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The Two Kinds of Truth

[Martin (W. S. B)]

THE TWO KINDS OF TRUTH.


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TWO KINDS OF TRUTH

A

Test of all Theories

WITH SPECIAL APPLICATION TO THOSE OF

CREATION, INSTINCT, AND IMMORTALITY

AND SHOWING

EVOLUTION

TO BE A NATURAL—NOT A UNIVERSAL TRUTH

BY

T. E. S. T.

An Old Life Member of the British Association for the Advancement of Science

"More Light."—GOETHE

London

T. FISHER UNWIN

PATERNOSTER SQUARE

MDCCCXC

Dedication.

TRUTH IS A VAST LADDER,

CANOPIED INDEED WITH CLOUDS,

AND

INVISIBLE TO ALL BESIDES,

BUT STANDING

AT THE FEET OF EVERY SINCERE INQUIRER.

TO ALL SUCH

THIS WORK IS RESPECTFULLY DEDICATED

BY

THE AUTHOR.

PREFACE.

In view of the multitude of books on Philosophy which already crowd our libraries, any new one, unless by some well-known and privileged author, must seem almost an impertinence. The present volume, however, is not a philosophical treatise at all, but rather a book about philosophers, and about the contradictory and unsatisfactory nature of sundry existing Theories.

It will have been observed that there has recently arisen in this country and in America a fresh and healthy interest in philosophical subjects. A numerous and eager class of Inquirers after Truth is springing up, and gives promise of renewed life to such studies as produced the pre-eminent elevation of Ancient Greece. In modern times German ideas, usually transcendental or mystical, always profound and often contradictory, have long held the field, yet with no general acceptance or definite results. Beyond all question, there is ample scope for continued inquiry.

A serious obstacle will meet the student at the outset, to wit, the extremely voluminous opinions of recognized authorities in the controversy, which threatens, by the ever-increasing accumulation of books, to become endless. Of the new Inquirers, many are possessed of a solid education and superior intelligence, but are unable to devote much time to philosophical reading. Of these not a few, and of younger readers perhaps the large majority, will be perplexed and repelled by the too severely critical nature of the arguments employed, and by a superabundance of Academic nomenclature in this kind of literature. The most recondite terms and arguments may be satisfactory enough when addressed to the scholastic student, who has passed under the training of learned Professors; but to many it must present a very uninviting aspect.

One of the main objects of this book is to aid the fresh Inquirer, by encouraging him to face the difficulties and contradictions which will inevitably cross his path. The Author has sought to avoid the perplexities above mentioned, even at the cost of what might be deemed a style more appropriate to the subject, and has especially aimed at making a *readable* book. Adhering to no systematic arrangement, he has tried, in a somewhat fragmentary fashion, to beguile the unsophisticated Reader into the consideration of matters of the highest import. Numerous subjects not evidently related to the main arguments are introduced, giving somewhat the appearance of a medley; as, for example, Natural Forces, Design, Civilization, Immortality. Besides these subjects, one or two popular Fallacies have been considered, and shown to be illogical, and therefore either false or unfounded.

This method, or want of method, and the desire to avoid distracting attention by continual reference to preceding Lectures, has necessitated frequent repetitions of some salient facts and arguments. The volume is further enlarged by numerous Illustrations and Anecdotes, and by many quotations from the great Poets. For the poets are also philosophers, and it is worth while to induce the juvenile reader in particular to cultivate a fuller acquaintance with them. They may prove to be his most pleasant and most enduring friends.

Numerous, if brief, quotations are also made from the philosophic writers—the most recent as well as the most ancient—fairly, it may be hoped, from all points of view. If, in any case, the author of an idea or the coiner of a phrase has not been acknowledged, the neglect in unintentional. Though freely questioning the views of some of the most eminent Writers, the Author wishes to record his profound respect for their genius and sincerity, and to testify to the abiding sense of obligation which the world must ever feel to them for many grand thoughts.

The subject has occupied the writer's mind at different times for many years; and hence his notes may not appear so consecutive and complete as might be wished. The already lengthened shadows of evening-tide forbid the hope which he had entertained of writing them anew. It will be evident that this book is not written for the man of Letters or for the Scientist; nor

is there any pretence of teaching those who know much more already. If, however, any such are willing to excuse its faults they will, he believes, glancing through the pages, light upon one or two important points which are NEW, and several others which are placed in new relations, and set in a new light. But for such assurance he certainly would not have published these Lectures. At any rate they are original in so far that no portion of them has yet been either spoken or printed.

The fundamental idea of the book is that Truth is of Two Kinds—not related kinds, nor merely different in Degree, but separated by a gulf immeasurable. In a word, the Two Kinds of Truth are incommensurable. The result of this distinction is to supply us at once with a simple and universal TEST of all Theories. The application of this Test to any complex Theory immediately separates its *Natural* Truth from its spiritual or *Universal* Truth, with as much precision as attends the work of a chemist in resolving a mineral amalgam into its two component parts, say of silver and gold. But, indeed, no such illustration in the natural world can afford a true parallel, because in Nature no two component parts are altogether incommensurate, whilst the Two Kinds of Truths are absolutely so—as, for example, the Mortal and the Immortal.

Amongst other examples in the following pages, it has been shown that this TEST, when applied to the long-standing disputation about the relationship between Instinct and Mind, reveals the former as a *Natural* Truth, and the latter as a *Universal* Truth; and consequently there is no relationship between them. Of the truth of Evolution in itself the Author entertains no doubt; but this revelation completely destroys the general Evolutionist assertion that Mind is derived from Instinct—that instinct contains some germs of mind, or that the ape may become man. Dr. Darwin, with his characteristic candour, would have appreciated the (to him) extreme importance of this point. It is shown, moreover, that Evolution itself is only a *Natural* fact, and consequently Limited in its operation.

The Author desires to remain anonymous, and his book must go forth as it is without introduction, patronage, or commendation.

Whether it be favourably received or otherwise, he will be well rewarded for his labour by the pleasure which he has experienced in writing it. Not that he undertook the labour with any such expectation, but rather that he was anxious, as far as he might, to press on public attention some far-reaching Truths—truths, the high importance of which, he believes, some more powerful pen will yet elucidate and exhibit to the world.

February 20, 1890.

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LECTURE I.

The Two Kinds of Truth—Natural and Universal.

"What is Truth?" Since the Roman governor asked this question, how many perplexed thinkers have done the same? There has perhaps never been a time when an exact and definite answer was more urgently and publicly demanded than it is to-day.

The cynical Epicurean does not appear to have been very anxious for a solution of his doubt, being probably hopeless of a satisfactory reply; and so it is with many in our own time. But there are others, and amongst them men eminent for intellect, learning, and culture, who have not only asked the same question, but have endeavoured by diligent search and study to solve it for themselves. If we may judge by the widespread conflict of opinion, and by the prevalence of Agnosticism, they have not been generally successful.

The question is certainly reasonable, and all must admit that it is one of primary importance. To tyros in Psychology, the Science of Mind, the study of its great masters is somewhat perplexing. In their voluminous and exhaustive treatment of the subject there is usually introduced more or less of profound and subtle criticism, with many distracting questions such as human reason finds it difficult to fathom. The result is seen in tomes of splendid literature, abounding in appropriated or invented nomenclature, decidedly curious in itself, and almost exclusively addressed to severely academic and scientific readers. Fairly to study these treatises would require an ordinary lifetime; and even then the honest inquirer would be perplexed by their many discrepancies.

It is useless, on the other hand, to offer the old Schoolmen's

answers to our latter-day Pilates, for in this age they generally fall pointless. The present writer, claiming no special qualification for the task, believes that, by placing the question in a new light, a definite answer may be obtained, by elementary and almost axiomatic argument and illustration—an answer satisfactory even to the most scientific minds, because built upon severe logical or mathematical certainties, which do not admit of error.

Meantime there are various other questions of more than ordinary concern, which new seekers after truth may find crossing their path as they proceed, and which for some readers will require discussion, before our definitions and premisses can be accepted. Such discussion will lead us into what may at first sight appear novel views, regarding sundry important and commonly received theories. Perhaps it may prove to many as interesting as the main subject of this Argument; and, if so, this fact may serve as our apology for so ambitious an attempt, and for its plan and style of treatment generally.

It must be recognized at the outset that there are Two distinct Kinds of Truths:—*first*, those which belong to the material world, and to the natural sciences, all of which prove themselves to our reason by experience and experiment, which have been called Arbitrary or Empirical, and which we will call NATURAL Truths; and *secondly*, those which are necessarily and universally true, under all circumstances, at all times, in all places, and in all relations conceivable by the mind. These we will call UNIVERSAL Truths. Let us bring out this distinction more clearly by means of a few examples.

I. Amongst the most familiar kinds of NATURAL Truths are those included in Chemical and Astronomical propositions. In Chemistry, the remarkable arithmetical proportions which form the conditions or laws of chemical combinations are strictly arbitrary and unaccountable. Their existence was discovered and can be proved by experiment; but no experiment can prove that these laws are either *necessary* or UNIVERSAL. There is really "no reason in the nature of things" for their existence. No doubt they are true, as all the Laws of Nature are; but

only so in the *Natural* sphere. Beyond this, their existence cannot be proved, and need not be granted.

Again, the spectroscope shows that even the most distant of the visible stars consist of matter, having chemical properties similar to those of our globe. And the telescope reveals, by the motion of certain double stars, that gravitation reigns throughout the thousands of visible heavenly bodies. Now, if we are to argue by the laws of probability and analogy, both these propositions may be admitted. That is to say, they are NATURAL Truths. It is impossible to prove that they are not true; but it is equally impossible to prove that they are necessarily and universally true.

For, however incredible such an idea may seem, the mind of man really can conceive the possibility that other worlds could exist, in other systems in the boundless and unseen Universe, having different chemical laws, and ruled in their courses by powers entirely different from those of gravitation and inertia. We speak, not of probabilities, but, for the sake of argument, of logical abstract possibilities, and therefore we prefer to take an extreme illustration.

Now, in what we have already said, we are face to face with one of the fundamental difficulties of philosophy. Whilst the proposition just laid down is logically irrefutable, it may be denied by some "man of science" as being contradicted by *facts*—a fatal objection, if only it be well founded. For every theory or proposition must give way to facts, and, if shown to be inconsistent with facts, must be untrue. Let us see, then, what has been held on this subject by great thinkers in the past.

Immanuel Kant of Prussia (b. 1724) says, "Experience teaches us, indeed, that something is constituted in such and such a manner, but not that it could not be otherwise."[1] Sir William Hamilton says, "Whatever does not violate the laws of thought is not impossible. That a stone should ascend into the air we firmly believe will never happen; but we find no difficulty in conceiving it possible. Why? Merely because

[1] "Critick of Pure Reason," p. 5 (Pickering).

Gravitation is only a fact generalized by induction and observation, and its negation therefore violates no law of thought. . . . When we talk, therefore, of the *necessity* of any external phenomenon, the expression is improper."[1] Leibnitz (1646) says: "All the examples which confirm a general truth, how numerous soever, would not suffice to establish the universal *necessity* of this same truth; for it does not follow that what has hitherto occurred must always occur in future."

All such empirical and scientific truths, therefore, manifested by visible phenomena, or otherwise, whether having reference to our own solar system, or hypothetically to other systems, while subject to the Laws of Nature, are of the *first* kind, namely, NATURAL truths.

No doubt exception may be taken to the above statement, on the ground that some writers, as Mosotti, maintain that Gravitation is essential to and inherent in Matter. But even although this theory should be admitted as true, it does not follow that Gravitation is a *Necessary* and UNIVERSAL, or eternal, truth, nor even that Matter itself is so. We can conceive of Gravitation as an *arbitrary*, not a *necessary*, law. It may be called the chief Natural Law, but all attempts to prove it more than this have failed. Newton did not admit the theory that Gravitation is inherent, and Faraday seems to have questioned its truth. It does not rank as a necessary, but as a NATURAL, truth, and consequently does not invalidate our main proposition. The same remark applies to such profound theories as those of Laplace, as well as to many of the bold speculations of the present day—nay, even to the theory of a pre-Adamite cataclysm on this globe, or to an internal burning, similar to that which is said to be indicated by the appearance of our Moon. Indeed, although future discoveries may incidentally render the probability stronger than now of all or any of these theories, they can never be proved to be *Necessary* facts, but must remain mere NATURAL truths. *Throughout our argument, this is a distinction of altogether fundamental import.*

II. Of the other or second kind of Truth, which we have called UNIVERSAL—and which in this volume is one of the

[1] "Lecture on Metaphysics," vol. ii. pp. 194–5 (Blackwood).

principal objects of our quest—we may point out that *one section* consists of Pure Geometry, its propositions being *necessary, and therefore Universal*, as to which doubt does not, and never can, exist.

Endless confusion of thought arises from describing and considering Geometry as merely one of the Natural Sciences. It is not so ; it is independent of the Laws of Nature, and belongs to a higher and totally different platform. It is a *Universal* or *spiritual* science, and its truths can be seen by "the mind's eye." It belongs to the Mind of Man, which, as we will see, is immortal (as material science is not), and is for his service in all or any future states, as well as in this "little life." It belongs not exclusively to the material world, nor to our system, nor to any other system, nor to an Age, but to the Universe, seen and unseen—to the Eternities, as Carlyle would have said—and its truths prove themselves to the mind as necessarily and Universally true. It was F. W. Robertson who said, "I will undertake to convict a man of *idiocy*, if he cannot see the proof that the three angles of a triangle are equal to two right angles."

This differs widely from the theory of Aristotle (B.C. 384) who, however, had not in his mind the grand distinction between NATURAL and UNIVERSAL truths. He places Geometry (Mathematics) in a sort of indefinite, intermediate position, as capable of being reasoned upon apart from matter, but *not capable of existing apart from matter.* If what has gone before is true, the statement here italicised cannot be maintained. If pure Geometrical truth is Universal, mental and spiritual, it is of course capable of existing apart from matter—it must, like Mind itself, have existed independent of, and as it were antecedent to, Matter and Time, in the same manner as all other UNIVERSAL truth. There is, no doubt, a sense in which all Universal truths may be said to exist in this world *also*, but only because this world and time are included within Infinity and Eternity. Yet space and time should not be called parts of either of these, because Infinity and Eternity have no parts. Our theory, nevertheless, although it describes Pure Geometry as an independent and Universal science, is free from mysticism, as well as from the ultra-Transcendentalism of Fichte and the Fatalism of Comte's philosophy.

The propositions of Euclid, as we illustrate them approximately on a black-board, are sufficiently near the truth for our mechanical working-day uses ; but these lines at the best are not perfectly straight lines, nor the right angles perfectly true right angles, as was long ago pointed out. Pure abstract mental science admits of no error or imperfection, however infinitesimal. The definition of its lines is length without breadth, and its points are positions without magnitude—invisible to the material sense, but luminous to the eye of the mind.

But we see nothing in the material world that is free of variations and imperfection. Where shall we see in Nature a level, a perpendicular, a circle, an ellipse, a parabola, that is truly such? All are "off the truth;" and, if we carefully consider the matter, we shall find that they are necessarily so, because of their conditions and surroundings. The threefold motions of the planets give rise to an endless series of circling curves. Our globe by itself, as also with its moon, and indeed with its every mountain-peak, is, as it were, constantly writing upon the blank void of space a chain of apparently endless chains of such curves, vastly elongated.

> "In fields of air each writes its name
> And treads the chambers of the sky ;
> All move in greatness and in grace,
> Curve linking curve through endless space."

Were their traces not evanescent, how marvellously beautiful would be the design which such an immense belt of outlines would show ; yet not one of them a perfect geometrical figure ! From hour to hour, from equinox to equinox they onward whirl, ever varying in form, as well as in velocity.

We have spoken of threefold motions ; but these planetary motions are fourfold, or rather we know not how manifold (for some of them are to us imperceptible)—forming epicycles of epicycles of a still vaster Cycle, round that GREAT CENTRE which science has failed to find. In attempting to realize such facts, the mind is lost in wonder, for imagination cannot conceive the grandeur of the picture. Yet all move on majestically in silent harmony.

"The Dance of the Hours" and "the Music of the Spheres" are, perhaps, something more than figures of poetic speech.

The UNIVERSAL nature of Geometrical Truth here set forth may seem novel, and its illustration of too abstract a character. But this point is all important, and imperatively requires to be accepted. Our argument would otherwise lose its cogency and certitude, wherein only its value lies, and becomes vulnerable as the heel of Achilles. That "Truth requires a clear and distinct conception of its object, excluding all doubt," is strictly insisted upon by Descartes (A.D. 1596).

It may here be observed that in speaking of Mental Geometry, it is not meant that the visible geometrical figures must be altogether disused. They are needed generally to keep before the mind the progress of one's own mental demonstration, as step by step one builds it up. But except for the imperfection of human memory, even this would never be required. The operation is essentially a Mental one, and therefore Geometrically perfect. If not Mental, then it is Mechanical, and less or more imperfect, and so out of our argument.

To some of the preceding statements it may be objected that Natural Science is yearly extending the bounds of the Visible Universe, and so absorbing portions of what at present we call the Invisible, with its unknown occupants. But the infinitude of Space, having no Parts, cannot be really diminished. As already stated, no new discoveries of Science, however extensive, can invalidate our argument. Space and Infinitude, Time and Eternity, are respectively Incommensurate. "Goad imagination to the utmost," says Sir William Hamilton, "it still sinks paralysed within the bounds of Time." A great thinker has written: "He who discerns nothing but Mechanism in the Universe has, in the fatallest way, missed the secret of the Universe altogether."

An eminent modern writer, describing the views of Joseph de Maistre (b. 1754), said that, with him, "Every truth is absolute, not relative; every explanation is universal, not historic." That position would be perfectly unassailable as regards our second kind of Truth, the spiritual or *Universal*, but clearly not so as regards NATURAL truths. There are "men who look upon all

knowledge as relative, and insist that the only possible road to true opinion lies . . . in the positive generalizations of experience." This seems to be the mere Positivism of Comte, and illustrates the confusion of thought which almost necessarily exists, even in the highest quarters, from not keeping in view the existence of the *Two Kinds of Truth*. "Truth," said Von Müller, "is the property of God; the pursuit of Truth is what belongs to man."

To sum up what has been said: the Truth of which we are in search must be necessary, immortal, and UNIVERSAL; true under all circumstances, in all places and periods conceivable by the mind. This can be said only of a particular kind of truths, whereof Geometry has supplied us with examples. It cannot be said of NATURAL truths, which are empirical and mortal, and, as such, liable to error, change, and extinction, and in some minds to doubt, which liabilities are inadmissible in our search for Truth in its fullest sense.

