyage, a resting-place. Some small animals, such as insects or lizards, are conveyed among them, and usually become the first inhabitants of these reefs. Even before the trees are thick and leafy enough to form a wood, the sea-birds build their nests among them; stray terrestrial birds seek refuge in the copses; and finally, long after the polypes have accomplished their work, man appears and erects his hut on the fertile soil.—*Scientific Symbols.*

The Salt of the Christian Faith.

'They who are the salt of the earth shall one day fill the earth.'

Whence are the supplies of salt? Here and there salt-springs bubble up from the bowels of the earth, and human industry converts the saline waters into the pungent preservative crystals. Here and there, again, we see immense deposits of this mineral near the surface, or within the earth, as along the shores of the Dea Sea, in Louisiana, in Cheshire, and in Germany, and these are mined by human industry; but there is another, older, and more primitive source. Go stand upon the sea-shore. Dip with your hand from yon retiring wave a portion of the waters. Place it to your tongue. It is salt! Yes, the great sea is

there spreading from equator to poles. It holds its sovereignty over three-fourths of the earth's surface.

Assuming, as a basis of calculation, that each gallon of sea-water contains about a quarter of a pound of salt, and allowing an average density of 2·24 for rock-salt, it has been computed that the entire ocean, if dried, would yield no less than four and a half millions (4,419,360) of cubic miles of rock-salt. That would make a mass about fourteen and one-half times the bulk of the entire continent of Europe, above high-water mark, mountain chains and all. Salt is everywhere—as universal as the ocean.

It is written (Isa. xi. 9), that in the days of the peaceful kingdom of the Messiah, 'The earth shall be full of the knowledge of the Lord, as the waters cover the sea.' Or to put it in other words, they who are the salt of the earth shall fill the earth. Has the promise been fulfilled? In a measure, yes! The salt of the faith has been cast everywhere in our days. The great salt ocean of Christian love and truth skirts and laves the shores of every continent. It engirdles islands. It runs up and pierces the hearts of nations as the tide waters of the Atlantic push back along the Delaware almost to our city gates. And more will be done, much more than ever our most sanguine visions depicted, when the Church shall rise to fully conceive and undertake the work that Christ has laid before her, the healing of the whole world, as the 'salt *of the earth*.'—*H. C. McCook, D.D.*

Colouring Marbles.

There is need for fervency in religious experience.

When hard substances such as alabaster or marble have to be coloured, the staining element must be poured on hot, otherwise the colours cannot be deeply or permanently fixed. The hearts of men, which ought to be as hearts of flesh, are, alas! too often as hearts of stone, and, in order to impress upon them the beauty of Christian goodness, we must touch them in no cold, half-hearted way; we must approach them with a religious experience that is fervent; the influences we seek to exert upon them must stream forth from a heart that is hot with the fire of divine faith and love.—*B. Wilkinson, F.G.S.*

Stones as Idols.

Stone, or pillar-worship, is one of the earliest forms of idolatry (Isa. lvi. 6).

I have several 'smooth stones of the stream' from the New Hebrides, which were used as idols, and I have heard of precisely similar stones being used in other parts of the Pacific. But what do they do with the *stones?* Very much like what the Earl of Roden says the people of Inniskea, off the coast of Mayo, do, or did, with their sacred stone. 'A stone, carefully wrapped up in flannel, is brought out at certain periods to be adored; and, when a storm arises, this god is supplicated to send a wreck on their coast.' Some of the Polynesian stone-gods were supposed to cause pigs to multiply; others were prayed to for the removal of storms; and others were supposed to act as rain-*makers* and rain-*stoppers*. There was one of these rain-controlling stones in a district in Samoa. When there was too much rain, those who kept the stone put it to the fire to dry, and cause the rain to stop. If there was great drought, they took the stone to the water and dipped it, thinking that by wetting the stone, rain would be the consequence.—*Dr. Turner.*

The large smooth stones referred to were the fetishes of the primi-

tive Semitic races, and anointed with oil, according to a widely-spread custom. It was such a stone which Jacob took for a pillow and afterwards consecrated by pouring oil upon it. The early Semites, and reactionary, idolatrous Israelites, called such stones Bethels, or Houses of Eli (the early Semitic name for God); the 'Jehovist,' in Genesis, implies that Jacob transferred the name from the stone to the place, where the Divine Being appeared to him. In spite of the efforts of the 'Jehovist,' who desired to convert these ancient fetishes into memorials of patriarchal history (comp. Gen. xxxi. 45, 52), the old heathenish use of them seems to have continued, especially in secluded places.—*Cheyne.*

This seems to have been the earliest form in which terrene bodies became objects of idolatry. Before men discovered the use of metals, or the method of cutting rocks, they worshipped these unhewn stones, preferring, probably, those of a shape fit to be set on end, to be the more conspicuous, and smoothed by the action of water. Traces of pillar-worship are found in almost every country of the old world, and even in Cornwall, and in the islands and promontories of this country from Land's End to Caithness.—*Kitto.*

PRECIOUS STONES, PEARLS, ETC.

Hardness of the Diamond.

Diamond-like souls can endure the severest testings and trials.

A diamond is one of the hardest things in the world. You may rub it all day against a pebble stone, you may keep on rubbing till the pebble is all ground to dust; but it won't leave any mark in the diamond. You may set the hardest file that can be made, and rub it on the diamond till the file is worn as smooth as glass; but it won't hurt the diamond the least in the world. It will bear a great deal of rough handling without being scratched or injured at all.

And Christians are just like diamonds on this account. They can bear trial or hard treatment without being injured by it. Job was one of God's diamonds. Satan said if God would only let him take Job in hand, and bring heavy trials upon him, which would be like rubbing a diamond with a file, he could mark him, and injure him, in such a way as to show that he was not a true diamond. He got a hard file, and rubbed him very severely with it, but it didn't hurt him at all. He killed his children, and destroyed his property; he took away his friends and his health, and left him in poverty and misery; but he couldn't make Job give up loving God, and trusting Him. If you can only make a scratch on the surface on what is thought to be a diamond, *that* shows it is not a true diamond. A real diamond is so hard that no file can ever make a mark or scratch upon it. And Satan found this was the case with Job. He rubbed away on him with the file of affliction till he got tired; but he couldn't make any mark upon him to show that he was not a real diamond. He had the hardness of a true diamond, and had power to bear trial.—*Richard Newton, D.D.*

Gem-formation.

There may lie glorious possibilities in the meanest things.

In nature there is hardly a stone that is not capable of crystallizing into something purer and brighter

than its normal state. Coal, by a slightly different arrangement of its particles, is capable of becoming the radiant diamond. The slag cast out from the furnace as useless waste, forms into globular masses of radiating crystals. The very mud on the road, trampled under foot as the type of all impurity, can be changed by chemical art into metals and gems of surpassing beauty. God can make jewels out of the most worthless rubbish. Let the cases of John Newton, of the woman that was a sinner, of the thief upon the cross, of Augustine, of John Bunyan, of Colonel Gardiner, and of thousands more, bear witness to the almighty power of the alchemy of Divine grace. It only requires a supreme surrender of ourselves into the hands of the Holy Spirit to ensure the Scripture assurance, 'They shall be Mine in that day when I make up My jewels.'

The Jewel-figures of the New Jerusalem.

Jewels are types of various kinds of purity and beauty.

The new Jerusalem above will be a glorious city, because there shall be gathered together, in varied but harmonious splendour, the brightness of the diamond, the ruddy glare of the topaz, the deep green of the emerald, the shining gold of the jasper, the milk-white filminess of the onyx, the heavenly blue of the sapphire, the lovely violet of the amethyst, the burning changes of the opal, and the soft beauty of the pearl.

Counterfeit Diamonds.

'It is not all gold that glitters.'

It is not every bright stone that is a diamond. One of the ways to tell a counterfeit is by trying to scratch it. A real diamond cannot be scratched.—*Richard Newton, D.D.*

Sparkling Diamonds.

A good man benefits others more than himself.

He who is godly is both a diamond and a loadstone — a diamond for the sparkling of his grace, and a loadstone for his attractive virtue in drawing others to the love of God's precepts. A good man benefits others more than himself.—*T. Watson.*

Testing Diamonds.

Only real worth can endure testing.

If you put a real diamond into water, it will still look bright, and shine; but a counterfeit, instead of shining, will look dark and dull.

The Bible compares affliction or trial to water; and you can easily tell a true Christian from a counterfeit by seeing how he acts when affliction comes upon him. If you go through an orchard in summertime, you will see some of the fruit dropping off whenever the tree is shaken by the wind; and if you examine the fruit that falls off, you will find it all spotted and unsound. The sound, good fruit is not easily shaken off. In spite of all the shaking the tree gets from the wind, the good, sound fruit hangs on, and only drops off in the autumn when it is ripe. Unsound Christians, like unsound fruit, soon fall off from the tree of Christ, and, like counterfeit diamonds, they shine not in water. It is otherwise with genuine disciples.—*Richard Newton, D.D.*

Polishing Jewels.

Even the gems do not show their full beauty in their natural state.

Scarcely any gem reveals its true beauties in a natural state. The diamond in the rough is most unattractive, and would be thrown

away by a casual observer as a worthless pebble; its perfections are hidden under a hard crust, which can only be removed by its own powder. The deep velvet hue of the sapphire, the glowing brilliant red of the ruby, the soft clear green of the emerald, and the delicate strata of the onyx, alike only display themselves in their true character after the lapidary has used his skill in cutting them into facets and polishing them; and on the perfection of this operation depends, in a great measure, the beauty of the gem. As it is with these, so it is also with human gems. A human 'diamond in the rough' is a most unattractive lout. If he is to be ever valued as his inherent qualities deserve, he must be polished by culture and good society. Few people have 'the seeing eye' to recognise human 'jewels' so long as they remain in a coarse condition; but when they have become smooth in their manners and polished in their language, their value is applauded by everybody. There are, of course, plenty of polished stones which are not gems, and plenty of polite people who are of no moral worth. But that does not diminish the necessity that gems should be polished, and that geniuses should be refined.

Pearls.

(1) *God's Work stands the Wear of Time.*—God's work does not, like man's, grow shabby by length of wear. Real pearls do not grow dim with age; they will shine as brightly after they have been worn a thousand years as when they first emerged from the mother cell. —*Rev. W. Arnot.*

(2) *The Pearl is Begotten in Pain.*—The pearl that is found in the oyster-shell is begotten in pain. Our lives may be as pure, as perfectly beautiful; but there must also be pain. The pearl may be dented and bruised, but the lustrous worth is still there. Our life, perhaps, is worn and sullied in the storm of battle, but its beauty can remain; and in the glad hereafter, the roughened exterior will be cleansed, and the hidden brightness of the gem revealed.—*Canon Hull, M.A.*

'*Biography has its moral pearls.*' —Most of the shells of the oyster are pearly in the interior; and as the true pearls are merely morbid growths, they may all produce pearls of various qualities. The formation of pearls is caused by the introduction of irritating substances, such as grains of sand, between the mantle and the shell. The irritation causes the animal to cover the obnoxious object with layers of pearl, which generally attach the foreign body to the interior of the shell. The Chinese produce pearls artificially by placing substances in the position just described; and we have seen some shells, to the interior of which small metal images were attached in this manner by the pearly secretion. When we look at a pearl, we look at an annoyance which has been ennobled. The oyster by itself is of merely nominal value. But the result of the oyster's own treatment of its irritations in this world—the pearl—is something 'of great price.' Apart from its pecuniary worth, this gem has a moral significance. It suggests that troubles may be made beautiful, and reminds us that amongst mankind some martyrs are more remembered by the glory with which they invested their sorrows than by any other portion of their lives. Biography has its moral pearls, which are treasured long after the creators of them have perished, just as material pearls are valued long years after the oysters have been discarded.—'*Scientific Symbols.*'

Stones found in Vegetable Growths.

Goodness is often met with where it is least looked for.

In certain species of vegetable growths there are found stones supposed to be formed and deposited in their tissues from the silicious and calcareous juices circulating in their organisms. Thus, in the bamboo a round stone is found at the joints of the cane called 'tabasheer.' Another curiosity of the sort is the 'cocoa-nut stone,' found in the endosperm of the cocoa-nut in Java and other East India islands. Dr. Kimmins describes it as a pure carbonate of lime. It is sometimes round, sometimes pear-shaped, while the appearance is that of a white pearl without much lustre. Some of the stones are as large as cherries, and as hard as felspar or opal. They are very rare, and are regarded as precious stones by the Orientals, and charms against disease or evil spirits by the natives. Stones of this kind are sometimes found in the pomegranate and other East India fruits. Apatite has also been discovered in the midst of teak wood.

Chalcedony.

Soul-brightness shines out under pressure of the roller of tribulation.

Dr. Nöggerath, of Bonn, records some experiments which he recently made with chalcedony, and other quartzose minerals, at the agate works in the neighbourhood of Idar and Oberstein, on the Nahe. When such stones are ground on the large and rapidly-revolving wheels of red sandstone, used in these mills, they exhibit a bright phosphorescent glow throughout their mass, entirely distinct from sparks elicited by friction.

Chalcedony must have received its name from Chalcedon, the place whence it came. The only stone of which there is any evidence bearing this name in the time of the Apostle John is the copper emerald, which Theophrastus describes as found in the copper-mines near Chalcedon. It was a small, transparent, brilliant-green stone, rivalling in colour the true emerald. The well-known ornamental stone, now called malachite, and the silicious ore of copper, called chrysocolla, are closely allied to it. How the name chalcedony can have been transferred from a stone of this character to the milk-white carnelian, and other varieties that now bear the name, is one of the many puzzles in mineralogical nomenclature.

Cairngorms.

Affliction is the Divine agency for bringing to view human jewels.

There is a mountain in Scotland called Cairngorm—literally, 'the blue mountains'—and on it are found valuable rock-crystals. The way in which the Highlanders gather the stones called 'cairngorms' is this: When there is a sunburst after a violent shower, they go and look along the whole brow of the mountain for certain sparkling spots; the shower has washed away the loose earth, the sunbeams light upon and are reflected from the stones, and thus they are detected. It is just God's way of bringing forth His own—His 'jewels.' Affliction lays them bare to view.—*Dr. Cumming.*

Decaying of Jewels.

Nothing bearing the earthly stamp can be called permanent.

Not long ago the crown-jeweller of France solemnly applied to the Academy of Science for the means of preventing the decay and corruption of the precious gems in the royal crown. No satisfactory answer was given. In course of time many highly-prized jewels have passed away. 'Behold, all is vanity and vexation of spirit.'—*C. H. Spurgeon.*

INANIMATE NATURE: IV.—THINGS AROUND THE EARTH.

SAND.

Life in the Sea-Shore Sands.

Even the minutest creatures have their mission, and may, in time, affect the very aspect of the globe.

The sand of the sea-shore is so filled with foraminifera that one may justly say it is half composed of them. In an ounce of sand in the West Indies were nearly four millions of individuals. The banks formed by these beings impede navigation and render it dangerous, obstruct the gulfs, fill up the harbours, and in conjunction with the madrepores construct those islands which from time to time emerge in the warm regions of the great ocean; and this rôle, actually played out to-day by living species, was formerly filled by those which are now found only in a fossil condition. At the epoch of the coal-measures (or carboniferous formation), a single species of Fusulina built up in Russia enormous beds of limestone. The cretaceous deposits reveal an immense quantity in the white chalk that extends from Champagne into England. Finally, in the tertiary formations of numerous localities, and especially in the environs of Paris, the limestone-grit encloses an infinite number; and it has been calculated that a cubic yard of this stone, excavated from the quarries of Gentilly, contained more than three millions of individuals. Paris, as well as many neighbouring towns and villages, is almost wholly built with these foraminifera. Thus, then, animals hardly perceptible to the unassisted eye change to-day the depth of the waters, and have, at various geological epochs, filled basins of a considerable area. This fact shows us that each animal has its allotted task, and that with time—time of which Nature takes no count—the animals which appear to us so contemptible on account of their smallness might change the aspect of the globe.—*Dr. Cheeni.*

The Guardian Sand.

God has 'placed the sand for the bound of the sea.'

The sand teaches us something. Compare it with the loose shingle, composed of fairly large, rounded pebbles, over which we came.

Let a storm arise, and an east wind carry the tossing waves up to the foot of the chalk cliffs. Each wave would wash up some more pebbles to the long line already there, and in its powerful backward sweep would carry others away. Thus the mass is ever shifting and changing, having little resisting force to bring to bear against the shocks of the waves.

Even the cliffs themselves bow to this wonderful power, and are

gradnally scooped out below into those caves or holes, whose shade is often so welcome in the full heat of a noonday sun. We do not fully realize how mighty a force lies in one single blow from an angry wave, until we come to know that on the Norfolk coast the sea is yearly taking away something like three feet of land, and that at Westward Ho, in Devon, the three feet is increased to between seventy and eighty each year! All this, cliff and rock notwithstanding! How about the sand? We are told He has 'placed the sand for the bound of the sea.' What? Is the sand stronger than rock, or cliff, or shingle-mass? Yes, even so. It can resist forces that the others cannot stand against. Dr. Payne Smith puts it in a few words: 'Modern science has shown that the resisting power of sand is enormous. By the mechanical laws which govern it, the shock of a blow is distributed laterally, and produces little effect. An egg buried a few inches deep in the sand would not be broken by heavy blows falling upon the surface. So a wave which would shatter rocks falls powerless upon the sand.'

We can see more clearly now the truth that underlies the words quoted from Jeremiah, and can better understand the protecting power of a substance that, to our shortsightedness, would have been about the last to be chosen for the purpose. Although unsafe as a foundation, as the well-known parable teaches us, it is an excellent protector.

SEA, OCEAN, ETC.

Poet-Pictures of the Sea.

The kinder appreciation of the sea has only come since commerce has mastered it for man's use.

Chameleon-like thou changest, but there's love
In all thy change, and constant sympathy
With yonder sky—thy mistress; from her brow
Thou tak'st thy moods, and wear'st her colours on
Thy faithful bosom; morning's milky white,
Noon's sapphire, or the saffron glow of eve;
And all thy balmier hours, fair element,
Have such divine complexion—crisped smiles,
Luxuriant heavings, and sweet whisperings,
That little is the wonder Love's own Queen,
From thee of old was fabled to have sprung.
Creation's common! which no human power
Can parcel or inclose; the lordliest floods
And cataracts that the tiny hands of man
Can tame, conduct, or bound, are drops of dew
To thee, that could'st subdue the earth itself,
And brook'st commandment from the heavens alone
For marshalling thy waves.

Campbell.

Look what immortal floods the sunset pours
Upon us'—Mark how still (as though in dreams
Bound) the once wild and terrible ocean seems!
How silent are the winds! No billow roars,
But all is tranquil as Elysian shores!

The silver margin which aye runneth round
The moon-enchanted sea hath here no sound;
Even Echo speaks not on these radiant moors.
What! is the giant of the ocean dead,
Whose strength was all unmatched beneath the sun!
No! he reposes. Now his toils are done,
More quiet than the babbling brooks is he.
So mightiest powers by deepest calms are fed,
And sleep, how oft, in things that gentlest be.

Bryan Waller Proctor.

Unfathomable sea! whose waves are years!
Ocean of Time, whose waters of deep woe
Are brackish with the salt of human tears!
Thou shoreless flood, which in thy ebb and flow
Claspest the limits of mortality,
And, sick of prey, yet howling on for more,
Vomitest thy wrecks on its inhospitable shore!
Treacherous in calm, and terrible in storm,
Who shall put forth on thee
Unfathomable sea?

Shelley.

The lone house shakes, the wild waves leap around,
Their sharp mouths foam, their frantic hands wave high;
I hear around me a sad soul of sound,
A ceaseless sob, a melancholy cry,
Above there is the trouble of the sky;
On either side stretch waters with no bound,
Within, my cheek upon my hand, sit I,
Oft startled by sick faces of the drown'd;
Yet are there golden dawns and glassy days
When the vast sea is smooth and sunk in rest,
And in the sea the gentle heaven doth gaze,
And, seeing its own beauty, smiles its best;
With nights of peace, when in a virgin haze,
God's moon wades through the shallows of the West.

R. Buchanan.

The Mystery of the Sea.

The sea exercises a gracious broadening influence on men's minds.

The waves coming round the promontory before the west wind still give an idea of a flowing stream, as they did in Homer's days. Here, beneath the cliff, standing where beach and sand meet, it is still; the wind passes six hundred feet overhead. But yonder, every larger wave rolling before the breeze breaks over the rocks; a white line of spray rushes along them, gleaming in the sunshine, for a moment the dark rock-wall disappears, till the spray sinks.

The sea seems higher than the spot where I stand, its surface on a higher level—raised like a green mound—as if it could burst in and occupy the space up to the foot of the cliff in a moment. It will not do so, I know; but there is an infinite possibility about the sea; it may do what it is not recorded to have done. It is not to be ordered, it may overleap the bounds human observation has fixed for it. It has a potency unfathomable. There is still something in it not quite grasped and understood—something still to be discovered—a mystery.

So the white spray rushes along the low broken wall of rocks, the sun gleams on the flying fragments of the wave, again it sinks, and the rhythmic motion holds the mind, as the invisible force holds

back the tide. A faith of expectancy, a sense that something may drift up from the unknown, a large belief in the unseen resources of the endless space out yonder, soothes the mind with dreamy hope.

The little rules and little experiences, all the petty ways of narrow life, are shut off behind by the ponderous and impassable cliff; as if we had dwelt in the dim light of a cave, but coming out at last to look at the sun, a great stone had fallen and closed the entrance, so that there was no return to the shadow. The impassable precipice shuts off our former selves of yesterday, forcing us to look out over the sea only, or up to the deeper heaven.

These breadths draw out the soul; we feel that we have wider thoughts than we knew; the soul has been living, as it were, in a nutshell, all unaware of its own power, and now suddenly finds freedom in the sun and the sky, straight, as if sawn down from turf to beach, the cliff shuts off the human world, for the sea knows no time and no era; you cannot tell what century it is from the face of the sea. A Roman trireme suddenly rounding the white edge-line of chalk, borne on wind and oar from the Isle of Wight towards the gray castle at Pevensey (already old in olden days), would not seem strange. What wonder could surprise us coming from the wonderful sea?—*Richard Jefferies.*

The Sculpturing of the Earth.

'*The sea is part of the exquisite machinery by which the harmonies of nature are preserved.*'

In one of his finest passages, *Ruskin* tells of the time when not only by fire and earthquake, but also by glacier-tooth and sea-wave, the Creator prepared the earth for man's coming. 'The command that the waters should be gathered, was the command that the earth should be *sculptured.* The sea was not driven to its place in suddenly restrained rebellion, but withdrawn to its place in perfect and patient obedience. The dry land appeared, not in level sands forsaken by the surges, which those surges might again claim for their own; but in range beyond range of swelling hills and iron rocks, for ever to claim kindred with the firmament, and be companioned by the clouds of heaven. As we read the mighty sentence, "Let the dry land appear," we should try to follow the finger of God as it engraved upon the stone tables of the earth the letters and the law of its everlasting form, as gulf by gulf the channels of the deep were ploughed; and cape by cape the lines were traced with Divine foreknowledge of the shores that were to limit the nations; and chain by chain the mountain walls were lengthened forth, and their foundations fastened for ever; and the compass was set upon the face of the depth, and the fields and the highest part of the dust were made; and the right hand of Christ first strewed the snow on Lebanon, and smoothed the slopes of Calvary.'

How do the *waves* perform their work of sculpture on our coasts? That they do it, can be seen any day by a visit to the seaside, where the change and variety of scenery as we go from place to place afford us abundant proof. A great deal is done by sheer weight, and force of pressure on our cliffs. A mass of 200 tons of water acted on by a furious gale can do terrific damage; but, added to this, we have the effect of enormous dislodged masses that are used as so many battering-rams by the waves. With these they keep up a remorseless cannonade against the rocks, only to bring down fragments in still greater number, to be used in their turn against the cliffs whence they came. The destructive work is

further aided by atmospheric agencies—rain, frost, and others—which gradually dislodge piece by piece from the heights, thus adding to the line of *débris* below, and giving to the sea an increase of its destroying artillery.

These boulders, as they are tossed by the waves against the cliff, and one against the other, become gradually broken up, and ground down to smooth pebbles. They in turn are used as the minor musketry of the sea, and, swept by huge waves in thousands at a time against the coast, they force even the hardest rock to yield. While, however, these are doing their destructive work, they themselves are slowly but surely disappearing. By constant friction they become smaller and smaller, until finally, they are ground by ceaseless attrition into the fine, soft, beautiful sand. Some of this is swept away far out to sea, and falls slowly to the quieter depths of the ocean; some is destined to make the sand-banks that lie off the coast; some goes to form our sand-dunes with their exquisitely graceful curves; the rest is left to constitute the long unbroken reaches of 'yellow sands' that fringe many of our shores, where childhood builds its mimic castles—where youth walks in the quiet evening, telling the old, sweet story of love, hallowed by purity — where old age sits thinking of those who have passed away, and tries to picture the eternal shore on the other side, where hands shall be clasped once more and for ever.

Then, again, this very sand forms part of the armament of the waves. Anyone who has stood on Bournemouth cliffs, east of the pier, during a fierce westerly gale, can testify to the cutting power of the grains of sand. This power is often exercised upon fallen boulders, and in time they are completely worn away by the millions of tiny chisels which a gale calls into action. On the Fifeshire coast may be seen places where the hard rocks are worn away by the persistent action of streams of dry sand driven against them by long-prevailing winds. Here, of course, the wind is the power which uses the sand; but the sand was provided originally by wave-action.

The results of the efforts of the sea to sculpture the rocks are seen in various ways. On our northern and western coasts the destruction is not so severe, because there the rocks are oldest and hardest. Consequently we find in those regions that the rocks stand out in bolder relief and more jagged outline; but even there we see some of the grandest proofs of wave-power, especially in the Orkneys and Shetlands. Dr. Hibbert describes masses of rock measuring from 200 to 300 cubic feet as being hurled sixty or seventy feet by the Atlantic breakers, and finally splintered into atoms. The *old red sandstone* cliffs of this district rise to the height of 1,000 feet, and 'their upper edges are fretted into countless stacks and pinnacles in every stage of formation and decay.' They are made up of sloping layers of shale and sandstone. Between these, and into their fissures, the waves penetrate and tear away enormous slabs, splitting the rocks in a somewhat vertical direction, and so giving them their peculiar and well-known upright appearance. The 'Old Man of Hoy,' some 600 feet high, is one of these, which has become completely separated from the mainland.

On our eastern coast, where chalk predominates, we find the softer material yielding more easily and rapidly to the wave-forces. Therefore, we get here bays and inlets scooped out during the ages, showing curved outlines between projecting chalk headlands; the latter receive nearly all the force of the water, leaving the far shore-margin comparatively untouched; and it is curious to notice that the form given to the incoming waves

by the headlands, governs very generally the shape of the bay itself. As the projecting cliffs get worn away, the waters gradually become able to attack the shore-line and alter its whole shape, as seen in Herne Bay. Thus our softer cliffs, those formed of clays, sands, or chalk, afford abundant evidence of waste by the sea.

This sketch may increase the pleasure with which

'We love to wander on the pebbled beach,
Marking the sunlight at the evening hour,
And hearken to the thoughts the waters teach—
Eternity, Immensity, and Power.'

H. W. S. Worsley-Benison.

The Living Ocean.

Organic elements are in the very constitution of the sea.

It is scarcely a metaphor to speak of the *living ocean;* life is so intimately blended with its substance, is so inherent in its chemical composition. The analyses recorded in books do not furnish a very exact idea of this composition; they represent the sea-water as a mineral water, containing chloride of sodium (sea-salt), sulphate of magnesia, chloride of magnesium, carbonic acid, carbonate of lime and of magnesia, sulphate of lime, besides some traces of potassa, iodine, bromine, and oxide of iron. These analyses take no account of the mucus, the gelatinous matter belonging or having belonged to the innumerable beings which the sea-water nourishes, and which, in effect, convert the water into an *organic* medium. Take some river-water at its well-head, filter it, and pour it into a vessel; you can preserve it for a long time wholesome and drinkable, and only after a considerable interval does it stagnate. But sea-water, as soon as it is separated from the great body of the ocean, and enclosed in a bottle or a cask, dies—grows corrupt and noisome. It can neither be transported to any place nor preserved. And yet it is not its salts assuredly which corrupt it; no, it is the mucus; it is the myriads of invisible animalcules which immediately perish and putrefy. Thus the sea is a strengthening tonic, and salutary only for the bathers who plunge into its waves.—*Selected.*

The Great Waves.

Destructive Nature-forces are neutralized by some counterbalancing check.

The Great Circle course from the Cape to Australia is adopted chiefly to shorten the distance, but it has another invaluable advantage to sailing vessels which are bound eastward; for between latitude 40° and the ice of the South Pole a steady draught of air from the west blows perennially all through the year and all round the globe. It may shift a point or two to north of west or south, but west it always is, never sinking below what we call a stiff breeze, and rising often to a gale or half a gale, and constantly therefore there is a heavy sea, nearly a thousand miles broad, rolling round the earth from west to east. The waves are magnificent; I believe the highest ever fallen in with are in these latitudes. Vessels for Australia under sail alone accomplish often 300 miles a day on the course on which we were going. If they are bound west they keep within the tropics, which these winds do not reach. To steam in their teeth would be impossible, even for the most powerful ships afloat. It struck me that a series of enormous waves, for ever moving in one direction over so large a part of the earth's surface, might in some degree counteract the force which is supposed to be slowly stopping the rotation of our planet. The earth turning under the moon

generates the tidal wave, which, as the earth's rotation is from west to east, moves itself from east to west. A certain resistance is thus set up which, within a vast but still calculable period, will check the rotation altogether, and earth and moon will wheel on together through space, the earth turning the same face to the moon, as the moon does now to the earth. Long before this consummation is reached the human race must have ceased to exist, so that the condition matters little to us to which this home of ours is eventually to be reduced; but in the system of Nature many forces are in operation which have threatened to make an end of us, but which are found to be neutralized by some counterbalancing check. Waves propagated steadily in any direction create a current; and these great waves in the Southern Ocean, for ever moving in the opposite direction to the tidal wave, may at least so far counteract it as to add a few million years to the period during which the earth will be habitable.—*Froude.*

Three Ocean Mysteries.

'*Hast thou entered into the springs of the sea? or hast thou walked in the search of the depth?*' (JOB xxxviii. 16).

(1) The unexplored vegetation at the bottom of the sea. The bed of the ocean is in many localities luxuriantly clothed with marine vegetation, to the extent of many hundred miles. These submarine forests and jungles are thronged with living beings, but no eye of man rests on their hidden beauties. (2) The great depth of water in some parts of the ocean. It is probable that, considering the greater extent of the ocean than of the land, the bed of the former descends to a depth considerably exceeding the highest mountains of the latter. In the North Atlantic, no bottom was found in 1849 with a line of 34,200 feet, nearly equal to six and a half miles in length. In the South Atlantic, the depth reached, in 1853, was eight miles and three quarters. In these almost unfathomable depths, not a plant that vegetates, nor a creature that finds a home in those ocean-caves, but is open to God's omniscient eye, and is the object of His providential care. (3) The existence of fountains in the bottom of the sea. These fountains emit their streams of fresh water into the ocean from underground sources. In many places the water of the sea is fresher at great depths than at the surface, owing to the presence of such springs. A powerful jet of fresh water has been found in the Gulf of Spezzia, and others have been discovered in the Persian Gulf, and in the Bay of Xagua, south-east of Cuba.—*T. Robinson, D.D.*

The Rising Tide.

An emblem of the inflow of God the Holy Ghost to the Churches.

When the tide is out, you may have noticed, as you rambled among the rocks, little pools with little fishes in them. To the shrimp, in such a pool, his foot-depth of salt water is all the ocean for the time being. He has no dealings with his neighbour shrimp in the adjacent pool, though it may be only a few inches of sand that divide them; but when the rising ocean begins to lip over the margin of the lurking-place, one pool joins another, their various tenants meet, and, by-and-by, in place of their little patch of standing water, they have the ocean's boundless fields to roam in. When the tide is out—when religion is low—the faithful are to be found insulated, here a few and there a few, in the little standing pools that stud the beach, having no dealings with their neighbours of the adjoining pools; calling them

Samaritans, and fancying that their own little communion includes all that are precious in God's sight. They forget, for a time, that there is a vast and expansive ocean rising —every ripple brings it nearer,—a mightier communion, even the communion of saints, which is to engulf all minor considerations, and to enable the fishes of all pools —the Christians—the Christians of all denominations, to come together. When, like a flood, the Spirit flows into the churches, church will join to church, and saint will join to saint, and all will rejoice to find that if their little pools have perished, it is not by the scorching summer's drought, nor the casting in of earthly rubbish, but by the influx of that boundless sea whose glad waters touch eternity, and in whose ample depths the saints in heaven, as well as the saints on earth, have room enough to range. Happy church! furthest down upon the strand! nearest the rising ocean's edge! whose sectarianism shall first be swept away in this inundation of love and joy! whose communion shall first break forth into that purest and holiest, and yet most comprehensive of all communions—the communion of the Holy Ghost! Would to God that church were mine! — *Dr. Hamilton.*

The Separating Action of the Sea.

A picture of the mischievous work wrought by sin.

You may sometimes see in the ocean a pile of rock rising steeply to a considerable height, and having on it here and there where a patch of soil covers it, the remains of what was once a luxuriant vegetation. If you examine it, and also the mainland a few furlongs off, you will come to the conclusion that they were at one time, now long gone by, united together. They have become separated by the action of the sea. At first there was but a small inlet, scarcely large enough for a single boat to anchor in; this was gradually enlarged by the incessant beating of the surf until it became a broad bay, and at last the sea, striking with more and more force upon the cliffs every year, cuts its way completely through, and now what was once part of the mainland is but a solitary and desolate isle. Herein we have a picture, and a very vivid one, of the work of sin. The prophet, when he wished to bring home to the consciences of the people the heinousness of their transgressions, said, 'Your iniquities have separated between you and your God.' One of the most direct and appalling effects of sin is the breach which it makes between the human heart and God. Man is made in the likeness of God; he is an offspring of the Divine thought and love; he is endowed with the same moral and spiritual capacities as those which God Himself possesses; but let sin be suffered to find an entrance into his heart, and, like the gnawing, devouring, destructive sea, it will eat away all the holy and sacred ties which bind his heart to God, and cut him off from God, and leave him inwardly lonely and desolate.—*B. Wilkinson, F.G.S.*

Man's Feeling concerning the Sea.

It is a vision of a blissful future that there shall be 'no more sea' (Rev. xxi. 1).

Between man and the ocean there is little or no sympathy, and he regards the sea in a very different way from that in which he regards mountains, grand and vast as they are. As O. W. Holmes puts it, 'The sea remembers nothing. The mountains give their lost children berries and water; the sea mocks their thirst and lets them die. The mountains have a grand, stupid, lovable tranquillity; the sea has a fascinating, treacher-

ous intelligence. The mountains lie about like huge ruminants, their broad backs awful to look upon, but safe to handle; the sea smooths its silver scales until you cannot see their joints, but their shining is that of the snake. The mountains may dwarf mankind; the sea seems to drown out humanity and time.'

A Black Rock in the Sea.

God's love glorified in its triumph over human guilt.

Like some black rock that heaves itself above the surface of a sunlit sea, and the wave runs dashing over it; and the spray, as it falls down its sides, is all rainbowed and lightened; and there comes beauty into the mighty grimness of the black thing; so a man's transgressions rear themselves up, and God's great love, coming sweeping itself against them, and over them, makes out of the sin an occasion for the flashing more brightly of the beauty of His mercy, and turns the life of the pardoned penitent into a life of which even the sin is not pain to remember.—*A. Maclaren, D.D.*

The Waves and the Wind.

Steady gracious influence is needed to ensure the Christ-like life.

The sea can only be kept heaped up in waves by the constant pressure of the wind. Take away the pressure, and it soon flows back into its old level. If we want, therefore, to get water to keep a higher level, we must do it by *filling up underneath.* Apply this to our hearts. If we want the tone of our minds' lives to rise to a really higher level, to be more Christ-like, more peaceful, more holy, it must be done by *filling up*, not by merely agitating the surface by excitements and emotions. We may get great waves in this way, but we shall have great hollows between them if we do, and a great commotion perhaps, but no real gain. For it is God's grace in the heart, the gradual *filling up* of all our needs and deficiencies by the Holy Spirit of God, which can alone raise our hearts and lives to a higher level of purity and holiness. As we cast off bad habits, we need to be acquiring good ones in their places; as we are stirred up by sermons and services to wish to live more holy lives, we need to be *acting* as well as *wishing* rightly if we want to get on. And this is no hopeless, heartless task, for the Lord's promises are ever sure.—*F. C. K. W.*

Order in the Restless Sea.

Harmony and order reign everywhere in God's world.

Before Captain Maury's researches, ocean appeared to the most judicious observers as nothing more than a grand mass of water, inert, passive, obedient to blind and changeful forces. He has demonstrated, however, that there, as in all other parts of the economy of Nature, harmony and order reign; that everything is planned, weighed, and compensated; and more, that ocean is endowed with a combination of movements similar to those which nourish life in the plant and the animal; that it has a circulation, free and regular as that of the blood; a pulse ever throbbing and beating; veins and arteries, ay, and a heart; and that beyond the purely physical causes to which we may attribute this circulation, there exists an essential agent which we should seek in vain elsewhere, a vital force—that of the myriads of invisible beings which are born, live, multiply, and die in the teeming womb of its waters. Each of these imperceptible existences changes the equilibrium of the ocean; they also help to regulate the climates of the earth,

and to preserve the purity of the seas. The principal agents of this circulation are three in number. The first and most apparent is caloric, the solar radiation; but of itself this would be insufficient. The second, and most important, is the salt. The third is the animal life—the 'living infinite of the sea,' as Michelet calls it—the infusoria. Truly, as we contemplate this wonderful arrangement, we may say, 'He divideth the sea with His power.'—*Selected.*

The Uncertain Sea.

'There is nothing in the world more uncertain and unstable.'

The sea is the great emblem of change. There is nothing in the world more uncertain and unstable. It is one element, but it is never monotonous. It is a unity, but it is composed of a multiplicity of parts, and is suggestive of ever-varying reflections. You never weary of gazing upon it, for it is never for two successive hours the same. It is the facile slave of every fickle wind, and every shifting cloud, and every sportive sunbeam. It is the scene alternately of the softest dalliance and the fiercest rage of the elements. Now it lies calm and motionless as an inland lake, without a ripple on its bosom, blue as the sapphire sky above, golden with the reflection of sunset clouds, silvery with the pale mystical light of moon and stars; and now it tosses its wild billows mountains high, and riots in the fury of the storm. One day it steals softly up the shore, kissing the shells and pebbles with a gentle sigh as though they were gifts of love; the next it dashes its white-crested waves, laden with wrecks and corpses, against the iron rocks. Treacherous and deceitful, it lures the mariner on by its beauty until completely in its power, and then it rises up suddenly in fury, and with an overflowing flood carries him away.

And not only is it the emblem of change; it is itself the cause, directly or indirectly, of nearly all the physical changes that take place in the world. Ascend the mountain summit, and there, amid the crags where the eagle builds her eyrie, and the heather grows in the blue immeasurable silence of heaven, you tread the shores of a former sea, whose shells and corals embedded in the rocks are still as perfect and beautiful as when the last retiring wave rippled over them. Descend into the stony chambers of the earth, and there in the darkness of the quarry you will see the petrified skeletons of fish that once swam in the waters, and the sands that formed the shores of unknown seas, and the undulating ripple-marks left behind by the ebb and flow of long-forgotten tides. We cannot name a single spot where the sea has not some time or other been. Every rock that now constitutes the firm foundation of the earth was once dissolved in its waters, lay as mud at its bottom, or as sand and gravel along its shore. The materials of our houses were once deposited in its depths, and are built on the floor of an ancient ocean. What are now dry continents were once ocean-beds; and what are now sea-beds will be future continents. Everywhere the sea is still at work—encroaching upon the shore, undermining the boldest cliffs by its own direct agency. And where it cannot reach itself it sends its emissaries to the heart of deserts, and the summits of mountain ranges, and the innermost recesses of continents, there to produce constant dilapidation and change. Its own waters are confined by the shore-line; but no voice hath ever said to its fleet-footed winds and its viewless vapours, 'Hitherto shall ye come, and no further.' They rise from their ocean-bed, these messengers of the sea, and pursue their flight along the sky until

some lofty peak far in the interior arrests them; and they discharge their watery burden into its bosom, forming the sources of streams and glaciers, that carry on the work of change where the roar of the sea itself is never heard. Where do the clouds that cling to the mountain-tops, and sail in majestic processions of gloom or in dissolving glories of light along the sky, come from? Is it not the sea? Where, also, the rivers and streams that make our homes musical with their murmurs, that animate our scenery with their sparkle and motion, and attract all that is fairest and loveliest of earth's productions along their banks? Is it not the sea? The dewdrop that glistens in the eye of the daisy; the green sap that fills the delicate veins of the lily; the soft spring rain that fertilizes the earth, nourishing the seed in the furrow and the blossom on the tree; the snow that covers with its stainless shroud the dead things of Nature—all, all come from the sea, the great source (in combination with the sun) of every force and movement that the world displays. And what mighty changes are all these complicated agencies, driven by one motive power, constantly producing? They are altering the features of our planet: wearing down mountains in one place, filling up lakes and seas in another, forming new lands here, and removing old lands there. Well, then, may we speak of the sea as the emblem and the cause of change! And viewed in this light there is a striking appropriateness in there being 'no more sea' in the eternal world. Heaven is the land of stability and permanence. There there will be progress, but not change; growth, but not decay. There will be no ebb and flow, no waxing and waning, no rising and setting, no increasing and diminishing, in the life of heaven.—*Hugh Macmillan, LL.D.*

Lessons from the Sea.

The sunlight on the sea is narrow as an individual, and broad as the horizon.

Have you never stood by the sea-shore when the sun has seemed most sovereign in his gracious glory, and when he has appeared desirous of submerging the tide of waters beneath the full tide of his unwatered light? And have you never noticed that away out to sea the light upon the waters looked broad as the horizon, while at your feet it seemed but *your* width? And, then, have you never exulted in the thought that all that tapering way of golden glory was the sun's good gift to *you?* Oh yes! and more than that, for as you walk along the shore it moves with you, and so still keeps uninterrupted this heavenly communication with *you*. But see! a little further on the well-washed sand there stands the lame and diseased man, who the other moment solicited of your charity, and the sun's perpetual smile of light and liberty and love goes down to *his* feet just the same, and, if he *dare* think so, *he* would think that that noontide blessing was especially for *him!* And so with yonder little boy—your own little boy—out with you upon one of those yearly trips, that shall be thought of, in the long years of his future cares, as seasons of unsullied and untroubled joy; but even then, as with you now, the glorious effulgence shall come down close to *his* feet; and to yours again, as you stand by his side resting on his arm, with heavy head and trembling grasp; and so, too, with all the present and future walkers, and watchers, and waiters—aye, and all the walkers, and watchers, and waiters of the past—upon that shore, rich and poor, strong and feeble, proud and lowly, native and foreign, and, as with them, so with all the walkers, and watchers, and waiters upon the varied strand

of worldly life in all time. If they will only go down near enough to the great ocean of the Saviour's blood, they will see the sunshine of the Father's smile reflected upon its purifying waves, and, though in the distance seemingly as broad as the horizon of the world on which they stand, they shall see that it tapers and tapers to *their* feet, and seems to be to *them*. And so it is. It is to each and to all who look for it; and if, besides looking, thou wilt go far enough, and step into 'the pool,' and 'wash and be clean,' clean enough thou shalt be; and, just as in bathing by the sea-side, the very sun that now strikes hot and heavy through the coarse garments of thy dress shall be reflected from thy purified body, even as from the waves. Away, then, with thy wife and little ones and all thine house, once and for ever, for new life and for all refreshment, to *that* 'sea-side'!—*John Henry Gordon.*

The Majesty of the Sea.

Its immensity; its changelessness; and its treasures.

Of all the sublime objects which Nature, in her infinitely-varying appearances, is constantly offering to our view, there is none which excites in the mind such lofty ideas of her real majesty and grandeur as the sea. Other objects in Nature are capable of exciting these feelings, but not to so great an extent; a long chain of lofty mountains, traversing the whole width of some large continent, as those of South America, or the mountains of the moon in Africa, or the less gigantic piles of the Alpine or Pyrenean scenery, will compel us to feel irresistibly the vastness and magnificence of Nature; but still they are, comparatively speaking, easily travelled over, their altitude taken, their extent measured, till the eye becomes familiarized with their bulk, and considers them, in reference to the whole size of the earth, merely as insignificant mole-hills projecting from its surface; but the sea, stretched out in its mighty expanse, gives us some notion of immensity—at least, more completely so than any other object which Nature can offer. There are depths and profundities in it which have never been fathomed, and paths in it which have never been tracked. It is true, indeed, that man can skim its surface, and traverse it to any extent and in every direction, but he can make no durable impression upon the ungovernable element—can never tread again the same path, his bark can never travel again in the same furrow, the waters close over it for ever and present again the same aspect as before, never changed except by their own motion, and never acted upon except by the agents of Nature.

There is something magnificent and imposing in the changlessness of the ocean; age after age it maintains the regularity of its tides, never overstepping the barriers with which Nature has enclosed it, and never yielding that ground on which its waters first flowed, never showing its all-hidden channels, or developing those secrets which must for ever remain untold in the depths of its caverns and abysses; it still obeys the command of the Deity, 'Hitherto shalt thou come, but no further; and here shall thy proud waves be stayed.' Nor is there in the whole range of Nature a grander or more magnificent scene than the ocean in a storm, when deep calls unto deep, and its liquid mountains roll and break against each other—when it dashes to pieces, in the wantonness of its power, the strongest structures which man can rear for the purpose of floating over its billows; then it is that the proudest and bravest tremble and quail at the roaring and thunder

of its waters. If we look at it in a calm, too, there is something almost as imposing in its aspect; stretched out in its sleeping tranquillity, but looking fearfully deep, and its silence seeming like that of the lion when crouching for his prey.

And the treasures which it holds are well worthy the mysteriousness and seclusion and security of the casket. There, amidst its inmost recesses, amidst its caverns and hidden depths, are contained secrets which can never be divulged; there the mighty monsters of the deep—many of them unknown to us—play and sport; there the beautiful beds of pearl and coral hide their bright treasures; there the tough and hardy seaweed clings to its isolated and solitary rock, fathoms and fathoms below the surface of the water; there, doubtless, lies many a beautiful spot which, if it could be elevated from beneath the superincumbent weight of waters, would be found some beautiful island glittering with all the treasures of the ocean—

> 'Full many a gem, of purest ray serene,
> The dark, unfathomed caves of ocean bear.'

Yes, they waste all their beauty upon its lonely and unseen caverns, where the light of day scarcely sheds sufficient radiance to create and preserve colour. And, oh! if the wave could speak in other language than that of its own harsh thunder, how many tales of agony and suffering might it unfold! What myriads of our fellow creatures have been swallowed up in its fathomless depths! What myriads of human bones bestrew the floor of the ocean! But not for ever shall they be entombed there; the day will come when the deep shall be called upon to 'deliver up its dead' and disclose the secrets it contains.—*H.*

Phosphorescent Sea.

'Love is a light upon the sea of life.'

Love is a light upon the sea of life. Upon the tranquil scenes of domestic and social existence its graces gleam and its virtues sparkle, so that as we move along we are reminded of a calm evening on the phosphorescent sea—no gloom, no excitement, no harsh noises. Each dip of the boatman's oar is accompanied by a brilliant flash, a tremulous radiance plays round the sides of his little vessel, and a long stream of light follows in her wake. In stormy times, too, love is like that phosphorescent sea, which then exhibits a spectacle of awful grandeur. Each wave appears crested with light, and, as it crashes against the sides of a ship, looks like broken masses of liquid fire. And when life is beset with gloom unutterable, and its waves resemble a sea dark and tempestuous, the light of love irradiates the surging scene with its self-sacrificing beams; its flashes of honest indignation start as the forces of oppression plough their way, whilst its thousand inexplicable coruscations glance and gleam over every troublous billow as it breaks.—*Scientific Symbols.*

Treasures of the Deep Sea.

The wonders of God's handiwork are beyond the gaze of men; and in no sense limited to the direct service of man.

The diver tells us tales of Arabic splendour seen below the wave; of golden floors, violet-curtained windows, walls of crimson and opal, with waving shadows that flit across the rosy sea like the lines that tremble across the spectrum. The infusoria of the ocean change its surface from one colour to another. Patches of living

green, thirty miles across, are seen. The medusæ of the Arctic seas people the cold, blue wave with their wondrous forms and motions, flashing electric fire. These microscopic creatures are termed the chivalry of the deep, for their minute, translucent shields of silex are wrought with mimic heraldry. They are tiny knights with shield and buckler, elaborately carved with quaint conceits. Harney says that one may collect, by straining the water of the sea, a web of greenish cloth of gold, illuminated by electric fire, self-generated. These wondrous creatures live everywhere, from the frozen pole to the burning equator, and while men die, their monuments are seen on continents and mountain ranges on which porphyry and granite have set their stony seal for ever.

'Dr. Carpenter's recent investigations in this direction are of great interest. They teach us that the bottom of the deep ocean is the home of many creatures, who live there in the absence of light, under great pressure, in water often excessively cold—just above freezing-point—abounding in carbonic acid, and in organic matter. Of these influences, the one which makes itself most felt is that of cold. It is this, and not the pressure, not the want of bright sunlight, that stunts the creatures, and reproduces at the bottom of equatorial seas the fauna of arctic surface regions. There seems to be a vast thin sheet of living matter enveloping the whole earth beneath the seas. At these great depths there is no vegetation properly so called, and Professor Thomson is of opinion that the living beings feed on the organic matter which exists in the water, in large quantity, and the precise nature of which is unknown. Much of this "ooze" is nothing but incipient chalk, and as these animals decay, they slowly build up at the bottom of the ocean strata similar to those we find in the chalk formations.'—*Naturalist's Note-book.*

Evaporation of the Ocean.

He is enriched who can give himself away.

The great ocean is in a constant state of evaporation. It gives back what it receives, and sends up its waters in mists to gather into clouds; and so there is rain on the field, and storm on the mountains, and greenness and beauty everywhere. But there are many men who do not believe in evaporation. They get all they can, and keep all they get, and so are not fertilizers, but only stagnant miasmatic ponds.—*H. W. Beecher.*

The ungrateful are like the sea, continually receiving the refreshing showers of heaven, and turning them all into salt.—*Locke.*

The Roar of the Sea.

Remarkable is the solemn alternation of the deep, low note.

Whilst the sea is yet unseen, it makes itself felt and heard. At first there is a distant, dull, monotony of sound; and gradually this far-off murmur swells into a roar which absorbs and dominates all other voices. At once the attention is arrested by the solemn alternation, the invariable return of the deep, low note, ever swelling into thunder. Not so regular the oscillation of the pendulum which measures the hours; but very far in its regularity from being like the uniformity of mechanic motion. We feel in it, rather, or believe we feel in it, the vibrating intonation of life. In fact, at the moment of the flood, when wave rises upon wave, immense, electric, there mingles with the rolling storm of the waters the murmur of the shells and the thousand various

beings which are borne along with them in their course; and at the reflux of the waves there is a sound which makes us comprehend that the sea carries back along with the sands these its faithful tribes, and receives them into her bosom. Wherever one may behold the ocean, it is ever imposing and terrible. Such is it around headlands, from which it spreads far away in all directions; such, and sometimes even more so, in those broad but circumscribed places where it is vexed and trammelled by enclosing shores, and where it rushes in with furious currents which hurl it high upon the rocks.—*Michelet.*

The Contrast of Ocean and River.

Both have movement, but one kind of movement is unrestful, while the other is restful.

Not only in all Scripture, but in all poetry, the sea has been the emblem of endless unrest. Its waters, those barren, wandering fields of foam, going moaning round the world with unprofitable labour, how they have been the emblem of unbridled power, of tumult and strife, and anarchy and rebellion! Then mark how our text brings into sharpest contrast with all that hurly-burly of the tempest, and the dash and roar of the troubled waters, the gentle, quiet flow of the river, 'the streams whereof make glad the city of God'; the translucent little ripples purling along beds of golden pebbles, and the enamelled meadows drinking the pure stream as it steals by them. Thus, says the psalm, not with noise, not with tumult, not with conspicuous and destructive energy, but in silent, secret, underground communication, God's grace, God's love, His peace, His power, His almighty and gentle self flow into men's souls.

Quietness and confidence on our sides correspond to the quietness and serenity with which He glides into the heart. Instead of all the noise of the sea you have within the quiet impartations of the voice that is still and small, wherein God dwells. The extremest power is silent. The mightiest force in all the universe is the force which has neither speech nor language. The parent of all physical force, as astronomers seem to be more and more teaching us, is the great central sun which moveth all things, which operates all physical changes, whose beams are all but omnipotent, and yet fall so quietly that they do not disturb the motes that dance in the rays. Thunder and lightning are child's play compared with the energy that goes to make the falling dews and quiet rains. The power of the sunshine is the root power of all force which works in material things. And so we turn, with the symbol in our hands, to the throne of God, and when He says, 'Not by might nor by power, but by My Spirit,' we are aware of an energy, the signature of whose might is its quietness, which is omnipotent, because it is gentle and silent. The seas may war and be troubled; the tiny thread of the river is mightier than they all.—*A. Maclaren, D.D.*

The Mystery of the Sea Waves.

'*The sea is to all human minds the best emblem of unwearied, unconquerable power*' (RUSKIN).

How do these mighty waves come into existence? What force drives them in their resistless course to the foot of the crags? Let us see how far we can go towards replying to these queries.

We all know that the sea is at no time perfectly quiet. Even in the soft summer afternoon there is movement of some kind, usually accompanied by miniature waves. The slightest motion of the air produces a reflection, so to speak,

in the water. 'Each puff of wind catches hold of the water, and heaps it up into a little hill with the face to the leeward; then the crest falls, and the water sinks down into a trough, as deep below the mean surface as the hill was high above it; but the next column of water is then forced up, only, however, to be pulled down again, and in this way the motion of the wave may be propagated across a broad expanse of water.' So finally it reaches the shore. A stone dropped into a pond or lake produces a similar effect, each circle being wider than the one behind it, until the last is only a tiny wave at the edge of the lake.