It will, we trust, become obvious that the clear distinction between UNIVERSAL and NATURAL truths will render "the Two Kinds of Truth" an adequate TEST in judging every proposition which may come before us.

Of any question there is only one true solution possible. All others that differ from it are necessarily untrue, less or more. Every truth, of whatever character, must belong either to the UNIVERSAL or to the NATURAL kind. Of the former kind, although we selected Geometrical truth for the illustration of our Argument, as being the more definite and obvious, there are other UNIVERSAL or Spiritual truths, including pure Ethics, and what are known as religious truths. But it is not necessary that these should be introduced here, even were the present writer competent for such a task.

In our next Lecture we propose to show the *primary* position which Geometry holds, and has always held, in the most ancient nationalities of the world.

LECTURE II.

Geometry Amongst the Ancients—Early Civilization and Deterioration.

Upwards of twenty-three centuries ago, two of the grandest of the old Greek philosophers, Pythagoras and Plato, seem to have singled out Geometry as the foundation of Truth; and the latter shows that he had some far-reaching ideal before him when he inscribed over the Academy of Athens the famous words, "Medeis Ageometretos" ("Let no one ignorant of Geometry enter here"). Indeed, almost all the great thinkers of Ancient Greece were eminent Mathematical scholars, whilst, more than ten centuries earlier, Geometry appears to have been known to the Sages of the East.

The Chaldeans, Chinese, and Hindus, and the Egyptian Architects of Thebes and of the Pyramids, studied Astronomy and Art. Earlier still—probably 2000 years B.C.—the same nations clearly knew much of Geometry. Professor Bridges, writing upon the Quadrature of the Parabola according to the method of the Ancients, says, "With this attempt to give the Reader some idea of the high state of perfection to which the Science of Geometry had been brought by that great Master (Archimedes, 250 B.C.), I conclude this Treatise."[1] Laplace writes: "The quarter of the terrestrial Meridian is subdivided in the same manner as at a very ancient period; for the measure of the Earth mentioned by Aristotle, the origin of which is unknown, gives 100,000 stadia to the quarter of the Meridian."[2] Comte[3] tries to depreciate the ancient Geometry as being "special." This evidently is a misdescription of it, for it

[1] "Three Conic Sections" (London, Cadell, 1811).

[2] "System of the World," book i. ch. 12.

[3] "Philosophy of the Sciences," by G. H. Lewes, p. 67 (Bohn, 1853).

seems to be a purely mental, *Universal* science, constituting the foundation of all subsequent Geometrical superstructures, which, though they may have been more elaborate or special, have not been more perfect.

The theory that the progress of knowledge and civilization has been uniform since primeval days is by no means established. It would rather appear that the most ancient ruins and writings indicate alternate progression and retrogression in cycles and eras; not by any means in a uniform manner, but the reverse, as regards the different races of mankind. Fergusson, writing of the Ancient Architectural Monuments of India, shows that the most ancient were the finest, those less ancient giving evidence of declining Art. To this point we will return later on.

It is certainly remarkable that Pythagoras, Anaximander, and other disciples of Thales (650 B.C.), with the Ionic School of the early Greek philosophy, were men of great enlightenment, whose moral teachings were elevated, pure, and spiritual. The first-named appears to have formed a School of thinkers dealing with the most abstract questions, such as Matter, Geometry, Numbers, and Music, in a manner not unlike that of the most eminent modern thinkers. The same may be said of Parmenides (fifth century B.C.). His poem "On Nature" demonstrates the reality of Absolute Being, the non-existence of which he declares to be inconceivable.

The great antiquity of Eastern learning is indicated incidentally in unexpected quarters. Thus Jamblichus says that the Egyptian Hermes was the god of all celestial knowledge;[1] and Clemens of Alexandria says that his principal books were treated by the ancient Egyptians with the most profound respect. The Greeks, who evidentally derived their religion from Egypt, represented Hermes as the inventor of Geometry, Logic (Reasoning), and Language, and the interpreter of the ancient Mysteries.[2] Pure Geometry, however, is not an invention. Its truths, being necessary and *Universal*, belong to all times, past and future, and seem to have been known before historic dates. Aristæus,

[1] Wilkinson, vol. v. ch. 13.

[2] Bryant's "Ancient Mythology," vol. i. pp. 308, &c.

the reputed teacher of Euclid (B.C. 300), is said to have written five books on Conic Sections, and five on solid loci—all now lost. But such a fact, like some others already alluded to, indicates great advancement in Mathematical science. In modern times (A.D. 1623) Blaise Pascal, who was an eminent mathematician, is said to have discovered the solution of some of Euclid's propositions before seeing his "Elements."

"Babylonia was the cradle of Astronomical observations. Long before the lofty towers of its Temples were reared . . . . the leading stars had been named, a calendar had been formed, and the eclipses of the sun and moon recorded. The annual path of the sun through the sky had been divided into twelve sections, like the double hours of the day. . . . It was thus that the Zodiac first came into existence."[1] Perhaps so; but this number twelve may suggest a *prior* knowledge of the Signs of the Zodiac.

Notwithstanding some traditional obscurity, Pythagoras seems to have really possessed the true knowledge regarding the Sun, as being the Centre round which the heavenly bodies revolved. But he left no writings, and consequently his opinions have been handed down sadly obscured, and evidently misrepresented by traditions. Within a very few generations, the wisdom and learning of his School became lost to the world. Probably many manuscripts of that Age eventually found their way to the great Alexandrian Library, and perished in its fires. We know that Ptolemy (140 A.D.) founded his otherwise valuable Astronomical System upon the idea that our globe was the Centre, and so the false was stereotyped, and the true knowledge of the Heavens lost to mankind for another fourteen centuries. At length Copernicus (A.D. 1530) rediscovered, and hesitatingly revealed, what Pythagoras seems to have taught twenty centuries before! The burning of the Alexandrian Library was probably one of the greatest losses, intellectually and historically, which the world has sustained.

This is one example, but there are not wanting indications that the Polar Compass and many other great discoveries, even

[1] Prof. A. H. Sayce's "Lectures on Ancient Babylon," p. 397 (Williams and Norgate, 1887).

of the present Age, were known to the Ancient Chinese, and other Eastern nations, but had become buried under the dust of "dark Ages," which, at one period or another, no portion of the world seems to have escaped. For instance, the Thames Tunnel was one of the world's wonders, but the ancient Babylonians had their Tunnel under the Euphrates some twenty-five centuries ago. Geoffrey Chaucer well said, that there "is nothing new but what has once been old." This is specially true as regards Philosophy; for many of our more advanced thinkers in some points evidently resemble the Ancient Greeks, such as Anaxagoras, Democritus, and others.

Surprise has been expressed that the ancients' mature knowledge of the abstruse Geometry of the Conic Sections, so far as we know, had gone to sleep for some two thousand years, until the days of Descartes, Newton, and Leibnitz, when important practical use was found for the ancient Geometrical foundations. Even now, and making allowance for Eastern exaggeration, where are our modern Works of Architecture and Art which excel the magnificent structures of the East, or even the inferior and less ancient Greek Art? With all the aids of the giant steam, will our great works be as enduring as theirs, raised by the mere aid of the old Mechanical Powers? Then as to poetical genius, can we find a modern Homer?

Almost all our knowledge of the more ancient Eastern Civilization comes to us through Greek Historians and Travellers, and it is not very uncharitable to think that it has not been absolutely impartial, seeing that Greek Art, Architecture, and Science borrowed very much from Egypt and Chaldea without acknowledgment. Many of the wonderful tales regarding such half-mythical personages as Zoroaster (1500 B.C.?), or even Pythagoras, evince their own absurdity. But such Myths may probably indicate that true science was really in a highly advanced state in their schools, and had subsequently been lost through the ignorance of a *later* Age, and its universal tendency to attribute all knowledge, apparently marvellous, to the Oracles of the gods. May it not be said that the Greeks gathered the dying embers of the ancient Eastern Wisdom and Civilization, and with the fresh genius of youth once more

kindled them into a blaze, culminating in the era of the great Alexander? This again gradually sank into mediocrity during the ten following centuries, and thereafter into farther centuries of absolute obscurity, except in so far as Science was wisely patronized by the Mahomedan Caliphs of Bagdad. Perhaps it is natural for each succeeding Age to minimize and undervalue the Knowledge and Wisdom of its predecessor! That was not Southey's idea when he wrote :—

"Around me I behold . . .
The mighty minds of old ;
My never-failing friends are they,
With whom I converse day by day."

One remarkable feature of some of the most ancient buildings is the exact knowledge they show of Astronomical facts, and this infers a correspondingly large knowledge of Geometry by their builders.

It thus appears that Geometry stands apart and altogether *paramount;* and that long before Plato's day—even before historic time—it existed in the world. Indeed, from numerous considerations, is it not probable that, from the *very earliest* periods we can indicate down to the Greek revival, there had been a gradual if not a uniform *decline* in Art, Architecture, and Scientific knowledge? At the same time this seems to have been accompanied by a *corresponding* degradation of the several Religions of the world—from the comparatively enlightened Sun-worship and the oldest Veda-writings, down to the less ancient, childish, abominable, and cruel rites of Egypt and Phœnicia. "Thus Indian-like, religious in their error, those adored the sun;"[1] but these, in some respects, became degraded, like to the beasts they worshipped.

Professor Max Müller—writing in a somewhat different connection—controverts the once popular notion that all religions *begin* with Fetishism. "It is not a low or primitive form of religion, but only the corruption of something higher and better." And Principal Caird adds: "No doubt Fetishism may and does

[1] "All's Well that Ends Well," act i. sc. 3.

exist as the degenerate form of a purer faith—as the fossilized form of what was once instinct with spiritual life." [1] Sir A. Helps, in his "Spanish Conquest of America," gives us a glimpse of the original beauty of Sun-worship; but, even there, it was corrupted by the introduction of numerous other gods.

Since the discovery of the famous Moabite Stone and the wonderful Mycenæ excavations by Schliemann, our knowledge of the ancient world has been greatly enriched; and more especially have the past few years been revealing facts hitherto concealed underground, not merely for centuries, but for thousands of years. Recently, B.C. 900 was generally considered the probable farthest date of which we could pretend to have any accurate knowledge. Of written knowledge, Homer's poems, describing the Siege of Troy, supposed to have happened about 1200 B.C., were reckoned our oldest writing, dating from about B.C. 800—"second only to the books of the Hebrews, and the very oldest of the Vedas." But opinions on this point greatly differ, as we shall afterwards see. We are without any trustworthy information as to Chinese writings, but we are told that the oldest "were based upon the ancient Accadian-Chaldea pictures and hierographics, whose locality was the borders of the Persian Gulf" (*Laconperie*).

The difficulties of such investigations as these are twofold. We are perplexed not only by the contradictory character of the chronology, but still more by the impossibility of distinguishing, amongst the multitude of Myths and Legends, to what extent they are men's fables, or poetic exaggerations of real history. John Milton said that "The beginning of Nations, those excepted of whom sacred books have spoken, is to this day unknown. Nor only the beginning, but the deeds also of many succeeding ages, yes, periods of ages, either wholly unknown or obscured or blemished with fables." But he adds that some narratives, once considered fables, "contain in them many footsteps and reliques of something true."

However, as Dr. Reginald Stuart Poole says: "These discoveries by excavation show the existence, at a period long before

[1] "Philosophy of Religion," p. 328 (1880).

the ninth century B.C., of the Homeric palace, and of ancient tombs containing works of Art, some of a very primitive character, others *far superior* to those of . . . the sixth century" (that is, some 300 years later), "and of a different and unknown style. The splendid sword blades of Mycenæ are an unexpected revelation of this style, pointing back to centuries of progress, *before their remote date.* . . . The strange consequence of this proof is to show that Art fell and rose between the age of Mycenæ and B.C. 600." [1]

The British Museum has recently been enriched by the presentation of the Throne Chair of Queen Hatasu (XVIII. Egyptian Dynasty, probably B.C. 1600). This was described in the *Times* Jubilee Number, June 22, 1887, and (excluding some Tomb Architecture and Sculpture, and some of the fine linen of the mummies) is probably the most ancient relic of man's *simple trade-handicraft* in the world. The so-called wooden statue of Adam, shown in the Cairo Museum, looks of a very doubtful age, and indeed seems to be of no authority.

All these considerations point to two conclusions, which we are anxious to see confirmed: 1st, That Civilization traced backwards does not, as is very generally supposed, necessarily point to a condition of universal barbarism; for the inductions of Ethnology—the science of animal races—more often indicate quite the reverse; 2nd, That Civilization has not always progressed, but has frequently, and even for centuries, retrograded. The truth of the Evolution theory (*limited*), in so far as mere animal physical bodies are concerned, may be held as established; but do not these considerations refuse to confirm the idea of the continuous evolution of the human Mind?

The question of ancient Chronology is one of great importance, involving as it does the epochs of Man; yet it is involved in very great uncertainty. There has not yet been found any clear record of ancient times, either by Astronomical events, ancient Ruins, or Writings of any description. The Hebrew method, which frequently consists of mere Family records, is not definite as to years, and the Egyptian system of Dynasties is less so. In

[1] *Contemporary Review*, p. 360, 1887.

both there seem to be uncertainties, which future discoveries, however, may yet elucidate.

Shortly to illustrate this uncertainty of Chronology, we will take the case of Egypt, which, perhaps excepting Chaldea, appears to have been the most ancient *nationality*. Their oldest tradition relates to Menes, who is credited with having instituted the first Laws. His successor, Athothis, wrote a work upon Anatomy, and built the palace of Memphis. They seem to have thus founded the 1st Dynasty of Memphites, lasting about 250 years; and during the 2nd Dynasty, which lasted 300 years, the worship of Animals appears to have been introduced. Monumental history begins with the 3rd Dynasty, which lasted 200 years, during which Egypt conquered the Sinaitic peninsula. The 4th Dynasty was one of great importance. The Museum of Turin, which is rich in some of the finest Egyptian antiquities, possesses what is known as the famous Chronological Canon, a historical papyrus Manuscript, *written* during the 19th Dynasty. It is so mutilated that its value is almost wholly lost. It shows fragments of the lives and reigns of the kings of this 4th Dynasty, and reveals evidences of their high degree of civilization. During this period the "Book of Ritual" appears, and the great Pyramid of Cheops and other monumental work were erected. Lepsius gives 3427 B.C. as the commencement of this 4th Dynasty; but other authorities assign a much more recent date.

We need not continue this list further, but it is curious to note how very conflicting learned opinion is even as to the date of Menes. Boeckh places it 5702 B.C.; Henry at 5305; Lepsius at 3892; Bunsen at 3643; Sharpe at 2000; and Poole at 2717 B.C. The history of the Chaldean Empire is, notwithstanding the great number of Ancient Chaldean tablets and bricks discovered at the supposed site of Nineveh, equally uncertain as to dates.

But we are still ignorant of the epoch of Man upon the Earth, unless in so far as the ancient Hebrew manuscripts imperfectly define it. We have numerous other Chronologies, such as the important Sanscrit writings of India; but these are of little value chronologically, and are not proved to be older than those of Egypt. The Samaritan Pentateuch differs from the Jewish, both in its Hebrew form and in the Greek Septuagint.

This variation of Chronologies must partly arise from the fact that, in almost all of them, the calculations are built up largely on traditions; but it is also due to some writers reckoning that the long lists of kings contain several names which, instead of being consecutive, may have been only subordinate, or perhaps contemporaneous. Traditions relating to great convulsions of nature, or national sufferings, may, we think, be assumed to be true in part, but otherwise intermixed with absurd fables and mythological gods, all indicating national vanity. As to the epoch of the first Creation, nothing whatever is known. The Hebrew Scripture professes to throw some light upon the *how*, but not one ray upon the *when*.

At one time the Samaritan Manuscript was by some authorities preferred to the Jewish Scriptures, and led to a violent controversy, which lasted more than a century, but ended in the exposure of the former as spurious, by Gesenius, in the last century. The difference between them is about 700 years, the Samaritan being the longest. The Samaritan community are now only a few families, living at Nabulus, near the base of Mount Gerizim, on the top of which they still annually observe the Paschal Lamb sacrifice; and a few years ago, at any rate, they practised circumcision. They are ruled by a High Priest or Patriarch, evidently poor, who is very ready to show the Samaritan Manuscript. It is written in gold on vellum, in Hebrew characters, very much faded and worn, and is kept, with apparently jealous veneration, in a brass cylinder.

As the Evolution theory requires an immense period of time, the questions of the Antiquity of the Earth and of Man become of great importance. There is extraordinary divergence of opinion on these points amongst different authorities.

Geologists generally agree that this globe consists of four different divisions of underlying strata—the Primary, Secondary, Tertiary, and Quaternary. The last stratum is covered by the present surface soil, in which the relics of all historical men lie buried. No indications of Man are found until the Quaternary period, when numerous tokens of his presence suddenly appear in its gravels and caves in the shape of Flint implements.[1] Preceding

[1] Boyd Dawkins, at the British Association Meeting of 1882.

this was the period known as the Glacial Epoch, during which ice covered Northern and Central Europe and North America, the effects of which are still evident. No human bones have been found in the caves or gravel beds with the tools, although many bones, teeth, and horns of animals were present.

Between the post-glacial era and the historic period there is a chasm in time of altogether unknown width. Subsequent to the appearance of the Flint tools there is evidence that the gravel strata had been disturbed by rushes of water, together with changes of land level.

M. Mortillet, Professor of Prehistoric Anthropology, in Paris,[1] deduces from similar but more extended data the conclusion that Man appeared on the earth 230,000 years ago. This seems to us all but incredible; and the learned professor closes his book with this wise reflection: "But the prehistoric is a new science, far, very far, from having said its last word."

The advocates of the most unlimited length of man's period admit that he must have been for some time contemporaneous with the mammoth; for the cave dwellers of France left carvings of an animal on bones which have been found there, although both legend and history seem ignorant of its existence. The (Neolithic) age of stone tools, a later part of the Quaternary period, has by some been estimated to have occurred about 4,000 or 5,000 years ago. Worsade fixes its close in Denmark at about 2,500 years, as quoted by Mr. Pattison,[2] who adds that "if we assign any measurable duration before this to the prior Palæolithic (Flint-tool) age, including the period of man's antecedent resort, then we arrive at seven or eight thousand years backward from the present." Thus we see that Mortillet and Pattison take the most opposite and perhaps extreme views.

Another question has arisen on which strikingly opposite opinions are entertained; to wit, the time required by man for the advancement from barbarism to civilization, or for his degradation from civilization to barbarism. It has usually been assumed that such changes would necessarily involve a period of many thousand years. Baron Nordenskiöld, however, states that "two

[1] "La Préhistorique Antiquité de l' Homme," Paris, 1883.

[2] "Primeval Antiquities," p. 135.

people of different race and language placed under similar conditions *rapidly* converge into common features and character," and he notices the quick absorption into the mass of any foreign element casually introduced. He also adds the important (if true) conclusion from his observations "that the changes which can be ascertained to have taken place historically are changes not of progression, but of decadence." He considers that the lost Danes who are known to have colonized Greenland in the eighth century, of whom nothing has been heard since 1406, have been converted into Eskimos.

We will place together such few elements as we possess from history concerning the earliest dates as quoted by Mr. Pattison, F.G.S., an advocate of the most limited period of the age of Man. "Babylonian authorities (a brick-record of Nabonidos [1]) carry the annals of that kingdom to B.C. 3800—the epoch of the great Sarginæ, supposed to have lived within a few generations of the Flood, which the same records portray. Egyptian discoveries carry us up no higher." [2] But Mr. Poole truly says the chronology of Egypt is as yet undetermined—"say 6,000 years from the present time." "This," adds Mr. Pattison, "includes the neolithic age—the epoch of cromlechs and stone circles, includes the era of the prehistoric cities on the site of Mycenæ and Troy, includes, of course, all antiquity save the Palæolithic age, *i.e.*, the Flint era."

As was to be expected, different writers have given very different computations of Time, for men are frequently unconsciously led to advocate views tending to support their several theories. According to the construction adopted in the Septuagint, the Creation of Man occurred 7,517 years ago; according to Dr. Hales, 7,294; according to the Vulgate, 6,067; according to Ussher, 5,967. Finally, in the words of a recent advocate of the most limited period of the age of Man, "the matter stands thus—the exact age of Man is not ascertainable by science, but science shows to us a number of converging probabilities which point to his first appearance about 8,000 years ago, and certainly not in indefinite ages before that."

[1] Sir H. C. Rawlinson's letter to the *Athenæum*, Dec. 9, 1882.
[2] R. S. Poole, "The Cities of Egypt," 1882.

In future lectures we shall have occasion to reconsider some of these questions. Meantime, in our next one we will deal with the subject of Ancient Chronology, and the advanced state of the oldest nationalities in the East.

LECTURE III.

Early Chronologies—The Ancient Civilizations of the East—Prehistoric Records.

It may be interesting to some readers to understand the reason of the extraordinary difference amongst the learned as to ancient Chronology. There is really no available record to which an appeal can be made, and therefore the various Chronologies are made up of incidental facts and probabilities. Professor A. H. Sayce, who is the able champion of the longest Chronology, tells us that Nabonidos, the last King of Babylonia, was a zealous antiquarian. In his search of the ruins of the great temple of the Sun-god at Sapparæ, which had been originally erected by Narim-Sin, the son of Sargon, of Accad, he lighted upon the foundation stone of Narim himself. This foundation stone, Nabonidos tells us, had been seen by none of his predecessors for 3,200 years. In his opinion, therefore, Narim-Sin and his father, Sargon I., lived 3,200 years before his own time, or 3750 B.C.[1] Here, it is evident, we are dependent not merely upon the king's veracity, but also upon the truth of his ancient history, and the correctness of the data upon which he finds this 3,200 years. No doubt there is other incidental evidence in support of it; but there is also some to suggest the doubt that the whole story is based on legend only.

The Library of Nineveh mainly consisted of Bricks, Cylinders, and Tablets, which were broken and scattered when the city was destroyed; and the larger proportion of the Texts we have are imperfect. The late Mr. George Smith, of the British Museum, who was himself an able and successful explorer in Assyria, in succession to Rawlinson and Layard, gives an interesting engraved specimen of one of these Tablets, made up of its frag-

[1] Hibbert Lectures, 1887, p. 21 (Williams and Norgate).

ments, as far as found, and he says: "There can be no doubt that, if the inscriptions were perfect, they would present very little difficulty to the translator." [1] The Texts given by Mr. Smith are very important as far as they go, because they profess to give some account of "the Creation of the World from Chaos, as also of the Moon, and *then* of the Sun, of the Animals, and last of Man, who was made upright and free from evil, and endowed by the gods with the noble faculty of Speech." But, like all the other tablets, they give no dates, and hence their value in a Chronological point of view is immensely diminished.

We had intended giving from Mr. Smith's book a copy of one of these very ancient Texts, but will quote one from Professor Sayce's Lecture instead, because it is more *entire*. This is the text of the legend of Sargon:

1. Sargon, the mighty King, the King of Accad (am) I.
2. My mother (was) a princess; my father I knew not; the brother of my father dwells in the mountain.
3. (In) the city of Azupiranic, which is built on the bank of the Euphrates,
4. (My) mother, the princess conceived; in a secret place she brought me forth;
5. She placed me in a basket of reeds; with bitumen my exit (gate) she closed;
6. She gave me to the river, which drowned me not.
7. The river carried me along; to Akki, the irrigator, it brought me;
8. Akki the irrigator in the goodness of (his) heart lifted me up;
9. Akki the irrigator reared me as (his own) son;
10. Akki the irrigator made me his gardener,
11. (And in) my gardenership did Istar love me.
12. For 45 (?) years I ruled the kingdom.
13. The men of the black-headed race I governed I (organized).
14. Over ugged mountains in chariots of bronze I rode.
15. I (governed) the upper mountains;
16. I (ruled) the rulers of the lower mountains.
17. To the sea-coast (?) three times did I advance; Dilman sub(mitted);
18. The fortress of the goddess of Hades (Dur-AN-Kigal) bowed. . . .
19. I destroyed . . .
20. When the King who comes after me in future (days)
21. (Shall govern) the men of the black-headed race,
22. (Shall ride) over the rugged mountains in chariots (of bronze),

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[1] "The Chaldean Account of Genesis," pp. 9–15 (Sampson Low and Co.).

23. Shall govern the upper mountains (and rule) the kings
24. Of the lower mountains ; (to) the sea-coast (?)
25. Shall advance three times ; (shall cause Dilman to submit) ;
26. (When) the fortress of the goddess of Hades shall bow ; from my city of Accad. . . .

"The story," says Dr. Sayce, "reminds us of Perseus launched upon the sea with his mother Danaë in a boat, of Romulus and Remus exposed to the fury of the Tiber, and still more of Moses in his ark of bulrushes upon the Nile." [1]

We have given this Text so fully because it supplies important proof that in these days of remote antiquity men were civilized more highly than some much more recent nationalities seem to have been. To ride over rugged mountains in chariots of bronze evinces a high state of mechanical art, and a knowledge of working in metals almost equal to those of much more modern times.

One peculiarity which distinguishes the ancient from modern architecture we have not yet noticed—that is, its gigantic, or rather its massive, Monolithic character. We have no modern buildings which can be compared with the gigantic Walls and Belus Tower of Babylon, or with the yet visible Pyramids, Sphinxes, Sun-Temples, and colossal statues of Egypt, or even with the less perfect but majestic columns of Baalbek, in Cœle-Syria—although these latter are greatly inferior in finish, and of a much later date. Walking among their fallen capitals one feels his own littleness. They are yet "majestic in their ruins." Modern buildings may seem as great in block, but are not so in detail. Built into the walls of the great Temple of the Sun are three stones of monster dimensions, and so perfect in the workmanship that, standing only a few feet distant, their junction can scarcely be detected by the eye. On the roadway between the Temple and the quarry, which is at the foot of the adjacent Anti-Lebanon range of mountains, there lies another stone of a size almost incredible, say about sixty feet long, fourteen feet wide, and as much in thickness.

The *finest* ancient works of Egypt were evidently those of the

[1] Hibbert Lectures, 1887, p. 26.

earliest Dynasties, which show *the greatest refinement of Architecture and perfection of workmanship*. Both the paintings and sculptures on the walls of the Tombs are remarkably delicate, and executed with marvellous skill. Those of the later Dynasties show a gradual decline, although still admirable; and the indications of coincident intellectual conditions and events show the same decline. The original Sun-worship was quickly debased by the introduction of the worship of the sacred Bull Apis, and of its Cow mother. Upon the grand tombs or underground Temples of the Sacred Bulls, a portion of which yet remains almost entire, enormous cost and labour were expended. There are still to be seen about twenty of these sarcophagi, or Bull coffins, weighing each upwards of sixty tons, and measuring about fourteen feet by seven, and ten feet high. They are made of dark slightly bluish-coloured granite, beautifully finished, some bearing inscriptions of interest, and said to have cost one hundred talents of silver, or about £20,000 *each*.[1]

The land of Egypt now appears to be one vast graveyard—its soil the dust of the human race, and its grand monuments gravestones!

This Apis (Bull) worship is perhaps a debased worship of *Natural Force*. It seems to have attained its climax about the period of the Seventeenth Dynasty. The worship of the Sun continued under different names, and subsequently Serpent and other Animal worship was prominent. The most important name of the Nineteenth Dynasty was that of Rameses II. He made his reign famous by his wars, having greatly extended his kingdom in various directions, and especially by his fleet on the shores of the Mediterranean. The sculptures of his era were still excellent. A colossal statue of this monarch was found beside the palm wood at Memphis, lying prostrate in the mud, partially covered by the overflowing of the Nile, and evidently uncared for. It seemed of bluish granite, nearly seventy feet in length, and beautifully finished. The features were very fine, much more like the best Eastern type of the present day than those of the ancient paintings found on the walls of the tombs; and they bear evidence of intellectual refinements. It has now been set up-

[1] "Ancient Egypt," by George Rawlinson, ch. xiii. (Unwin, 1887).

right upon a foundation. No doubt it owes its excellent state of preservation to the circumstance that it had lain for many centuries covered by the soil.

This monarch has become farther famous by the remains of his sculptures, which were of extraordinary size and massiveness. The ruins of the Rhamesæum, a vast Temple which seems to have been built in commemoration of the victories achieved in Palestine and Syria, are now only shapeless heaps; but they indicate its great size. Right in front of it are the remains of that unparalleled granite seated Colossus, once Rameses, now a mere undistinguished mass. Its mutilated toes are five and a half feet across. We can thus judge of the entire statue. Mr. Palgrave says: "It is, throne and all, cut out of one solid block. How brought to its site, carved, perfectioned, furbished, and set up, is a difficult problem. Scarcely less of a problem is it to know who broke it up, . . . a thousand steam sledge-hammers would seem insufficient to the task."[1] The late Dr. Robert Chambers, of Edinburgh, with the eye of a Utilitarian, said that the Docks of Liverpool consisted of a greater amount of masonry, and were of more utility than any of the Ancient Pyramids and Temples. Yes, perhaps; but how do they compare with them in Art, Architectural beauty generally, and that exquisite refinement which distinguishes the workmanship of the *most ancient* remains? On these important points the world shows retrogression. It was well said by a famous painter that "without Art this world would be one great desert."

This method of commemorating greatness by extravagant size of Statuary seems to have reached its climax in the last-mentioned era, but still continued for centuries a characteristic of the East. It was not confined to statues, but was represented in the immense walls and Tower of Babylon, as well as in the Egyptian Pyramids and the Temples, with their great Propylæ—the twin Colossii at Thebes—and the massiveness even of their tombs. Quite recently an underground rock-tomb has been discovered near Smyrna, containing a polished granite sarcophagus, resembling those of Egypt, of almost as large dimensions, and said to be that of the great Alexander (B.C. 323); but this requires confirmation.

[1] "Ulysses," by P. G. Palgrave (Macmillan, 1888).

The difficulties connected with the quarrying, removing, dressing, and sculpturing of such enormous masses of granite as were used in many of these ancient works must have been immense. In the greatest of modern works no such difficulties arose. The greatest wonder of the world is now the Forth Bridge, just finished, a result of the highest architectural and mechanical genius. It may be compared with the Pyramid of Cheops—both are evidences of indomitable skill and perseverance in building up a multitude of parts into a great whole. But to erect and sculpture an immense monolith into a beautiful statue is not only an artistic work, but one which demands scientific appliances, and a high knowledge of mechanical laws. No other explanation will suffice; and therefore we presume to think that mechanical, as well as astronomical and mathematical, sciences were known to several ancient peoples, how since lost we cannot tell.

Of apparently much more modern erection, there is a tomb, shown by the dragomans as that of Noah, at a small village on the eastern slope of the Lebanon range, in Cœle-Syria. We have here a very plain stone-built tomb, only some two feet and a half high, but about fifty feet long, and enclosed in a paltry low-roofed building, dimly illuminated by a few olive-oil lamps, said to be kept perpetually burning. The Moslem priest attending it assured us that this by no means represented the length of the old patriarch. Many feet more must be added, for his legs, from the knees downward, were bent down into the soil. Manifestly size was here also meant to represent greatness. On the Anti-Lebanon range opposite is a similar legendary tomb, said to be that of Seth, but somewhat smaller, as became his lesser importance.

This same idea seems, like Sun-worship, to have prevailed in ancient times in the most widely separated localities of the earth. Thus we read of Odin, the god of the Northern kingdoms—Sweden, Norway, and Iceland (whose son was Baldr the Sun-god)—that his horse had eight legs. A recent traveller in Chinese Manchuria, describing a Buddhist Cave-Temple, situated high up near the apex of the principal peak of the Mountain of the Sages, thus writes: "At last the gloomy portal is reached. Two huge idols guard the entry. . . . In the depth of a recess stand three or four shrines. These are Buddha and his eighteen

apostles: Lao-yeh, the Rain-god, the god of the Ten Diseases, and the Queen of Heaven; . . . there is an *eighteen-armed* Buddha . . . beloved in Orissa, and a god whom the ignorant Bonzes could not name . . . exactly like the figure in the great temple at Canton."[1] Alike in all cases, something personally large and superhuman was needed to represent greatness; as shown also in the famous Image of Diana, or Artemus, the Ephesian goddess. The same idea seems to have existed amongst the Toltecs of ancient Mexico. Built into the ruins of the pyramids at Isamal were two colossal *heads*, one seven feet and the other thirteen feet high. Their origin is unknown, but probably they represented some deity or great man.

The Spaniards are said to have destroyed all historic records of the ancient inhabitants of Central America; but M. Charnay[2] says: "I firmly believe they came from the extreme East, . . . their Architecture is so like the Japanese as to seem identical, . . . their decorative designs resemble the Chinese; whilst their customs, habits, sculpture, language, castes, and polity recall the Malays in Cambodia, Annam, and Java." They built their edifices on pyramids, of three to five stories high; while at Lowoe, in Java, some temples are built on pyramids having a staircase on the slope, like those of the Toltecs in Mexico. Such resemblances of works so very far apart are most remarkable.

Mr. T. Tyler, writing of a cubical seal—supposed to be Hittite—recently found near Tarsus, and of a circular seal from Yuz-gal, now placed in the British Museum, says that on both are representations or figures, less or more resembling Equilateral Triangles. He adds: "We may recall the curious statement of Plutarch ("De Iside," c. 75), that the Pythagoreans called the equilateral triangle 'Athena,' with the addition of Greek names, translated 'Sprung-from-the-Vortex.'" He further speaks of "the Pythagorean connection of the equilateral triangle with the goddess of Wisdom," adding: "Such indications of

[1] "The Long White Mountain; or, a Journey in Manchuria," by H. E. M. James, p. 396 (Longmans, 1888).

[2] "The Ancient Cities of the New World," by Désiré Charnay—Translated by M. Gonini (Chapman and Hall).

Pythagoreanism . . . are in accordance with the well-known traditions which tell of the travels of Pythagoras, and connect the Pythagorean doctrines with the East." [1]

Such revelations of prehistoric times are, of course, readily susceptible of misconstruction; but, if used with caution, are extremely interesting and important unwritten History. The hints they convey may, indeed, not be written either in letters or hieroglyphics, but simply indicated by the material, and forms, and ornamentation of bricks, pottery, cylinders, tablets, and gods, with accompanying implements, and by the position and circumstances of their surroundings. One of the most recent discoveries is that of the remains found in Cyprus, which seem to point to an age almost fabulously ancient. Writing of these, Prof. A. H. Sayce says that "Sargon of *Accad*, whose date is now known to be as remote as B.C. 3800, crossed over to Cyprus at the close of one of his campaigns against Syria, and a Cylinder, bearing the name of his son and successor, was found in the island." [2]

There is, perhaps, room for doubting this Chronology; but almost all such indications of prehistoric times point to the fact that Civilization, Learning, and Art came originally from Egypt and the East.

In an interesting Lecture, recently delivered in the British Museum, on the "Art of Ancient Babylonia," Mr. Wm. St. Chad Boscawen mentioned that "some very ancient Statues were recently brought to light by Mons. de Sazzec, when he discovered the city of Tello, on the banks of the river Tigris. Within a grand quadrangle were six seated Statues—the sitting posture testifying to their divine or royal character." There also he found a head of Tartar type, proving its Turanian or non-Semitic origin, which dates back, as he thinks, to B.C. 2800. Upon the knees of one royal figure was a tablet upon which was *accurately* engraved a plan of the City, and by its side lay the "bur," or graver, used by the artist. The stone tablet was so hard as to render it impossible to be carved by any English chisel. This kind of stone was not likely to be found in Baby-

[1] *Academy*, August, 1887, p. 107.
[2] *Contemporary Review*, September, 1887, p. 451.

lonia, and had possibly been brought from the north, or from the mountains of Sinai.

Mr. Boscawen adds: "It is curious that in the earliest Babylonian Art, as in the Archaic Egyptian, there is a more *exact reproduction of the object than in later Art.*" The use of metal in sculpture always marks progress. The reader is aware that Genesis claims a much earlier knowledge of metals than this. It was used in Egypt in the Fourth Dynasty, and we find metal figures in Babylon that were made 2800 B.C. Three of these figures are to-day in the British Museum, and they represent the priests of the Sun-god holding fire cones in their hands, and, on bended knees, kindling the sacred fire. A bronze figure of the same period is now in the Louvre.

The specimens of this period are not the first, nor the finest, specimens of Babylonian Art, but are said to be superior to those even of the Early Greeks.

One of the Ancient Hymns, if genuine, is doubly valuable, as showing the then advanced knowledge of working in metals. "May sickness and sin pass away, may my soul shine as does the brass that is poured out of the melter's mould." There seems to be some reference here to the belief in Immortality of the soul. Referring to a still more early period, Mr. Boscawen says that "The Seals of Babylon were beautifully engraved, and were of great national and political importance. One which has recently been discovered was made B.C. 3800, and belonged to the Scribe of the great mythic Sargon."