Watch a sea-bird floating on the wave; you see him rise and fall, but he does not move forwards; neither would any light body—as, for example, a wooden spade, or a spar, or a cork. This shows us that it is the *form of the wave*, and not the water itself, that changes position. So we see that waves, as we call the movements given to the sea by the wind, are only shiftings of the *surface* of the water. The movement is transmitted from particle to particle, and is thus passed on, it may be for miles, until the last movement or wave spends itself on the shore. The particles of water *themselves* simply vibrate, or oscillate up and down, or, to be strictly accurate, revolve in circular vertical paths. The wind passing over a meadow of long grass, or a field of wheat, illustrates our meaning. Each ear of corn or blade of grass bows before the breeze and rises again. A succession of these movements passes from end to end of the field, but the separate stalks or blades remain where they were. It is a surface movement, and only the *form* of the wave travels over the field. So with the sea. It is a movement of undulation, not of transition of the water itself from place to place.

Now let the breeze freshen, and the 'little hills' of course become higher; the wind now catches the particles of water on the crest of the wave, and carries them away, scattering them as spray, or water-dust, forming foam—'white horses' as the children call it.

Increase the breeze to a gale, and the spray becomes a shower of salt water, until far away sea and sky seem to mingle, and the horizon-line is lost to our sight. Again, as the wind seizes the top of the wave, it makes *it* move faster than the lower part, and we see it bend over in a curve, whose edge is scattered into foam. If the wind be intermittent, as mild breezes usually are, we get a few small waves running in, followed by a larger, higher one which breaks on the shore. We note this chiefly in fine weather, the waves in a genuine storm being usually equal in length and height.

How about the waves when they reach the sand or the shingle? The soft, quiet ripples that curve so gracefully, and then fall to pieces on the sand, are due to friction of the shallow water on the beach-floor. The force of the water is lessened by this friction, and as it acts with greater power on the deeper part, the crest moves more rapidly, and so curves over and breaks with the musical sound we know so well. The same reasoning applies to the huge breaker. As it comes rolling in, its lower portion is kept back by the friction of the stones or sand, while its crest, moving with greater velocity, rolls over, breaks on the shore, and then retreats with a swift undercurrent to the sea, carrying the pebbles with it, and making the peculiar noise so often heard on a stormy night far away on the shingly shore.

The sounds of the waves are due to various causes. On a stormy night we are struck by the *irregular* bursts of sound. These are caused not only by the dash of

the body of water on the shore, but also by the bursting of thousands of air-bubbles contained in the water; these, as they explode in rapid succession, contribute to the irregularity of the sound-waves that reach our ears, perhaps best described as a roar. 'The scream of the maddened beach dragged down by the wave,' as Tennyson calls it, is caused by the grating of the larger pebbles as they are carried away. Tyndall says that the size of the stones may be fairly guessed at by the sound they make. It may vary from the confused noise of the larger ones, to the 'hiss' produced by a fine gravelly beach, as the receding wave carries it seawards.

In the wildest storms, the agitation of the water does not extend very far downwards. The greatest vertical depth is reached, it is said, off Newfoundland, where in a great storm it is as much as 500 feet; but there, the disturbance must be very slight, and at twice the depth almost imperceptible.

In the open ocean, waves rarely reach above fifty feet, while round our own coasts the average storm-height is from eight to ten feet. A velocity of a mile a minute is sometimes attained by waves, and unbroken single ones weighing something like 200 tons have been noted coming in at this rate. The pressure of such enormous masses of water must of course be terrific at times. Atlantic breakers have been known to exert a pressure of four tons on every square foot of surface on which they fell. In quiet weather they break with a pressure of 600 pounds to the square foot; in winter it is usually about 1,800 pounds.

All the 'energy' thus liberated is converted into other forms, such as heat and electricity. Tyndall says that more electricity lies enclosed in a single drop of water than is exhibited in an ordinary thunder-storm! What a store there must be in the waters before us! Seeing that ozone—the peculiar kind of oxygen that exists in sea-air—is a result of electrical condition, can we be surprised that a month by the sea-side gives new life to the weary brain, and sends us home again exhilarated, and ready for the work of everyday life?

To do this for us human beings is only a part of the work done by the waves of the sea. By their unceasing motion, in obedience to the movements of the ocean of air that wraps round the denser ocean of water, they are ever mingling this air with the water, and so the moving multitude of animal forms dwelling in the sea is kept alive, from the mighty whale down to the tiniest animalcules that swarm in its tiniest drop. Waves, tides, and currents keep up the circulation necessary for life—life not only of animal, but also of plant. Tides and currents also serve to maintain the specific gravity of the ocean at the degree essential to the well-being of plant and animal.—*H. W. S. Worsley-Benison.*

Under-Currents Carrying Icebergs.

Reminding of the great men in history, who, in spite of everything, have worked out their destiny.

Arctic voyagers tell us of an under-current setting from the Atlantic toward the Polar basin. They describe huge icebergs, with tops high up in the air, and of course the bases of which extend far down into the depths of this ocean, ripping and tearing their way with terrific force and awful violence through the surface ice or against a surface current, on their way into the Polar basin. Captain Duncan, master of the English whale-ship *Dundee*, says at page 76 of his interesting little narrative: 'It was awful to behold the immense icebergs working their way to the north-east from us, and

not one drop of water to be seen; they are working themselves right through the middle of the ice.' They were moved by an invisible power which no superficial facts could account for. They remind us of those great men in history who, in defiance of all the frozen opposition of the world, have worked themselves onwards to the accomplishment of their destiny. Upon the surface of things there has been nothing to account for either their course or their might. Fixed in their places by concrete conventionalities, what is it which has moved them right through all consolidated obstacles? An unseen influence—the stream of genius. The minds which are moved by that current plough their way in splendour through all the world's superficial opposition. —*Selected.*

The Crested Waves.

The cheerless retrospect of life, if it has been an ungodly life.

The crested waves seem heaped together as they recede from the eye till they reach the horizon, where miles of storm are seen but as a line of spray. So when a man looks back upon his life, if it has been a godless one, be sure of this, that it will be a dark and cheerless retrospect over a tossing waste, with a white rim of wandering barren foam, vexed by tempest. —*A. Maclaren, D.D.*

Sea Colours.

(1) *The Colours on the Water respond to the Colours in the Sky.* —Let the light be pure, and the whole sea glitters with a transparency and brilliancy in its tints never equalled on land. Brilliant spangles of gold perplex the eye that looks sunward; brilliant azure elsewhere underneath the azure sky; while, opposite the sun, where soft-tinted clouds dapple the horizon, the smooth water gleams with roseate, saffron, and amber dyes. When the air is murkier and the heaven overcast, the faithful water loses this transparency of hue. Heavy opaque blues and grays chequer the dull floor. A colourless sky looks down on a colourless sea. In ordinary weather, in fact, it is the delicacy of its neutral tones which gives to the water-surface its chief charm to the eye. You see nowhere such grays as at sea—grays clear and silvery, grays soft as pearls, grays dusky dim, grays touched with ever so faint a suspicion of gayer, richer colours. They pass by finest gradations into and out of one another; they play across the chord of colour with every changing hour. A bright cloud stains them for a moment. Before squall and shower, there runs athwart them a bar of blackness, like the frown upon a pleasant face. Deep noon swallows them up in its intensity of blue. Morning and evening come to steep them in warmer colours. What wonderful combinations of colour are to be seen when the thousand lights which make the western sky resplendent are broken and repeated and confounded in moving water! For lights which burn in heaven, fixed and single, are caught but confusedly by the restless sea (as all heavenly light is on the earth); multiplied into ten thousand copies, yet not one copy perfect.—*J. O. Dykes.*

(2) *The Shinings on the Sea are caused by Animalculæ.*—A correspondent of the newspaper press writes the following account from the Gulf of Siam: 'We steamed forward at the rate of six or seven knots an hour, and a wonderful spectacle presented itself. Athwart the vessel long white waves of light were seen rushing towards it, ever brighter and in swifter motion, till they seemed to flow together, and at length nothing could be seen on

the water but a whirling white light. Looking steadfastly at it, the water, the air, and the horizon seemed blended in one; thick streamers of mist seemed to float by both sides of the ship with frantic speed. The appearances of colour resembled those which arise when one turns a black-and-striped ball so quickly that the white stripes seem to run together. The spectacle lasted for five minutes, and was repeated once again for two minutes. No doubt it was caused by shoals of animalculæ in the water. The usual luminous appearance of the sea, which shows itself when the water ripples in the wake of a ship, or the waves break against the rudder, is not to be compared with this. The light is then brilliant, bright green or blue, often most beautiful in deep, clear water, mixed with reddish-white foam. We saw a very pretty specimen of this sort one night. It was pitch-dark, and quite still, when there fell a heavy shower of rain, consisting of large drops. Every drop that fell on the water lighted up, flaming drops sprang into the air, and the bay seemed covered with fiery stars.'

Varied Voices of the Sea.

Poet-souls translate for us the messages which the sea conveys.

The little bit of sea that you look out on from your shore is a very small portion of the great ocean that encircles the world. And the sounds you hear are a very small part of the great voice which the many waters of the sea everywhere are sending up for music to the ear of heaven. If you sat on a hill-top over a little town, you could hear something musical even in the shoutings of a mob, or the clamour of a market below. And so, if you sat at the right hand of God, who has all the world at His feet, what unspeakable music would rise to your ears from the manifold and awful concert of the mighty sea! Voices would come from east, west, north, and south; from pole and equator, Atlantic and Pacific; from rushing rivers and roaring floods, and whispering brooks, and the plash of thunder-showers, and the sweet ripple of the refreshing rain, and the noiseless falling of the gentle dew, and they would all go up together in such a voice as none could utter, and, unless they were where God is, none would have ears to hear. God alone can fully and always hear the voice that the earth utters to the sky by the many tongues of its many waters. But He sends us men sometimes to whom He has given such ears in their soul that they can perceive some of the meaning of the world's great sea-voice, and they are able to translate for us some of the music and magic of the sea-soul of the earth. These men are poets, or painters, or musicians, and they can hear more than most of us—far more than *we* hear at the coast of the great sea's musical mystery, the strange trouble of the weird waters, and the moving ocean's mighty joy. And they sing for us, these men, what the sea says, and their voice is beautiful and wonderful—there is so much in it, and we always feel as if there were more. It is as if we put our ear to a hole in the top of a great cave into which the green sea-water ran below, playing, and sometimes thundering, on its worn sides. All the sounds come blended up through the hole, and it is like a sea-bugle that plays from far a wild sea-song. You have held a shell to your ear (have you not?), and listened to the hushed roar that seemed to sing of the ocean where it was born. Well, God sends us men sometimes of such fine and strange gift that they are like a beautiful shell held up to our ear, and they seem, in songs without words, almost to make us

hear the magical music of the sea, and the one voice of its many waters.—*J. P. Forsyth.*

Aspects of the Ocean.

The sea has power to awaken various emotions in man.

Who ever gazed upon the broad sea without emotion? whether seen in stern majesty, hoary with the tempest, rolling its giant waves upon the rocks, and dashing with resistless fury some gallant bark on an iron-bound coast; or sleeping beneath the silver moon, its broad bosom broken but by a gentle ripple, just enough to reflect a long line of light, a path of gold upon a pavement of sapphire; who has looked upon the sea without feeling that it has power? . . . Perhaps there is no earthly object, not even the cloud-cleaving mountains of an alpine country, so sublime as the sea in its severe and marked simplicity. Standing on some promontory, whence the eye roams far out from the unbounded ocean, the soul expands, and we conceive a nobler idea of the majesty of that God who holdeth 'the waters in the hollow of His hand.' . . . But it is only when on a long voyage, climbing day after day to the giddy elevation of the masthead, one still discerns nothing in the wide circumference but the same boundless wastes of waters, that the mind grasps anything approaching an adequate idea of the grandeur of the ocean.

There is a certain indefiniteness and mystery connected with it in various aspects that gives it a character widely different from that of the land. At times, in peculiar states of the atmosphere, the boundary of the horizon becomes undistinguishable; and the surface, perfectly calm, reflects the pure light of heaven in every part, and we seem alone in infinite space, with nothing around that appears tangible and real, save the ship beneath our feet. . . . At other times, particularly in the clear waters of the tropical seas, we look down into unmeasured depths under the vessel's keel, but still find no boundary, the sight is lost in one uniform transparent blueness.

Mailed and glittering creatures of strange form suddenly appear, play a moment in our sight, and with the velocity of thought vanish into the boundless depths. The very birds that we see in the wide wastes are mysterious; we wonder whence they come, whither they go, how they sleep, homeless and shelterless as they seem to be. . . . The breeze, so fickle in its visitings, rises and dies away, 'but thou knowest not whence it cometh and whither it goeth'; the night wind moaning by soothes the watchful helmsman with gentle sounds, that suggest to him the whisperings of unseen spirits; or the tempest, shrieking and groaning among the cordage, turns him pale with the anticipation of a watery grave.

The ocean is never perfectly at rest. Even between the tropics, in what are called the calm latitudes, where the impatient seaman for weeks together looks wistfully but vainly for the welcome breeze to waft his vessel onwards, which, like that of the 'Ancient Mariner,' is almost as

> 'idle as a painted ship
> Upon a painted ocean;'

even here the smooth and glittering surface is not entirely at rest; for long gentle undulations, which cause the taper mast to describe lines and angles upon the sky, are sufficiently perceptible to tantalize the mariner with the thought that the breeze which mocks his desires is blowing freshly and gallantly elsewhere.

The ocean is the highway of

commerce. God seems wisely and graciously to have ordained that man should not be independent, but under perpetual obligation to his fellow-man, and that distant countries should ever maintain a mutually beneficial dependence on each other. . . . He might have made every land produce every necessary and comfort of life in ample supply for its own population. The result of the separation has been generally an easy means of exchanging home for foreign productions, which constitutes commerce.

It is lamentably true that the evil passions of men have often perverted the facilities of communication for purposes of destruction, yet the sober verdict of mankind has for the most part been, that the substantial blessings of friendly commerce are preferable to martial glory. . . . And the transport of goods of considerable bulk and weight, or of such as are of a very perishable nature, would be so difficult by land as very materially to increase their cost; while land communication between countries tens of thousands of miles apart, would be attended with difficulties so great as to be practicably insurmountable.

Add to this the natural barriers presented by lofty mountain-ranges and impassable rivers, as well as the dangers arising from ferocious animals and from hostile nations, and we shall see that, with the existing power and skill of man, commerce in such a condition would be almost unknown, and man would be little removed from a state of barbarism. . . . The ocean, however, spreading itself over three-fourths of the globe, and penetrating with innumerable windings into the land, so as to bring, with the aid of the great rivers, the facilities of navigation comparatively near to every country, affords a means of transport unrivalled for safety, speed, and convenience.—*P. H. Gosse.*

Restless Sea, and Calm Lake.

The quietness gained by trusting Christ fully.

Trust Christ, and so thy soul shall no longer be like 'the sea that cannot rest,' full of turbulent wishes, full of passionate desires that come to nothing, full of endless moanings, like the homeless ocean that is ever working, and never flings up any produce of its work but yeasty foam and broken weeds; but thine heart shall become translucent and still, like some landlocked lake, where no winds rave nor tempests ruffle, and on its calm surface there shall be mirrored the clear shining of the unclouded blue, and the perpetual light of the sun that never goes down.—*A. Maclaren, D.D.*

A Pleasant Path by the Sea.

Illustrating the magical influences of nature.

A fresh wind blew from the sea the path led at a varying level along the down, broken every here and there with projecting crags, boulders fallen from a crag above, and sudden walls of rock, where the sea has carved a narrow inlet. It was a pleasant path, but I had seen such views before in Devon, Yorkshire, or maybe elsewhere; nothing was strange save the aromatic whiffs of some thymy perfume that seemed to come from

> 'The underflowers, which did enrich the ground
> With sweeter scents than in Arabia found.'

But somehow the path tempted me to a distance beyond my strength. I was tired of wide views that seemed just like what one had seen and known all one's life; they seemed to remind me tiresomely of what I was trying to forget, that life itself was like to be

hard and tiresome when I got back to it anon. I wanted to escape from this remembrance, and in another moment I should have been caught regretting the weird spirits of the shore. A stronger gust of wind, that it was a labour to battle with, put the crowning touch to my discontent. Just in front the down sank a little, a steep, green semicircular arena faced the sea, and I struggled on to reach its shelter. Only a step or two beyond the ridge and the air was warm and still, like a June evening. I threw myself on the slope and felt the rapture of repose. I was under the lee of a flaming gorse bush, and the sweet shadowy fragrance stole upon the senses unawares; something ineffably sweet and subtle seemed to pervade the moveless air, the subtle sweetness was strange and new—were there spirits of the earth here as well as of the sea?

I forgot the weariness, and half raised myself to see whence this new wonder came. The clump that sheltered me was ablaze with the deepest orange-yellow bloom; each flowering spiky head was an abyss of warm, deep, odorous colour; furze like this, indeed, I had never seen before, every blossom large and open wide, and countless full open blossoms, jostling each other upon every stem, and the flowering stems jostling each other on the burning bush. I drew a big branch towards me, and drank like nectar a great draught of the pure, sweet scent. But the sweet gorse is a treasure, not a mystery, and the first breath I drew on this spot was laden with a mystery of sweetness. I lay back upon the grass again with closed eyes, inviting the ethereal messenger, and my heart sank as for half a moment I waited in vain for the perplexing fragrance. I moved impatiently, and threw my arm back to make a pillow; at the very moment something like fairy fingers seemed to pull my hair, and in a breath the scent was there again, and the simple magic of its being read. Mingled with the gorse, half choked by the robuster clumps, but thrusting its tender green leaves triumphantly through the cushions of the younger plants, a very thicket of sweetbriar was growing all round, and the shoots I had crushed unknowingly were sending out their sweetest fragrance to mix with the simple nectar of the whin-bloom in a cunning draught of unearthly delicacy. Those may laugh at me who will, and count it strange to be thus moved by the breath of a passing scent, but my heart grew warm with love for those children of the warm, lone earth; they had shed their fragrance year by year, and until now none had loved them for it. They were generous to me, indeed, with the one-sided generosity of power; it was I, not they, that were the richer for my loving them, for thinking with a tender joy that Love himself had learnt his sweetness from the flower's kisses, wherewith the great mother fed his youth, and the refrain to the pretty fancy came to me like an omen:

'Cras amet qui nunquam amavit,
quique amavit cras amet.'

The sunlit waves came to me with a startling and happy message that the outer world was fair, whether I saw it or no; but the sweet-briar among the prickles challenged me to own a spiritual truth — the world was lovable, whether I saw why or no, and whether its sweetness was beloved (as by me to-day), or left unseen, undreamt of, through the lonely years.—*Edith Simcox.*

A Delicate Shell.

'The element of gladness never dies out of the lowliest work.'

Walking one day on the sea-beach, I saw a little delicate shell, pure as pearl, tinted with rainbow hues; a little lovely house, with

diamonds sparkling all round its curiously shaped door.

'How came you to be so very beautiful and delicate, little shell?' I wonderingly inquired.

'I hardly knew I was,' said the shell, 'but if I am, all I can say is, my mother took great delight in making me; she worked and worked, when I was a thousand fathoms deep in water, with unwearied joy in building and decorating me. I used to wonder at her patient delight in forming and tinting me, for she never was tired of her work.'

'Were you not afraid,' I asked, 'to live in that great deep sea?'

'Not at all,' was the reply; 'the great waves seemed to take a pleasure in my delicate beauty, for when the shock of their fury would snap the great masts of a three-decker like thread, they gently fondled and never injured me.'

'Then,' said I, 'you must feel sad to be here on this beach, and now empty and without any companions.'

'No,' said the shell; 'you see, I have attracted *your* attention, I expect you will handle me carefully, and put me in some beautiful cabinet in your drawing-room; perhaps, on a bed of white soft wool. I always have been admired and cared for; the ocean sings in me, and everyone loves my good mother's beautiful work in me.'

The element of gladness never dies out of the lowliest work. *Hand* work and *soul* work are as clearly and distinctly seen stamped on a bit of carving or painting after a thousand years, as when first the work left the worker's care. The *hand* work no one cares for; the *soul* work everyone loves. Put your *heart*, put quality into the lowliest work, if it is only teaching an infant child. *That* work will never die, and it will be beautiful for ever, and make the worker beautiful too. Love your work, and it will be both original and beautiful.—*R. H. Lovell.*

The Changeful Sea.

Imagination is quickened by the varying moods of the sea.

The ocean never seems twice alike. I looked over the taffrail of the *Java* in mid-ocean, and saw the quick quiver and flash of the phosphorus in the wake of the vessel, and I said, 'This is the lightning of the sea.' One bright morning in mid-ocean I looked off upon the water, and it was so calm and bright I said, 'This is the infinite smile of an infinite God.' Then again in the summer time, strolling near the beach in the darkness, I heard the voice of the waters, and I said, 'This is the long-metre psalm of the deep.' At other times the ocean seems like a great organ with the trumpet-stop of the tempest pulled out, and all the elements with wild fingers sweeping the foaming keys, while they have their foot on the pedal playing the grand march of God. At other times the ocean seems to be an insatiate conqueror, owning two-thirds of the world, and with great battalions of billows attempting to conquer the other third.—*Talmage.*

The Greeks called the sea *atrugetos*, unfruitful, because it yielded no wheat. But science shows how it teems with life. Ehrenberg speaks of the paradise of gorgeous beauty, fathoms deep, carpeted green with astreas, sprinkled with golden plants, and shaded by the coral, the aspen, and the willow of the sea, while fishes of crimson and burnished silver sport like birds among trees. In this 'great and wide sea are things creeping innumerable,' all waiting on Him who giveth them food. Says Fénelon, 'Oh, my God, he who does not see Thee in Thy works has seen nothing, and is a stranger to the best affections of the heart! He exists as though he existed not, and his life is no more than a dream.'

The solemn, wonderful, majestic ocean! It exalts, but only to crush me under a sense of its grandeur—boundless, everlasting, pitiless of my insignificance. Wherein does it differ from me? In immensity of breadth and depth. What does it give me? A sense of infinity, and of the abyss which divides me from it.

A Briny Inland Lake, and its Mud Shores.

Moral goodness is often found in the most degraded places of social life.

Mr. Darwin found near Buenos Ayres a shallow lake of brine, which in summer is converted into a field of snow-white salt. The border of the lake, like others of the sort in Siberia, is a fetid black mud, in which are imbedded large crystals of gypsum three inches long, and of sulphate of soda. 'The mud in many places was thrown up by numbers of some kind of worm. How surprising is it that any creatures should be able to exist in brine, and that they should be crawling among crystals!' Truly this is an incongruous spectacle! Yet human society presents views which are equally incongruent. Men who are in goodness and intelligence the very 'salt of the earth,' are often hemmed in in their narrow grooves of action by that which is morally putrescent. A ring of loathsome law and customs has often surrounded and enclosed saints and martyrs. In the midst of society's basest pollution we often catch a ray of moral goodness, and discover that, like the crystal glittering in the black mud, there are some better elements than first appearances suggested. The presence of worms crawling among pure salt and beautiful crystals is not more unbecoming than the sight of rascals wearing coronets, rogues assuming the ermine, and tyrants wearing crowns.

Power of Waves on the Rocks.

The idea of the rocks effectually resisting the action of the sea needs qualification.

Certain localities, whereof the rocks are soft and easily worn away, present us with more typical illustrations of the ocean wear-and-tear than those places in which rocks of dense hardness form the bulwarks of the island. But if we inquire into the fate of the coasts in the far north, and pursue our investigations, say, in the Shetland Islands, we may discover that, even on the hardest rocks, the ceaseless beat of the waves in due time makes a very marked impression.

Let us think for a moment what the power of the sea in a storm means. In Shetland, for example, it is calculated, on very exact evidence, that great masses of rock, weighing thirteen tons, have been excavated from the cliffs by the force of the waves acting at a height of seventy feet above the level of the sea. When a large wave strikes upon a rock, the pressure of the blow may equal three tons to each square foot. Thus-wise, the air which all rocks contain is forcibly compressed, but as quickly, of course, expands when the wave has retreated.

It is chiefly this compression and expansion of the air in rocks which aids and effects their breaking-up by the waves; but the sea has other methods of procedure in its attack on the land. The boulders and blocks which have become detached from the rocks accumulate at the foot of the cliffs. The waves seize these blocks in their grasp, and dash them with fury against the cliffs; using thus the material it has stolen from the rocks as a kind of natural artillery wherewith fresh assaults and battery are made upon the land. There is often a definite plan of sea-action to be noted in the case

of many coasts. An outjutting portion of a cliff is first of all tunnelled by the waves, so that a natural archway is formed. Then the tunnel collapses, and its outermost part is left standing as a sea-stack or 'needle.' This stack, bit by bit, is worn down to the sea-level. It grows small by degrees, until it becomes a mere tangle-covered rock, which will be further planed down and down to nothingness by the irresistible action of the waves.

A Melancholy Sea.

Travellers tell of the overwhelmingly depressing influence of the lake Asphaltites, or Dead Sea.

There is in the world at least one lake that exhibits no beneficent phenomena; a reservoir encircled by no territorial zone of verdant beauty; reflecting on its mirror-like surface no shadowy grove of venerable oaks, or graceful stem of feathery palm-tree; distilling its dank dews upon no rich grasses, or perfume-breathing flowers; whose deadly waters are untenanted by any of the aquatic tribes; and whose sterile shores are absolutely cityless, houseless, tentless, and utterly forsaken.

Such is the forbidding character ascribed by all Judæan travellers to the Dead Sea. For ages, it has been popularly regarded, with a feeling akin to superstitious awe, as the very pavilion of Divine vengeance in the earth. Its monumental hills, as they look grimly down upon the ghastly scene which they encompass, still bear the unobliterated scars of Omnipotent wrath. A silence profound as that which might be supposed to brood over the solitudes of a depopulated world reigns around, disturbed only by the sullen shore-wash of the dreary flood, as it seems to murmur a dirge-like 'miserere' to the memory of those lost ones reposing far below in their inglorious graves. There ruin, unrepaired and massless, has sat for centuries upon its naked, splintered rock-throne; and neither the culturing hand of man, nor the vernal visitings of Nature, have hitherto been able to heal the ancient wounds inflicted by the curse of God. The spot thus apparently doomed by the malediction of heaven has furnished poets with some of their most striking symbols of desolation. Preachers, with eloquent lips, have referred to it as a perpetual protest of the Holy One against all ungodliness and sin. Even natural philosophers, intent chiefly upon investigating the physical phenomena of the locality, find something so strange and extraordinary in the whole aspect of the region, that they are constrained to recognise the inscriptions of a mysterious hand upon its blasted cliffs, its doleful shores, and its molten flood, and to regard it as a moral beacon designed for the warning of mankind.

Thus obviously smitten by supernatural agency, the Dead Sea became at once, to the ancients, the haunt of ideal phantoms, and its ominous name grew into a synonym for terror among surrounding nations. Its seclusion in the heart of deserts served to deepen the mystery of its history, and intensify the awe with which it was everywhere regarded. In days of superstitious ignorance, when the love of the marvellous was stronger than now, its phenomena were eagerly seized upon and exaggerated by the imagination. Viewed through the lenses of a slavish, monkish pietism, every object was discoloured and distorted. Strange sights were seen. Spectral forms were said to issue out of the accursed deep, and a sepulchral light flickered upon its waters. Every creature that inhaled its malaria perished. All life, within its blighting borders, sickened and died. The foot of the pilgrim hesitated and trembled as it drew nigh, for, in the old

times, the terrible footprints of an incensed Deity were reverently traced upon the soil. The recent scientific explorations of this realm of wonder have, however, done much to dissipate these legendary tales, and to correct numerous misconceptions. One traveller after another has dispelled some portion of the illusion that overhung its deeps or rested on its shores; and, although its hideous aspects are now revealed to our gaze, showing it to be one of the dreariest wastes in the wide world, still it has been divested of those supernatural accessories of terror which had been inspired by religious dread, and transmitted, unquestioned, as sacred traditions, from age to age.