Another recent writer on Chaldea attempts to carry back the half-mythical history of the East to a still more remote antiquity. Chaldea "points to a monumentally indicated date, nearly 4000 B.C. This is more than Egypt can do. Her oldest authentic monuments, and her great Pyramids, are considerably later." Mr. F. Hommel says, "If the Semites were already settled in Northern Babylonia (Accad) in the beginning of the fourth thousand B.C., and in possession of the fully developed Shumiro—Accadian culture adopted by them . . . from Shumin—then the latter must naturally be far older still, and have existed in its completed form in the fifth thousand B.C.—an age to which I now unhesitatingly ascribe the South Babylonian incantations." [1]

[1] "Chaldea," by Z. A. Ragozin, p. 364 (T. Fisher Unwin).

These speculations await confirmation; for, although the good faith of their authors is above suspicion, the grounds upon which such opinions are based may prove to be largely mythical.

From a very early period PHŒNICIA seems to have been the great centre of commerce, between Egypt, on the one hand, and the other nations of the ancient world—Greece, Cyprus, and Asia Minor—on the other. Her ships could sail up the Nile; and she had a colony at Memphis. Here the Phœnicians "*had permission to worship their own gods* openly, and had a temple dedicated to their god Astarte, which Herodotus believed to have been built about the time of the Trojan war, or *circa* B.C. 1250."[1] They had settlements even west of the Pillars of Hercules, and it is said that at Gadeira (the modern Cadiz) there were temples of El, Melkarth, and Astarte. They were pre-eminent as colonizers, not by annexation, but by commerce. They seem to have discovered Britain, to have really circumnavigated Africa twenty-five centuries before Vasco da Gama did so anew, and some think they even reached India and the gold of Ophir by that route.

For Metallurgy and woven fabrics Tyre and Sidon were in remote times famous. We read of Tyrian artist-work at Solomon's Temple, in gold and bronze and ivory, of magnificent proportions. They were Sidonian artists, whose works in silver Homer celebrated as "most beautiful—the most beautiful in all the world." Sir Austen Layard conjectures that a series of bronze dishes embossed and engraved, which he discovered at Nimrud, are of Phœnician workmanship.

The remains of their architecture are mere ruins, and mostly tombs; its chief characteristics are monolithic and Doric.

Professor Rawlinson, whose words we freely use, says, "It is certain that for a thousand years—from the fourteenth century to the fourth century B.C.—this remarkable nation, separate from all others, played a most important part in history." Their primitive abode was near the Persian Gulf. The date, the causes, and the circumstances of the migration are involved in obscurity, but it was of very ancient date, not improbably contemporaneous with that of Abram from Haran.

[1] "Phœnicia," by George Rawlinson, M.A., p. 57 (T. Fisher Unwin, 1889).

Their history is embedded in legends, some of them too wonderful for belief. They have been credited with the invention not only of letters, but of numbers. That they may have been the inventors of arithmetical figures is not improbable, seeing that their extensive commerce demanded their daily use. That their civilization must have been considerable is evident, although they were by no means advanced in architectural art, nor profound in philosophy. Their literature nowhere appears, and even their history is not their own, but exotic to Phœnicia.

Many inventions and discoveries of modern times seem to have been anticipated by the Phœnicians, but subsequently lost. In Metallurgy, in remote times, they were famous, and their deep mining, especially in Spain, seems to have almost equalled that of recent times. Their policy was one of compromise and exchange, not of conquest; and their wealth and luxury were equalled only by their love of enterprise and daring.

Originally the religion of the Phœnicians would seem to have been Monotheistic, and to have possessed a lofty idea of the great Power which had created and which ruled the world. They called Him El, "great"; Baal, "Lord"; "Lord of Heaven," and the like. They regarded Him as wholly distinct from matter, and believed Him to have brought into existence all other beings and all material things. But this early belief, as in other nations, was soon overlaid with superstitions, and Monotheism passed into Polytheism,[1] and the worship of Sun and Moon and Fire. All their ritual infers a belief in Immortality.

Here, to use the words of Mr. Palgrave, "there is no room for idols, their gods themselves being ever present in their embodiment or their work."[2] In the third stage, idols appear as such, and next as supernumerary gods. Then follow great temples, gigantic statues, and human sacrifice. The sacrifice of animals had already been practised, and it is difficult to see at what place in the series it commenced. The general idea conveyed is not one of progression, but of retrogression—a gradual descent from the spiritual to the materialistic, and a corresponding descent from a high degree of material and artistic refinement to a lower one.

[1] "Phœnicia," p. 29.

[2] "Ulysses," p. 221.

Very little is known of the HITTITES as a nation; but, so far as the remains of their sculpture show, they seem to have been much inferior to the Egyptians and Chaldeans. Their religion was evidently Sun-worship originally, but subsequently a Polytheism, having male and female chief deities, with various subsidiary wonder-working divinities. Carchemish was their Holy City, situated on the Euphrates. "On entering the temple, the visitor saw on his left the throne of the Sun-god, but no image; since *the Sun and Moon alone* of the gods had no images dedicated to them." This fact shows that, of all false religions, Sun-worship was the least debased. In their later religious ceremonial there is a curious resemblance to that of the Ancient Hebrews. Their myths regarding a great Deluge are very prominent, and their belief in Immortality is indicated throughout.

While their bronzes were conventional, many of them rude, their engraved gems were exceedingly fine, and were, for the most part, used as seals. "Among the objects discovered by Dr. Schliemann at Mykenæ were two rings of gold, engraved in what is recognized as the Hittite style of art." [1]

The Hittites seem to have been an important people, but are practically without a literature or history. They appear to have occupied a portion of Asia Minor and the land from Palestine eastward towards the river Euphrates, and are said to have existed, less or more independent, for many centuries, dating from some very ancient prehistoric age. This, however, requires confirmation. The Moabite Stone was found near their supposed boundary, and probably further evidence of similar kind may be discovered, when the locality is more fully explored than it has yet been.

The area of highest civilization in ancient times seems to have been Egypt and Palestine, with the lands between the rivers Euphrates and Tigris, and southward towards Arabia and the Persian Gulf. But even the Tablets of Assur-bani-pal are not older than the eighth century B.C., although they relate to events

[1] "The Hittites: The Story of a Forgotten Empire," by A. H. Sayce, LL.D., pp. 105, 119 (London, 1888).

probably more than a thousand years before. Yet we look in vain for any indication of date or relative age of any historical record they may contain. The name of Sargon of Accad seems to refer to a much earlier date, and to a higher state of learning and civilization. He is said to have had "two standard works on Astronomy and Terrestrial Omens, consisting of seventy-two books, relating to such matters as the Conjunction of the Sun and Moon, and the phases of Venus, and of Comets." Does not this indicate the early invention of the Telescope, since the phases of Venus are not visible to the naked eye?

The first Dynasty of Accad is said to have established the Capital E-Sagila, B.C. 2250. However, the numerous dates as to this sovereign would alone suggest doubt as to the genuineness of his history, and more than one learned writer holds it to be legendary.

Much speculation still exists as to prehistoric times. The principal records we have left of them are the Bricks and Tablets dug out of the ruins of Nineveh; the Monuments and Inscriptions of Egypt, the writings of "Moses," and occasional Manuscripts otherwise found, together with the Veda Hymns and Sanscrit Texts of India. But no definite history of, and no dates, nor clear evidence of any great antiquity, such as these speculations indicate, are obtainable from any of them.

The various nations of the world have been generally classed under three great divisions—the Hamitic race, originally occupying the south and the extreme east; the Semitic, occupying the central position, such as the Syrians, Babylonians, Assyrians, Hebrews, Moabites, Phœnicians, and Arabs; and the Aryans, who filled the north and European countries generally. Each of these in turn, and in this order, seems to have been the master and ruler of the world. Some writers think these peoples were the descendants of Ham, Shem, and Japheth respectively.

The moral characteristics of the Semites have been described as pliability, combined with iron fixedness of purpose; depth and force; a yearning for dreamy ease; a capacity for the hardest work; "religiousness, and originally an intensely spiritual conception of the Deity;" [1] and a clear belief in Immortality. These

[1] "Phœnicia," p. 25.

qualities were often combined with persecuting intolerance, from which, however, the Phœnicians, like their successors the Greeks, were generally free.

Some confusion has arisen from assuming that the extreme Savagism found to exist with every discovery of the outlying tribes in all quarters of the globe represents the *original* condition of the human race, when such outlying peoples were separated from the original home of Mankind. That this is not so appears from the general fact that, in all cases, deterioration *begins, and, where a people are left alone, goes on with rapid declension*, ending perhaps, in the course of ages, in Cannibalism and Barbarism.

The theory that Mankind were originally Savages appears to us, therefore, to arise chiefly from this erroneous supposition, and it is one of the popular fallacies of modern times.

LECTURE IV.

THE ETERNAL AND THE INFINITE—MATTER AND SPIRIT—THE CONCEIVABLE AND THE INCONCEIVABLE—THE BASES OF EVIDENCE.

ETERNITY, Infinitude, and all such words are to us words only, since the mind is unable to grasp the ideas for which they stand; and the great intellectual efforts so constantly made to assist our conceptions of their full meaning only prove how vain are such attempts. We do not say that the mind cannot conceive the truth both of Eternity and of Infinitude, because, as it may not be difficult to show, *the mind cannot possibly conceive the reverse.* But, as Tennyson has expressed it—

> "Thou hast not gain'd a real height,
> Nor art thou nearer to the light,
> Because the scale is infinite.
>
> 'Twere better not to breathe or speak,
> Than cry for strength, remaining weak,
> And seem to find, but still to seek."[1]

Aristotle declared that the Infinite is beyond the reach of human understanding. Sir William Hamilton says: "The Infinite and the Absolute cannot possibly be construed to the mind. . . . Finite cannot comprehend—contain the Infinite."[2] Comte says: "All the sciences tend to lose themselves in the multiplicity of the Universe, where every path leads to the Infinite."[3] To think of them *in parts*, as some have proposed, would be simply a contradiction in terms, seeing that Infinity can have no parts. Principal Caird says: "Beginning with an Infinite or Absolute

[1] "The Two Voices."

[2] "Lectures on Metaphysics," vol. ii. p. 527 (Blackwood, 1859).

[3] Prof. Caird's "Social Philosophy of Comte," p. 22, 1885.

Cause, you might conclude to finite effects, but you cannot reverse the process. All that from finite effect you can infer is a finite or contingent cause, or at most an endless series of such causes."[1]

Conic Sections and Arithmetic (both branches of Pure Mathematics) seem to point us to a faint adumbration of their *import*—mere shadows, but perhaps the nearest we can have. (1) The Curve of the Parabola continually approaches to the straight line, but, however far it is continued, can never touch it. (2) In Arithmetic, any given number may be perpetually divided by 2, but can never thereby be exhausted. (3) The period of a repeating decimal fraction may be added on for ever, but the value of the expression, though constantly approaching that of its corresponding vulgar fraction, can never attain to it. The study of these facts is mental; they cannot be shown in any material form. The Theory of Limits and the Calculus of Newton and Leibnitz are illustrations of the Indefinite. Their discovery has no doubt been found invaluable in scientific calculations; but they only add cogency to the fact that the idea of Infinitude remains outside even of our mental grasp.

In now entering upon our argument proper, we will formally do so by stating a few preliminary facts.

Truth impresses itself upon the Mind by four different methods or kinds of evidence. First, *The Senses*, by which we are convinced that Matter and external Nature exist. Second, *Personal Witnesses*, by whose testimony (for instance) we believe that Japan exists, although we may never have seen it.

To some thinkers, these first two kinds of evidence are not satisfactory. The party of Berkeley (1684) believe that Matter does not exist as substance, but merely in the ideal, and that the evidence of our senses is illusory: others with Hume (1711), the recognized champion of Materialism, that there is no purely spiritual existence in Nature; and, amidst this divergency, confusion reigns of course. This confusion arises, we believe, from their not realizing the fact, long ago pointed out, that the Mind *cannot* know or understand Matter. Mind can, at least to a large extent, understand and feel what Mind is, because each man can by

[1] "Philosophy of Religion," p. 137 (Jas. Maclehose, 1880).

introspection study his own—reason upon its faculties, its powers, and limitations, and thence, by intuition, understand somewhat of other minds. This, no doubt, is disputed, but what proposition is not subject to be controverted by some philosopher? To use the words of a recent writer: "So far from being unknowable, the Soul (Mind) is the most knowable existence which the world contains." [1] But "Man," as Shakespeare says—

> "Most ignorant of what he's most assur'd,
> *His glassy essence*, like an angry ape,
> Plays such fantastic tricks before high heaven
> As make the angels weep." [2]

The above-mentioned theory as to Matter is nothing new. Kant says: "We should not ever understand what it is, even if any one could state it to us." [3] Herbert Spencer, than whom, perhaps, no modern writer has more fully studied such subjects, confesses that "the ultimate unit of Matter admits of no consistent conception"; and again, he speaks of "the mystery which Matter universally presents, and which proves to be absolute." [4] Professor Tait admits that "the discovery of the ultimate nature of Matter is probably beyond the range of human intelligence." [5] An old writer represented that Mind and Matter were the opposites of each other, like an object and its image—that Matter was altogether subordinate to Mind, exhibiting mere Types of its Truths—that everything in Nature, indeed, is a real substance; but, at the same time, a material visible Type of some corresponding invisible or spiritual Truth or Idea. According to the Buddhistic ideas, a prominent doctrine of all mysticism is "that all things in the unseen world have their counterpart in the seen," and that everything existing in the upper world is to be found as it were in a copy upon earth. Still the Whole is *One*.[6]

But all speculations such as these concern merely the relations of Matter to Mind, and instead of explaining they evade the real

[1] "Agnosticism," by Dr. Momerie, p. 44 (Blackwood, 1884).
[2] "Measure for Measure," act iv. sc. 2.
[3] "Critick of Pure Reason," i. 251 (William Pickering, 1838).
[4] "The Study of Sociology," ch. xii. p. 311 (H. S. King and Co, 1873).
[5] "Properties of Matter," p. 15 (A. and C. Black, 1885).
[6] "Buddhism in Christendom," by A. S. Lillie (Kegan Paul, 1887).

question. "What is the ultimate essence of Matter?" Mr. Edward Clodd says: "Since the ultimate nature of Matter remains unknown and unknowable, we can only infer what it *is* by learning what it *does*."[1] Another writer of old date, having in view the ideas of the Gnostics, suggested the possibility "that the origin of all things is Fire;" and having said this, his search even in imagination was ended.

Thus, while Matter is unknowable and undefinable by the Mind, Eternity is incomprehensible by it. Perhaps Eternity might be defined thus: "A Thought, consisting of *the Present* (a geometrical point); *the Before*, without a beginning; and *the After*, without an end." But as to Matter, what words can be applied to it other than those of Spencer—"A Mystery"—"Absolute"—not to be defined?

Doubters of this statement should search out the opinions of the great philosophers, metaphysical as well as experimental, who have tried to define what Matter is. Some recent writers have seen fit to disparage Metaphysics, but Kant elevates it into a science, and John Stuart Mill defends it as such. Certainly both methods of approaching the investigation are better than either alone, and each may shed much light upon the other, whether they lead to similar or to opposite opinions. So Plato may be profitably studied with Aristotle, Euclid with Archimedes, Descartes with Galileo, Leibnitz with Locke, and, in a somewhat analogous way, Philosophy with Science, Reason with Instinct, the widening vision of the Eye with the contracted intensity of Microscopic vision, or, finally, the Universal with the Empirical.

As a specimen of diversity and contradiction, the reader should refer to a list of twenty-five definitions of Matter given by Professor Flint. Perhaps this number might be added to from the writings of the Continental semi-religious philosophers; for we have found no two of them to agree. Let him carefully study any two learned opinions of a particular theory, and perhaps he will feel that he is chasing shadows through a maze. Such is the feeling amongst many present-day thinkers. Geo. F. Parsons says, "Psychology is the least developed science among the

[1] "The Story of Creation," p. 7 (Longmans, 1888).

Western nations. Its students have not succeeded yet in attaining an equal height with Plato." [1]

> " Myself, when young, did eagerly frequent
> Doctor and Saint, and heard great Argument
> About it and about, but evermore
> Came out by the same door wherein I went."

A learned writer [2] has recently sought to show that there are but three logically possible theories of the World of Being—First, Materialism, which supposes Matter in Motion to be the Ultimate, and therefore the cause of Mind; next, Spiritualism, which supposes Mind to be the Ultimate, and therefore the cause of Matter in Motion; lastly, the theory of Monism, which supposes Matter in Motion to be substantially *identical* with Mind—and argues that the last-mentioned theory is " the only one which satisfies all the facts of feeling and observation"! To most readers we think theories so doubtful will seem equivalent to an admission that *nothing whatever* is known as to what Matter itself is. Such transmutations as these seem directly opposed to Inertia, one of the admitted Laws or properties of Matter, and are conceivable only by an *arbitrary* alteration of that Arbitrary "Law of Nature." Otherwise, they seem not logically clear to ordinary readers without further proof. As for the third theory, it clearly does not satisfy "all the facts of men's feelings and observations."

But Matter is not the only entity of which Mind is ignorant. Setting aside the mystery of Life, Light and also Gravitation yet await a clear definition. No doubt, in a sense, these two may be assumed to be properties of Matter, although different properties —for Light is a form or product of Heat, and Heat of combustion or friction — a transmutation of Force or of motion. Gravity, so far as appears, does not alter Matter, and is not itself decreased by age or use. Yet both belong to the NATURAL sphere. That there may be another kind of Light belonging to the UNIVERSAL or spiritual sphere is conceivable, although we have no knowledge of it. Mr. Laurence Oliphant has well said

[1] "Materialism," *Atlantic Monthly*, August, 1887, p. 169.
[2] G. J. Romanes, *Contemporary Review*, July, 1886, p. 44.

that "the main cause of differences has arisen from the attempt to define the indefinable, . . . the use of terms either not susceptible of accurate definition, or for which none could be found by common consent."

However, this word "conceivable," which we frequently use in our argument, requires to be clearly defined. There are theories which are probable, and others which are improbable. There are some conceivable and some inconceivable. But there is no relation between the two words, affirmative or negative; for many theories which are most improbable are quite conceivable, and some things which are conceivable may prove either true or untrue, while those *really* inconceivable must be false.

All the NATURAL Truths are conceivable, because experimentally proved, and any alteration of them is to us inconceivable (unless by the fiat of the Original Creator). But that other NATURAL Laws, in some respects different from ours, may exist in some other System of Planets, however improbable, is not inconceivable. On the other hand, any alteration of the UNIVERSAL Truths, either in our World or in the Planets of any other system, is absolutely inconceivable, as previously shown, and so must be false.

For example, in the Planets of Sirius there *possibly* is no atmosphere, and that their inhabitants may live without breathing at all may possibly be a NATURAL fact. But there they never can make a Triangle, the three angles of which are not exactly equal to Two Right Angles, because this is UNIVERSAL fact.

These several subjects have, more or less directly, engaged the study of almost every eminent thinker for the past twenty-four centuries at least; and now, to most people, we fear the results appear a very learned puzzle. Had a solution been possible, would it not ere now have appeared? The best minds, even of the present day, have been occupied in the search. Nor have their labours been vain, for other important discoveries have more or less directly resulted in relation to the Properties of Matter, and profound ideas been evolved in the Science of Mind.

It is satisfactory to know that several facts have been estab-

lished generally; an important one being that it is as much beyond the power of Mind, or human agency, to destroy even a single particle of Matter as it is to create one; and the same is true of the forces of the material world. This Earth and its Animal Life, and all its forces and properties of Matter, *belong to Man*, and seem altogether subject to the human Mind, for the purposes of his investigations, transmutations, ameliorations, and improvements. Such investigations, and the discoveries of science, afford him his highest intellectual pleasures, but, whether for his education, enjoyment, or even abuse, Matter is his servant and slave, although always under limitation of Nature's Laws. But no such powers of interference with the Earth's proper motions in Space, nor with any Matter beyond our atmosphere, are inherent in Man.

One of the admitted properties or conditions of the Planets, and Matter generally, is called Inertia—that is, the Force which all Matter in motion possesses of permanently continuing that motion in a straight line or (as in a body revolving around its own axis) *in the same plane*, unless some other exterior force deflect or destroy it. This latter motion is best shown by that scientific toy the Gyroscope, and also by the common Bicycle. The former, or straight-line motion, however, cannot be found in Nature, in consequence of the divergence caused by Gravitation. From this it clearly appears that in all our Solar System, and indeed in the visible Universe, there is no such thing or condition as REST. Every Planet, great and small, is, with at least a threefold motion, rushing through Space at prodigious velocities. Francis Bacon (1561 A.D.) alludes to this when he speaks of "the heavenly bodies . . . which have much veneration, but no Rest."[1] Not one single orb, not one living thing thereon, is at rest, or ever can be at rest, under the present Laws of Nature, so long as more than one orb exists. Nor even with one, unless its momentum (*i.e.*, Inertia) were destroyed by some other opposing force exactly equal and exactly opposite; and this evidently would result in the union of the two—at rest theoretically, it may be, but of course intensely or transcendently hot.

When we consider that every planet is not only attracted by its

[1] Essays, xix.

Sun, but also attracts the Sun in return, it follows that the planet will not revolve around the *exact* centre of the Sun, because theoretically—with a motion so slow as to be imperceptible—the Sun will have a revolving tendency round the planet; the true centre being a point in the Sun infinitesimally removed from its geometrical centre, in the direction of the planet.

If there were no other attraction but such as is mutual between any two such bodies, the position of their mutual Gravitation Centre could be mathematically determined; but in such a multitude of mutual attractions the problem becomes hopelessly intervolved. In addition to this complication, the overpowering influence of the Sun's attraction, consequent on its vast size, and its power of determining the orbits of all the planets, renders such calculations futile.

But still there must be a point in the Sun which is the *Centre of all these theoretical Centres.* It may not be exactly the centre of the Sun, but is the *Gravitation Centre of the Solar System.* Even this Centre-point is not at rest, but is ever revolving round what is commonly called the centre of the visible Universe. Here, along with the Centres of other systems of worlds, it continually revolves. It is vain to assume that this so-called Centre of the Universe is at Rest. We simply must confess our ignorance. But reason assures us that Matter is not eternal, belonging as it does to the NATURAL sphere, and that there must still be a *final* Centre where only REST is, where probably the Laws of Nature disappear, where Materialism and Matter itself ceases, and where the spiritual and UNIVERSAL only, continues to exist eternally. This may seem a strange supposition, but it is not new, nor is it impossible; and certainly it is not *illogical,* for the Arbitrary Fiat of the Supreme original Creator must remain Supreme.

The consideration of this subject leads our thoughts upwards, and into depths too profound for our limited capacity to embrace, but the exercise is one of never-ending interest, and we can at least see and feel its sublimity.

But to return to our main Argument. *The Third Kind of evidence is that of the Natural Sciences.* To this there is not the

same objection as was made to the first and second kinds, but another almost equally unsatisfactory to our Argument, namely, that the Truths of these Sciences, inasmuch as they are Empirical and *Arbitrary*, and subject to the Laws of Nature, are not *necessarily* and UNIVERSALLY true.

Of the Fourth Kind of evidence by which Truth impresses itself upon the Mind, pure Geometrical or UNIVERSAL *Science is one section*, the Truths of which are both necessarily and UNIVERSALLY True, as already pointed out, and the Mind cannot conceive any exception to them in Space or in Time—finite or infinite. Accordingly, Necessity and *Universality* are sure characteristics of all UNIVERSAL or spiritual Truths, and they also belong inseparably to each other.[1]

The line of demarkation between the NATURAL and the UNIVERSAL Truths is definite and clear. *Whatever Truth or Science is Empirical, i.e., the result of experience, or subject to the Laws of Nature, is a* NATURAL *Truth; and whatever is neither related to nor dependent on such Natural Laws is a* UNIVERSAL *Truth.* No NATURAL Truths are free of fractional error or doubt, or risk of change or extinction, as we have already stated. Even Time itself, being a Natural Truth, is not free of it; for there is no perfect uniformity in the measurement either of the day or the year, all our Time-measurers, whether Astronomical, natural, or artificial, being only approximately correct at the best.

In short, NATURAL Truths are Arbitrary, and consequently ever subject to doubt and liable to possible change. UNIVERSAL Truths are necessarily True and Eternal.

Mental Arithmetic, Algebra, and the higher Mathematics, so far as based upon pure Geometry, are UNIVERSAL Truths; but we confine our argument to pure Geometrical Truths, because they are more obviously so. The great Laws of Nature are, so far as we see, invariable and unbending in the NATURAL sphere, and so very much so that we habitually forget they are Arbitrary only, and we think and speak of them as if absolutely stable and ever-enduring. This feeling is strengthened by the Evolution theory, which these Laws certainly support, yet as certainly *limit* in its operations; but we have seen that, being Arbitrary, they must ever

[1] Kant's "Critick of Pure Reason" (Wm. Pickering, London).

be subject to possible change, however improbable this may appear. Our readers will here observe that Evolution itself, being Material and Arbitrary, is a NATURAL fact, and alike subject to possible change.

The idea that the Laws of Nature are absolute rests very much on the facts of observation, which are popularly supposed to prove their invariability. But this is not the case; UNIVERSAL Facts are absolutely invariable, but the consideration of THE TWO KINDS OF TRUTH proves that NATURAL Facts cannot be so. Exceptions are not evident, and to us seem very rare. One of the "Laws of Nature" is that Heat produces expansion of Matter, and Cold contraction. We shall, in a future Lecture, see that Heat must have a limit of increase, and we know that Cold does not invariably produce contraction. In the case of Water the Law seems to cease, for in the process of cooling it ceases to contract at about 7° short of the freezing-point, and *commences to expand* until it freezes (at 32° Fah.). Ice is lighter than Water, and swims in it, having expended $\frac{1}{9}$th of its bulk; thus showing that this Law of Nature, at any rate, is clearly not absolute, but empirical.

LECTURE V.

The Appeal from the Natural to the Universal—From Time to Eternity—Necessity and Free Will.

The vast importance of Universal Truth appears distinctly from the three following considerations.

First: Natural Truths are bounded by Time. Geologists and scientific men generally are agreed that this globe had a beginning some millions of years ago, and is destined to have an end. A learned writer on the "Conservation of Energy," speaking of Gravitation and its results in the diffusion of Heat, says: "It appears to be the last scene of the Universe—chaos and darkness, as in the beginning." Extend its period as we may in imagination, how little it is when compared with Eternity, throughout which Universal Spiritual Truths have existed, and will ever continue to exist.

A second consideration is more striking. Mankind's tenure in this world has evidently been very short, merely for a few thousand years, and is without perpetuity; and, being an arbitrary tenancy, it is always liable to possible change. Leibnitz writes that "the Earth and the Sun themselves have no *necessary* existence—perhaps a time will arrive when its whole systems will have no longer a place in Creation." [1]

Still more calculated to arrest the attention is a third consideration. We are—each individual man is—living under the operation of Arbitrary, that is, Natural Truth-Laws for, say, three-score and ten short years, during one-half of which we sleep, and the other half we too often procrastinate away, or otherwise consume in the pursuit of shadows, or at least in the daily struggles of life; whilst not one-third of the race ever attain to that age. Of the thousands who daily cross the river Styx, is there one who departs satisfied

[1] Hamilton's "Lectures on Metaphysics," vol. i. p. 355 (J. Blackwood, 1859).

that he has finally completed his plans, and come up to the ideal of his life? No man, says Principal Shairp, "ever felt more painfully than S. T. Coleridge did—

"The petty Done, the Undone vast."

And if there is to be a Life beyond, throughout the endless future of Eternity, how much more insignificant must this "little life" become in contemplating such a prospect! John Ruskin only utters aloud the cry of all thinking men: "How miserably short is human life!" Bishop Hall (b. 1574) said: "Death borders upon our birth, and our cradle stands in the grave." Even Dr. Darwin said: "How fleeting are the wishes and efforts of Man! how short his time!" [1]

At best, Life is barely enough for Man to gather in his materials for contemplation, and anxiously to *begin* the search after the grandest and noblest Truths of his existence. The great argument is sometimes suddenly, often prematurely, *always defectively*, closed. In view of this fact it is remarkable that doubt can exist of a Future Life. Should not this one consideration—the *incompleteness* of the present life—appear conclusive and convincing evidence of Immortality—proof quite as satisfactory as a whole library of "Evidences of the Immortality of the Soul" could supply?

This thought has been strongly enforced by thinkers in all ages. Thus Prior Henry of Huntingdon (1084): "O death, how soon you rush upon us! how sudden is your grasp! . . . May therefore the physician who comes after death give . . . a life of health continual!" [2]

Our greatest poet has said that "Our little life is rounded with a sleep" [3]; and Wordsworth, that "Our birth is but a sleep and a forgetting" [4]; and again—

"Our noisy years seem moments in the being
Of the eternal Silence, truths that wake
To perish never." [5]

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[1] "Life of Charles Darwin," by G. T. Bettany, p. 85 (Walter Scott).
[2] "English Writers," by Henry Morley, vol. iii. p. 101 (Cassell, 1888).
[3] "The Tempest," act i. [4] "Intimations of Immortality." [5] Ibid.

So Homer :—

"Like leaves on trees the race of Man is found :
Now green in youth, now withering on the ground." [1]

And Swinburne :—

"His life is a dream and a vision,
Betwixt a sleep and a sleep." [2]

Longfellow thus expresses the idea of the defectiveness of life :—

"Labour with what zeal we will,
Something still remains undone,
Something uncompleted still
Waits the rising of the sun." [3]

And again :—

"Art is long, and life is fleeting,
And our hearts, tho' stout and brave,
Still like muffled drums are beating
Funeral marches to the grave." [4]

The following lines are from a beautiful poem by a Spanish soldier, Don Jorge Manrique, found on the battle-field where he fell, A.D. 1479 :—

"Behold of what delusive worth
The bubbles we pursue on earth,
The shapes we chase. . . .
O world! *so few* the years we live,
Would that the life that thou dost give
Were life indeed." [5]

And Henry Vaughan (A.D. 1680) wrote :—

"My days, which are at best but dull and hoary—
Mere glimmerings and decays. . . .
And yet as Angels, in some brighter dreams,
Call to the soul when man doth sleep,
So some strange thoughts transcend our wonted themes,
And into glory peep." [6]

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[1] "Iliad" (Pope's Version), bk. vi.
[2] "Atalanta in Calydon."
[3] "Birds of Passage."
[4] "A Psalm of Life."
[5] Longfellow's Poems—Translations.
[6] Poems—"They are all gone."

"To-day," says the Eastern proverb, "we visit the tomb of our friends: to-morrow other friends visit ours." It was said that "Man is immortal till his work be done;" but it would be more correct to say, "Till his share of time be done." President Adams, at the close of an active and useful life, said with a sigh —"What Shadows we are, and what Shadows we pursue!" David Hume more than once quoted a saying of Rousseau's, that "One half of a man's life is too little to write a book, and the other half to correct it." Hume himself died almost in the act of making "one more" correction of his works. [1]

Coleridge said:—

"The good, great man
Hath three firm friends, *more sure* than day and night,
Himself, his Maker, and the angel Death." [2]

Of the battle of life Schiller (1759) wrote:—

"Our life was but a restless, onward march,
And like the roaring of the homeless winds
We stormed across the war-affrighted world."

Gray (1716) expresses man's natural feeling on this subject very finely:—

"For who, to dumb Forgetfulness a prey,
This pleasing anxious being e'er resigned,
Left the warm precincts of the cheerful day,
Nor cast one longing, lingering look behind?" [3]

Burns evidently spoke from the heart when he said of the fleeting joys of life:—

"Pleasures are like poppies spread,
You seize the flower, its bloom is shed;
Or like the snowfall in the river,
A moment white—then gone for ever;
Or like the borealis race,
That flit ere you can point their place;
Or like the rainbow's lovely form
Evanishing amid the storm."

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[1] "Letters of David Hume" (Clarendon Press, 1888).
[2] Poems—"Reproof." [3] Gray's "Elegy."

Sir Walter Raleigh is said to have written on the night before his execution (1618) :—

"Even such is Time that takes on trust
Our youth, our joys, our all we have,
And pays us but with age and dust ;
Who in the dark and silent grave,
When we have wandered all our ways,
Shuts up the story of our days :
But from this earth, this grave, this dust,
My God shall raise me up, I trust."

Another Elizabethan poet is equally sad :—

"All earthly pomp or beauty to express
Is but to carve in snow ; on waves to write." [1]

Edward Young (1681) takes up the same plaint :—

"Our blessings brighten, as they take their flight." [2]

While a still older English poet consoles himself with the thought that—

"The Actions of the Just
Smell sweet and blossom in the dust." [3]

And John Keats writes :—

"She dwells with Beauty—Beauty that must die—
And Joy, whose hand is ever at his lips
Bidding Adieu." [4]

And Tennyson :—

"So runs my dream—but what am I ?
An infant crying in the night,
An infant crying for the light :
And with no language but a cry." [5]

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[1] Thomas Campion, 1613. [2] "Night II." [3] James Shirley, 1596.
[4] Miscellaneous Poems. [5] "In Memoriam," liv.

And Robert Browning :—

"First we get Power, but Power absurdly placed
In Folly's keeping, who resigns her charge
To Wisdom, when all Power grows nothing worth :
Bones marrowless are mocked with helm and targe.
When like your Master's, soon below the earth,
With worms shall warfare only be. Farewell,
Children ! I die a failure since my birth." [1]

And, finally, Kirke White :—

"Oh what is Beauty's power ?
It flourishes and dies :
Will the cold earth its silence break
To tell how soft—how smooth a cheek
Beneath its surface lies ?" [2]

We close these quotations with Shakespere's allusion to the sweetness of departing Life :—

"The setting Sun, and Music at the close,
As the last taste of sweets, is sweetest last,
Writ in remembrance more than things long past." [3]

If there be no hereafter Life, *how utterly inadequate, unsatisfactory, and disappointing* such a finish to our glowing aspirations, and to all our anticipations of coming happiness in unlimited development ! But, like Milton, may we all

"Argue not
Against Heaven's hand or will, nor bate a jot
Of heart or hope : but still bear up and steer
Right onward." [4]

There is quite a consensus of opinion amongst the Poets as to Immortality. A great Poet is compounded of the Philosopher and the Seer, and although no *opinions* can decide the question, no others can be so assuring to man on this matter. Émile de Laveleye writes that : "Without a belief in God and in the

[1] Jochanan Hakkadosh.
[2] "Ode on Disappointment."
[3] "King Richard II.," act i.
[4] Sonnets, xxii.

soul's immortality, any code of Morality must be lacking in basis."[1] But it is quite unnecessary to multiply such aspirations after a higher life. Now, in view of all these considerations, it does appear to human reason that to disappoint and destroy such almost universal cravings after a Life to come would not be in accord with that Wisdom which the great Creator's works otherwise display.

Shakespere calls Life "this bank and shoal of Time."[2] But what is Time itself but the mere Beach of that illimitable Sea—the Ocean of Eternity!

No son can inherit and enter into possession of his father's Mind and intellectual stores. This is impossible, under the Development or any other theory. A man's material and mechanical inventions may be inherited, less or more, but the son must himself begin his own *Universal* or spiritual Truth studies. If it were not for this imminent, and always recurring break in the continuity of human thought, how rapid might not the advancement of Psychology become?

Among the many puzzling questions which met the seeker after Truth, one of the most controverted is that of Free-Will and Necessity. In the hands of the Schoolmen these terms have been used not altogether in their ordinary English meaning, but in a subtle and highly critical sense, more profound than obvious. "Necessity," especially in this varying and abstruse sense, is a mere *cul-de-sac*, from whence is no egress other than a dark well, or rather pit of depth not yet sounded. Indeed the word has become a surd quantity, really incomprehensible, and therefore can only stand aside in logical argument. But each individual man can, or rather must, know whether his Mind is free or a slave. Beatrice, in "Paradise," thus addresses Dante:—

> "Most prized
> Was liberty of Will, the boon wherewith
> All intellectual creatures, *and them sole*,
> He hath endow'd."[3]

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[1] *Contemporary Review*, July, 1888. [2] "Macbeth," act i. sc. 7.
[3] "Paradise," canto v. (Cary's trans.)

Romeo's Apothecary (and here, as usual, Shakespere is true to nature) blamed not himself, but his poverty. Now unless he (that is, his Mind), no matter with how great repugnance, had *willed* to sell the dangerous and probably fatal drug, he, if in a healthy state of mind, would certainly not have done so. He was not logical; the Mind of Man is free; physical forces may possibly have the power of enslaving the body, but the Mind never. Were not the Martyrs of the Catacombs Freemen?

> "The Spartan borne upon his shield
> Was not more Free." [1]

And were not Socrates and Galileo mentally so, although outwardly seeming otherwise? According to Kant,[2] "Freedom of the Will" is the grand essential of Morality, "and Goodness of Will is the only absolute good on Earth." Again, "Freedom is the alone unoriginated birthright of Man." Comte,[3] on the other hand, "condemns the doctrine of Man's absolute personal right"; and Spinoza denied his Freedom of Will.