We have the consentaneous testimony of all recent explorers to the fact, that lumps of bitumen and sulphur are strewed in abundance upon some parts of the shores. The former has the appearance of a black, shining pebble, which partially ignites in the fire, and emits a bituminous odour. It is called the 'stink stone' by many of the early travellers; and is used in Jerusalem for the manufacture of rosaries and other articles. As the sources of this inflammable mineral cannot be discovered on the shores, it is supposed that it flows from concealed fountains in the submerged plain, and is spread like a coat of lava over the adjacent sea-bed, from whence it is detached, and brought to the surface by the earthquakes that so often afflict those regions. The sulphur is picked up usually in lumps about the size of a walnut; sometimes, however, it is found as large as a man's hand. The Arabs find it in sufficient quantity to manufacture from it their gunpowder. Nitre has also been picked up on the southern shores.

With what emphasis may we designate this mysterious reservoir, the Sea of Death! Standing, ere we depart, upon one of the blasted eminences, commanding the whole scene of desolation, we may well be excused for regarding it in a threefold aspect: as the mighty sepulchre of a generation of rebels, reared on the spot desecrated by their treason and their crimes; as a perpetual remembrancer of an ancient stroke of Divine vengeance; and as a dread prophecy, stereotyped for the use of all people throughout all time, foretelling the retributive destiny that awaits the wicked—an awful portend of the 'wrath to come!'—*Eothen.*

The Desolate Sea.

'The mournful mood of the human soul has its symbol in the "Desolate Sea."'

There are epochs in some men's lives when faith, hope, and happiness all vanish, and the human mind, driven into gloom, experiences the awful sense of desolation. This mournful mood of soul has its symbol in the 'Desolate Sea.' In the angle comprised between Humboldt's current and the warm artery which flows to meet it from the centre of the Pacific, there exists a vast area, a liquid desert of sinister aspect, desolate and barren, where nothing lives or moves, and which seems stricken with an eternal curse. 'The motionless sea,' says Felix Julien, 'seems here deserted and abandoned. No whale ever furrows its waves; no halcyon or petrel ever skims its surface, All the logs of ships, and all the narratives of voyagers agree in representing in the same dreary colours the picture exhibited so efficaciously by this desolate sea. When the mariner has doubled Cape Horn, he is surrounded and pursued for several weeks by clouds of birds very common in the Austral regions. The booby, the petrel, the albatross, the sea swallow escort his vessel, wheel around it, and follow unfatigued in its rapid track. But as soon as we approach the Desolate

Sea, all things quit us, disappear and change. We no longer descry the halcyon, no longer hear the hoarse voice of the sea-gull. The atmosphere is without sound, the waves of the ocean are dumb, nothing animates the blank horizon. The whole universe seems deprived of life, and it is under the impression of this indescribable sentiment of melancholy that man finds himself alone in the presence of God and the immensity !'—*Selected.*

The Music of the Sea.

Homer finely calls the sea, 'Foluphlosboiothalasses,' the 'many-sounding' sea.

Do you know that there is a music in the sea—not noise merely, but noise with God in it—music ? You all know that you can see the loveliest things in the way of cloud, and colour, and ships like swans upon the sea. But you do not know, perhaps, how beautiful the sounds are that some ears can hear from the sea. They used to tell stories about the sirens and the mermaids that played and sung with such sweetness that they drew poor sailors, who were enchanted with their music, down into the depths, from which they never returned alive. But nobody ever really saw a siren or a mermaid. It was one way of representing beautifully the charm of water and the music of the sea. I love to linger in a wood and be soothed by the sound of rustling water. I love to sleep in a house by a great, broad river, to hear, when I awake first thing, the melody of its rushing waters. I love to dwell by the sea in like fashion, so that when I wake I can hear through my open window the welcome tune which the white fingered waves keep ever playing on the rattling beach. I was born by the sea. I was brought up by the sea. A mile or two inland, in the dead of night, when all else was quiet, I used to hear the sea singing a lullaby to the fisher children on the shore beneath the moon and all her family of stars. Some people call the great world God's cathedral. Well, one of its organs is the sea. Oh, it is a great organ, the sea ! It can play as sweet and soft as a flute. But it can also roar and thunder to terrify the bravest. It is awful to hear the sea rolling in like mountains upon a shore of rocks and caves, and rousing echoes that are heard far inland as if many giants were roaring into many tuns. I suppose it is very silent at the bottom of the sea. The fishes and the shells may know nothing of all the concert amid which they live. But we can hear it though we can hardly tell the words it sings. We can hear its music, so strange, mysterious, magical, and mighty. There are some hearts it can speak to, and they know what it says. They listen and they are soothed ; or they listen and they feel something like rapture ; or as they listen they feel something like terror, but always they love as they listen to the many sounds and the one great voice.

For the sounds are many that make the music of the sea. It may seem to you one great sound, but it is made up of many. As you lie by the sea on a breezy day, you see the little white waves out there like sheep in a green field, or like cloudlets in the sky. Each one of them is making a little whisper as it runs along and breaks ; and the sum of all their whispers must be something considerable, like the singing of a forest of little birds. Then there is the sound of every wave that tumbles on the shingle or the sand. Then there is the rush of it as it runs along the beach. Then there is the hiss of it as it draws back. And there is the rattle of the pebbles one upon another which it carries back with it. Then there is the little clash

as it meets another upcoming wave, and the pebbles are driven up again. Then there must be the sound of the tidal wave as it rises for hours and then sinks for hours away. Then, streams are flowing with their own sound into the sea, or falling over cliffs with a trickle, or a splash, or a thud. Then children are paddling and splashing on the edge, and bathers are shouting and calling to each other. And you can hear the thump, thump of the steamer a mile off, and you can catch the creaking of the oars in that rowboat. And the ship yonder with all her sail set is hissing through the water, while her cordage creaks, and her mate shouts to the wheel, and the cabin-boy is squabbling with the captain's dog. And the winds are piping in many keys, and the sea birds are shrieking with wild, swift joy. And all these things are many sounds, which, perhaps, you do not separately hear, but they make up the one mysterious voice and music of the sea—a voice as rich and a music as unfathomable as the great ocean deeps themselves.—*P. T. Forsyth.*

The Rising of the Tide.

'Perfect love casteth out fear.'

While the heart is filling, the agitations of fear remain; but when the lake is filling by the moon-drawn and star-drawn tides, what commotion is there in its bosom—how the sands are swept about, how the muddy bottom sends its rile through all the waters! There are ripples, and eddies, and struggling currents; there is seething and boiling: there are bubbles and foam, until the lake is almost filled. But as the waters deepen, as the banks grow less and less, the agitation subsides; the sand settles, the foam is blown away, the bubbles are scattered. And when the lake is filled to its utmost capacity it clears itself, and lies unruffled and serene, reflecting in its calm bosom the moon, the stars, and the tranquil heavens. Thus it is with the heart of man. When love ebbs low in his soul he is tossed and whirled by the agitations and torments of fear, but when the Spirit of God flows in and fills his heart with Divine love, the tumults are stilled; and looking up with confidence and joy, the man reflects from his overflowing soul the image of his God and Father.—*H. W. Beecher.*

Life in the Deep Sea.

We may find the Christ-spirit in unexpected, and seemingly impossible, places.

It used to be an axiom that there was no life in the sea beyond a certain limit of a few hundred feet. It was learnedly and conclusively demonstrated that pressure and absence of light, and I know not what beside, made life at greater depths impossible. It was proved that in such conditions creatures could not live. And then, when that was settled, the *Challenger* put down her dredge five miles, and brought up healthy and good-sized living things, with eyes in their heads, from that enormous depth. So, then the savant had to ask, *How* can there be life? instead of asserting that there cannot be; and no doubt the answer will be forthcoming some day. We have all been too much accustomed to draw arbitrary limits to the diffusion of the life of Christ among men. Let us rather rejoice when we see forms of beauty, which bear the mark of His hand, drawn from depths that we deemed waste, and thankfully confess that the bounds of our expectation, and the framework of our institutions, do not confine the breadth of His working, nor the sweep of His grace.—*A. Maclaren, D.D.*

The Constant Working of the Ocean.

Traces of the disintegrating power of the ocean are found everywhere.

Was it the sound of the distant surf that was in mine ears, or the low moan of the breeze as it crept through the neighbouring wood? Oh, that hoarse voice of ocean, never silent since time began! Where has it not been uttered? There is stillness amid the calm of the arid and rainless desert, where no spring rises and no streamlet flows, and the long caravan plies its weary march amid the blinding glare of the sand, and the red unshaded rays of the fierce sun. But once and again, and yet again, has the roar of ocean been there. It is *his* sands that the winds heap up; and it is the skeleton remains of his vassals—shells and fishes, and the stony coral—that the rocks underneath enclose.

There is silence on the tall mountain-peak, with its glittering mantle of snow, where the panting lungs labour to inhale the thin, bleak air; where no insect murmurs, and no bird flies; and where the eye wanders over multitudinous hill-tops that lie far beneath, and vast dark forests that sweep on to the distant horizon, and along deep valleys where the great rivers begin. But once and again, and yet again, has the roar of ocean been there. The elegies of his more ancient denizens we find sculptured on the crags, where they jut from beneath the ice and the mist-wreath; and his later beaches, stage beyond stage, terrace the descending slopes.

Where has the great destroyer not been—the devourer of continents, the blue foaming dragon whose vocation it is to eat up the land? His ice-floes have alike furrowed the flat steppes of Siberia and the rocky flanks of Schiehallion; and his nummulites and fish lie embedded in great stones of the Pyramids hewn in the times of the Pharaohs, and in rocky folds of Lebanon still untouched by the tool.

As long as ocean exists there must be disintegration, dilapidation, change; and should the time ever arrive when the elevatory agencies, motionless and chill, shall sleep within their profound depths to awake no more; and should the sea still continue to impel its currents and to roll its waves, every continent and island would at length disappear, and again as of old, when 'the founfains of the great deep were broken up,'

'A shoreless ocean tumble round the globe.'

Hugh Miller.

Varying Sea Waves.

Nature and man have various moods.

From the little, blue, curling ripple of the catspaw, softly travelling in an expiring sigh over the burnished surface of the calm, to the tall, furious, dissolving, liquid cliffs of the great deep, maddened by tempest, is a vast stride, and a hundred pictures lie between. Beauty is so rapidly merged into terror that it requires the inclusion of several conditions to preserve it. A man may at six o'clock in the evening be admiring a scene from the deck of a ship, which an hour later has grown frightful enough to despatch him below to his prayers. One wants daylight for a storm; the imagination may be kept cool in the presence of the visible, but when the darkness falls and the scene becomes a thunderous shadow of blocks of blackness, scintillant with the dust of the sea fire, fancy quits its posture of admiration, and the mind can do little more than wonder whether day will ever break over the ship again.

Rest is Characteristic of both Lake and Sea.

Inward rest is not to be confounded with the absence of outward trouble.

I saw the other week a little lake so hemmed in by green hills that a high wind could hardly stir a ripple on its surface, and not a quarter of a mile away I saw the great, wide sea gently heaving, swelling, pealing out its deep majestic anthem. Now, which of these two sights, think you, was most suggestive to my mind of rest—the quiet, peaceful, land-locked lake, or the broad, rolling, throbbing deep? Assuredly the latter. The former lay there calm and still in its grassy cup, never shaken, never moved, and could not, therefore, be thought of as, in any true sense, resting. The latter, on the contrary, lay out-stretched, a magnificent expanse in ceaseless harmonious action, capable of being deeply moved, and capable, therefore, of sinking into a great, a grand, a solemn repose. Nay, more than that, agitated as the sea looks when the storm is upon it, the agitation is superficial after all. The lower waters of the sea are unaffected by the blast which rushes over its surface; down there in the under depths all is still and calm.

Because some persons go through life smoothly and serenely, without anything to vex, annoy, or grieve them, they are apt to cherish the thought that their freedom from personal tribulation is inward rest, and to look on those whose lives are racked and riven as manifestly wanting in interior serenity and repose. But this view of things is often misleading. The most outwardly troubled lives are frequently the most inwardly restful. What life was ever so full of tempest as the life of the Son of Man? But what life was ever so conspicuously reposeful and calm? Some people never know inward rest until they find outward trouble. It is not until the still lake of their life is broken up into something like the ocean's stormfulness that they enter into any real enjoyment of spiritual rest.—*B. Wilkinson, F.G.S.*

The Mission of Ocean Currents.

Secret forces may be the real forces that influence human action.

The currents of the sea are found to run in all directions—east, west, north, south—being formed by various causes: the prominence of the shores, the narrowness of the straits, the variations of the wind, and the inequalities at the bottom. These currents are of the most material consequence to the mariner, without a knowledge of which he could never succeed. It often happens that when a ship gets unknowingly into one of these everything seems to go forward with success, the mariners suppose themselves every hour approaching their wished-for port, the wind fills their sails, and the ship's prow seems to divide the water, but at last by miserable experience they find that, instead of going forward, they have been all the time receding. The business of currents, therefore, makes a considerable article in navigation, and the direction of their stream and their rapidity has been carefully set down.—*Selected.*

The Sea-Weed and the Rock.

Material things do not provide the necessary food for souls.

Set in the midst of material objects, the Christian will, naturally enough, attach himself to them; but his attachment will be in no case necessary or vital. He will no more depend on them for sustenance than the sea-weed depends upon the rock to which it clings. The sea-weed, unlike the

land plant, derives no support from the stones on which it grows; to these it fastens only mechanically, drawing its nourishment exclusively from the air and water which surround it. What food can material things afford to the spiritual nature of man? They may be of use to him in a limited and external sense; he may hold on to them for the sake of physical convenience and comfort; but so far as his inner and truer life is concerned, they are of no avail; for *that* he has to rely on things which are altogether different in their character. That which is spiritual can be maintained and strengthened only by that which is spiritual.—*B. Wilkinson, F.G.S.*

Sea-Flowers.

Souls live and thrive in the ocean of the Divine love.

In the great ocean of the Divine love we live, and move, and have our being, floating in it like some sea-flower which spreads its filmy beauty and waves its long tresses in the depths of mid-ocean. The sound of its waters is ever in our ears, and above, beneath, around us, its mighty currents run evermore. We need not cower before the fixed gaze of some stony god, looking on us unmoved like those Egyptian deities that sit pitiless with idle hands on their laps and wide-open lidless eyes gazing out across the sands. We need not fear the Omnipresence of Love, nor the Omniscience, which knows us altogether and loves us even as it knows.—*A. Maclaren, D.D.*

Peculiar Sea-Weeds.

The flowering of Christian lives should come fully into public view.

There are sea-weeds that lie down at the bottom of the sea, but when their flowering time comes, they lengthen their stalks, and reach the light, and float upon the top, and, when they have flowered and fruited, they sink again into the depths. Our Christian life should come up to the surface, and open out its flowers there, and show them to the heavens and to all eyes that look.—*A. Maclaren, D.D.*

The Colouring of the Sea-Weeds.

The fairest features of piety lie deep down, often out of sight.

Those who are familiar with the life of the ocean tell us that the plants called sea-weeds, when they live near the surface of the water, are green. Those which are observed in lower beds of the sea assume deeper shades of rich olive. But down in the depths still below, far removed from the glare of day, where no human eye can see, and scarcely a ray of the sun can reach, the flowers of ocean are clothed with hues of splendour. For there

> 'The crimson leaf of the dulse is seen
> To blush like a banner bathed in slaughter.'

It is thus with the believer. His surface qualities may not be so generally attractive. Gravity, sobriety, and earnestness, often mingling with human defects of character, may seem lacking in beauty. True piety is in its very nature unostentatious, and its fairest features lie deep. Look below, fathom the man, gaze into the clear, tranquil depths of his sincere heart, and you find increasingly richer and brighter traits.—*James Neil, M.A.*

Limitations of Coral-Building.

The enterprise and energy of man is strictly limited by the plan of the Divine Architect, of which he knows little or nothing.

When the sea has left a coral-reef for some time it becomes dry, and appears to be a compact rock, exceedingly hard and ragged; but

no sooner does the tide rise again, and the waves begin to wash over it, than millions of coral-worms protrude themselves from holes on the surface which were before quite invisible. The growth of coral ceases when the worm which creates it is no longer exposed to the washing of the tide. Thus a reef rises in the form of a gigantic cauliflower till its top has gained the level of the highest tides, above which the worm has no power to carry its operations, and the reef consequently no longer extends itself upwards. The surrounding parts, however, advance in succession till they reach the surface, where they also must stop. Thus, as the level of the highest tide is the eventual limit to every part of the reef, a horizontal field comes to be formed coincident with that plane and perpendicular on all sides. The reef, however, continually increases, and, being prevented from going higher, extends itself laterally in all directions. The nature of the coral-worm does not permit of its working in any other way, and thus, without any design on its part, the necessary result of its activities is the accomplishment of grand results. It is more than probable that the human race are, in like manner, working out some grand design of the great Architect of the universe, of which they have no more an adequate conception than the coral-worm has of the fact that it is engaged in making an island. —'*Scientific Symbols.*'

The Rising Tide in an Estuary.

Illustrating the precise adaptations of Divine grace.

We never tire of watching the incoming tide. How pleasant it is to see it creeping up the flat sandy shore, hissing to our feet, and driving us back before the hurrying ripples! But it is even more suggestive to watch it rise in some estuary, or harbour, or river-mouth, which is shut in, and sheltered, by the high hills. Either shore is varied in outline; here headlands push out into the waters; beside them little creeks and bays run inward up the opening valleys. Here the channel of some tributary stream appears. And there the river-bed seems almost to wind round and round, until its course is lost to sight among the distant hills. Creek and bay and channel, all are seamed and bare and muddy now. But the tide is coming in. Quietly and gently it flows up, an ever-rising flood. It pours into every opening; it fills up every inlet; it runs the exact course of every bank; it fits into every nook and crevice; it rises to fill every part to its utmost capacity; at last it touches the very tree-branches with its quivering waves, and changes emptiness and need for wealth and beauty.

That gently rising tide has often spoken of the wonderful adaptations of the grace of God. Let the river of a man's life turn and twine how it will; here, lay bare in shallows; there, go into profoundest depths; yonder, run up into creeks, or broaden out into wide expanses or lake-like reaches, the tide of God's ever-flowing grace can fill it all, can fill it all up fully, can fill it everywhere exactly. And the tide of grace may be an eternal flowing that never knows an ebb. This is the exceeding marvel of the grace of God—precisely 'as our day so our strength shall be' (Deut. xxxiii. 25).—*Robert Tuck, B.A.*

The Moral Mission of the Sea.

'The sea is even a great moral educator.'

The liquid acres of the deep, tossing themselves evermore to the winds, and rolling their mighty anthem round the world, may be

even the most valuable and productive acres God has made. Great emotions and devout affections are better fruits than corn, more precious luxuries than wine and oil. And God has built the world with a visible aim to exercise His creatures with whatever is lofty in conception, holy in feeling, and filial in purpose towards Himself. All the trials and storms of the land have this same object. To make the soul great, He gives us great dangers to meet, great obstacles to conquer. Deserts, famines, pestilences walking in darkness, regions of cold and wintry snow, hail and tempest—none of these are, in His view, elements of waste and destruction, because they go to fructify the moral man. As related to the moral kingdom of God, they are engines of truth, purity, strength, and all that is great and holy in character. The sea is a productive element of the same class. It is even a great moral educator; and the world, for so many ages patiently enduring, bravely daring, and kept steadily contriving to get the mastery of it, becomes, at last, step by step and slowly, another world, having all courage, and force, and manly science, compacted and close-knit by the stern motherhood of the sea.

It is of the greatest consequence, too, that such a Being as God should have images prepared to express Him, and set Him before the mind of man in all the grandeur of His attributes. These He has provided in the heavens and in the sea, which are the two great images of His vastness and power; the one remote, addressing itself to cultivated reason and science; the other nigh, to mere sense, and physically efficient, a liquid symbol of the infinitude of God.

It is remarkable, too, how many of the best and most powerful images of God in the Scriptures are borrowed from the sea. 'Canst thou by searching find out God? The measure thereof is longer than the earth and broader than the sea.' 'Thy judgments are a great deep,' etc. Every kind of vastness—immensity, infinity, eternity, mystery, omnipotence—has its type in the sea, and there is as much more of God in the world, for man to see and feel, as the sea can express, and as much more of worship and piety as there is of God.—*Horace Bushnell, D.D.*

No Summer Sea.

There is the prophecy of a time when there shall be 'no more sea' (Rev. xxi. 1).

Summer ocean, idly washing
  This gray rock on which I lean;
Summer ocean, broadly flashing
  With thy hues of gold and green;
Gently swelling, wildly dashing
  O'er yon island-studded scene;
Summer ocean, how I'll miss thee,
  Miss the thunder of thy roar,
Miss the music of thy ripple,
  Miss thy sorrow-soothing shore—
Summer ocean, how I'll miss thee,
  When 'the sea shall be no more'!
Summer ocean, how I'll miss thee,
  As along thy strand I range;
Or as here I sit and watch thee
  In thy moods of endless change,
    Mirthful moods of morning gladness,
    Musing moods of sunset sadness;
    When the dying winds caress thee,
    And the sinking sunbeams kiss thee,
    And the crimson cloudlets press thee,
    And all nature seems to bless thee!
Summer ocean, how I'll miss thee,
  Miss the wonders of thy shore,
Miss the magic of thy grandeur,
  When 'the sea shall be no more'!

H. Bonar, D.D.

SHORT SENTENCES ON NATURE TOPICS.

DEW.

Prayer is the mightiest influence men can use. Like the dew in summer, it makes no noise. It is unseen, but produces immense results.—*Smiles.*

The smallest dewdrop on the meadow at night has a star sleeping in its bosom, and the most insignificant passage of Scripture has in it a shining truth.

NATURE IN GENERAL.

Nature is loved by what is best in us.

The maelstrom attracts more notice than the quiet fountain; a comet draws more attention than the steady star; but it is better to be the fountain than the maelstrom, the star than the comet, following the sphere and orbit of quiet usefulness in which God places us.—*Dr. John Hall.*

So long as men live by bread, the far-away valleys must laugh as they are covered with the gold of God, and the shouts of His happy multitudes ring round the winepress and the mill.—*John Ruskin.*

How rich is Nature, who scatters from a single oak-tree as provender for pigs what would plant the whole planet into an oak-forest!

In all Nature, in the hedgerow and sand-bank, as well as in the Alp-peak and the ocean-waste, is a world of true sublimity—a minute infinite—an ever-fertile garden of poetic images, the roots of which are in the unfathomable and the eternal, as truly as any phenomena which astonishes and awes the eye.

Nature has perfections, in order to show that she is the image of God; and defects, in order to show that she is only His image.—*Pascal.*

Sensibility is Nature's celestial spring.—*Sir W. Scott.*

Nature scatters abroad her wealth with a hand that is never weary. No two trees are alike, no two leaves exactly resemble one another. There is no need of copying for servile imitation; the Mind that conceived this mighty whole can no more stint its glorious ideas than the clouds cease to drop moisture.

Nature is an endless combination and repetition of a very few laws.

To a man under the influence of emotion, Nature is ever a great mirror full of emotions. To the satiated and quiescent alone, she is a cold, dead window for the outward world.—*J. P. Richter.*

The heavens are a print from the pen of God's perfection; the world is a bud from the flower of His beauty; the sun is a spark from the light of His wisdom, and the ocean is a bubble on the sea of His power.—*From the Persian.*

Man is greater than a world, than systems of worlds; there is more mystery in the union of soul with the physical than in the creation of a universe.

Nature represents the Soul from which all souls come, and by its beautifulness helps us to delight ourselves in God. He leads us to no dead museum or stony cathedral, but under the dome of the sky. He says, 'The whole is alive, full of God's life.'—*John Pulsford.*

There is no place, however stagnant, which is not the great world to the creatures that move about in it.—*Lord Lytton.*

It is noble to be alive to the littleness of earth, but it is nobler to become impressed with its greatness.—*J. P. Richter.*

Nature's masterpiece and darling—the poetic soul.—*T. Carlyle.*

Geology gives us a key to the patience of God.—*My Note-Book.*

When a man lives with God, his voice shall be as sweet as the murmur of the brook and the rustle of the corn.—*Emerson.*

It is not the thunder and the lightning that clothe the fields with the verdure and beauty of life, but the noiseless dewdrop and the quiet sunbeam. Neither the thunders of civil law nor the fulminations of a heartless declaimer can touch a soul.

The beautiful seems right
By force of beauty, and the feeble wrong
Because of weakness.
Mrs. E. B. Browning.

All that expands the spirit, yet appals,
Gathers around these summits as to show,
How earth may pierce to Heaven, yet leave vain man below.
Lord Byron.

The beautiful is the shadow of God's loveliness; the sublime is the shadow of God's majesty.

Honour is like an island, rugged and without a landing-place; we can never more re-enter when we are once outside of it.—*Boileau.*

Beauty has been defined as 'God's handwriting.'

I may state what I believe to be the truth—that beauty has been appointed by the Deity to be one of the elements by which the human soul is continually sustained.—*John Ruskin.*

Thou canst not wave thy staff in the air,
Or dip thy paddle in the lake,
But it curves the bow of beauty there,
And the ripples in rhymes the oars forsake.—*Emerson.*

The spectacle of Nature is always new, for she is always renewing the spectators. Life is her most exquisite invention; and death is her expert contrivance to get plenty of life.—*Goethe.*

Nature gives to every time and season some beauties of its own; and from morning to night, as from the cradle to the grave, is

but a succession of changes so gentle and easy that we can scarcely mark their progress.—*C. Dickens.*

For Nature ever faithful is
To such as trust her faithfulness.—*Emerson.*

Into the blithe and breathing air,
Into the solemn wood:
Solemn and silent everywhere!
Nature with folded hands seemed there,
Kneeling at her evening prayer.
'*Voices of the Night.*'

Nature shows her richness in a kind of prodigality, which, while some parts pay the tribute of evanescence, preserves it uninjured by unnumbered new generations in the circle of her complete whole.—*E. Kant.*

Nature is an æolian harp, a musical instrument, whose tones are the re-echo of higher springs within us.—*Novalis.*

By studying Nature in the spirit of meek devotion and solemn love, a good man may indeed 'walk up and down the world as in a garden of spices, and draw a Divine sweetness out of every flower.'—*J. Keble.*

Nature is the most thrifty thing in the world; she never wastes anything; she undergoes change, but there is no annihilation; the essence remains, the matter is eternal.—*T. Binney.*

There is in Nature just as much, or as little, as the soul of each beholder can see in her.—*J. G. Shairp, LL.D.*

Nature rejoices in illusion. Whoso destroys it in himself and others, him she punishes with the sternest tyranny. Whoso follows her in faith, him she takes, as a child, to her bosom.—*Goethe.*

Surely there is something in the unruffled calm of Nature that overawes our little anxieties and doubts; the sight of the deep-blue sky and the clustering stars above seems to impart a quiet to the mind.—*T. Edwards.*

Nature always springs to the surface, and manages to show what she is; it is vain to stop or try to drive her back; she breaks through every obstacle, pushes forward, and at last makes for herself a way.—*Boileau.*

The wheels of Nature are not made to roll backwards; everything presses towards eternity; from the birth of time an impetuous current has set in, which bears all the sons of men toward that interminable ocean.—*R. Hall.*

How beautifully has God provided for the gratification of our senses! For instance, He has chosen the softest and most proper colours to please and refresh the sight. Experience proves that blue and green surfaces reflect those rays only which are least injurious to the eyes, and which they can contemplate the longest without being fatigued.

Hence it is that the Divine goodness has clothed the heavens with blue, and the earth with green—two colours which are the most pleasing and suitable to the organs of sight.—*C. C. Sturm.*

PLANTS, FLOWERS, ETC.

God often breaks the cistern to bring us to the fountain. He withers our gourds that He Himself may be our shade.—*R. M. McCheyne.*

Man is that noble endogenous plant which grows, like the palm, from within outward.

Flowers are the beautiful hieroglyphics of Nature, with which she indicates how much she loves us.—*Goethe.*

Silently one by one in the infinite meadows of heaven
Blossomed the lovely stars, the forget-me-nots of the angels.
Longfellow.

A wild rose, or a prairie rose, or a sweet-briar, is a floral nightingale, whose song is perfume.—*H. W. Beecher.*

Remember that one gives no other answer to the rose for its precious fragrance than to inhale it with delight.—*My Note-Book.*

In extirpating *weeds*, the greatest comfort and blessing is, not that we get rid of the weeds themselves, but that we make another place for the *flowers.*

The sweetest flowers are those which shed their perfume in quiet nooks and dingles, and the purest hearts are those whose deeds of love are done in solitude and secret.

God cultivates many flowers, seemingly, only for their exquisite beauty and fragrance. For when, bathed in soft sunshine, they have burst into blossom, then the Divine hand gathers them from the earthly fields to be kept in crystal vases in the deathless mansions above. Thus little children die — some in the sweet bud, some in the fallen blossom; but never too early to make heaven fairer and sweeter with their immortal bloom. — *Wadsworth.*

Men plant prayers and endeavours, and go the next day looking to see if they have borne graces. Now, God does not send graces as He sends light and rain, but they are wrought in us through long days of discipline and growth. Acorns and graces sprout quickly, but grow a long time before ripening.—*H. W. Beecher.*

Contact with the good never fails to impart good, and we carry away with us some of the blessing, as travellers' garments retain the odour of the flowers through which they have passed.—*Smiles.*

All our ideas—like orange-plants—spread out in proportion to the size of the box that imprisons the roots.

The primal duties shine aloft like stars;
The charities that soothe and heal and bless,
Lie scatter'd at the feet of men like flowers.—*Wordsworth.*

The bee and the serpent often suck at the selfsame flower; but the food undergoes in them a great change; for the flower becomes poison in the breast of the serpent, while in the bee it becomes a sweet liquid.—*Metastasio.*

We are struck with the idea that God fills the universe with His presence, but cannot understand how He encamps in the crystal palace of a dewdrop, or finds room to stand between the alabaster pillars of a pond-lily. We can see God in the clouds. Can we see

God in the flowers at our feet?—*Talmage.*

Perhaps if we could penetrate Nature's secrets, we should find that what we call weeds are more essential to the well-being of the world than the most precious fruit or grain.—*N. Hawthorne.*

Women, like the plants in woods, derive their softness and tenderness from the shade.—*W. S. Landor.*

Small service is true service while it lasts;
Of humblest friends—bright creatures! scorn not one.
The daisy, by the shadow that it casts,
Protects the lingering dewdrop from the sun.—*Wordsworth.*

Life lives with youth, and its first rush is wonderful. Thoughts break out into leaf, feelings into blossom; a single day in that time of sun and rain may make the whole heart like a woodland; when the foliage of sweet thoughts first appears the grass is not seen for flowers.—*Stopford A. Brooke.*

Style is the gossamer on which the seeds of truth float through the world.—*Bancroft.*

Frowns blight young children as frosty nights blight young plants.

In thickets wild, in woodland bowers,
By wayside, everywhere,
The plainest flower of all the flowers
Is shining with Thy care.
Alice Cary.

The leaf of humility tries to hide the fruit of goodness.—*J. P. Richter.*

SEA, WATER, ETC.

Life is like sea-water; it never gets quite sweet until it is drawn up into heaven.—*J. P. Richter.*

In the depth of the sea the water is still; the heaviest grief is borne in silence; the deepest love flows through the eyes and touch; the purest joy is unspeakable.

The reason why the Dead Sea is dead is said to be found in the fact that it is always receiving things, and never giving out anything.—*T. T. Lynch.*

Creation is like a flowing river; there is not a particle at rest, and all move simultaneously towards the boundless.

As storm following storm, and wave succeeding wave, give additional hardness to the shell that encloses the pearl, so do the storms and waves of life add force to the character of man.

When the ship shakes, do not throw yourself into the sea. When storms of doubt assault spiritual truth, do not abandon yourself to the wild evil of the world that 'cannot rest.' The ship rolls in the wind, but by the wind advances.—*T. T. Lynch.*

No fountain on earth is so small but that heaven may be imaged in its bosom.—*N. Hawthorne.*

The water that has no taste is purest; the air that has no odour is freshest; and of all the modifications of manner, the most generally pleasing is simplicity.

Transparent natures are often deceptive in their depth; these pebbles at the bottom of the fountain are further from us than we think.—*N. Hawthorne.*

The smallest brook can find the ocean. Heaven is not too mighty for the lowliest nature that seeks its great Creator in reverence and in love.—*D. R. Williamson.*

SNOW.

The things of God are like snow, and man cannot touch them without leaving on them the print of his handling.—*Baxter.*

Let our lives be as pure as the snowfields, where our foot leaves a mark, but not a stain.

SUN, SUNSHINE, STARS, ETC.

The sun is ever beautiful and noble, and brings a cheerfulness out of heaven itself into the humblest apartment, if we have but the spirit to welcome it.—*Leigh Hunt.*

A sunbeam passes through pollution unpolluted.—*My Note-Book.*

Faith is the telescope through which the stars grow large upon our gaze.—*Lord Lytton.*

The rays of happiness, like those of light, are colourless when unbroken.

God presents Himself in the light; He also conceals Himself by the light—just as we present ourselves in our garments and conceal ourselves by our garments.—*John Pulsford.*

Time and space are but physiological colours which the eye makes, but the soul is light; where it is, is day; where it was, is night; and history is an impertinence and an injury, if it be anything more than a cheerful apologue or parable of my being and becoming.

The blue sky is a distant reflection of the azure serenity that looks out from under a human brow.—*Thoreau.*

We may not all be great, but goodness is a possible attainment to the humblest who strive onwards through righteousness towards the realms of light; and if we are holy and earnest here we shall surely reach greatness in that larger existence which eternity shall disclose.—*D. R. Williamson.*

The sweet light of friendship is like the light of phosphorus—seen plainly when all is dark around.

The sky is full of help because it is full of God.—*John Pulsford.*

TREES.

Fairer and more fruitful in spring the vine becomes from the skilful pruning of the husbandman; less pure had been the gums which the odorous balsam gives if it had not been cut by the knife of the Arabian shepherd.

Sleep lingers all our lifetime about our eyes, as night hovers all day in the boughs of the fir-tree.

The first journey—especially when Nature throws over the long road nothing but bright radiance—orange blossoms, and chestnut shadows, gives to the youth what the last journey often takes away from the man—a dreaming heart, wings for the ice-chasms of life, and widespread arms for every human breast.—*J. P. Richter.*

The aged oak, upon the steep, stands more firm and secure if assailed by angry winds. For if the winter bares its head, the more strongly it strikes its roots into the ground, acquiring strength as it loses beauty.—*Metastasio.*

The weeping willow is eternally athirst; in a dry soil it languishes and dies. So it is with sensitive hearts.

The weeping willow is constantly taken as an emblem of humility. Observe it more carefully, and you will find it is always admiring its own face in the glass. It is proud of its humility.—*R. A. Vaughan.*

An ingenious French writer observes that those who depend on the merits of their ancestors may be said to search in the *root* of the tree for those fruits which the *branches* ought to produce.

How beautiful are the trees in spring, for then they seem as if trying to lisp out, like a little child, 'Our Father.' How glorious when, in the amber of autumn, the leaves drop with an 'Amen.'—*Leo H. Grindon.*

In the smallest bed you can raise a tulip-tree, which shall extend its flowery boughs over all the garden; and the life-breath of joy can be inhaled as well through a window as in the open wood and sky.

Of trees, I observe God hath chosen the vine, a low plant which creeps upon the helpful wall; of all beasts, the soft and patient lambs; of all fowls, the mild, gall-less dove. To be humble to our superiors is duty; to our equals, courtesy; to our inferiors, generosity.—*Owen Feltham.*

The superfluous blossoms on a fruit-tree are meant to symbolize the large way in which God loves to do pleasant things.—*H. W. Beecher.*

Very exquisite is this harmony between the distant and the near. I look through the branches of this graceful tree, and see a star amongst them. In the daytime a bird was sitting there, more restless than the leaves. And now the light leaves move to and fro; and the eternal stars, from their immeasurable distances, shine in amongst them. The near and the remote are brought together in the common bond of beauty.

The words of men are like the leaves of the tree: when there are too many, they hinder the growth of the fruit.—*Steiger.*

ADDITIONAL PARAGRAPHS ON NATURE IN GENERAL.

Universality of the Circle-Form.

The circle is the archetype of all forms.

It is universally acknowledged that the circle is the archetype of all forms, physically as well as mathematically. It is the most complete figure, the most stable under violence, the most economical of material; its proportions are the most perfect and harmonious; and therefore it admits of the utmost variety consistent with unity of effect. The universe has apparently been framed according to this type. Nature attains her ends, not in a series of straight lines, but in a series of circles; not in the most direct, but in the most roundabout way. All her objects, organic and inorganic, have a tendency to assume the circular form, and in the attainment of this form consists their highest perfection. The lowly lichen on the wall spreads itself out in a circle; the mushroom in the meadow, with its round cap and stem, grows in fairy rings; the moss-tuft on the tree, the clump of fern in the shady bank, the plot of wild-flowers in the wood, the trees in the forest, alike in their individual and social state, exhibit this form in endless and graceful diversity. The cell, which is the ultimate germ of all life, is round, and every increase which it makes by growth or reproduction preserves the same shape. The leaf, with all its varied modifications in the different parts of the plant—the stem, the flower, the fruit, the seed—are all more or less circular. So also are the different parts and organs of animals, from the simple primary cell of the animalcule, barely visible under the microscope, up through increasingly complex structures, to the highly organized and wonderfully-formed head of man—the apex of creation; and though dead, inert minerals may seem to offer an exception to this law, crystallizing, or, in other words, attaining the highest perfection of which they are capable, not in circles, but in straight lines, yet, when exposed to the influence of natural agencies, they speedily assume the circular form. Angular masses of rock from the quarry, when disintegrated by the weather, or rolled about in water, become smooth and rounded; the granite and the diamond become plastic under the silent touch of the sunbeam and the breeze, and are moulded into curves and spheres. Nay, may we not regard the truncatures of their angles, and the bevelment of their edges—by which crystals are distinguished—as attempts to approximate as closely to the spherical shape as circumstances will permit? The various forces of Nature, and the properties of the matter upon which they act,

are so arranged and balanced that they invariably bring out curved lines in the surface of the earth. The winds and the waters produce undulating surfaces wherever they operate. The sea and the lake flow in curving waves and ripples to the shore; the rivers and streams meander in silvery links through the landscape; the clouds float in ever-varying curves of magical loveliness along the sky; the very winds—emblems of fickleness and change—obey fixed laws, and blow over the earth in cyclones and rotatory currents. In short, look where we may, we see the surface of the earth and its objects curving in every possible direction: from the rounded form of the highest mountain-peak, to the little pebble at the bottom of the stream over which the dimpled waters eddy and ripple in ceaseless music—from the snow-drift that hangs in sweeping festoons far up the Alps, or the cloud that lies cradled near the setting sun, to the dewdrop that clings to the freckled ear of the cowslip—everywhere we discern the operation of the same striking law; and most, if not all, of the beauty of Nature, and the pleasing effect which she produces upon our minds, may be attributed to this cause.

And as our eyes behold the effects of this law in moulding the forms of Nature, so our minds furnish us with evidence of its influence in the plan according to which the different parts of creation have been constructed. In the scale of being, the order of development is not represented by a linear series. Classes and orders do not pass into each other by transmutation, the lower into the higher, the simple into the more complex, in a uniformly straight line, without bend or obliquity, as the advocates of the development theory assert. On the contrary, we find that they approach each other in the lowest members of each, and diverge as they ascend. Thus, it is in diatoms and confervæ—the very lowest orders of plants, and not in flowers or trees, the highest — that the vegetable kingdom makes an approximation to the animal; as we ascend the scale of being, these two kingdoms become more and more widely separated from each other, until at last in the highest representatives of each we behold those vast differences which distinguish a man or an elephant from a palm or an oak-tree. The common comparison of organic nature to a chain admirably illustrates the order of development. All the links are round and complete, and yet are intimately connected each with its neighbour by a tie formed out of its own substance. And so the various orders, families, and genera of animals and plants are each independent of the others, but all of them have connecting characters and typical resemblances, which are necessary to fill up the plan of the Creator, so that there may be no deficiency nor incompleteness, but an endlessly varied and perfect whole. A chain is a straight line, but it is composed of a number of round links; so there is a continuous advancement in the order of being, but it is by a series of circles. We find the same plan adopted in the order of time in which species have been introduced into the world. There is no gradual lineal scale of being, from the lowest to the highest organisms, discoverable in the rocks of the geologist. We do not find, as has been asserted by the author of the 'Vestiges of Creation,' that the lowest strata contain only the rudiments of life—which life improves and develops as we ascend—until in the most recent strata we behold fossils of the highest and most complex structure. Whenever a new order of creation was introduced by Divine interposition, it did not originate from the highest state of the order immediately beneath by a physical or genetic

power, nor did this new order of existence carry on a process of development until sufficiently advanced to constitute a still higher order; on the contrary, geological testimony is everywhere conclusive of the fact, that some of the higher forms of life have been among the first introduced, and that these, during the cycle of existence allotted to them, degenerated in size and number, or became differentiated into new orders and species, until the Creator took a step in advance by bringing another race upon the scene. The Divine power successively introduced higher and yet higher classes, and each, by the law of development, continued to differentiate itself, to pass from simplicity to complexity, from unity through diversity to a higher unity. Thus, while there has been a great advance in creation as a system, there appears to have been no advance in any particular order; while the great law which has governed the introduction of successive animal and vegetable species, is that of gradual progressive development of the animal and vegetable kingdom as an organic whole, the Divine Classifier, in the elaboration and unfolding of His great work of art, has followed the principle of the morphologist, and not the dogma of the Lamarckian or the pantheist.—*Hugh Macmillan, LL.D.*

A Summer Melody.

Nature meditations lead on to apprehensions of Nature's God.

The glory of the summer woods
  Is back. The wind among the trees
Sends whispers through the solitudes
  As tides go through the happy seas.

I lie within the shade; I view
  Through leafy vistas far above
Soft clouds that dream along the blue,
  Then melt into the general love.

The tremulous shadows of the leaves
  Are all about me, and the grass
Grows up in wonderment, and weaves
  Green pathways for the winds to pass.

Through happy intricacies gleams
  The sunlight, dappling here and there
The fair, fresh earth with fairy beams
  That lighten all the joyous air.

From far and near me music starts,
  Whose tones make one long madrigal,
From birds that sing because their hearts
  Are in sweet unison with all.

They sing, with not one thought to grieve,
  The same sweet songs that Adam heard
When first he clasp'd the hands of Eve,
  And all the leaves in Eden stirr'd.

Dear Father of us all, it is
  A joy to lie, as now I lie,
And be a part of all the bliss
  Which crowns the universal sky;

To feel the old life sink away
  Like snow, when gentle south winds blow,
The petty glamour of the day,
  And mean souls stinging as they go;

The din of idle words and light,
  The thistledown of speech that flies
With little tips of white-lipp'd spite
  That keeps us still from being wise;

The narrow mind that will not change
  Its level for the purer springs,
Or rise to take the higher range
  In which men move to grander things;

The wild knight-errantry of thought,
That with a firm, defiant shout
Spurs against all the past has brought,
With visor down, and grim with doubt.

All this to sink, and leave no trace
To mar the moments as they roll;
Sweet moments when we face to face
Hold earnest converse with the soul.

And see, as sunlight through the shade
Shoots sudden slips of trembling light,
The purposes that God has made
To keep our little lives aright;

That all is under one great Will,
And breathing one wide, common breath,
Imperfect, though each motion's still
To all the perfect after death.

I think each little, gentle thing,
That nods and bends with life to-day,
Is thinking of the fuller spring,
When all the years have rolled away.

For all the myriad germs that glow
With pulsings of existence, bear
Within them that which yet shall grow
To higher types in other air.

We, too, who sow in tears shall reap
Beyond this death the after-gain,
And move full set with larger sweep
Of the far-reaching boundless brain.

And fronting all the spirit dawn
We see, as sunshine cleaves the mist,
A sudden glory, half withdrawn,
Through which is seen the face of Christ.

Till, rising higher, at last we reach
The centre thought of God, and know
In dim wise that great Source from which
The light comes warming all below.—*Alexander Anderson.*

Everything in Nature is Passing.

All earthly things are in their nature transitory.

A great prophet-voice seems to be sounding, as of one who stands high over all places of human concourse, 'All flesh is grass, and all the glory of man as the flower of grass.' All Nature seems to re-echo the message of the grass. The winter snow falls lightly, and lies in its glistering purity—mystic, wonderful—over all the land; but so soon it soils, and browns, and sinks, and passes all away. The spring flowers that come, responsive to the low sunshine and the gentle breath, are so fragile—they stay with us only such a little while, and then they pass away. The summer blossoms multiply and stand thick over all the ground, and they seem strong with their deep, rich colouring; and yet even they droop, and wither, and pass away. The autumn fruits cluster on the tree branches, and grow big, and win their soft rich bloom of ripeness; but they, too, are plucked in due season, and pass away. The gay dress of varied leafage is soon stripped off by the wild winds; one or two trembling leaves may cling long to the outmost boughs, but by-and-by even they fall and pass away. Down every channel of the hillsides is borne the crumblings of the everlasting mountains (as we call them), that, nevertheless, are fast passing away. The hard trap rocks that hold in the wintry sea are being worn down by the ceaseless chafing, and are passing away. The coast-lines are

changing; the river-beds are silting up; mighty Niagara is retreating backward. And man! does he differ from the things in the midst of which he is set? Nay, surely. He, too, 'cometh up like a flower, and is cut down; he fleeth also as a shadow, and continueth not.'—*Robert Tuck, B.A.*

The Promise of a New Spring-time in the Falling Leaf.

To the spring-time of each year the dying leaves of last year are indispensable.

If our leaf may testify in this mellow autumn time, it will say: I am a fading leaf certainly, watching for the sun and frost to give the signal for my dissolution. I have had to bear heavy rains, to wrestle with great storms, to shudder in electric fires, to fight my way and hold my own as well as I could in the teeth of foes and parasites, ever since I began to spring. But this I can say, as I fall, that there has been no day since I first began to grow, when I have not tried to be true to the law of my life, as the mediator, bridging the gulf between senseless matter and the sentient soul. You rejoice in your fruit; if there had been no leaf there could have been no fruit, and there would be no tree. The servant of all, I am, in my way, the greatest of all by the infallible ordination and law of all service. I give you walnut for your gunstock, and ash for the handle of your plough. I work through all weathers to build your ships, factories, homes, and churches. I am indispensable to the match for your fire and the mast for your merchantman. I brace myself, and stand shoulder to shoulder with my fellows on great pines, keeping watch and ward in the long winter, on every coign of vantage, to keep you from the driving northern storms, and spread myself as a shield over valley and champaign, to shelter you from the burning summer heats. I cast my mantle over the raindrop until it can find a runlet; and the runlet I shelter to the rivulet, the rivulet to the river, and the river to the sea. I cover the springs among the moss, and weave my tapestry to adorn the bare desolation of the mountains. I hold myself, simple and separate, always to my one purpose. And now, in my falling, I shall fall for blessing and cease to be a leaf, because, as a leaf, I am no longer needed. But, in ceasing to be what I am, I may well remind you of what one has said who loves us, and takes us into his heart beyond all men living: "We compare ourselves to leaves: the leaves may well scorn the comparison, if we live only *for* ourselves. If ever in the autumn a pensiveness steals over us, as the leaves flutter by in their fading, may we not wisely look up to their mighty monuments; and as we see how fair they are, how far prolonged in arch and aisle the avenues of the valleys, the fringes of the hills (so stately, so eternal), the joy of man, the comfort of all living creatures, the glory of the earth, remember that these are but the monuments of fading leaves that faintly flit past us and die? Let them not die before we read and understand their holy revelation; so that we, also, careless of a monument for the grave, may build one in the world, by which men may be taught to remember, not where we died, but where we lived."'

Then, keeping still to my parable, I can see how my leaf will say further, 'You can think as you like, therefore, about man as he fades and falls—make the end of your life here as mournful as you please—dishonour death by evil names and images as its shadow falls upon your race; but I ask you, once for all, to leave me out

of your sad analogies. I protest against being counted as one that shudders at dissolution. I might have done that in June, when my life was all to live; but in September, when it has had its day, as I begin to loosen from the spray where God caused me to spring, the loosening seems as good as ever did the springing.

'Then there is another thing. I cannot tell much about it; it is just a sweet, misty mystery, to be made clear, no doubt, in due time. But near my heart, through all my summer, faint at first, but growing stronger with the growing days, I have felt and nursed and shielded the intimation of another springing in a spring-time to come, to which my present dissolution seems to be entirely indispensable. So, then, I shall die as I have lived, with my face to the sun and the great loving heavens, and welcome the autumn frost as I welcomed the spring sunshine. It is true that I have no hope like that your race holds of living again—

'"Wrapped from the fickle and the frail,
With gathered powers yet the same,
Piercing the keen seraphic flame
From orb to orb, from vail to vail."

My spirit must go whence it came, and my flame must be trodden into the dust; yet I fear nothing that can happen to either, because I know that both will be held in the hollow of His hand who counts a faded leaf. I am sure of all the life I shall ever need. I know that *my* Redeemer liveth. God will not leave *me* in the grave. Though I am only a leaf, "All the days of my appointed time will I wait till *my* change come," and trust the wisdom that has done so well for me this time, what that change shall be. And so, if men are crying, "We all do fade as a leaf," in any spirit of down-looking sadness and fear, let them speak for their race, not for ours; because, being true to life, we find out how to be true to death, and secure an entrance into the life to come.'—*Robert Collyer.*

Rest in Nature.

Nature teaches the need of Sabbath-rest for souls.

For all organic life God has provided periods of repose, during which repair goes on in order to counteract the waste caused by activity. In the spring-time we see movement and stir in gardens, fields, and hedgerows, which continues till the fruits are gathered in and the leaves fall; but then winter's quiet again settles down over all, and Nature is at rest. Even the flowers have their time for closing their petals, and their sleeping hours come so regularly, and yet are so varied in distribution among them, that botanists can construct a floral clock out of our English wild-flowers, and tell the hour of night or day by their opening or closing. The same God who created the flowers and appointed the seasons, ordained the laws of Israel, and by these definite seasons of rest were set apart for the people—the Sabbath, the jubilee year, and the annual festivals. Indeed, in every age and in every land, the coming of night and the victory of sleep are hints of what God has ordained for man.—*A. Rowland, LL.B.*

The Witness of Earth and Sea to God.

In the presence of Nature it is difficult to conceive of an atheist.

'O Lord, how manifold are Thy works! In wisdom hast Thou made them all: the earth is full of Thy riches, so is this great and wide sea.' While the heavens declare the glory of God, earth and sea in unison echo back the anthem. Who could be an atheist, with his foot on this green earth, and his eye open toward that blue sky? Standing here on the solid

mass of the world, feeling the pulse of its life, and observing the laws of its gigantic circulation, can you still say, I do not believe in God? Then you may go next through the docks of Liverpool, and the mills of Manchester, and exclaim, at the close of your pilgrimage, I do not believe in man.—*W. Arnot.*

The Way to Mount Parnassus.

Life is really an onward and upward movement, though the progress we may fail to trace.

Love and Wisdom are one; and Wisdom is justified in all her ways. For by an orderly series of steps she is always leading to a blessed and beautiful end. Now it is through vineyards, while blooming lilies are at your feet; anon the rough stones gall your feet, and the thorns pierce your very bosom. But on and on you hold your way, until Mount Parnassus looms in the distance: the Sun which is Pure Eternal Love begins to rise on you, and the gate of Paradise opens before you. We must work our passage through, and out of the fearful labyrinths and desert of sin; but the upward slopes of the new life are delightful, and prospects enrapturing. John spurs you on through the former: Jesus allures you up the latter. — *John Pulsford.*

The Power of God in Nature.

The sublimer signs of God's power are found in mountain districts, on the sea, in earthquake circles, and in human history.

What is there which He cannot do? We see but little of God's power comparatively in our land. Now and then there comes a crash of thunder in a storm, and we look up with amazement when He sets the heavens on a blaze with His lightning. But go, and do business on the deep waters; let your vessel fly before the howling hurricane; mark how every stanch timber seems to crack, as though it were but match-board, and the steady mast goes by the board, and snaps, and is broken to shivers. Mark what God does when He stirs up the great deep, and seems to bring heaven down, and lift the earth up, till the elements mingle in a common mass of tempest. Then go to the Alps, and listen to the thunder of the avalanche. Stand amazed, as you look down some grim precipice, or peer with awestruck wonder into the blue mysteries of a crevasse; see the leaping cataracts, and mark those frozen seas, the glaciers, as they come sweeping down the mountain-side; stay awhile, till a storm shall gather there, and Alp shall talk to Alp, and those white, prophetic heads shall seem to bow while the wings of tempest cover them! There you may learn something of the power of God amidst the crash of Nature. If you could have stood by the side of Dr. Woolfe, when, rising early one morning, he went out of Aleppo, and, upon turning his head, saw that Aleppo was no more, it having been, in a single moment, swallowed up by an earthquake, then again you might see what God can do. But why need I feebly recapitulate what you all know so well? Think of what that Book records of His deeds of prowess, when He unloosed the depths, and bade the fountains of the great deep be broken up, that the whole world that then was might be covered with water. Think of what He did at the Red Sea, when the depths stood upright as a heap, for a time, while His people went through, and when afterwards, with eager joy, the floods clasped their hands, and buried the foeman in the deep, never to rise again! Let such names as Og, King of Bashan, Sihon, King of the Amorites, and Sennacherib, the mighty, rise before your recollection, and mark what God has

done! Who has ever dashed upon the bosses of His buckler without being wounded? What iron has He not broken? What spear has He not shivered? Millions came against Him; but, by the blast of the breath of His nostrils, they fell, or they flew, like the chaff before the wind. Let the sea roar, and the fulness thereof, but the rocks stand still, and hurl off the waves in flakes of foam; and so doth God, when His foes are most enraged and passionate. He that sitteth in the heavens doth laugh; the Lord doth have them in derision; and He breaketh them in pieces without a stroke of His hand, or even the glance of the eye.

Poetry of the Night.

Poet-souls feel the beauty, and read the missions, of the night.

How beautiful is night!
A dewy freshness fills the silent air;
No mist obscures, nor cloud, nor speck, nor stain,
Breaks the serene of heaven:
In full-orb'd glory yonder moon Divine
Rolls through the dark blue depths:
Beneath her steady ray
The desert-circle spreads,
Like the round ocean, girdled with the sky.
How beautiful is night!

Southey.

THE SONG OF NIGHT.

I come to thee, O Earth!
With all my gifts—for every flower sweet dew,
In bell, and urn, and chalice, to renew
The glory of its birth.