Vauvenargues (b. 1715) an eminent French writer, discusses this subject at considerable length. Without agreeing with his views, especially the prominence he gives to the influence of the passions, we can quote this passage: "Whether it is reason or passion that moves us, *it is we who determine ourselves*; it would be madness to distinguish one's thoughts and sentiments from one's self. . . . No will in men, which does not owe its direction to their temperaments, *their reasoning*, and their actual feelings." Joseph de Maistre (b. 1754), another French writer of eminence, well said that "God created men under conditions which left them free to choose between good and evil. All the physical evil that exists in the world is a penalty for the moral evil that has resulted from the *abuse* by men of this freedom of choice." [4]

We will return to this subject when we come to consider the question of Motives.

[1] Byron's last poem.

[2] Kant's "Metaphysics of Ethics" (1869), pp. 91, 177.

[3] Prof. Ed. Caird's "Philosophy of Comte" (1885), p. 144.

[4] "Critical Miscellanies," by John Morley, vol. ii. pp. 20, 293 (Macmillan and Co., 1886).

Amongst many instances of honest independence of Mind, perhaps none is finer than that of Bernard Pallissy, the famous potter (b. 1510). An original genius and discoverer in Art and Science, he was also a true Philosopher, the first in France to insist upon positive facts and demonstrations, instead of the fanciful interpretations of previous teachers: a man of humble life, but an illustrious example of perseverance under extraordinary difficulties.

Pallissy was saved from the Massacre of St. Bartholomew in 1572, by Queen Catherine, one of the chief actors, if not the author, of that awful crime, because of his invaluable services to her and the French Court. Although loyally faithful to the Government, and of acknowledged service to his country, he was eventually thrown into the Bastile for his religious opinions. It is said that the king paid several private visits to him there, and would fain have given him his liberty. He indeed proposed to do so, if the heretic would make a pretence of compliance by some outward form of worship, so as to satisfy the Archbishop of Paris. Pallissy may not have been so diplomatic as his countryman Diderot, nor so wise and prudent as we moderns think ourselves. They say that he looked up into the King's face and cried, "What — you a King? Can you not *order* my release by your own royal authority? *Are you a King?*" One can imagine the scene—an excellent subject for a great historical picture. How noble must the poor prisoner have looked, and how mean the grand monarch! The Archbishop of Paris was too powerful, and Pallissy died in 1590, after many years' imprisonment, but fortunately before his death-sentence was pronounced.

Queen, King, and Archbishop are all dead, and might well be forgotten. But Pallissy's name will live in the admiration of all good men, as the few remaining specimens of his art live in the estimation of all who have seen them.

Equally strong was the spirit of independence displayed by Spinoza (1632), the son of a rich Portuguese Jewish family. Expelled by all his relations and the Synagogue for his firmness in maintaining his new opinions in Philosophy, he lived a life of suffering and actual privation. He died at the age of 44 years, a martyr to science and to an over-sensitive feeling of indepen-

dence. His philosophy was profound, yet mystical and unsatisfactory; but the character of the man for honest independence remains almost without a parallel, and, like Pallissy's, his memory is enrolled in the history of the martyrs of Science. Pope asks :—

> "Can aught ennoble fools, or knaves, or cowards?
> Alas! not all the blood of all the Howards."

But men like these were ennobled by their lives and in their deaths. Such men have been rare, yet might have been less so but for lack of proper self-respect and self-restraint, as in the lamentable case of Burns (in his later years) and some other men of eminent genius, who drifted amongst the rocks and shipwrecked their lives. No doubt there have been others less known to fame to whom Dryden's lines would apply, written of the man who—

> "in a loathsome dungeon doomed to lie,
> In bonds, retained his birthright liberty,
> And shamed oppression till it set him free."

And Richard Lovelace (1658) could write in his prison :—

> "Stone walls do not a prison make,
> Nor iron bars a cage."

LECTURE VI.

Laws of Nature—Properties of Matter—The Evolution Theory—The Fiat of the Creator—Omnipotence.

Before proceeding with our main argument, it may be well to have some explanation of terms; and first as to "the Laws of Nature." We have been so accustomed to consider these words as half sacred, and as an end of all controversy—a kind of Scientists' god—that to question their absolute potency was akin to sacrilege. The word *Law* here means simply the *statement* of a fact which *experience* teaches us is always fact. But the law is not the cause of the fact. Thus one of Nature's laws is, that life cannot be sustained without food and air, and that deprivation of these is death. The *law* does not cause this death; it is the *fact* of the deprivation of food and air alone that does so—experience having proved this always to be a fact. It is merely called a law to indicate its invariability *empirically.* There is no potency whatever in the law itself, *but in the fact only;* and so also with all the Laws of Nature.

Take the most ancient of them all, the law of Gravitation. We find by experience that material bodies are possessed of the power of attracting other Matter with a force in proportion to their mass, but strong in the inverse ratio of the square of the distance between them. Here it is not this "law" which attracts; the law merely expresses that Matter does attract, and always in this ratio. That these facts are expressed as laws does not confer any personality upon the laws, and although we may speak of them (perhaps too indefinitely) as the Fiat of the Creator, it must always be kept in view that it is not the word but the facts that He enacts, and imposes upon us, and that the word *Law* is used for brevity, instead of a full description of the facts themselves. We propose to use the term "Laws of Nature" throughout with this understanding.

"The Properties of Matter" and "The Evolution Theory," terms which have already been used in our illustrations, may be considered in close connection with the term of which we have just spoken. *All three are evidently expressions of three different aspects of the same subject.* "Laws of Nature" only codify, as it were, the "Properties of Matter" as understood by the Mind; and "Evolution" signifies the consequent and natural visible results of their operation. All belong to the sphere of NATURAL Truth. Beyond and surrounding all there is of course the higher sphere of Truths UNIVERSAL.

There seems no more reason for the objections sometimes made on religious grounds to this Evolution Theory than there is for objections to the Laws of Nature themselves. Nor, on the other hand, is there any foundation for the dreams of some of its extreme advocates as to its *indefinite* progress to imagined perfection. For Evolution is, in fact, strictly "cabined, cribbed, confined, bound in"[1] by the barriers of these apparently inflexible "Laws of Nature," and in every direction checked at the frontiers of their domains. Thus Natural Evolution being limited to the *Natural* sphere, its truths are NATURAL Truths only, and consequently do not *necessarily* apply to the world of Mind.

The distinctive character of NATURAL or arbitrary Truths we have already shown, but some consideration of the word *Arbitrary* may be desirable. The Truths of the Natural Sciences (including the Laws of Nature, the Properties of Matter, and indeed every empirical fact) are not UNIVERSAL Truths, but Laws definitely *enacted* and imposed by Arbitrary Fiat of the "One Supreme Being" or Lawgiver of the Universe. There is really no *necessary* reason in the nature of things for their continuance indefinitely; and so, being arbitrary, they may be said to exist only by the will of the same Supreme Power. Consequently this same Arbitrary Fiat evidently could alter, enlarge, or abrogate them, or any portion of them, at any time. The probability of this change is evidently inconceivably small, but for the sake of argument we prefer using an extreme supposition, as least likely to mislead in a logical position. This word Arbitrary is not used in its despotic or oppressive sense, but only as indicating a Power absolutely Supreme above

[1] "Macbeth," act iii. sc. 1.

all review, admitting of no rival or control, but conceivable as good and benignant in the highest sense to Man. At least this is quite as reasonable and probable as to conceive that He is the reverse—cruel and malignant, as some one suggested.

It has sometimes been gratuitously assumed that no alteration or change of Nature's Laws *could* possibly be made without throwing the entire Solar System into confusion. But this is evidently a very unphilosophical and illogical idea, when we consider that such action would be the arbitrary Fiat of this *same* Supreme Power who originally enacted these arbitrary laws; and almost all philosophers admit the existence of this Great Original Creator.

For the sake of our Argument we have used the words Change and Alteration only as the *prerogative* of the Creator, and to *show that he never can be supposed as definitely subject to his own Laws.* But, strictly speaking, He, that is, Nature, never alters or changes its Types or Laws. In the Animal world, Life having at first existed in forms extremely simple, it is continued the same in higher species, or more complex creatures, but always upon the original *Type*—added to, perhaps, but never as a Type *improved.* For Nature goes not back to amend any of its works, as a clever workman may do to change a faulty design, as he grows wiser by experience. Nature began with a *perfect Type*, and built upon that and that only. We speak here of the Physical sphere; but it appears to be the type, or otherwise the impress, of the Ethical and Spiritual spheres; and probably this same Law of a perfect first creation applies to these also. We cannot tell, but, as Shakespere puts it, "THERE'S HUSBANDRY IN HEAVEN," [1] and not waste of power. Again:—

> "If our virtues
> Did not go forth of us, 'twere all alike
> As if we had them not. Spirits are not finely touched
> But to fine issues: *nor Nature never lends*
> *The smallest scruple of her excellence,*
> *But, like a thrifty goddess,* she determines
> Herself the glory of a creditor—
> Both thanks and use." [2]

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[1] "Macbeth," act ii. sc. 1. [2] "Measure for Measure," act i. sc. 1.

Could we imagine a man possessed of reason, deliberately destroying some beautiful and rare work of Nature, or a valuable piece of Art in his possession, merely to show his power or right to do so, and thus to create confusion, disorder, and terror to his retainers? Would not such an act be in itself proof of insanity? But these words never could apply to any imagined Fiat of the Supreme, because, as already stated, such Fiat would of course *itself* intercept or prevent any possibility of confusion or disorder. In such an imagined case neither Remedy, nor Time, nor Distance, would ever need to be considered.

The economy of nature is thus finely expressed by Laplace: "The simplicity of nature should not always be measured by that of our conceptions. Infinitely varied in her effects, nature is only simple in her causes, and her economy consists in producing a great number of phenomena, often very complicated, by means of a small number of general laws." [1]

But although we cannot conceive of any *Improvement* on Nature's types and laws, we can conceive that the Creator, if He choose, can make new laws, and that He can abrogate all or any physical law or thing or creature, nay, even Time itself; for these are not *necessarily Eternal.* He may not use such powers, but their possession is absolutely required in a Self-existent and Supreme Creator. Spinoza wrote that "The omnipotence of God has been from eternity actual, and will to eternity remain in the same actuality. . . . From God's supreme power or infinite nature an infinite number of things in infinite ways—that is, all things—have necessarily flowed forth." [2]

But the Mind *cannot conceive the possibility* of an Arbitrary alteration of any UNIVERSAL or Spiritual Truth, because such alteration would directly *contradict* Reason (the Mind). The question of *difficulty*, of course, never can enter into competition with the idea of Absolute Power. Its exercise never can be conceived of by the sane Mind as acting *contrary* to Human Reason, however much beyond and above it; because human reason is a creation, or in some sense an emanation, of the Divine.

[1] "The System of the World," bk. i. ch. xii.

[2] "Spinoza," by Principal Caird, p. 300 (Blackwood, 1888).

Many of the Natural Phenomena or Laws are not necessarily the subjects of observation to us. But, so far as open to the observation of our historic age—which, however, is a *very short* period even of Time—they are not seen to have been interfered with, and any oral or written evidence to the contrary requires clear confirmation of its authenticity.

In writing of the Laws of Nature, and also of the possible new Fiat of Omnipotence, we have hitherto endeavoured to treat them in the most logical and unqualified terms, just because any "Truth," if true, must stand upright upon its *own* foundation, free of any adminicle, qualification, or apparent exception. A lofty tower, surrounded by other buildings, or buttressed for ornament, may be perpendicular, but if it were standing quite apart, the beholder's eye would be much more easily assured that it really was so. Some writers confuse the ordinary student with excess of explanations, divisions, and distinctions, intended to meet every probable objection beforehand, instead of treating these separately after they have naturally arisen.

Nothing, we think, appears more complete than the Duke of Argyll's argument on the Definitions of Law in his "Reign of Law;"[1] yet on a first reading of the second chapter of that work one is perhaps too much impressed with the forcible way in which he announces that there is a sense in which the "Reign of Law" is the reign under which we live. "The whole world around us and the whole world within us, is *ruled* by Law—our very Spirits are subject to it—those Spirits which yet seem so spiritual, so subtle, so free." Now we submit there is no clear sense in which this is altogether true. Farther he goes on to say that "It is impossible to describe or explain the fact we meet with in this (Anatomy) or any other branch of science, without investing the Laws of Nature with something of that Personality which they do actually reflect, or without conceiving of them as partaking of those attributes of Mind, which we everywhere recognize in their working and results."

But the Duke subsequently clearly corrects any erroneous impression which these sentences and others may have produced.

[1] "The Reign of Law," ch. ii.

He says, "And now having traced the various senses in which Law is used, we can form some estimate on the value of those conclusions, of which some men are so boastful, and of which other men are so much afraid. We can see how much and how little is really meant when it is said that Law can be traced in all things, and all things can be traced to Law. It is a great mistake to suppose that, in establishing this conclusion, the progress of modern investigation is in a direction tending to Materialism. This may be, and always has been, the tendency of individual minds. . . . It is not now of wood or stone that men make their Idols, but of their own abstract conceptions. Before these—borrowing for them the attributes of Personality—they bow down and worship. . . . Men who may be trusted thoroughly on the facts of their own Science, cannot be trusted for a moment on the place which these facts assume in the general system of Truth. Philosophy must include Science; but Science does not necessarily include Philosophy."

That the Laws of Nature are liable to change by a possible (we do not say probable) new Fiat of Omnipotence, some would not admit. But the Duke propounds a beautiful theory of "The Variable combinations of invariable Force," which gives a somewhat similar, or rather an equivalent, result. His words are: "Every Law of Nature is liable to counteraction, and the rule is that laws are habitually made to counteract each other in precisely the manner and degree which some definite result requires."[1] He says: "There are no phenomena visible to Man of which it is true to say that they are governed by any invariable Force." So that if Omnipotence may not choose to cancel or limit any of the Laws of Nature by a Fiat enacting a new Law in lieu thereof, it may accomplish the same or an equivalent result by calling into play various other different existing Laws, such as may be unitedly necessary to accomplish the desired change. This theory seems preferable to ours, as being more accordant with the "husbandry in heaven," of which Shakespere speaks, and may probably be the true one, inasmuch as by it such changes, if they ever did occur, would likely be less subject to human observation. Indeed our one object in treating of this subject at all is the wish to

[1] "Reign of Law," ch. ii. p. 100, 5th edit. (Strahan and Co., 1868).

preserve clear the Absolute nature of the power of a Supreme First Cause in this our Argument in search of Truth. His choice of action can never be limited by any of his own Laws, for otherwise he would not be Supreme, as judged by human reason.

We prefer to leave our suggestion as it is, because it stands more alone, and is more easily understood. The result is in both suppositions the same, or somewhat equivalent, while the question of Power is in both *alike* Omnipotent. Besides, our idea *clearly* exhibits the fact that the Laws of Nature are not *Eternal*, a truth which his theory unintentionally tends to conceal. Indeed, to some minds, it will suggest an awkward resemblance to the Law of the Medes and Persians, which an absolute Xerxes could decree, but once decreed, even he could not repeal. He could only circumvent its effects by another decree, perhaps more objectionable and cruel than the first, thus becoming the slave of his own Law. That the Omnipotent works by Laws in the Natural World seems obvious, as also is the doctrine of Evolution *within fixed limits*. But to maintain, as some seem to do, that these Laws are both Absolute, suggests that their Author is merely a gigantic Frankenstein, powerful to make Laws, but once made he becomes helpless to control or alter them.

It has been suggested that any alteration whatever in the wonted Laws of Nature would infer indecision, or else a want of wise forethought on the part of the Original Creator. This is inconceivable, because it would involve the idea that these laws were inevitably fixed and immovable even by Himself, so that He, as well as His creatures, would be bound up in an iron cage of destiny, and Man's actions would be without either merit or demerit, and he would necessarily be an irresponsible being. Besides, it is not conceivable by us that the Infinite Creator does not leave himself free to act, when and how he may think proper in all times, past, present, and future. May it not be that such apparent alterations are only parts of his *original* idea, but not required in earlier operation? Consequent on his omniscience, every possible contingency may be provided for beforehand, *even the possible results of Man's free will?* This is a totally different idea from the famous old suggestion that the Creator wound up this Material Universe like a clock, to go on eternally, every great

or small event alike predestined to happen in a way absolutely fixed from Creation, needing and receiving no supervision. That idea is, of course, inconsistent with Man's free will.

In an interesting volume just published an able and well-known author takes a view of this subject, not new, but one we think singularly one-sided, and long since exploded as unwarrantable. He says, "Apart from certain archaisms . . . become obsolete, the Zendavesta might have been compiled to-day from the writings of Herbert Spencer and Huxley. This conception of the universe has this enormous advantage over all those which rest on the idea of an Anthropomorphic Creator—that it does not make religion a means of perverting . . . morality by making an Omnipotent Creator the conscious author of evil, . . . either its God is not omnipotent or he is not benevolent."[1] This reasoning may pass were men mere machines, without freedom of Will, but Man's Free Will seems to us to completely destroy his argument.

We should gladly have avoided this question altogether; but it is one which appears to have a special interest for most seekers after Truth. It has always been a bugbear in their path; and it received considerable prominence in the writings of John Stuart Mill. It borders on the "Unknowable," and therefore perhaps the best mode of discussing it is to examine the arguments of Mr. Mill's school on the subject, in order to determine whether they are of a logical character. It may be premised that the possible new Arbitrary Fiat, of which we have already spoken, does not imply, as some theologians erroneously put it, that such a Fiat must contradict or supersede existing arbitrary Laws of Nature—for the Supreme Will would thus oppose itself, which is absurd. We should simply have two Fiats of *the same* Supreme and beneficent Being; and as He works by the operation of Laws, the new Fiat cannot be imagined save as interpreted by Arbitrary Laws of Nature, as simple, beneficent, and just as we have found his Laws to be.

It is evident that these considerations were left out of account, even by so eminent and clear-minded a logician as Mill. Of this the following is a remarkable instance, and can only be accounted

[1] "Problems of the Future," by S. Laing, p. 225. (Chapman and Hall, 1889).

for by his not seeing the *fundamental* difference between the "*Two Kinds of Truth.*" Mr. Mill, in criticising Sir W. Hamilton's views of the Conceivable, thus writes: "We cannot represent to ourselves a round Square, or that two and two make five." "These things," he adds, "are literally inconceivable to us, our Minds and our experience being what they are. . . . Whether they would be inconceivable, if our Minds were the same, but our *experience* different, *is open to discussion.*"[1] That the reverse of the most familiar principles of *Arithmetic and Geometry* might have been made conceivable even to our present mental faculties, if these faculties had co-existed with a totally different condition of external Nature, is ingeniously shown in "Essays by a Barrister," who writes as follows:—

"Consider this case, There is a World in which whenever two pairs of things are either placed in proximity, or are contemplated together, a fifth thing is immediately brought within the contemplation of the Mind in putting two and two together. This is surely not inconceivable, . . . nor can it be said to be beyond the power of Omnipotence—yet in such a world two and two would make five"!