Not one which glimmering lies
Far amidst folding hills or forest leaves,
But, through its veins of beauty, so receives
A spirit of fresh dyes.

I come with every star;
Making thy streams, that on their noonday track
Gave but the moss, the reed, the lily back,
Mirror of worlds afar.

I come with peace; I shed
Sleep through the wood-walks o'er the honey-bee,
The lark's triumphant voice, the fawn's young glee,
The hyacinth's meek head.

On my own heart I lay
The weary babe, and, sealing with a breath
Its eyes of love, send fairy dreams, beneath
The shadowing lids to play.

I come with mightier things!
Who calls me silent? I have many tones—
The dark skies thrill with low mysterious moans
Borne on my sweeping wings.

I waft them not alone
From the deep organ of the forest shades,
Or buried streams, unheard amidst their glades,
Till the bright day is done.

But in the human breast
A thousand still small voices I awake,
Strong in their sweetness from the soul to shake
The mantle of its rest.

I bring them from the past—
From true hearts broken, gentle spirits torn,
From crush'd affections, which, though long o'erborne,
Make their tone heard at last.

I bring them from the tomb:
O'er the sad couch of late repentant love,
They pass—though low as murmurs of a dove—
Like trumpets through the gloom.

I come with all my train!
Who calls me lonely? Hosts around me tread—
The intensely Bright, the Beautiful, the Dread,—
Phantoms of heart and brain!

Looks from departed eyes,
These are my lightnings! fill'd with anguish vain,
Or tenderness too piercing to sustain,
They smite with agonies.

I, that with soft control
Shut the dim violet, hush the woodland song,
I am the Avenging One!—the arm'd, the strong,
The Searcher of the soul!

I, that shower dewy light
Through slumbering leaves, bring storms! the tempest-birth
Of Memory, Thought, Remorse! Be holy, Earth!
I am the solemn Night!

Mrs. Hemans.

The Branching of the Moss.

Illustrating the corporate relationships of life.

Closely connected with the social habit of the moss is its power of branching, multiplying itself by self-extension. Some species of moss have simple stems, and these are more fugacious, having a less hold upon the supplies of life, and smaller forces to overcome their enemies. Others are much branched, and last for years. Examples of the two kinds are found in the little peculiar group to which the Mungo Park moss belongs. As a rule, the mosses that produce their seed-vessel from the summit of the stem are simple and unbranched, and may therefore be said to be analogous to annuals among flowering plants, which perish whenever they have produced their blossom and seed; while mosses that send forth their seed-vessel from the side of the stem are much branched, and are analogous to perennial plants, which are provided with the means of continuing not only the species, but the individual, and therefore last for many years. The family of the Mungo Park moss, though it produces the seed-vessel from the top of the stem, nevertheless branches profusely by innovations, or with the tops of the fertile stems several times divided. This family, therefore, is very enduring, and forms one of the principal features in the mossy decoration of the woodland banks and trees.

In this branching of the tiny moss we have the earliest premonition of the corporate relationships of life. We are so familiar with this fact that it has become a commonplace and uninteresting truism which lies bed-ridden in the dormitory of the soul. But when we trace it back to its first feeble beginning in the first kind of life that rose out of the forces and forms of the inorganic world, we realize something of its wonder and significance. All beginnings have a strange interest to us, whether it be the source of a mighty river in the little mountain well or the beginning of the Gospel of Jesus Christ, the performance of the first miracle or the formation of the Christian Church. The thought that there was a time when these things had no existence gives a vividness to the feelings with which we regard them, and brings back the freshness that has evaporated with long familiarity. We are familiar with the relations of human life; but it is strange to go back to a time when there was nothing like them, when life consisted of units. The angels that were in existence before man had no corporate life. They were created as mere individuals, whose number from the first was fixed and perfect. They came direct from the hand of God, and thus were the sons of God,

but were not the sons of one another. They had no father, or son, or brother—no blood-relationship. And therefore we can understand how the Lord Jesus could not have taken upon Him the nature of angels. Between Him and these beings there could be no federal tie through the possession of a common nature acquired by hereditary descent. And we can understand with what profound interest the angels would desire to look into the mystery of the creation of a being who should be so different from themselves, who should inherit the Divine blessing of being fruitful, and multiplying and replenishing the earth, with all that it involves of sorrow and joy, of spiritual education and probationary discipline. Through the social relationships of man a way was prepared for the incarnation of a second Adam, 'the Lord from heaven,' in whom creation and the Creator met together—not in semblance, but in reality—in whom all fulness dwells, the fulness of the creature as well as the fulness of the Creator. And through this relationship resting on a participation of our flesh and blood, man has the hope of a nearer and more blessed communion with God than even angels or archangels know.

Regarding the organization and the highest social well-being of man, then, as the ultimate end of creation, and taking specially into account the manifest uniformity and continuity in the plans observed by the Creator throughout all the formations of the earth, it is surely not a vain imagination to suppose that in the constitution of the lower forms of vegetable and animal life, which were made by Him long ages before man, He who seeth the end from the beginning, and to whom a thousand years are as one day, should have had an eye to the constitution of the wonderful Being that was one day to occupy the highest place in the organic world. We cannot but suppose that God worked up to this new thing in His universe, as His manner always is, by hints and forecasts of it in lower and earlier forms. He traced, in the structure and habits of the first emerald tuft of moss that crept over the newly-formed soil, the first faint indication of the idea that was to be unfolded in all its wonderful fulness of meaning in the human world. The moss-tuft composed of its branching and mutually-related individuals, had its real origin in man, its primary source in man's moral nature, and its true meaning in the institution of man's social condition, that condition for which God made provision in the formation of man which He inaugurated when He gave him a help-meet, taken as a rib from his side, and which He means to perfect and complete in that heavenly 'city,' towards which from the first the desires of man and the preparations of God have been alike directed.

The Snowdrop.

'Nothing should be upon a Bible but a flower.'

Our first offering to God, after the wintry darkness, the snowdrop is, as it were, a mere blanched, infragrant white; and our next is the violet, of fair colour and sweetest smell, often hidden in the green, but having powers in its life which will not let it be hidden. Its sweet smell carries us to the sunny southern bank where we find it; and we hold it joyously in our bosom, or put it on our work-table, or rest it, yes, even upon a Bible; as the old Scotch lady said, with a touch of superstition which is often wiser than science, 'Nothing should be put upon a Bible but a flower.'—*T. T. Lynch.*

Brevity of Man, Continuity of Nature.

'The race survives whilst the individual dies.'

In the eternity of Nature, how recent our antiquities appear! The imagination is impatient of a cycle so short. Who can tell how many thousand years, every day, the clouds have shaded these fields with their purple awning? The river, by whose banks most of us were born, every winter, for ages, has spread its crust of ice over the great meadows, which, in ages, it had formed. But the little society of men who now, for a few years, fish in this river, plough the fields it washes, mow the grass and reap the corn, shortly shall hurry from its banks, as did their forefathers. 'Man's life,' said the Witan to the Saxon king, 'is the sparrow that enters at a window, flutters round the house, and flies out at another, and none knoweth whence he came, or whither he goes.' The more reason that we should give to our being what permanence we can—that we should recall the past, and expect the future.—*Emerson.*

Truth in Nature.

That truth simple souls find.

There is no lie in Nature, no discord in the revelations of science, in the laws of the universe. Infinite, pure, unfallen earth-supporting Titans, fresh as the morning of creation, those great laws endure; your only true democrats, too—for nothing is too great or too small for them to take note of. No tiniest gnat or speck of dust but they feed it, guide it, and preserve it. Hail and snow, wind and vapour, fulfilling their Maker's word; and, like Him, too, hiding themselves from the wise and prudent, and revealing themselves unto babes. It is the child-like, simple, patient, reverent heart, which science at once demands and cultivates. To prejudice or haste, to self-conceit or ambition, she proudly shuts her treasuries—to open them to men of humble heart, whom this world thinks simple dreamers — her Newtons, and Owens, and Faradays.

The Home-Mission of the Flowers.

Every earthly home should have its flower-garden for the sake of the home-ministry of the flowers.

Women love flowers, and flowers are like women in their beauty and sweetness; so they ought to grow up together. No flower-garden looks complete without a woman in it; no woman ever looks so lovely as when she is surrounded by flowers. She should have her fragrant bouquet at the party; window plants in her parlour; if possible some rich and rare flowers in her conservatory; but, better than all these, and supplying all, each woman should have a flower-garden. Every man who had the least gallantry or paternal feeling should make a flower-garden for his wife and daughters. Every home — the smallest cottage in the country as well as the largest mansion—should have around it the perfume of lilacs, pinks, and other odoriferous flowers that cost no trouble, but bring with them every year a world of beauty and fragrance.

Nature's Colourings.

Pleasant green is to the world what sweet temper is to man's life.

There, the window is open! How instinctively the eye rests upon the green! How the calm colour lures and soothes it! But is there to the green only a single hue? See how infinite the variety of its tints! What sombre gravity in yon cedar, yon motionless pine-tree! What lively but unvarying laugh in yon glossy laurels! Do those tints charm us like the play in the young leaves of the lilac—

lighter here, darker there, as the breeze (and so slight a breeze) stirs them into the checker—into the ripple? Oh, sweet green, to the world what sweet temper is to man's life! Who would reduce into one dye all thy lovely varieties? Who exclude the dark steadfast verdure that lives on through the winter day; or the mutinous caprice of the gentler, younger tint that came fresh through the tears of April, and will shadow with sportive tremor the blooms of luxuriant June?

Reflection and Reality.

It is possible for reflection to be more beautiful than reality.

I scarcely remember a scene of more complete and lovely seclusion than the passage of the river through the wood. Even an Indian canoe, in olden times, could not have floated onward in deeper solitude than my boat. I have never elsewhere had such an opportunity to observe how much more beautiful reflection is than what we call reality. The sky, and the clustering foliage on either hand, and the effect of sunlight as it found its way through the shade, giving lightsome hues, in contrast with the quiet depth of the prevailing tints — all these seemed unsurpassingly beautiful when beheld in upper air. But on gazing downward there they were, the same, even to the minutest particular, yet arrayed in ideal beauty which satisfied the spirit incomparably more than the actual scene. I am half convinced that the reflection is indeed the reality, the real thing which Nature imperfectly images to our grosser sense. At any rate, the disembodied shadow is nearest to the soul.—*N. Hawthorne.*

The Law of Silence.

The mightiest forces work quietly.

It seems to be a law of all that is august in the world that it should be noiseless. How silently do the stars whirl along in space! The giant avalanche, which, tearing down the mountain-sides, buries a village at its base, is formed of snowflakes falling softly one by one. The mighty coral reefs against which the surge thunders in vain are the work of microscopic insects. The wild blast before which the cedars of Lebanon bow is made up of the whispers of the wind.—*R. N. Young.*

Refining Influence of Nature.

'Nature will make you natural.'

Coarseness would be impossible had we an insight into what God is ceaselessly doing in sky, field, and garden. To be coarse we must be reared in cities, with man's civilization. Drawing-room parties may make you artificial; Nature will make you natural. If Nature were not most helpful and divinely educative, Jesus would never have advised His disciples to study its charms.—*John Pulsford.*

Economy in Nature's Working.

Its economy is fully consistent with its apparent waste.

Nature, like a great poet, knows how to produce the grandest effects with the fewest materials. You have only a sun, trees, flowers, water—and love. But, in sooth, should this last be absent from the heart of the beholder, the picture is poor enough, for then the sun is only so and so many miles in diameter, and trees are good for fuel, and flowers are classified according to their stamens, and water is wet.—*Heine.*

Nature's Jewellery.

Strange that Nature's jewels should need polishing for man's use.

We see in a jeweller's shop that as there are pearls, and diamonds, and other precious stones, so there

are files, cutting instruments, and many sharp tools for their polishing; and while they are in the workshop they are continual neighbours to them, and come often under them. The Church is God's jewellery, His workhouse where His jewels are polishing for His palace and house; and those He especially esteems and means to make most resplendent, He hath oftenest His tools upon.—*Leighton.*

Delusions gathering about Mountain Summits.

''Tis distance lends enchantment to the view.'

Etherealized by the changing splendour of the heavens, as the mountain summit appears when surveyed from below, rising up from the huge mound of rock and earth like a radiant flower above its dark foliage, it affords another illustration of the poetic adage, that ''Tis distance lends enchantment to the view.' When you actually stand upon it, you find that the reality is very different from the ideal. The clouds that float over it, 'those mountains of another element,' which looked from the valley like gorgeous fragments of the sun, now appear in their true character as masses of cold, dull vapour; and the mountain peak, deprived of the transforming glow of light, has become one of the dreariest and most desolate spots on which the eye can rest. Not a tuft of grass, not a bush of heather, is to be seen anywhere. The earth, beaten hard by the frequent footsteps of the storm, is bare and leafless as the world on the first morning of creation. Huge fragments of rocks, the monuments of elemental wars and convulsions, rise up here and there, so rugged and distorted that they seem like nightmares petrified; while the ground is frequently covered with cairns of loose hoary stones, which look like the bones which remained unused after Nature had built up the great skeleton of the earth, and which she had cast aside in this solitude to blanch and crumble away unseen. Then standing there during a misty storm, it requires little effort of imagination to picture yourself a shipwrecked mariner, cast ashore on one of the sublimely barren islands of the Antarctic Ocean. You involuntarily listen to hear the moaning of the waves, and watch for the beating of the foaming surge on the rocks around. The dense writhing mists hurrying up from the profound abysses on every side imprison you within 'the narrow circle of their ever-shifting walls,' and penetrate every fold of your garments, and your skin itself, becoming a constituent of your blood, and chilling the very marrow of your bones. Around you there is nothing visible save the vague, vacant sea of mist, with the shadowy form of some neighbouring peak looming through it like the genius of the storm; while your ears are deafened by the howling of the wind among the whirling masses of mist, by 'the airy tongues that syllable men's names,' the roaring of the cataracts, and the other wild sounds of the desert never dumb. And yet, dreary and desolate although the scene usually appears, it has its own periods of beauty, its own days of brightness and cheerfulness. Often in the quiet autumn noon the eye is arrested by the mute appeal of some lovely alpine flower, sparkling like a lone star in a midnight sky, among the tufted moss and the hoary lichens, and seeming, as it issues from the stony mould, an emanation of the indwelling life, a visible token of the upholding love which pervades the wide universe. If winter and spring in that elevated region be one continued storm, the short summer of a few weeks' duration seems one enchanting festival of light. The life

of earth is then born in 'dithyrambic joy,' blooms and bears fruit under the glowing sunshine, the balmy breezes, and the rich dews of a few days. Scenes of life, interest, and beauty are crowded together with a seeming rapidity as if there were no time to lose. Flowers the fairest and the most fragile expand their exquisitely pencilled blossoms even amid dissolving wreaths of snow, and produce an impression all the more delightful and exhilarating from the consciousness of their short-lived beauty, and the contrast they exhibit to the desolation that immediately preceded.—*Hugh Macmillan, LL.D.*

The Joy of Returning Spring-time.

Dark times are easily forgotten when the sunshine comes back to us.

The shepherd, when April returns, thinks no more of the cold that is gone; he leads once more from the stall his snow-white flocks, to their accustomed shady pastures, and makes his pipe again to resound. The pilot, when the wind is lulled, forgets his fears, and, joyfully seated on the prow, goes singing on the bosom of the deep.—*Metastasio.*

The Mission of April.

'The heart gives that which neither gold nor silver can buy.'

Happy is the man who has that in his soul which acts upon the dejected as April acts upon violet roots. Gifts from the hand are silver and gold, but the heart gives that which neither silver nor gold can buy. To be full of goodness, full of cheerfulness, full of sympathy, full of helpful hope, causes a man to carry blessings of which he is himself as unconscious as a lamp is of its own shining. Such a one moves in human life as stars move on dark seas to bewildered mariners, or as the sun wheels, bringing all the seasons with him from the south.—*H. W. Beecher.*

The Charm of the Knowledge of Nature.

Ancient writers were most impressed by the larger, sublimer aspects of Nature.

There is nothing so charming as the knowledge of literature; of that branch of literature, I mean, which enables us to discover the infinity of things, the immensity of Nature, the heavens, the earth, and the seas: this is that branch which has taught us religion, moderation, magnanimity, and that has rescued the soul from obscurity; to make her see all things above and below, first and last, and between both; it is this that furnishes us wherewith to live well and happily, and guides us to pass our lives without displeasure and without offence.—*Cicero.*

Pregnant Silence.

Nature works her best work silently.

In silence mighty things are wrought;
Silently builded, thought on thought,
Truth's temple greets the sky;
And, like a citadel with towers,
The soul, with her subservient powers,
Is strengthened silently.

Soundless as chariots on the snow,
The saplings in the fores grow
To trees of mighty girth;
Each nightly star in silence burns,
And every day in silence turns
The axle of the earth.

The silent frost, with mighty hand,
Fetters the rivers and the land
With universal chain;
And smitten by the silent sun,
The chained is loosed, the rivers run,
The lands are free again.

T. T. Lynch.

The God of Nature.

It is a false reading of Nature to make it support stern views of God.

Some look upon God as a stern, austere, vindictive, and implacable Divinity; in whose bosom the hatred of sin, like a roaring whirlpool, has swallowed up all gentler feelings—in whom the love, kindness, and pity of a father are lost in the sternness of a judge. And so they shun and hate God, wishing there were none at all. But where, I would ask, do you find this implacable God? If I ascend into heaven He is not there. I return to this earth, yet find no trace or footprint of Him here. Fields, forests, mountains, smiling valleys, and sunny seas are not more full of creatures than of happiness; and from the deep bass of ocean to the ringing carol of the lark, Nature forms one choir and chants her hymns to Him. I open the Bible, but He is not there. Gift of our heavenly Father, dying legacy of an incarnate Son, revelation of a kind and winning Spirit, love shines on thy every page. All these repel the insult, and cry, 'He is not in me!' Where is He, then? With head averted, hair standing on an end, and stony horror in her looks, Despair points to the pit, and shrieks, 'He is there!' Awful thought, indeed, awful reality, awful abode that pit, and awful declaration, 'The wicked shall be turned into hell, and all the nations who forget God.' But between that pit and you a high red cross is standing. Mercy descends from heaven, alights upon its summit, and preaches hope to despair, pardon to guilt, salvation to the lost. Free as the winds that fan her cheek, free as the sunbeams that shine on her golden tresses, she invites all to come. Throwing open her arms to embrace the world, in a voice that rings like a silver trumpet, she cries, 'O Earth, earth, earth, hear the word of the Lord!' Beautiful vision. She bids you read on that cross where they stand written—not in letters of gold, but of blood—these blessed words, this greatest oath, 'As I live, saith the Lord, I have no pleasure in the death of a sinner!' —*Dr. Guthrie.*

Nothing Created without a Purpose.

If a man has nothing to live for, he has forfeited his right to his life.

Let me not deem that I was made in vain,
Or that my being was an accident,
Which fate, in working its sublime intent,
Nor wished to be, to hinder would not deign.
Each drop uncounted in a storm of rain
Hath its own mission, and is duly sent
To its own leaf or blade, not idly spent
'Mid myriad dimples on the shipless main.
The very shadow of an insect's wing,
For which the violet cared not while it stayed,
Yet felt the lighter for its vanishing,
Proved that the sun was shining by its shade;
Then came a drop of the eternal spring,
Shadow of living lights, in vain be made!—*Coleridge.*

God uses Frail Instruments.

Men have to be made to feel frail before they are fitted for His use.

God works with broken reeds. If a man conceits himself to be an iron pillar, God can do nothing with him or by him. All the self-conceit and confidence have to be taken out of him first. He has to be brought low before the Father

can use him for His purpose. The lowlands hold the water, and, if only the sluice is open, the gravitation of His grace does all the rest, and carries the flood into the depths of the lowly heart.—*A. Maclaren, D.D.*

Purity is Essential to Beauty.

All human excellencies are beauties of holiness.

All the colours, charms, and beauties of the visible creation, and all the glories of the invisible heavens, and all the loveliness of angels, are but a partial flowering of the hidden beauties of Divine holiness. All human excellencies are also 'beauties of holiness.' Sin has no beauties. Wherever, in any single creature, beauty lingers, there sin has not finished its work. Meekness, humility, purity, peace, contentment, gentleness, love, joy, are the flowers of the human soul, and the fruits of the Holy Spirit. If we are often struck with the charm and sweetness of the human soul as it looks upon us from the eyes and countenance of corrupt materialism, what exquisiteness of form and colouring, and what sweetness of expression, will the perfected spirit give to its own heavenly countenance? If such is the energy of the Divine nature that its beauties spring forth from the earth, look down from the stars, and even throw their shadows within fallen souls, what must be the ways and fruits of the Divine holiness in the pure virgin soil and element of Eternity!—*John Pulsford.*

The Beautiful is the Soul's Food.

It has elements of nourishment that are essential to the health of some parts of our complex being.

An intense vitality, a keen sympathy, a wide experience, are worth all the logic of the schools. He who does not admire is of narrow sympathy. So beauty, which is the natural food of a healthy imagination, should be sought after by everyone who wishes to achieve the great end of existence—that is, to make the most of himself. Man lives not by books alone, nor by knowledge alone. '*Es ist immer gut etwas zu wissen*,' was the wise utterance of one of the wisest men of modern times; not mere indiscriminate knowing, what the young man sets before him as worthy of a systematic pursuit, is not knowledge in general, but knowledge of the great, beautiful, and good; this is obtained by paying attention to æsthetical culture. In other words, poetry, painting, music, and the fine arts, which delight to manifest the sublime and beautiful in every various aspect, fall under the category of an essential blossom of a cultivated soul.

A man who only knows with a keen glance, and acts with a firm hand, may do very well for the rough work of the world, but he may be a very ungracious creature withal.—*J. Stuart Blackie.*

The Prodigality of Nature.

The most lovely things are found where no eye is likely to behold them.

There is nothing more calculated to strike the thoughtful mind with astonishment than the boundless prodigality with which the riches of Nature are thrown broadcast over the whole surface of the earth. The most lovely objects are, as it were, carelessly scattered here and there in waste spots and lonely unvisited haunts, where there is no hand to gather and no eye to admire them. The great temple of Nature is like the magnificent and gorgeous old temple of Solomon—upon the top of every pillar is lilywork. The

massive and rugged foundation stones of the earth are almost completely concealed by a profusion of graceful and beautiful things—the grass, the flowers, the forests—while the craggy pillars have their capitals enwreathed with exquisite garlands of ferns and mosses. Not a rock peeps above the surface of the soil but has its steep sides clothed with rainbow-hued lichens, and its summit enveloped in verdure. In the smallest and most insignificant of these objects there is as much of beauty and ingenuity of structure displayed as though it were the only object in the universe. Nay, God seems to bestow more abundant honour and glory upon those objects whose smallness and insignificance would otherwise cause them to be overlooked.

Of all the minute flowerless plants with which Nature, as it were, points her flowery sentences, fills up her vacant spaces, and balances and tones her landscapes, mosses are by far the loveliest and the most interesting. As regards form and structure, they are the most beautiful of all plants, Nature having bestowed upon them this compensation for want of the varied and gorgeous colouring imparted to the higher tribes of vegetation. In them the most exquisite symmetry and beauty are developed—a beauty, not of a glaring or obvious character, but refined and spiritual, consisting in delicacy of tint, in the imperceptible gradation by which one hue is blended with another, in the filmy transparency of the structure, and in the endless diversity and perfection of the form; a beauty generally invisible to the careless or the casual observer, but brightening like a star upon the view when attentively and minutely examined, finding an unconscious interpreter in every heart, and affording, when fully perceived, to every thoughtful mind a purer and more subtle joy than is communicated even by the rose or the lily. Regarded *en masse*, what can be lovelier than a closely-shaven mossy lawn, over which the golden sunbeams and the light-footed shadows of the fleecy clouds overhead chase each other throughout the whole summer day in little rippling waves, like smiles and thoughts over a human face! What can be pleasanter than the soft yielding carpets of greenest verdure and weirdest patterns, woven by these tiny plants on the floor of shadowy old forests, 'stealing all noises from the foot,' and imbuing the mind with reverence and awe in the pillared aisles of Nature's cathedrals! What can be more picturesque than the varied hues which mosses impart to the ivied ruin, the gray old wall, or the decaying tree; or what can be more romantic than a fantastic rock crowned with pines or birches, with mosses hanging down in waving clusters from its edge, and forming beautiful festoons like draperies of green and brown silk over the pillars of some Oriental palace! Truly these little plants originated in a high ideal of creative wisdom and love.—*Hugh Macmillan, D.D.*

Overpowering Effect of Thunderstorms.

This is only felt among the great mountains (Exod. xix. 16).

Of the ordinary effect of a thunderstorm at Mount Sinai Dr. Stewart thus writes: 'Every ball, as it burst, with the roar of a cannon, seemed to awaken a series of distinct echoes on every side; . . . they swept like a whirlwind among the higher mountains, becoming faint as some mighty peak intervened, and bursting with undiminished volume through some yawning cleft, till the very ground trembled with the concussion. . . . It seemed as if the mountains of the whole peninsula were answering one another in a chorus of the

deepest bass. Ever and anon a flash of lightning dispelled the pitchy darkness, and lit up the mount as if it had been day; then, after the interval of a few seconds, came the peal of thunder, bursting like a shell, to scatter its echoes to the four quarters of the heavens, and overpowering for a moment the loud howlings of the wind.'

The Love of Nature.

A supreme influence on a poetic soul.

Weary of the hollowness of Parisian life, tired of meeting everywhere, instead of men and women as they should be, mere puppets, whose life was a mere uniform, mechanic impulse, regulated by conventionalisms, George Sand, like her great prototype Jean Jacques Rousseau, turned to Nature for consolation and refreshment. She withdrew to the hills and dales, the pastures and cornfields of her own native province of Berri, and revelled, as she herself puts it, in her own beloved world of 'rural simplicity, the simplicity of sky, and fields, and trees, and peasant life, peasant life looked at by preference, on its good and sound side.' 'Who can forget,' writes Matthew Arnold, 'the lanes and meadows of "Valentine"? George Sand is one of the few French writers who keep us closely, truly, intimate with rural Nature. She gives us the wild-flowers by their actual names—snowdrop, primrose, columbine, iris, scabious. Nowhere has she touched her native Berri and its little-known landscape, its *compagnes ignorées*, with a lovelier charm than in "Valentine." The winding and deep lanes running out of the high road on either side, the fresh and calm spots they take us to, "meadows of a tender green, plaintive brooks, clumps of alder and mountain ash, a whole world of suave and pastoral Nature'—how delicious it all is! The grave and silent peasant whose very dog will hardly deign to bark at you, the great white ox, "the inevitable dean of these pastures," staring solemnly at you from the thicket; the farmhouse "with its avenue of maples, and the Indre, here hardly more than a bright rivulet, stealing along through rushes and yellow iris in the field below"—who, I say, can forget them? And that one lane in especial, the lane where Athénais puts her arm out of the side-window of the rustic carriage and gathers May from the overarching hedge—that lane with its startled blackbirds, and humming insects, and limpid water, and swaying water-plants, and shelving gravel, and yellow wagtails hopping, half-pert, half frightened, on the sand—that lane with rushes, cresses, and mint below, honeysuckle and traveller's joy above—how gladly might one give all that strangely English picture in English if the charm of Madame Sand's language did not here defy translation!'

Nature Asleep.

'Great things and thoughts are of the same blood.'

All things are calm and fair and passive. Earth
Looks as if lull'd upon an angel's lap
Into a breathless dewy sleep; so still
That we can only say of things, they be!
The lakelet now, no longer vext with gusts,
Replaces on her breast the pictured moon
Pearl'd round with stars. Sweet-imaged scene of time
To come, perchance, when this vain life o'erspent,
Earth may some purer beings' presence bear;

May hap even God may walk among His saints,
In eminence and brightness like yon moon,
Mildly outbeaming all the beads of light
Strung o'er night's proud dark brow. How strangely fair
Yon still round star, which looks half suffering from,
And half rejoicing in, his own strong fire,
Making itself a lonelihood of light,
Like Deity, where'er in heaven it dwells.
How can the beauty of material things
So win the heart and work upon the mind,
Unless like natured with them? Are great things
And thoughts of the same blood? They have like effect.

Bailey's 'Festus.'

The Patience of Nature.

A contrast to the strife and restlessness of man.

'Oh, dreary life!' we cry, 'oh, dreary life!'
And still the generations of the birds
Sing through our sighing, and the flocks and herds
Serenely live while we are keeping strife
With Heaven's true purpose in us, as a knife
Against which we struggle. Ocean girds
Unslacken'd the dry land; savannah-swards
Unweary sweep; hills watch unworn; and ripe
Meek leaves drop yearly from the forest trees,
To show, above, the unwasted stars that pass
In their old glory. Oh, Thou God of old!
Grant me some smaller grace than comes to *these;*
But so much patience, as a blade of grass
Grows by, contented through the heat and cold.

The Immensity of Nature.

Soothing comes through the sense of vastness in the scheme of creation.

Few of us enjoy enough the beauty we ought to see every day about us, and which should go to form the substance of our every day's delights. But I doubt whether the contemplation of inanimate Nature will do for us what poets imagine it will in the way of soothing. To look upon Nature, to go into the forest, or out upon the moor, is no doubt a delightful escape from the teasing ways of man. But there is perhaps an aching of the heart, as well as a soothing, in much contemplation of still life. Where I think is most consolation, is in the immensity of creation, in the vigour and pertinacity of life. The most wounded heart, considering these things, can throw its griefs into the vast mass of life, see that there are other things besides it, and have an impression that there is a scheme of creation large enough to answer all the demands of vexed imagination. Herein I think the results of Science minister much comfort to the mind.

Paradise Lost.

Paradise for every man is lost again when he wilfully sins.

Every man has a paradise around him till he sins, and the angel of an accusing conscience drives him from his Eden. And even then there are holy hours, when this angel sleeps, and man comes back, and with the innocent eyes of a child looks into his lost paradise again—into the broad gates and rural solitudes of Nature.—*Longfellow.*

Waiting upon Nature's Moods.

The presence of man is disturbing when we worship in Nature's temple.

I would praise alike the soft gray and brown which soothed my eye

erewhile, and the snowy fretwork which now decks the forest aisles. Every ripple in the snowy fields, every grass and fern which raises its petrified delicacy above them, seems to me to claim a voice. A voice! Canst thou not silently adore, but must needs be doing? Art thou too good to wait as a beggar at the door of the great temple?—*Margaret Fuller.*

The Modest Beauty of the Highland Mountains.

Those who cannot be great can be perfect within their limits.

The Highland mountains occupy but a very subsidiary position among the great mountain ranges of the earth. The highest peak in which they culminate does not reach the line of perpetual snow; no avalanche thunders over their precipices to bury the villages at their base in ruins; no glacier brings eternal winter down from his elevated throne into the midst of green cornfields and cultivated valleys, or yawns in dangerous crevasses across the traveller's path; and no volcano reddens the horizon with its lurid smoke and flame. Ages innumerable have passed away since the glacier flowed down their sides, and left its polished or striated marks on the rocks, to be deciphered by the skill of the geologist; and those hills which once passed through a fiery ordeal, and poured their volcanic floods over the surrounding districts, now form the firmest foundations of the land, and afford quiet grassy pasturages for the sheep. Our mountains, indeed, possess few or none of those sublime attributes which invest the lofty ranges of other lands with gloom and terror. Their very storms are usually subdued, as if in harmony with their humbler forms. Though they tower to the sky, they seem nearer to the familiar earth; and a large share of the beauty and verdure of the plains do they lift up with them in their rugged arms for the blessing of heaven. Every part of their domains is free and open to the active foot of the wanderer; there are few or no inaccessible precipices or profound abysses to form barriers in his way; he can plant his foot on their highest summits with little expenditure of breath and toil; and a few hours will bring him from the stir and tumult of life in the heart of the populous city to their loneliest and wildest recesses. Well do I love my native hills, for I have spent some of the happiest days of my life in wandering amid their solitudes, following my fancies fearlessly wherever they led me. I have seen them in all seasons, and in all their varied aspects: in the dim dawn, when, swathed in cold, dark clouds, they seemed like 'awful countenances veiled,' yet speaking in the tongues of a hundred unseen waterfalls; in the still noon-day, when, illumined with sunshine, every cliff and scar on their sides stood out distinctly and prominently against the pure clear sky; at sunset, when, amid the masses of burnished gold that lay piled up in the west—'the glow of fire that burns without consuming'—they seemed like the embers of a universal conflagration; in the holy twilight, when they appeared to melt into the purple beauty of a dream, and the golden summer moon and the soft bright star of eve rose solemnly over their brows, lighting them up with a mystical radiance; and in the lone dark waste of midnight, when from lake and river the long, trailing mists crept up their sides without hiding their far-off summits, in which twinkled, like earth-lighted watch-fires, a few uncertain stars. I have gazed upon them in the beauty of summer, when the heather was in full bloom, and for miles they glowed in masses of the loveliest purple; in the changing splendour of autumn, when the

deep green of the herbage gave place to the russet hues of the fading flowers, the rich orange of the ferns, and the dark brown of the mosses; and in the dreary depth of winter, when storms during the whole twilight-day howled around them, or when, robed from foot to crown in a garment of the purest snow, they seemed meet approaches to 'the great white throne.' In all these aspects they were beautiful, and in all they excited thought and emotions which no human language could adequately express.—*Hugh Macmillan, LL.D.*

Fixing the Mind on Nature.

Passing glances reveal surface things only; loving, long-continued attention reveals the inner glories.

Dr. Chalmers luxuriated among the plants and flowers of the season, and delighted to examine minutely the structure and the beauties of some humble production that would have escaped the notice of a less practised eye. He said to a friend one day—after he had been rapt in admiration of Nature and Nature's God—'I love to dwell on the properties of one flower at a time; to fix my mind on it exclusively until I feel that it has taken complete hold of my mind. This is a peculiarity of my constitution. I must have concentration of thought on any given thing, and not be diverted from it.' The friend's attention was arrested in the garden by a sunflower of large dimensions and exquisite colouring. He (Dr. Chalmers) said, with deep emotion, 'Oh, that we could so open our hearts to the beams of the Sun of Righteousness!' It was in such scenes that one not only saw but felt that the train of thought was heavenward—that his heart and his treasure were in heaven.

Creation's Chain of Service.

Nothing exists for itself.

We see in all the different provinces of Nature a constant tendency in creatures of every order to point from themselves upwards to something higher than themselves, and outwards to something wider, for which, as well as for themselves, they exist. The rocks are not more remarkable for any property than for their tendency to become earths, thus saying, 'Not only for ourselves.' The earths, when the chemist and geologist have said all that can be said respecting their physics, are most of all remarkable for their anticipation of a higher order of existence, for an invisible adaptation to nourish plants. The herb, very wonderful in itself, and in its relations to things below it, is most wonderful in its anticipations of animal life, in its invisible adaptation to feed animated frames. 'Not for ourselves,' is the cry of all these. The animals, wonderful in all things, are not least wonderful in their anticipations of the wants of man, his wants of food, of clothing, of beauty in form, beauty in movement, beauty in song, of animated machines, and of attached though inferior servants.

A system of bounties and reciprocal services runs through all this chain of creatures. It is not for the good of the clay that are elaborated its nourishing principles. It is turning what earth and heaven have given it into uses for powers higher up. It is not the grasses that need the seeds of grasses to live upon. It is not flax that needs either linen or linseed-oil. It prepares the material of the one and the other—'not for ourselves.' Apple-trees do not eat apples. Cotton bushes do not wear muslin. The eucalyptus does not dread malaria. The tea plant

or the coffee plant need no nerve stimulant. Rose bushes seek no pleasure in red or white, in exquisite forms or sweet odours. From the moss up to the mighty trees, every plant reaches up from earth towards heaven, having written upon the sap of it, and in every limb of it, the law that they shall provide not only for themselves, for their own nutrition and reproduction, but shall minister to the wants of higher things.—*Rev. William Arthur.*

The Lesson of the Grass.

'*The grass withereth, the flower fadeth, but the Word of our God shall stand for ever*' (Isa. xl.).

This figure is sufficiently impressive to us who see the swathes lying in the path of the mower, but it would be a still more effective figure in Eastern countries, where the sudden blasts of scorching wind burn up the vegetation in an hour, and change freshness and flowers for barrenness and death. The Word of God endures for ever. It cannot be likened to anything on which rests the earthly stamp. It is not even like the giant trees, which grow on while the grass and the flowers of a hundred passing summers flourish and fade beneath them; for, at last, even the trees fail to respond to the wakening spring breath, and the great trunks and branches crumble down to dust, and pass away. It is not even like the mighty hills, which, towering high above us, seem to have their foundations in the very centre of the earth, and to be able to outlast all the generations; for they, too, are wearing down, weathering away, and shall one day change and pass. It is not even like the vast firmament, which keeps, through summer and through winter, its broad expanse of blue, though clouds all blackness, or clouds silver-tinted, sweep in ever-varying shapes across it; for at last even 'the heavens shall pass away with a great noise, the elements shall melt with fervent heat, and the earth and all that is therein shall be burned up.'—*Robert Tuck, B.A.*

Decay is Everywhere.

'*There must be resurrection.*'

One of our first duties is to find out that all human institutions, and all Divine ones, are only for a time, enduring until the germ of the institution or constitution reaches the largest possible development, and then Decay's effacing finger begins its work. No sooner does the fruit come to its full richness, no sooner has the sun put his last finger-touch upon the peach, than decay begins, and that vesture, so splendid, is found to contain a stone, and that stone is but a sepulchre which contains a seed; and yet from the seed shall come another splendour of outward vesture, which the stone of the sepulchre doth but veil for a moment. There must be resurrection. The stone must be rolled away; for the new life is better than the old. The seed must fall; for the new truth must be born.—*Geo. Dawson.*

Why, in the midst of the joy of spring, and the grandeur of Nature, and the loneliness of nights, have we this feeling of sacred melancholy? Why, when most satisfied with beauty, do we feel most its unsatisfyingness? Is it not because we are homeless here? Foxes have holes, birds of the air have nests; but we have not where to lay our head. The inferior creatures find in the object and scenes of earth enough to satisfy their limited natures. But we are mightier than the perishing world, and, therefore, find no rest in any earthly thing. There is here no pillow for the head, no home for the heart, for the pilgrims of

eternity. Our rarest delights, our noblest experiences, speak to us most forcibly of our immortality; just as the strange midnight sky, lit up by the Southern Cross, brings sad thoughts to the heart of the sailor on the Pacific Ocean, and reminds him how far he is from home. Our restlessness in the midst of rest, our feeling of weariness and incompleteness even in the midst of the richest feasts of joy, are perturbations produced in us by the attractions of that higher world which is our native country. And that tinge of wistfulness, which comes over our souls when we stand on the calm, pure heights of life, is like the purple hue that bathes at dawn and sunset the mountain summit that is nearest heaven, and assimilates dull rock and brown earth with the ethereal splendours of the sky, teaching us that the sun that sets on our earthly home rises again on our heavenly.

Nature hiding the Repulsive.

Man may make hideous, Nature will toil to remove the sight of all his stains.

Some objects are repellent and exclusive. They give no shelter or support to any created thing. They suffice for themselves, and stand out clearly defined in their distinct and independent existence. The surface of the snow is barren; the chilly glacier has no communion with the mountain glen through which it passes. The clear, sharp-cut crystal harbours no stain from earth or sky to show its sympathy with the materials out of which it sprang. The marble rock, like the snow, does not invite the green things of the soil around to share its existence with it, and give to and take from it an element of picturesqueness and beauty. And yet, as in human society, when social laws overbear private plans, and the social design is fulfilled in spite of selfish opposition, so in Nature the substances that seek to exclude others are made to contribute to the general harmony and the beautiful balancing of creation. The very snow is made to be friendly and hospitable, for it nourishes on its stainless bosom a simple one-celled plant which grows with such rapidity and in such marvellous profusion that it gives to whole fields of polar and alpine snow a deep crimson hue, as if a creature's blood had dyed them. In the shallow parts of water melted on the surface of the glacier by the hot noon-day sun may be seen jelly-like masses of vegetation; while under the stones which the rocks around hurl down upon it, as if in anger at its hostility, may be found lively colonies of the small black glacier flea. Nature will not allow this cold, frigid substance to maintain a separate existence; for besides boulders from the rocks, she persists in soiling its surface with dirt-bands and masses of débris from the crumbling mountain-side, so that a line of demarcation between ice and earth cannot be drawn, and the glacier blends with the rest of the mountain; while the sky claims kindred with the deep cerulean blue that shines in the crevasses. Marble, too, takes on the warm, golden tint of the sunset, and is stained by time with a russet hue that brings it into partnership with the common rocks, with which all things make friends—the mosses, lichens, vines, and birds. Even the hardest crystals and precious stones have occasional cavities filled with fluids, which indicate their origin. Nay, so anxious is Nature to assimilate every object, that on the thatch of man's lowly cottages she plants her tufted mosses; on the slates of his statelier roofs she paints her frescoes of golden lichens; and even on his windows she produces

not only the iridescence of age, but also a growth of curious, minute algæ. On his dark unsightly cinder-walks, which seem like spots of ink disfiguring Nature's fair page, she makes her dandelions to open their sunshine; and on the raw new walks which he builds around his possessions, to separate them from Nature's wastes, she spreads her heavy nebulæ of vegetation.

Man's works are thus made kindred to the earth and the elements; and Nature, by her hospitalities, makes them at home in every situation. — *Hugh Macmillan, LL.D.*

St. Martin's Summer.

'Nothing could be lovelier than the last rosebuds.'

St. Martin's summer is still lingering, and the days all begin in mist. I ran for a quarter of an hour round the garden to get some warmth and suppleness. Nothing could be lovelier than the last rosebuds, or than the delicate gauffered edges of the strawberry leaves embroidered with hoar-frost; while above them Arachne's delicate webs hung swaying in the green branches of the pines—little ball-rooms for the fairies, carpeted with powdered pearls, and kept in place by a thousand dewy strands, hanging above like the chains of a lamp, and supporting them from below like the anchors of a vessel. These little airy edifices had all the fantastic lightness of the elf-world, and all the vaporous freshness of the dawn. They recalled to me the poetry of the North, wafting to me a breath from Caledonia or Iceland or Sweden, Frithiof and the Edda, Ossian and the Hebrides. All that world of cold and mist, of genius and reverie, where warmth comes not from the sun, but from the heart, where man is more noticeable than Nature—that chaste and vigorous world, in which will plays a greater part than sensation, and thought has more power than instinct — in short, the whole romantic cycle of German and Northern poetry, awoke little by little in my memory, and laid claim upon my sympathy. It is a poetry of bracing quality, and acts upon one like a moral tonic. Strange charm of imagination! A twig of pine-wood, and a few spider-webs are enough to make countries, epochs, and nations live again before her!—*Amiel's 'Journal.'*

Transplanted Seeds.

Men may need transplanting in order to secure their full development.

If you take a seed that has ripened in Nova Zembla, and bring it into the tropics and plant it, it will not be what it would have been in Nova Zembla, with a short growing season and a scanty supply of food. It will have, with a long summer and an abundant supply, a growth to which no one would suspect it could attain who had only seen it grow in the frigid zones. Many things that are shrubs in the frigid zones, are high, waving, century trees in the tropics. And so men in this life are in conditions which, though fitted to develop the earlier stages of human growth, are not fitted to develop the full estate of that idea which God has expressed in the creation of man.—*H. W. Beecher.*

A Lovely Sunset.

'Beauty seen is never lost.'

A gold fringe on the purpling hem
Of hills the river runs,
As down its long, green valley falls
The last of summer's suns.
Along its tawny gravel-bed
Broad-flowing, swift, and still,
As if its meadow levels felt
The hurry of the hill,

Noiseless between its banks of green
From curve to curve it slips;
The drowsy maple-shadows rest
Like fingers on its lips.

A waif from Carroll's wildest hills,
Unstoried and unknown;
The ursine legend of its name
Prowls on its banks alone.
Yet flowers as fair its slopes adorn
As ever Yarrow knew,
Or, under rainy Irish skies,
By Spenser's Mulla grew;
And through the gaps of leaning trees
Its mountain cradle shows:
The gold against the amethyst,
The green against the rose.

Touched by a light that hath no name,
A glory never sung,
Aloft on sky and mountain wall
Are God's great pictures hung.
How changed the summits vast and old!
No longer granite-browed,
They melt in rosy mist; the rock
Is softer than the cloud;
The valley holds its breath; no leaf
Of all its elms is twirled:
The silence of eternity
Seems falling on the world.

The pause before the breaking seals
Of mystery is this;
Yon miracle-play of night and day
Makes dumb its witnesses.
What unseen altar crowns the hills
That reach up stair on stair?
What eyes look through, what white wings fan
These purple veils of air?
What presence from the heavenly heights
To those of earth stoops down?
Not vainly Hellas dreamed of gods
On Ida's snowy crown!

Slow fades the vision of the sky,
The golden water pales,
And over all the valley-land
A gray-winged vapour sails.

I go the common way of all:
The sunset fires will burn,
The flowers will blow, the river flow,
When I no more return.
No whisper from the mountain pine,
Nor lapsing stream shall tell
The stranger, treading where I tread,
Of him who loved them well.

But beauty seen is never lost,
God's colours all are fast;
The glory of this sunset heaven
Into my soul has passed—
A sense of gladness unconfined
To mortal date or clime;
As the soul liveth, it shall live
Beyond the years of time.
Beside the mystic asphodels
Shall bloom the home-born flowers,
And new horizons flush and glow
With sunset hues of ours.

Farewell! These smiling hills must wear
Too soon their wintry frown,
And snow-cold winds from off them shake
The maple's red leaves down.
But I shall see a summer sun
Still setting broad and low;
The mountain slopes shall blush and bloom,
The golden water flow.
A lover's claim is mine on all
I see to have and hold—
The rose-light of perpetual hills,
And sunsets never cold!

J. G. Whittier.

Awful Nature-forces.

This volcanic explosion gives a deep impression of the forces at the Divine command for the judgment of mankind.

The backbone of Japan, as it has been termed, is a ridge, 450 miles long, of volcanic vents, most of which are extinct. Of the active volcanoes the most formidable is one near the southern end of the chain; but about forty leagues to

the north-east is another, which until lately had not been in eruption for eleven centuries, although hot springs indicated that the internal fires had not quite died out. On July 15, however, at eight o'clock in the morning, a subordinate peak on one of the flanks of this mountain, which is called Bandaisan, was, almost without warning, literally blown into the air. Within a few minutes an area about half the size of London was buried or devastated by the débris, and hundreds of people had met with a terrible death, whilst scores of others had been injured, a dozen or more of hamlets having been overwhelmed. 'The long roll of disaster,' says a correspondent of the *Times*, who has visited the spot, 'included the destruction of horses and cattle, damming up of rivers, and laying waste of large tracts of rice-land and mulberry-groves.' Twenty miles from the explosion a shower of impalpable blue-gray ash fell, to the depth of half an inch, and wrapped the country in gloom and mist. Within 1,000 yards of one village, where the exploring party fixed their head-quarters, a great wave of earth and rocks had broken, and the inhabitants had been terrified by showers of sand, hot water, leaves, and ashes. On the way to the crater freshly-opened pits were passed, formed, it is supposed, by the fall of great boulders. Fetid vapours came from evil-looking pools. Trees torn up by the roots lay all around. As the crest of the ridge was reached the scene of desolation suddenly burst upon the view. A cliff fell, with hardly a break, for 600 feet. In front everything had been blown away and scattered over the face of the country in a fan-shaped deposit, which concealed every landmark, whilst clouds of suffocating steam rose, with loud roaring, from two great fissures in the crater bed. Assuming the buried area to be 30 square miles, and the average depth of the débris to be 15 feet, no fewer than 700,000,000 tons of earth and rock must have been upheaved and distributed by this terrific explosion. Neither living thing nor any sign of life could be described over the whole expanse. All was dismally silent and solitary. Beneath it, however, lay half a score of hamlets, and hundreds of corpses of men, women, and children who had been overtaken by swift and painful deaths. In all about 300 people, with their cattle, perished by this fearful volcanic explosion.

The Mystery of the Meteors.

The great Nature-laws have been working in the infinite space and in the countless ages.

As regards meteors, which include shooting stars and aërolites, it has been long known, from actual masses which have fallen on the earth, that they are composed of terrestrial matter, principally of iron, which has been partially fused by the heat engendered by the friction of the rapid passage through the air. The recurrence of brilliant displays at regular intervals, as for instance, those of August and November, when the whole sky often seems alive with shooting stars, had also been noticed; but it was reserved for recent times to prove that these meteor streams are really composed of small planetary bodies revolving round the sun in fixed orbits by the force of gravity, and that their display, as seen by us, arises from the earth in its revolution round the sun happening to intersect some of these meteoric orbits, and the friction of our atmosphere setting fire to and consuming the smaller meteors, which appear as shooting stars. This shows the enormous number of meteors by which space must be tenanted. It is proved that the earth encounters more than a

hundred meteor systems; but the chance of any one ring or system being intersected by the earth is extremely small, as the earth is such a minute speck in the whole sun-surrounding space of the solar system. On a scale on which the earth's orbit is represented by a circle of ten feet in diameter, the earth itself would be only about $\frac{1}{100}$th of an inch in diameter, so that if, as astronomers say, the earth encounters about a hundred meteor systems in the course of its annual revolution, space must swarm with an innumerable number of these minute bodies all revolving round the sun by the force of gravity.

Has this law of gravity been uniform through all time as it undoubtedly is through all space? We have every reason to believe so. The law of gravity, which is the foundation of most of what we call the natural laws of geological action, has certainly prevailed through the enormous periods of geological time, and far beyond this we can discern it operating in those astronomical changes by which cosmic matter has been condensed into nebulæ, nebulæ into suns throwing off planets, and planets throwing off satellites, as they cooled and contracted. We cannot speak with quite the same certainty of infinite time as we can of infinite space, for we have no telescopes to gauge the abysses of time, and no certain standards, like those of the known dimensions of our solar system, to apply to periods too vast for the imagination.

But we can say this with certainty, that the present law of gravity must have prevailed when the outermost planet of our system, Neptune, was condensed into a separate body and began revolving in its present orbit, and that it has continued to act ever since; while, as a matter of probability, it is as nearly certain as anything can be, that the law by which the apple falls to the ground is an original law of matter, and has existed as long as matter has existed. It certainly extends through all space.

What space and matter really may be, we do not know, and if we attempt to reason about their essence and origin, or quit the region of science based on fact, we get into the misty realms of metaphysics, where, like Milton's fallen angels, we

> 'Find no end in wandering mazes lost.'

But this we do know of a certainty, that be matter and space what they may, they are subject to this one, uniform, all-pervading law, and attract, have always attracted, and will always attract, directly as the mass of the attracting matter, and inversely as the square of the distance in space at which the attraction acts.—*S. Laing.*

A Procession of Ships.

> '*Though the outward man perish, yet the inward man is renewed day by day*' (2 Cor. iv. 16).

Seated on the shore of the Channel I watched the ships pass by, and sail away into the sunset. They came in sight like fluttering sea-birds, and went by in a long procession; and, as I watched, my heart grew sad, for here seemed to be the emblem of life. All is passing; and I am passing. Soon the place that knows me now will know me no more for ever.

But God smiled out upon me from the deep, far, unchanging blue sky—dear 'Father of lights, with whom is no variableness, neither shadow of turning.' And, seeing Him, I thought—'Surely all is not passing. All that is kin with Him is abiding and permanent. Love is of God—it will stay. Truth is the basis of God's throne—it will stay. Purity is like God — it will stay. Tenderness

and pity are the spirit of God—they will stay.' And these may be the soul's possessions; nay, these may be the soul's character, the glory and beauty which the soul may have grown into. Then I could calmly watch the ships go on, and sail over the vast sea-ridge. They are but the emblems of the 'fashion of this world, which passeth away.' 'He that doeth the will of God abideth for ever.'—'*Weekly Pulpit.*'

Lake Avernus.

'There is a lake of sinful pleasure, lying along our path.'

The classics tell us of a lake Avernus, which means 'birdless.' A poisonous vapour arises from its foul waters. The eagle's wing becomes powerless, and gradually the proud bird sinks down until his lifeless body floats upon the dark waters. The nightingale loses by degree her power of song, and at length the sweet singer falls trembling into the waves of death. This may be fiction; it is nevertheless a picture of life. There is a lake of sinful pleasure lying along our path. Heedless of it, many spread their wings of strength and beauty upon its outer shore. They think to go a little beyond its margin, and then return. But the spell is on them. Before they are aware, the wing has lost its strength, and the voice its charm. The momentum gained bears them onward and down, until the spirit, once lofty as the eagle's, and the heart as sweet as the bird of song, is palsied in the fatal flood.—*Sermons by Monday Club.*

A Brook.

How much they can see in Nature who have eyes to see with.

Some low wooden rails guarding the approach to a bridge over a brook one day induced me to rest under an aspen, with my back against the tree. Some horse-chestnuts, beeches, and alders grew there, fringing the end of a long plantation of willow stoles which extended in the rear following the stream. In front, southwards, there were open meadows and cornfields, over which shadow and sunshine glided in succession as the sweet westerly wind carried the white clouds before it.

The brimming brook, as it wound towards me through the meads, seemed to tremble on the verge of overflowing, as the crown of wine in a glass rises yet does not spill. Level with the green grass, the water gleamed as though polished where it flowed smoothly, crossed with the dark shadows of willows which leaned over it. By the bridge, where the breeze rushed through the arches, a ripple flashed back the golden rays. The surface by the shore slipped towards a side hatch, and passed over in a liquid curve, clear and unvarying, as if of solid crystal, till shattered on the stones, where the air caught up and played with the sound of the bubbles as they broke.

Looking that morning over the parapet of the bridge, downstream, there was a dead branch at the mouth of the arch; it had caught and got fixed while it floated along. A quantity of aquatic weeds coming down the stream had drifted against the branch, and remained entangled in it. In a minute the surface of the current was disturbed by larger ripples. There had been a ripple caused by the draught through the arch, but this was now increased.

Crossing to the other side of the bridge, up stream, and looking over, the current had scooped away the sand of the bottom by the central pier, exposing the brickwork to some depth. The sunshine reflected from the ripples on this, the southern side, continually ran with a swift, trembling motion up the arch.

Sometimes the water can be

seen best from above, sometimes by lying on the sward, now by standing back a little way, or crossing to the opposite shore. A spot where the sunshine sparkles with dazzling gleam is perhaps perfectly impenetrable till you get the other side of the ripple, when the same rays that just now baffled the glance light up the bottom as if thrown from a mirror for the purpose.—*Richard Jefferies.*

A May-time Memory.

'Oh gift of God! oh perfect day!'