The idea in the "Learned Barrister's" mind is obvious enough, and his NEW *order of Nature* is conceivable, certainly, with all his imaginary conditions. These are, that in every case when two pairs of things are placed in proximity, or contemplated together, some unknown Power, at the *instant* of contemplation, creates a fifth thing amongst the others, and that the Mind, in putting the two and two together, sees them to be *five*. "This," he adds, "is surely not inconceivable." In such a new world the 2 pairs of things plus 1 would undoubtedly be 5 real, not merely apparent, things. So far he is quite correct; but do we not see that no new World, nor any new order of Nature, is required? In our present world, and with our present experience, 2 + 2 with 1 *always* added, during or at the moment of consideration, and whether obviously, or by an unseen Omnipotent hand, would *here* also make 5? The only difference is that, in the new world, men would accept the fact at once, while at present we should be astonished *at first;* but *in both cases alike the fact would remain,*

[1] "Hamilton's Philosophy," by J. S. Mill, p. 69 (Longmans, 1865).

that 5 things were really before us, beyond all question. This is a pure *Arithmetical* (Geometrical) and *consequently necessary* truth, that 2 + 2 + 1 make 5. It is not a mere *Arbitrary* or Empirical, but a UNIVERSAL and eternal Truth, both in this and in all possible worlds.

It may be said that the Barrister does not affirm that the fifth thing is *created*, nor even that it exists, but that "a fifth thing is immediately brought within the contemplation of the Mind." This seems to infer a creation; or, if not, an *illusory* thing cheats the Senses, and defrauds the Mind with an untruth. Is it not the very acme of unreason?

It is further suggested, that it would also be possible to put a case of a World in which two straight lines should be universally supposed to include a space. Here the questioner overlooks the fact that he is endeavouring to overturn another *necessary*, because a *Geometrical* and therefore UNIVERSAL and eternal truth, which demonstrates that three *straight* lines are absolutely necessary to enclose a space. With equal reasonableness it might be affirmed that we could conceive of a world in which we could make to ourselves a Round Square, or even represent to ourselves that the Sun could *be* and *not be*, at one and the same time. Such assumptions as these are absurd, and mere self-contradictions. To call in Omnipotence, as the "Learned Barrister" suggests, arbitrarily to make a Necessary and UNIVERSAL Truth untrue, is clearly a direct contradiction to Reason, and is therefore *not conceivable*. On the other hand, to say that Omnipotence could alter a NATURAL, that is, an Empirical Truth, by an Arbitrary Fiat, does not contradict Reason, and is therefore quite conceivable, although we may have no experience of such a case.

The "Learned Barrister," in fact, does his idea great and fatal damage by adopting UNIVERSAL Truths for the purpose of his illustration. All his three suppositions were in the UNIVERSAL sphere. Had he seen the distinction of the *Two Kinds of Truth*, he might have adopted NATURAL Truths with success, and with even more popular effect. Let us apply a test of this sort. "Consider this case: 'There is a world in which' all the animals can walk on the water, as well as under it; man can float in the atmosphere, and all vegetation is of a red colour." These three

suppositions are all in the NATURAL sphere; and the phenomena would not appear strange to that world's inhabitants. Neither would any of them be illogical. We have shown elsewhere that all Arbitrary (NATURAL) facts are liable to possible change, either in this or in any other world.

No better occasion could have been found to corroborate the fact of the inevitable TEST OF TRUTH, which springs from the consideration of the *Two Kinds of Truth.*

As for Mr. Mill, who approves the idea of the "Learned Barrister" as ingenious, Prof. Max Müller has said: "He attempts to live at the same time as a chrysalis and soar about as a butterfly. . . . He ought to define first of all what he means by Matter. . . . Definition is the only remedy which the Science of Thought can prescribe. . . . That thought is often hide-bound in language, that its history is a constant struggle against effete words, . . . that the record of its sufferings and diseases . . . may be read in all mythologies, in all religions, and in all philosophies is by this time well-known. . . . All honest philosophers have felt it. . . . It is in the development of thought as in every other development; the present suffers from the past. . . . For better or for worse language and thought are inseparably united; a divorce means destruction to both. . . . We see how dear Bishop Berkeley forswore the use of words, but could forswear them in words only. . . . The Science of Thought is to the Science of Language what Biology is to Anatomy. . . . The two are really one. Yet in the progress of human knowledge, the firm foundation had to be laid by the Science of Language before it was possible to erect on it the new edifice of the Science of Thought, or to indicate at least how it might be carried out by those who will come after us." [1]

We are as glad to conclude this chapter as most of our readers will be. But to have ignored this subject altogether would have been a breach of our mutual understanding, that our search after Truth was to be at least an honest one.

[1] "The Science of Thought," pp. 615, 617, 618 (Longmans, 1887).

LECTURE VII.

WILL IN MAN AND ANIMALS — MOTIVES OF INSTINCT AND MOTIVES OF REASON—THE CONSCIENCE-MOTIVE IN MAN ONLY.

THE old controversy still continues between the advocates of the Freedom of the Will and those who hold Necessitarian views. The Duke of Argyll treats the subject with judicial ability, and seems to refute the Necessitarian arguments of Mr. J. S. Mill. But he writes at great length, and at one point appears to hold up the question of the Freedom of Man's Will with a somewhat less firm hand than usual—perhaps, however, in appearance rather than reality. This is in treating the question of *Motives*.

There is no doubt that *Motives* do interfere with the ratiocinations of Mind on every subject brought under its consideration. But to say that Men's deliberate judgments and consequent actions are *necessarily* in accord with such Motives, whether good, bad, or doubtful, seems to be an admission that Man's Mind (Will) is governed by Motives, and if so cannot be called Free. Argyll holds that there is no compulsion in this case, and this may *sometimes* be said, because the Will can be supposed to be willingly convinced—only, however, when Motive agrees with Conscience.

He thus writes: "Free Will, in the only sense in which this expression is intelligible, has been erroneously represented as the peculiar prerogative of Man. But the Will of the lower animals is, within their narrow sphere of action, as free as ours. A Man is not more free to go to the right hand or to the left than the eagle, or the wren, or the mole, or the bat. The only difference is, that the Will of the lower animals is acted upon by fewer and simpler Motives. And the lower the organization of the Animal, the fewer and simpler these Motives are."[1] With the last part of

[1] "The Reign of Law," 5th edit., p. 304, 1868.

this proposition all will agree, but the reader will observe here that the going to the right or the left is *always* an act of Instinct in the Animals, while in the Man it is an act of mere Instinct *at one time*, while at *another time* it is an act of Reason; and thus it cannot be said that "Man's will is not more free than the Eagle," *seeing that Reason always is supreme.*

We are told that "some animals can be trapped with perfect certainty," while a higher degree of intelligence enables others to detect the danger. "Yet the Will of the cunning animal is not more free than the Will of the stupid animal. . . . The will of the young Rat, which yields to the temptation of a bait and is caught, is not more subject to Law than the will of the old Rat, which suspects stratagem, resists temptation, and escapes."[1] They are both subject to Law, in precisely the same sense and degree.

There seems to be a slight confusion in this excellent illustration. The proper explanation of the actings of the two rats is, we think, simply this: The two are alike destitute of reason, and, whether with or without experience, both alike fear and hide from man, and this is entirely due to Instinct. But the old rat has *seen* instances in which such baits were fatal to other rats, and by *Memory* of such observations, aided by its intense sense of smell, can detect traces of the work of its natural enemy, Man, and so instinctively avoids the snare. The senses of sight and smell are very much keener in Animals generally than in Man, and we have already shown that Memory is a faculty of Instinct, as well as of Mind. The higher degree of intelligence in some animals, and in some kinds of animals, beyond that of others, is simply this: That they are endowed with just so much as their circumstances require, or their experience teaches, so as to meet the greater exposure to danger of their individual life and well-being. But all is at best only the intelligence of Instinct; there is no proof whatever of the existence of Reason in the matter. A recent writer on this subject says that "many of the Mammalia are capable of reasoning upon observed facts."[2] Mr. Cope is eminent as an expert in Paleonto-

[1] "Reign of Law," p. 305.

[2] "Origin of the Fittest," by E. D. Cope, A.M., Ph.D. (Heidelberg), (Macmillan, 1887).

logical and Zoological science, but not necessarily an authority in purely Philosophical questions.

Almost all these differences arise from not clearly distinguishing between Instinct and Reason, and between Instinct-Motives and Mind-Motives (Reason), and from forgetting that the word "Will" is just another name for Mind itself. The word "Intuition" seems to be a very indefinite one, and leads to confusion when used, as it frequently is, for Instinct.

"Thus the muscular contractions of the human body are of two kinds: First, the instinctive motions, most of which are constant, unconscious, and lasting with the duration of life itself. The second are ruled by Mind, and are intermittent, voluntary, and capable of being destroyed. Both act by the use of means, but it is only in the case of the second kind that these means are at the bidding of Will. It is not experience which teaches us, in the first kind, how to use those means—it is purely Instinct. We are not here conscious of the very existence of the means we employ, and the profoundest researches of science do not even yet give us the faintest notion of what their ultimate nature is. . . . No experience whatever is required to teach a child how to extend its limbs, nor how to exert its voice." [1]

If the reader will keep in mind that Instinct belongs to the NATURAL World, and Reason to the UNIVERSAL or spiritual, the confusion will greatly disappear. As regards Motives, the same remark applies. In Man the Instinct-Motives are entirely distinct from all others, such, for example, as love of glory, ambition, envy, despair, which are not Instinctive, but belong to Reason.

The Animal Instinct and the Instinct of Man are both influenced alike by all Motives which appeal to Instinct.

But we have shown that Instinct is limited to the considerations of the preservation of the individual life, its offspring, and all that tends, directly or indirectly, to the gratification of animal appetites, pleasures, and passions, *and extends no farther*. So that in the case of the lower animals such Motives must undoubtedly rule their actions; and thus it appears that *Animals really have no Free Will.*

In the case of Man they will equally tend to rule his actions.

[1] "The Reign of Law," p. 292.

But he has higher Motives acting upon his (Soul) Mind, which may be good, bad, or morally indifferent, and all these Reason will consult and weigh, and will naturally accept the most powerful. But if the decision be morally wrong—untrue or unjust—Conscience will demand an arrest of action, *and purely by conviction*, will so influence the Will as to throw all unworthy Motives aside.

Consequently, if the Man's Mind is intelligent and honest, his Will will be set free to act aright, and not by compulsion or inducement of all or any outside Motives. Milton wrote: "True Liberty, . . . Which always with right reason dwells." An imprisoned poet wrote:—

"If I have freedom in my Love,
And in my soul am free,
Angels alone that soar above
Enjoy such liberty."[1]

In this free decision of Will, Conscience does not act as a *Motive*, but is a property of Man's Mind within itself. Professor Cope says, "I leave Conscience out, as not belonging to the category of inherited qualities."[2]

Nor does it ever act by compulsion; for Man's Will is free, and may, and often does, refuse to adopt the convictions of Conscience, but always with future regret. Robert Burns, whose opinion is worthy of consideration, evidently thought so. In speaking of wrong-doing he said:—

"One point must still be greatly dark,
The *moving why* they do it:
And just as lamely can ye mark
How far perhaps they rue it.
. . . . .
What's done we partly may compute,
But know not what's resisted."[3]

Dr. Cope says: "The Divine Spirit planted in Man shows him that which is in conformity with the Divine Mind, and it remains

[1] Richard Lovelace, 1658. [2] "Origin of the Fittest," pp. 163–173.
[3] Burns' Poems.

with his free will to conform to it or reject it." A western poet thus writes :—

"O tempest-nursed,
For thee what Fates? I know not. This I know:
The Soul's great Freedom, gift of gifts—the first,
Thou first on Man in fulness didst bestow." [1]

Cervantes wrote that "every one is the son of his own works. . . . I would do what I pleased, and doing what I pleased I should have my Will, and having my Will I should be contented; and when one is contented there is no more to be desired, and . . . there is an end of it." [2] Spenser, too, has written—

"What more felicity can fall a creature
Than to enjoy delight with liberty?"

If Conscience is not one of the faculties of Mind, and independent of the Will, it may be asked, "On what *basis* does it stand as a judge of conduct?" We think the only answer must be that this basis is the Ten Commandments of the Decalogue, which seem to be an *inherent* property or endowment of Conscience. We are told that the heathen having no (written) Law are a law unto themselves. The most uncultivated Savage evidently has some dim idea of right and wrong.

This appears to be borne out by the fact that all Savages worship some Supreme god or gods (the First Commandment). If utterly savage they are the more religious (superstitious), and to satisfy this god they willingly sacrifice everything else—slaves, and even their own children. Thus, so very imperative does this *first* Command seem, that it overpowers the others. When the author of Christianity appeared he substituted a new Decalogue for the Ten Commands. "Thou shalt *not*," by a new injunction became, "Thou *shalt* love the Lord thy God with all thy heart, and thy neighbour as thyself." The old Decalogue thus gave way to a new and more *spiritual* one of LOVE, which belongs to the UNIVERSAL sphere.

Mr. J. S. Mill says that the word Necessity means only In-

[1] Poems by De Vere (King and Co., 1877).
[2] "Don Quixote," pt. i. bk. iv.

variability, and does not include Compulsion; but Argyll objects to this word as ambiguous, and defines Freedom thus: "Freedom of the Will can only mean that the Will is free from compulsion. . . . If Necessity does not mean Compulsion, it either means nothing at all or nothing inconsistent with freedom when properly defined and understood."[1]

Here it is proper to state that our quotations from "The Reign of Law" are very incomplete, being selected only to aid or to contrast with our arguments. By themselves they give a one-sided and unfair idea of the Duke's opinions; thus after saying that, "Man's Will is free in the same sense and in the same sense only [as that of the lower animals]. It is subject to law in the same sense, and in the same sense alone," he goes on to say: "That is to say, it is subject to the influence of motives, and it can only choose among those which are presented to it, *or which the mind has been given the power of presenting to itself*. . . . But in this last power we touch the secret of that boundless difference which separates Man from the highest of the animals below him."[2] *Now* we seem to be at one with the Duke, as to the *gulf* which exists between man and the animals, but the origin and action of this "*power*" are still not quite clear to us.

The whole question of Motives seems to have given rise to much difference of opinion. Thus Argyll's views, as referred to above, appear to be disputed in a friendly controversy with Dr. Ward, and subsequently with Mr. Mahaffy, especially in regard to the "abstract predictability by another Mind of human conduct," and as to the meaning of the word "Motives."[3]

We have shown that Animals are devoid of Free Will, but it has been held that some men are equally devoid of it, inasmuch as they are slaves to their appetites, being educated in vice from their earliest years. Thus Mephistopheles—

> "Poor wight,
> But for thy gift, a gleam of heavenly light;
> Reason he calls it, and doth use it so,
> That e'en than brutes more brutish he doth grow."[4]

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[1] "The Reign of Law," chap. iv. [2] Ibid., pp. 305-6.
[3] Ibid., notes F and G. [4] Goethe's "Faust," Prologue.

Having thus almost no knowledge of right and wrong, or any moral training, they are said to be no more responsible to moral constraint than the animals, and like them are without motives to well-doing other than the fear of punishment or the bribe of reward. Consequently it is said they will be ruled only by Instinct-Motives. This may be to a large extent true, but is *not absolutely so in any case*, because they all possess Conscience, which will—although it may be feebly—warn them if they do wrong.

There is still another kind of Motives, which it has been suggested influence the Mind. These are congenital motives, not external, but resident within the Mind itself, and analogous to habits of the body, which devolve from parent to son. Of such motives, whether of body or mind, we are usually unconscious, although our friends may not be so, and may speak of them as our peculiar character, disposition, or foibles, or even our *manner* of expressing our opinions. However marked this inheritance may be in outward manner, it cannot control the operation of the Mind, but only prejudices it; and all improper motives of this class are still under control of the Will and Conscience.

Dante has been quoted to show that Motives are all-powerful in Man, as in the lower animals. What he wrote [1] was this:—

"The Soul created apt
To Love moves versable which way so e'er
Aught pleasing prompts her, soon as she is wak'd
By pleasure into act."

He further adds the following fine passage:—

"Ye have that virtue in you whose just voice
Uttereth counsel, and whose word should keep
The threshold of assent. Here is the source,
Whence cause of merit in you is derived,
E'en as the affections good or ill she takes,
Or severs, winnow'd as the chaff. Those men
Who reas'ning went to the depth profoundest, mark'd
That innate freedom, and were thence induced

[1] "Purgatory," canto xviii. (Cary's trans.).

To leave their moral teaching to the world.
Grant then, that from necessity arise
All love that glows within you : *to dismiss*
Or harbour it, the power is in yourselves.
Remember, Beatrice, in her style,
Denominates free choice by eminence,
The noble virtue, if in talk with thee
She touch upon that theme."

Freedom of will is set forth here as sufficient to overpower the influence of motives. As to the lines preceding these :—

" From whence his intellect
Deduced its primal notices of things,
Man therefore knows not, or his appetites
Their first affections ; such in you as zeal
In Bees to gather honey ; at the first,
Volition, meriting nor blame nor praise,
But o'er each lower faculty supreme,
That as she list are summon'd to her bar "—

we remark that the Bee gathers honey under the supreme influence of Animal Instinct, and Man is certainly influenced in the same way to gratify his Instinct appetites. But in his case, such influence is *not* necessarily supreme over Will ; he has " that virtue in him [in his Mind] which should keep *the threshold of assent.*"

Principal Caird writes : " By a false analysis of the supposed phenomena of the Will into Motives and Volition, we are led to represent the former as something spatially external to and acting on the other—Motives as pushing, impelling, restraining the so-called faculty of Will, in the same fashion in which one physical agent acts on another. But in all this we are really imposing on ourselves by a fiction of externality and necessity." [1]

Mr. S. Laing [2] furnishes us with an illustration of Instinct-Motives in the case of irrational animals, which he is disposed to interpret as Mind-Motives. " Suppose," he says, " a retriever dog sees his master shoot at and miss a hare. Shall he obey the

[1] " Introduction to the Philosophy of Religion," p. 193.
[2] " A Modern Zoroastrian," p. 39, 1887.

promptings of his animal instinct and give chase, or those of his higher moral nature, which tell him that it is wrong to do so without the word of command? It is hard to see how this differs from the case of a man resisting or yielding to temptation ; and how, if we assign conscious will to the man, we can deny it to the dog. . . . Reasoning from these premises, some philosophers have come to the conclusion that man and all animals are but mechanical automata, cleverly constructed to work in a certain way. However," he adds, "no amount of philosophical reasoning can make us believe that we are altogether machines, and not free agents; it runs off us like water from a duck's back, and leaves us in presence of the intuitive conviction that to a great extent—

"'Man is man and master of his fate,
If this be illusion, why not every thing?'"