Do you remember, dear, that spring-tide day
We walked, we twain, beneath a cloud-flecked sky,
And ever o'er the flow'r-besprinkled way
A sudden whisp'ring wind did softly sigh?
There was a strange, deep hush upon the earth
As though an angel passed, and bade it wake
To life anew, a glorious May-time birth,
Such silence as our voices could not break.
Afar, methinks I do remember well—
A vista of spring meads, and asphodel.

Dear heart, how fair the woods were on that day!
I think we could not choose but to be glad,
'Twixt young green leaves did flicker each soft ray
Of sunlight. If our earth seem ofttimes sad
She surely doffs her sadness in the spring,
And we poor mortals see the glint and gleam
Of God's own smile athwart her suffering.
Then wake we as from shadow of a dream—
Wake from bare boughs, amid the echoing trill
Of song-birds singing at their own sweet will.

Anon we paused beside a rough gray stile,
And drank the quiet beauty of the scene
Within our softened hearts—a little while
We stood, and then you spoke, beloved, I ween,
I listening, just content to linger so—
With you, my friend, in silence and alone,
Of your soul wisdom, eager, dear, to know
(Who have so little, truly, of mine own),
Now grave, now gay, anon of musing mood,
Then smiling quaintly at my quietude.

You spoke of life, the city's hurrying feet,
The noisy turmoil 'mid its smoke and din;
This silence was, you said, so passing sweet
To one who moved its busy ways within.
And there you sighed, 'The soul grew worldly wise
Amid the sordid grasping of the mart,'
Yet looking to your shadowed, earnest eyes,
I could not echo this within my heart.
Let others grovel if they would, but you
Could not be aught than noble, good and true.

We spoke of beauty, dreamed of distant years
When all men shall to God be consecrate,
And purified through suffering and 'mid tears—
The stained earth be as a temple gate—

Whereat no soul knocks vainly.
Ah, dear friend!
With you it was, in sooth, no idle boast,
If single hands could compass that vast end,
Then yours, methinks, have toilèd more than most
For love of humankind, and of the Cross,
Rejoicing in its gain, though prov'n your loss.

We talked of that calm unity of soul
Which made our roaming beautiful, and then
Life's varied threads, which form one perfect whole;
Till from the distant haunts of toiling men
Did red lights glimmer thro' a world of mist,
And at the West Gate watched one cold pale star
Girt in a band of royal amethyst.
Belovèd, nought that memory can mar.
The mist-wreathed meads, the dim dear lights of home,
And o'er the silence your voice whisp'ring, 'Come.'

Frances Hurrell.

The Rejuvenescence of the Earth.

Higher forms of vegetable life have been reserved for the period of man's career on the earth.

The rejuvenescence which the entire organic garment of the earth has undergone, and will not improbably undergo again, is the poem of geology. This rejuvenescence consists in the development of successive suites of animals and plants, enduring, as to their species, for incalculable ages, and then disappearing, or nearly so, to make way for newer and higher kinds, to endure for as long, and in turn be themselves superseded. Four times, at least, says Lyell, did these changes take place in the course of the tertiary era, and to an extent which has left hardly a species of the first period extant among the species now living. This is not inconsistent with the previously noticed kinds of rejuvenescence. It is rejuvenescence of organic nature in the mass, the particular genera and species being but subordinate incidents in the great onward and upward current of terrestrial life. 'Newer' and 'higher kinds' is not to be understood as implying that the new appearances are all of a higher grade.

'Geology affords no ground whatever for the hypothesis of a regular succession of creatures, beginning with the simplest forms in the older strata, and ascending to more complicated in the latter formations. The earliest forms of life known to geology are not of the lowest grade of organization, neither are the earliest forms of any of the classes which subsequently appear the simplest of their kind.'

It is in the aggregate of forms, large and small, higher and lower, that the progressive improvement is shown; and this is one of the proudest facts of natural history. It is proper to remark, however, that there is a difference in this respect as regards plant and animal remains. While the vegetable kingdom has always had representatives of highest as well as of lowest forms, in the animal fossils of the earlier ages there are, on the other hand, no vertebrates. But this difference, as Alphonse de Candolle remarks, 'need not excite much astonishment when we think of the vast distance which separates the inferior and the superior animals, and the comparatively homogeneous character of the great classes of vegetables.' Neither does geology give any countenance to the idea of 'progressive development' in the sense of transmutation of one species into another. We mention this because of the importance of dis-

tinguishing the idea in question from that of graduated improvement as a characteristic of successive creations. It is a very different thing for an organism to improve into one of higher nature by elevation of its own qualities and powers, and for that organism to cease altogether and be replaced by a superior one. The changes in the plants and animals of our earth, as regards its successive periods, have uniformly been wrought in the latter way. The evidence of it is plain and abundant, whereas there is none whatever to support the hypothesis of the superiority having resulted from change for the better of earlier individuals. That such improvement in the successive acts of organized beings has been made, and is visible to us, is a strong proof of the existence and the activity of God, 'improvement,' of course, being understood, when predicated of the Divine work, not as a coming forth of results of experience in creating, but simply as a term denoting that Divine wisdom saw fit to disclose less elaborate forms in the first place, and more elaborate ones subsequently. The halting of Nature at given periods in the world's history, and in the intervals between one set of species and another, producing (as at present) only the like, is but the same phenomenon, on a grand scale, as that of the repetition of its leaves by a plant, perhaps hundreds of times, before the development advances to the stage of flowers. Looking at the world as a grand scene of organic evolution, every new step in its rejuvenescence bringing it nearer and nearer towards completion, we cannot but recognise how beautiful an image of it, in little, is presented in a youthful tree, with its successive sets of leaves more and more perfect and abundant in every new unfolding (so well shown, for example, in young sycamores), the last and fairest era being, in the one case, man and the magnificent nature contemporary with him; in the other, blossoms and fruit. Blossoms and humanity are ideas which invariably go together; the pre-Adamite plants were almost without exception flowerless; fossil bees do not occur till the period of the earth's preparation as a home for human beings.

Not only were the species new in the successive rejuvenizings of the earth's surface, but in many instances the entire families. Rosaceous plants, for example, do not belong to the earlier periods of the world's history. Hence may we infer the higher nature of their correspondence in regard to the spiritual principles of which they are outbirths and representatives, a presumption already afforded in the apple—a leading member of this tribe—being the most perfect realization of a fruit, whether regarded as to its botanical structure or its uses. In the same generous family are comprised the almond, the strawberry, and the medlar; the plum, the peach, the nectarine, the apricot, 'shining in sweet brightness of golden velvet,' together with innumerable charming flowers, everyone of them, without doubt, of a fine spiritual origin and significance. That these plants were not placed upon the earth until the period of its occupancy by man, because he alone could esteem their produce, and that they were specially destined for human nourishment and satisfaction, may certainly be assumed as the reason of their late bestowal. Doubtless there is an exact relation between the races of animals and plants, and the epochs at which they have been placed upon the earth, since the whole matter of the succession of organized beings is the realization of an infinitely wise plan—whence, also, the impossibility of attaining grand and accurate ideas of nature without the aid of geology—the profounder reason lies, however, in

the correspondence of nature and the soul, the order in which, of growth and efflorescence, is in every point the same. Quite unlike the Rosaceæ are the Ferns. In these, so far from a comparatively recent family, we have the inheritors of one of the most ancient and noble titles in vegetable peerage. Glorious in all periods of the world's history, while the leaves and branches of its genealogical tree are green and vigorous with rills of current life, its roots strike deep into the remotest records of the past. Honourable in the olden time, beautiful to-day, the Ferns are the beau-ideal of a patrician family. Their value is commensurate with their charms. Like the Rosetta stone, they speak at once a familiar language and a primæval, helping thereby to interpret the vast and sacred mysteries of extinguished ages. Less interesting only because exotics of small numbers and variety, are those other curious relics of antiquity, the Cycadaceæ. Memorials of a class of plants whose day is past, they seem to linger with us not so much for themselves as to 'make former times shake hands with later.'—*Leo H. Grindon.*

Autumn Berries.

Good looks often prove deceiving.

What are these berries? They are the fruits of the Arum, or Cuckoo-pint, belonging to Araceæ, an order very closely related, historically, to that of Lily. The children call it 'Lords and Ladies,' and 'Jack in the Pulpit.' It also rejoices in a host of other names. Its prettiest, perhaps, is 'Wake-Robin,' given it because it blossoms as early as March or April, when the birds are beginning to arrive. If Wake-Robin be in flower, we may feel pretty sure that 'the time of the singing of birds is come.'

Suppose we visit our copse early in the year, how should we recognise the plant now only represented by its scarlet fruit? First of all there appear from three to five deep green, glossy, arrow-shaped leaves, each ending in a rather sharp point, each slightly heart-shaped at the base. The blades are bent back at an obtuse angle with the leaf-stalks, so that their tips often touch the grass, and they are from four to nine inches in length. Even those who do not know the flower must surely be familiar with the leaves. They may be further identified by being usually spotted with purple.

Next, we find among these leaves a tiny, green, rolled-up leaf-like body, which gradually unrolls and becomes a sheath open above, closed below by two folds which overlap. This sheath, called the *spathe*, grows from six to nine inches in height, and generally becomes edged and spotted with dull purple. Enclosed in this spathe is an upright, club-shaped, succulent spike, pale green below, crimson or purple at the upper part, which can be seen projecting above the junction of the lips of the sheath, the open part of the latter forming a green background for it. This spike, which is a mass of succulent cells, is called the *spadix*. We can see nothing more of the flower from the outside than this. The sheath is closely united below around the base of the spadix.

A near relative of Cuckoo-pint is the large Trumpet Lily of our cottage windows, which everyone knows; only in this, the spathe is enlarged, perceptibly thick, and of snow-white hue; while the enclosed spadix is bright yellow. Botanists term it *Calla Æthiopica*.

In order to produce leaf, sheath, spike, and the reproductive organs yet to be seen, Wake-Robin needs a good reserve of food-stuff on which to draw. It makes a quantity of starch in its leaves, which is carried down by the sap, and stored away in a tuber or root-

stock buried deeply underground. From this tuber it draws its stock of food, enabling it to bloom; and if we examine the tuber early in the year when there are leaves, but no flower, we find it as large as a walnut and quite firm, whereas in autumn it is almost entirely dried up, all its substance having been used. It then produces other small tubers which become separate plants, laying by food on their own account.

To preserve *Arum* from attack by animals, the leaves and tubers secrete an acrid stinging juice which is very poisonous. In spite of this, however, the tubers are collected in quantities in Portland, and, freed from the juice by a chemical process, they yield a farinaceous substance sold as Portland sago, which is largely used to adulterate arrowroot and in some places for starching linen.—*H. W. S. Worsley-Benison.*

The Voices of the Flowers.

Audible only to sensitive souls.

The red rose says 'Be sweet,'
And the lily bids 'Be pure,'
The hardy, brave chrysanthemum
'Be patient and endure.'

The violet whispers 'Give,
Nor grudge, nor count the cost,'
The woodbine 'Keep on blossoming
In spite of chill and frost.'

And so each gracious flower
Has each a several word,
Which read together maketh up
The message of the Lord.

Winged Seeds.

Living things find how to use the powers of Nature in securing their reproduction.

The dandelion seed, which the wind has wafted through the open window, speaks to us of ways and means of securing the propagation of the flowers by the cunning utilization of the winds—just as in other plants the waters may bear the seeds to distant parts, or as others, again, employ animals to carry their progeny and to spread their kind broadcast. When you stroll through the garden, or by the wayside, note how herb-robert, by an ingenious catapult-arrangement, plays at 'pitch and toss' with its seeds, and scatters them abroad and around. If you come across a squirting cucumber anywhere in the South of Europe, beware of touching it, lest you be greeted with a veritable explosion of seeds. Watch the ripe poppy-head, full of seeds, and note the little doors which lie just under the lid. You may understand then, how, when the flower stalk sways to and fro with the wind, the seeds are ejected and thrown out from their parent capsule.

Of winged seeds, too, there are many tolerably heavy kinds, which are dispersed by means of the wind acting on their parachutes. The sycamore seed has a double wing, as also has that of the maple, and the ash and fir are also to be reckoned with in this sense of wind-dispersed plants. When you stop to examine the burdock seed, you will then discover how the animal is pressed into the service of the plant, for you may note the hooked hairs with which the seeds are provided, and wherewith they cleave and cling to the hair and fur of sheep, and other unsuspecting ministers of plant-life. Nor is the service of the animal always unconscious. There is a South African plant whose seeds or fruits possess hooks of such a nature that, when the lion has innocently been made a carrier and dispenser of these seeds, the king of beasts has been done to death by the torture and irritation they induce. The lion in attempting to free his hair from the seeds, is apt to find them

adhering to his mouth, and the effort to get rid of the seeds is as often as not a hopeless task.—*Andrew Wilson.*

A Canticle of Spring.

'Hope hath its flowering, and Faith its sweet assurance.'

O green, upspringing grass, your tender freshness spreading
By many a narrow pass where wayworn feet are treading—
O lightly waving trees, whose swelling leaf-buds render
Undoubted promises of the full summer's splendour—
O dainty daffodils, whose lovely sunlit faces
Brighten the barren hills with unexpected graces—
O all ye blossoms, set the fells and meadows over,
Wind-flower and violet, and columbine and clover—
Bless ye the Lord on high; by wood, and field, and river,
Praise Him, and magnify His holy name for ever!

Now, when the budding spring escapes from winter's durance,
Hope hath its flowering, and Faith its sweet assurance:
How shall our hearts be sad when Nature's face rejoices,
And earth and air are glad with her tumultuous voices?
Ears that His message seek, and doubt not in possessing,
To them the winds shall speak in undertones of blessing;
And to the seeing eyes, His gracious works beholding,
No little bird that flies, no small green thing unfolding,
But shall His love express who doth our souls deliver—
Whose holy name we bless and magnify for ever!

Praise Him, O soul of mine! nor ever cease from praising,
Though olive-tree and vine be blighted in the raising;
Though flood and frost and fire assail me in one morning,
And though my heart's desire shall perish without warning!
Still shall His rivers flow, the heavens declare His glory;
Still shall His green things grow, His winds repeat their story;
And I, who sit to-day beneath the cloud of sorrow,
And see no opening way to sunshine for the morrow,
Still by His mighty word upheld for fresh endeavour,
Will magnify the Lord, and bless His name for ever!—*Scribner.*

The Joy of Working and the Joy of Reward.

God and earnest souls find their joy in their work.

There is a kind of joy known by the man who is made the means of securing many *conversions.* It is the joy of excitement, and it is too often forgotten that it is a kind of joy that puts men in tremendous peril of spiritual pride. There is surely a deeper, holier kind of joy that may be known by him who watches over the growth of holy character, and the settling of holy principles, and the arrangements of a holy life—those further stages of the work of salvation. There must have been a great thrill of joy in the heart of the old alchemist as he watched the metals simmering and changing form; and as he fancied he caught, again and again, signs that the long-sought elixir was yielding to the fires. How intense must be the joy of the sculptor who works at the rough quarry block, and sees under each chisel-stroke a new proof that the image in his soul is gaining form before him! There is no joy on earth like that of the mother who watches her babe unfold in strength and intelligence: gradually the eye gets fixed for observation, and the tongue is loosened for lisping speech, and the limbs gain strength for a trembling totter;

and so, on and up through the stages of childhood and youth, the mother watches with a perpetual soul-thrill as intelligence and character are developed and perfected. But even these fade before the joy to God, and to the good, that is found in watching the new creation of a soul, the regeneration and sanctification of a soul.

Our reward! It is our work in the doing, far more than our work in its issues.

Sand with Particles of Iron in it.

A thankful heart will easily discover God's mercies in daily life.

If one should give me a dish of sand and tell me there were particles of iron in it, I might look for them with my eyes and search for them with my clumsy fingers, and be unable to detect them; but let me take a magnet and sweep through it, and how would it draw to itself the almost invisible particles by the mere power of attraction! The unthankful heart, like my finger in the sand, discovers no mercies; but let the thankful heart sweep through the day, and as the magnet finds the iron, so it will find in every hour some heavenly blessing—only the iron in God's sand is gold.—*O. W. Holmes.*

The Gate of Odours.

Sweet perfumes have strange power in bringing to our thoughts the world that is past.

Of all the mystic springs which unlock the wondrous, inner, invisible world of thought and time, none act with such swift, secret magic as those of the Gate of Odours. There stealeth in some delicate perfume of familiar field flower or garden herb, and straightway the soul is afar off in the world of the past, gathering posies among the fields of childhood, or culling herbs in the old corner of the old garden, to be laid by hands long since cold, in familiar chambers long since tenanted by other owners.

The Poet's Temple.

Poet-souls are inspired to worship by Nature's loveliness.

My soul's religion is an earnest love of all that's good, and beautiful and true;
My noblest temple is the sky above this vast pavilion of cerulean blue;
These mountains are my altars, which subdue my wildest passions in their wildest hours;
My hymn is ever many-voiced and new, from bird and bee, from wind and wave that pours;
My incense is the breath of herbs, trees, fruit and flowers.

Man cannot stand beneath a loftier dome than this translucent canopy of light,
The Eternal's vast immeasurable home, lovely by day and wonderful by night.
Than this expansive floor of verdure bright, a richer, holier, man hath never trod;
He cannot gaze upon a lovelier sight than fleeting cloud, fresh wave and fruitful sod,
Leaves of that boundless book writ by the hand of God.

J. C. Prince.

Feeding among Lilies.

'All our food and clothing come to us through beautiful forms and colours.'

The whole of human life is a feeding among lilies. Of course, by the lilies, I do not mean these particular plants alone; but I take them as representative of the fair simplicities and incomparable perfections of Nature in the whole sphere of her living brightness. All our food and clothing and fuel

come to us through beautiful forms and colours. In this respect how different are the manufactories of Nature from those of man! In human works beauty is often eliminated, and only what is useful preserved; but in Nature the useful and the beautiful always keep pace with one another. The development of useful products is a continual revelation of new beauty and grace. To a dweller in the city, accustomed to see only the processes of human industry, it is one of the greatest enjoyments to visit the country and watch the utterly different methods of Nature. Nature delivers into the hand of the citizen the finished products, when most of its beauty has been overpassed and she is resting from her labours; the corn when the plant on which it grew is withered, the fruit when the blossom has fallen, the timber when the tree is bare; and from this starting-point he begins his conversion of the raw material to his own purposes. But in the country we behold the previous processes, and see the things made with hands by us, primarily made without hands—the things which man's complicated and noisy machinery manufactures into food and clothing and fuel, previously manufactured by the noiseless wheels of summer, and the gentle, silent influences of sun and shower, dew and breeze. We see the formation of our timber and fuel going on in the woodlands and forests, through the imperceptible breathing of the tender foliage of the trees; and what a witchery of light and shade; what an infinite suggestiveness of the romance of the green wood; what endless charms of hue and form are connected with the green leaves and filigree twigs which we ruthlessly strip off in order to convert the bare trunks and boughs into planks for our furniture and billets for our hearth! We see the flax growing in the fields, with its bright-blue flowers and slender linear leaves, whose beauty and grace might have won for the plant a welcome place in the garden border; but it is useful to man only when it has faded into a dry, brown, leafless stem, and rotted sufficiently to allow the separation of the fibres. All that man cares for in the corn is the withered straw that feeds his cattle, and the hard seeds that form his own bread, into which its whole life-history has withdrawn at the harvest-time. And yet, what a beautiful spectacle is the growing corn! It affords a feast for the eye as well as for the palate; it produces beauty to satisfy the mind as well as food to nourish the body. From the tender blade to the full and perfect ear it is a disclosure of new loveliness and grace, and the revelation of a fresh parable of wonder. The sight is indeed a feeding among lilies.

And not only is the corn-plant beautiful in itself in all its stages of growth, but it associates with it plants that are even more beautiful and graceful. In the most carefully weeded field the eye, wearied with the monotony of the green stalks and the shimmering of the freckled plumes in the sunshine, is refreshed here and there with the blaze of scarlet poppy, and the azure gleam of the corn-blue-bottle, and the mimic sunshine of the yellow corn-marigold. The wild mint perfumes its roots, and the white corn-spurry and scarlet pimpernel lend to it all the tender grace of their hue and shape. The corn itself feeds among the lilies; it draws its nourishment from soil and atmosphere in the company of a bright sisterhood of flowers which crown its sober usefulness with a garland of beauty. And is not this feature common to all of Nature that is associated with man? The green grass of the meadows and pastures is never allowed to grow in dull uniformity; Nature spreads her golden buttercups and snow-white daisies and purple prunellas over it, so that

the beasts of the field feed among the lilies. How beautiful are the white and crimson blossoms of the clover, and the slender scented spikes of the vernal grass, which feed the bee with honey and load the air with a delicious fragrance, ere they yield their succulent herbage to the browsing cattle, or fill the barns of the farmer with their tedded hay! In tropical countries the glare of the sun and the arid parched look of the scenery is greatly relieved by the soft green transparent verdure of the growing rice-fields. The eye loves to dwell upon these patches of bright and living colour amid the surrounding drought and monotony. It brings into the burning tropics a vision of the tender coolness of the temperate zone. It is the most beautiful feature in all the landscape. In the garden and orchard, as well as on the farm, we gather our food among lilies. Not only do our vegetables and fruits grow among bright beds of flowers in the garden parterres; but this circumstance is itself significant of the primary circumstance that all our fruits and vegetables are the products of beautiful forms and structures, and climb to their perfection by living ladders of graceful foliage and lovely blossoms. The nutritious bean comes to us through that curious blossom of whitest radiance and darkest colour, which perfumes all the summer fields with its lavish odour; and the homely pea-pod, whose legacy of wholesome food the kitchenmaid shells for household use, is produced by the airy, graceful flower that seems to flit like an animated snowy butterfly above the luxuriant maze of foliage. How exquisite is the delicate creamy blossom, faintly tinged with the rosy bridal blush of spring, which falls off in order that the apple, a more solid and enduring blossom, may be formed; and what whole landscapes of April flourish, girt as it were with the cestus of Pomona, transforming many a county into one great garden of flowers, have yielded up their beauty in order to replenish the cider cellars of England!

God has ordained that in everything man should feed among the lilies; that the useful should be produced by, or among, the beautiful. The arms of our orchard trees are clasped with bracelets of emerald moss, and their trunks are adorned with brooches of golden lichens; and thus bedecked, they, Hebe-like, offer to us, year after year, the fruit they have produced — the rich harvest of their life. And these mosses and lichens are to our fruit-trees what the poppies and marigold are to our corn—the lilies among which we gather our food. The land laid down in tillage presents us with idyllic pictures of life and colour, of the richest variety; from the depth of winter, when the brown soil is broken up for the spring sowing; on through the mild days of May and June, when the different tints of the sprouting grain and the green crops diversify the fields; till harvest time, when the beauty and home-like interest of the landscape culminate, as it lies in its burnished gold in the noonday blaze, enlivened by picturesque groups among the standing corn, or the stacks, or piling the sheaves on the waggons that are waiting to carry them to the farmyard, with the joy of the harvest-home. Nature invests all our industries in the country with a charm peculiar to each; crowns the labours of man with her garland of beauty. The snowy sparkle and dreamy murmur of her falling waters make the miller's occupation the most picturesque of rustic labours; while on the thatched roof and unmortared walls of the ploughman's cottage she spreads her gay garniture of ivy and honeysuckle, and her bright frescoes of moss and lichen. Our corn-

fields grow amid a setting of beautiful landscape of wood and stream, over-arched by the serene summer skies with all their glory of sunset and sunrise. Our meadows and level pasturages are encircled by the ramparts of the everlasting hills, whose feet are clothed with the verdure of the forests, and whose head is wrapped in the azure mantle of heaven, or made venerable by the locks of the whitest clouds of a summer sky. Our earth itself, on which we live and move and have our being, is in the centre of a glorious galaxy of sun, moon, and stars, that shed their radiance upon it, and takes out of empty space its own sky of grandeur or beauty, of storm or calm, to enrich its landscapes and sustain its life. The great whole of the world is decked with lilies. Beautiful is the lily-work that forms the capitals of its massive pillars; rich is the flowerage that adorns its barge-laden streams which bear up and along the works of life. Everywhere man feeds among the lilies; and everything that is useful to him has some bright and beautiful thing connected with it, that, like the settling of a brilliant butterfly upon the open page of a dreary tome, or the falling of a rosy gleam from a storied window upon some homely household task, suggests thoughts of a richer and fuller life beyond.

This association of beauty with man's food is designed for a wise and gracious purpose. As flowers on a dinner-table cast the shadow of their own loveliness upon all the viands around them, and change what is the mere gratification of a physical appetite into the fulfilment of a heaven-born longing, so the lilies among which we feed redeem that feeding from its grossness, and link the man that feeds upon bread with the angels that feed upon every word of God. They show that eating is not an end, but a means to a higher, nobler end, and connect the means by which our lower nature is supported with the means by which our higher, spiritual nature is trained and educated. And what a purifying and refining influence have these lilies upon us! Their purity shames our impurity; their grace our ungraciousness; their meekness our pride; their lavish fragrance our thanklessness. Nothing can be more strikingly opposed to the riot and disorder of sensual passion than their calm tranquillity and heavenly harmony. The soul, conscious of impurity, shrinks from the bright and spotless eyes of these tender lilies. Their flower lips speak to him as with an angel's tongue, and seem to ask him why he has made himself unworthy of a world which God has made so fair for him. The face of God flashes out upon him, like the face of Christ upon Peter, through the meek faces of these lilies, with reproachful look, and he averts his eyes with involuntary shame and self-contempt. Who has not known the halo of sanctity which radiates around the beauty of the meanest flower?—a halo which, like the sacred fire that wrapped the desert bush, subdues and solemnizes the rudest nature, and bids it put off its shoes from off its feet when it stands upon the holy ground on which it grows. Such beauty is an awful thing, requiring in us an appropriate moral sense, and conveying an inspiration of chaste love and holy thought. We see how strikingly Nature herself does homage to her beautiful forms. A bright flower growing on the bank of a woodland brook makes of the surrounding scene a shrine of sanctity, which one approaches with bated breath and noiseless step. That one lowly flower determines the whole character of the scene, dominates over every feature, controls the waters to whose hymn of homage as it passes it seems to listen, causes the drooping branches

to bend in salutation to it, and all the objects around to turn reverently towards it, in the harmony of their lights and shadows, their hues and forms, enhancing its loveliness. And is not the effect of the beauty of the lilies upon the susceptible mind equally potent? We become purer in their presence; we speak before them with a softer tone, and gaze with a more reverent eye; we become insensibly changed into the image of their beauty.—*Hugh Macmillan, LL.D.*

Humiliation of the Hills.

If we are brought low, it is only that we may render better service.

Travelling on the Continent, seeking for renewal of health and energy, I was one day taken through the narrowest pass between the hills that I have ever seen. As the train moved on, it seemed as if the bare rocks were close on either side, and when I looked out of the window, I could scarcely see the tops of the hills, they seemed so far away toward the clouds. I thought of the particles of rock up there on the sunshiny summits, loosened by the frost and the thaw, driven to and fro by the free wild winds, falling ever a little lower down the hillside, caught by the rain, and carried lower still, and yet lower still; and they seemed to complain of being borne thus away from their high home in the sunshine, and from their free life on the everlasting hills. They seemed to repine at their humiliation, as they were carried into the shadows of the plain. But we passed out into the valley rich with its foliage, beautiful with its flowers, and glowing with its harvests of food and fruit for man, and then I knew that the disintegration of the rocks above, and the humiliation of the particles of sand, only meant service instead of enjoyment. We may think ourselves happy up on the high hills of privilege and honour, but it is better, far better, for us to be brought down into the plains, if there we can serve our generation. —*After Bishop Vincent.*

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