The answer to the retriever dog illustration is simply this. The motive to give chase is Instinctive, and must be acted on unless some other animal and instinctive motive, more powerful, exists. If he has been thoroughly trained, he *instinctively* knows by experience that his punishment will be very much more severe and important than the value of many hares, and so he will obey the more powerful of the two motives—that is, the avoidance of pain. Observe that both motives alike are animal and instinctive. The idea of a higher moral nature is a mere sentimental figure of speech. When men of culture so write, it is not uncharitable to suppose that their minds have been concerned with study of their more immediate problem, and that they have not given serious consideration to what is for them a subsidiary subject.

Here is another case in point. A friend of the writer's had occasion to breakfast alone. He has a favourite cat, which he supplies with food from his table. One morning he had to go upstairs for two or three minutes, with a cup of tea, to an invalid. On returning he found the cat upon the table, where, having discussed the cream, she was trying to remove the cover from the fish. Of course she was thoroughly whipped and disgraced. Subsequently, one morning she obtained admission unseen, and

the gentleman, who had to pay another visit upstairs, found on his return that puss was standing with a most beseeching expression, nothing on the table having been touched. Ever since she has been left in charge of the breakfast table, with perfect confidence. Now this might be set down to a "higher moral nature" if it stood alone; but alas! she has acquired a different character in the kitchen. If the boy steals the jam, he tries to hide his trespass by replacing the cover of the dish; but the cat never attempts doing so. Here we have a clear distinction between Instinct and Reason.

The question of the Freedom of the Will may seem too metaphysical for some readers, but in view of the somewhat prevalent confusion which exists on the subject of Motives it deserves some further notice. A recent writer holds that, "A man with a criminal nature and education, under . . . temptation can no more help committing crime than he could help having a headache under certain conditions of brain and stomach. . . . In neither case can the Will operate directly to suppress either crime or headache." Here the reader will observe that headache as well as brain-ache and stomach-ache, are mere physical diseases, probably related, but curable by proper medical treatment. But we resume the quotation: "The sooner the idea of moral responsibility is got rid of, the better it will be for society. . . . The sooner it is perceived that bad men will be bad . . . the sooner shall we come to the conclusion that the welfare of society demands the suppression or elimination of bad men. . . . The bad man has no conscience; he acts after his malignant nature. . . . His mind is made up to choose the bad." We question the statement that any man exists who never had some glimmering of Conscience. If he malignantly makes up his mind, he is morally responsible therefor, and if he chooses the bad he had a choice—that is, freedom of will. "But," adds this writer, "society, knowing its own interests, has a right to exclude him from its fellowship, not only to prevent and punish his evil actions, but to suppress him in some effectual way, and above all prevent his leaving a posterity as wicked as himself. . . . The soldier who deserts in presence of the enemy is deservedly shot. In civil life there are forms of criminality which are worse than desertions." Again, "Conscience

alone is a deceitful guide: like justice it is blind, it will do evil as readily as good." [1]

We have often been told of the "Survival of the Fittest," but now it is said that the survival is not of the fittest, but of the most unfit. We read that "it is the feeblest, the least moral and most worthless classes of the community who multiply the most rapidly." "It is the pauper and criminal class which supplies the human rabbits who multiply in the warrens of our great cities. . . . The educated and well-to-do increase much less rapidly." This writer demands that statesmen should "interfere by imprisoning for life all habitual criminals, . . . to prevent them from multiplying their kind."

Statesmen are not likely to attempt the extermination of this lowest class. There is neither the possibility nor the necessity for doing so. Even these human rabbits have in them the germ of Reason. Were the multitudes of their children, possessed of no real home or parental care, legally carried off to a distance, trained and educated in the country, or preferably in the colonies, a valuable class of workers might be obtained for the service of the nation. It would be a work alike beneficial and economical; for crime is debasing, contagious, and COSTLY. The existing Reformatories are doing excellent work, but are continually being checked by worthless parents, who await their children's discharge to seduce them to drink, and to commit greater crimes for the gratification of their own drunkenness; and thus perpetuate the rabbit warrens and fill the jails. Such parents have long ago forfeited all rights of parentage.

Before leaving this subject of Motives, let us apply to it the grand TEST of "The Two Kinds of Truth." Motives are of two kinds—Instinct-Motives and Mind-Motives—which are not only different, but *incommensurate*. Instinct-Motives not only in the animal, but in the Man, belong to the NATURAL sphere, and rule or influence conduct accordingly: in the animal entirely so; but in the Man, Mind belongs to the UNIVERSAL or spiritual sphere, and, as we have seen, can always over-rule Instinct. Thus Man has a choice of conduct, both as to his Instinct-Motives and as to

[1] "The Service of Man," by James Cotter Morison. Preface and chap. ix. (Kegan Paul, 1887).

his Mental-Motives, and hence his freedom of the Will, of which all lower animals are devoid. This is corroborative of our views of Motives as already given.

The special case above referred to is ruled by this same test. The Will is a faculty of Mind (UNIVERSAL), and therefore *may* always assert its freedom, even in the case of the most debased. We say "may," although in these cases experience shows us that such assertion is rare indeed. To this circumstance we must attribute the contradictory opinions which prevail amongst thinking men on the subject.

The Brain is popularly considered a Mental Faculty, but being a physical organ, it only, as such, belongs to the NATURAL sphere, and, with the spinal marrow, seems to be the seat of Life both in animals and man. What Life is we do not know. It seems paradoxical to say that, although we may be able to see "What is Life," we yet cannot say "What Life is." The Brain (NATURAL sphere) is, in Man, generally called the Seat of Thought (UNIVERSAL sphere); but, as we have found, there is no means of solving the mystery of the communication which obviously exists between them.

"We are such stuff
As dreams are made of, and our little life
Is rounded with a sleep." [1]

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[1] "Tempest," act iv. sc. 1.

LECTURE VIII.

THE ESSENTIALS OF CIVILIZATION—THE MORAL BASIS—COMPARATIVE CIVILIZATIONS — THE BEWILDERMENT OF MENTAL SCIENCE.

THE question may be raised, In what does Civilization consist? If in Morals, whether does it evidence itself in any people most by simple Honesty or by Truthfulness? That these are not convertible terms is shown, for example, by the Japanese. A friend, a respected professor in the Tokio Government University, described them as a whole to be a singularly civilized nation, even more *apt* to learn the higher branches of education than University students in England. They make incredibly rapid progress in Languages, Philosophy, and Science, and excel in Mathematics and its practical applications to Mechanics and the Arts. He relates that, a special friend of his being seriously ill, he sent his servant in the early morning to ask how he was. The answer came that he was "doing well." Later in the day he called personally, and was surprised to find that the answer sent by his man had been "rather worse." On returning home he demanded why his messenger had so deceived him. Quite unabashed, and evidently surprised, the man replied, "You know, sir, had I said worse it would have grieved you much, and *of course* I could not be so impolite as to speak truly!"

The servant was trusted as honest, and farther acquaintance with the people showed our friend that this was only their *common notion* as to the proper and right course, and that they had no idea of any wrong-doing in telling lies. Here the servant's conscience, while powerful enough to check dishonesty, failed from ignorance or otherwise to do so with untruthfulness, and so he allowed his Will to be overborne by the *Motive* of a supposed necessary politeness! This national untruthfulness must prove a serious hindrance to justice, and even prevent Japan from gaining

the foremost place among the Eastern nationalities, which otherwise she seems well qualified to do, not only in learning, but in agriculture, manufactures, commerce, and government.

The Japanese are said to be a cheerful, law-abiding people, cleanly and industrious. Whether they can be called a correctly moral people is not very clear. Besides this general inability to apprehend truthfulness, they are remarkable, and perhaps unique, in their inability to apprehend modesty, in a degree almost incredible to us. This seems common to both sexes. A recent traveller writes thus of young marriageable girls :—" All these girls are sparkling, tiny creatures. They have a roguish expression and a childlike prettiness. . . . They substitute their clean chemises for their labour slips under our very eyes with as much indifference as an English young lady would change her gloves. . . . Yet I cannot call it indecent in our sense of the term, since the notion of indecency is absolutely indisputably absent." [1] Of course these remarks apply only to the common people, who however are by no means either ignorant or stupid.

Probably the true index of Civilization in any nationality is the purity of the people's morals, and the free circulation of justice. A writer of the last century, perhaps in presence of the French Revolution, said that it was vain for so immoral a people as those of that era to cry for " Liberty and Equality." There is profound truth in his proposition, for even although otherwise intelligent, " no immoral people could ever devise for themselves a practically good government ; and, on the other hand, no government, however strong, could long tyrannize over an intelligent *and* moral people." Coleridge truly said :—

> " The sensual and the dark rebel in vain ;
> Slaves by their own compulsion ! In mad game
> Of Freedom, graven on a heavier chain."

Perhaps it may be admitted that a high refinement in Arts and Poetry is one great criterion of Civilization. It is, however, remarkable that in almost all nationalities the *earliest* artists have also been the greatest. In England, one of her earliest poets, Shake-

[1] " Sketches of Life in Japan," by Major Knollys, R.A., p. 16 (Chapman and Hall, 1887).

spere, is still her greatest. In the Latin nations, the same may be said of Dante. In ancient Greece they have had no poet so great as their first—Homer—nor any sculptor to compare with their first—Phidias. In prehistoric time there are indications that the oldest Chaldean and Egyptian Architecture and Sculpture surpass *all* subsequent Art in *exquisite beauty and refinement.* Prof. Draper, however, says that "Anatomically we find no provision for the improvement of the Moral, save indirectly through the Intellectual. . . . It is a mistake to make the progress of Society depend on that which is itself controlled by a higher power." [1]

These circumstances are worthy of note, without inferring from them that these several nationalities were all more civilized in their earlier eras than in their later periods; for, whatever may be inferred as regards the others, we cannot say that our own country is at present less advanced in civilization than in the Elizabethan age. "The calamity of Bacon's age was that the lie had sunk into the soul of men in other respects great, who were not ashamed fashionably to forget their self-respect." [2] The true explanation probably is that neither Art, nor any other single characteristic alone, is the true index, but a combination of qualities, *Morals being the chief.*

A recent French writer, speaking of the secret of China's extraordinary *National* longevity, and the conditions of her liberty of development, says: "We speak of that state as most civilized, in which on a given area the largest number of human beings are able to procure and distribute, most equally amongst themselves, the most well-being, liberty, justice, and security," [3] and this he claims for China.

A learned French writer says that "Civilization is the resultant of all the efforts which Man makes to live the true human life, superior to the instinctive and animal life—in one word, the life of the spirit, . . . It marches onwards towards an ideal, always very remote. This ideal is composed of knowledge, of morality, or of justice, and of beauty." [4]

[1] "Intellectual Development of Europe," vol. ii. p. 360.

[2] Bacon's Life, by Prof. Nichol, p. 21 (Blackwood, 1888).

[3] "China," from the French of G. Eug. Simon, p. 3 (Sampson Low, 1887).

[4] "The History of Religions," by Prof. Reville, D.D., translated by A. S. Squin, 1884, p. 218.

Perhaps the most popular definition of Civilization, however, is that which is indicated by the national treatment of women. In this view, it appears that the Hindoos and Mohammedans are the least civilized, while the English and Americans are perhaps the most so. According to Prof. Sayce, a claim might be made for the most ancient peoples known to rank first in Civilization. Amongst the Accadians, he tells us, "it was the mother, and not the father, who stood at the head of the family. . . . Woman in Accad occupied a higher position than she did or does among the Semites," their successors.[1]

The ancient kingdoms of Peru and Mexico seem to afford a glimpse of Civilization altogether unique. The Incas of Peru, when conquered by Pizarro (A.D. 1532), were the religious and civil rulers of a people of somewhat advanced civilization. Their Sun-worship was originally comparatively pure and beautiful, although even then becoming degraded. "They believed in a Great Spirit, the Creator of the Universe, *who could not be represented by any image, nor dwell in a temple made with hands.* They also believed in the existence of the soul hereafter, and in the resurrection of the body. But they also believed in other subordinate deities, of these the Sun being the chief. They reverenced the Sun as the source of their own royal dynasty; and numerous altars smoked throughout the land with offerings burned in his worship."

The country then contained thirty millions of inhabitants (now not a fourth of that number), and was extremely rich in gold. Regarding the origin of the Incas nothing definite is known, as they possessed no writings, a remarkable fact for a people otherwise so advanced. But tradition gives A.D. 1042 as the date of Manco, the first Inca. Before this era, however, a *previous* kingdom existed, during which the people dwelt in large flourishing cities. Ruins of their grand works are found still, showing a great massiveness of masonry and colossal statuary, *indicating an advanced civilization, even beyond that of the Incas,* who succeeded them. The Architecture of the Great Temple was original, and the masonry so perfect as to render the joints of the great stones almost invisible, reminding us of Baalbek, in

[1] Hibbert Lectures, p. 176 (1887).

which indeed they are less perfect. Nothing is known with certainty of their religion, but it seems to have been *a pure theism*, thus indicating even a still higher state of civilization. They were evidently a different race from their successors, and of altogether unknown origin. Can we call such a people *Savages*, or claim any great advance in civilization for the present inhabitants of their country?

The evidences of advanced Civilization in the ancient nationalities of the East we consider elsewhere. In Greece the Athenian worship of Dionysius shows a peculiar state of refinement existing with a gross exhibition of superstition. The Tragedies of Sophocles (B.C. 540), Æschylus, and Euripides, are still the world's models of beauty and nobility of thought, and indicate a then state of government singularly just and good, but destined soon to deteriorate and decay. After the age of Socrates and Plato (B.C. 469 and 429), who left a legacy of Philosophy to enrich the world, Greece having become famous in arms, carried Western Civilization into the heart of Asia. There and in Egypt it was dissipated, but not lost. Eventually the greatness of the Roman Empire was evidently built up upon the genius of Greece, as that of Greece had previously been on that of Chaldea and Egypt.

M. Ernest Renan writes: "Three histories combined to constitute the history of Civilization—Greece, Judea, Rome. . . . Roman history is none the less part and parcel of the histories of Greece and Israel, . . . which are the pivot of all the rest, and which we may call *providential*, inasmuch as they have their appointed place on a plan which is elevated above the chops and changes of daily life. *I say Providential, not Miraculous.* . . . If there is such a thing as one miraculous history, there are at least three. If supernatural intervention is the sole explanation of the one, so it must be of the others. I will even add, that in my opinion the greatest miracle on record is Greece herself."[1] We quote these passages to show how this brilliant writer seems to ignore the Egyptian and Chaldean history, civilization, and philosophy, with which the early Greeks so evidently enriched their own. From the early dawn of Grecian learning it was the practice of many Greeks to travel in the East; but the "Wise Men of the

[1] "History of the People of Israel," p. x. (Chapman and Hall, 1889).

East" despised Western wisdom. The Jews were carried off to Babylon by force. They took their manners and laws with them, and many rose to positions of great influence, but maintained their own national characteristics.

But we also wish to draw attention to the logic of this author. He appears unintentionally to confuse the three words Providential, Miraculous, and Supernatural, by trying to make an opposition between the Providential and the Miraculous which cannot exist. It seems logically impossible. What is providential is not natural; for, if natural, why providential? The very word implies Supernatural, and exactly the same may be said of the Miraculous, which is almost equivalent. As to his argument *generally*, we of course do not attempt any criticism.

It is to be feared that Civilization still remains one of the words which wait for a clear definition. The previous methods of promoting it evidently do not commend Fraud, Fire-water, or Gunpowder as a success.

Yet one other definition of Civilization has been offered, namely, that of Religion. Theologians hold that Morals are necessarily included in this word, while others imagine that Religion has a much more restricted meaning. It must be admitted that the various religions which in ancient times succeeded each other really appear to be largely an index of the Intellectual Civilization of their eras. Thus, the belief in one *spiritual* Supreme God, as held by Job and Moses, indicates a purer and higher Intellect than that of the *materialistic* Sun-worshipper, however simple and beautiful his adoration may have been. The addition of the moon and planets to his worship certainly indicates a still more material and illogical service. The worship of Bel or Belus was Sun-worship, followed by various additions (as of Astarte, Baal, and other Fire gods under numerous names), which led to human sacrifices, evincing an immense fall in intellectual civilization and true refinement. The worship of Animals, first the Serpent, and the Apis Bull, gradually descending to insects, wooden images, and Moloch worship, indicates a corresponding farther degradation of civilization, and a state of morals and manner sadly debased, such as history too often reveals. Zeus, Jupiter, Mars, Saturn, Venus, and Bacchus were

probably Eastern gods, disguised under a new Mythology. In Greece, and especially in Rome, the State Laws were a singular mixture of wisdom and justice with cruelty and oppression; but the lives of some of their foremost men may not be examined, while their amphitheatres became vast altars for brutal and even human sacrifices disguised under classic names. The great Roman Empire became immoral, and eventually utterly demoralized, and so fell an easy prey to the Goths and Vandals. It would thus appear that Theism was the index of a higher, while Polytheism was that of a lower Civilization, and becoming yet lower as the number of its deities increased.

Almost all writers seem to assume that Civilization has been progressive, without considering the *possibility* not only of eras of retrogradation, but even the loss of knowledge in science, art, and literature previously possessed. A recent writer says, "Looking back as far as that" (some twenty, thirty, or forty centuries), "we behold the world wondrously like what it is now, . . . and enacting very nearly the same scenes. Nations live in families, clustered within cities, are governed by laws or ruled by monarchs, carry on commerce and wars, extend their limits by conquest, excel in all sorts of useful and 'ornamental arts.' . . . The conclusion is clearly forced on us, that so complicated and perfect an organization of public life, a condition of society implying so many discoveries, and so long a practice in thought and handicraft, *could not have been an early stage of existence.*" [1]

This is an excellent epitome of the facts, but is not the conclusion drawn from them altogether unwarranted? The writer gratuitously seems to *assume* the fact that primeval man was a savage, and that long dim vistas of time, vaster than the space as yet laid open to our knowledge, had passed, during which he had progressed upwards to the comparatively high civilization above described. This is possibly true, but no one whatever knows that it is so; and with *equal* warrant it might be *assumed* that primeval man was intellectually, morally, and artistically more civilized than the most advanced ancient peoples within our historical vista of knowledge. *For Civilization does not necessarily consist in the possession and use of great mechanical works and inventions, but*

[1] "Chaldea," by Z. A. Ragozin, p. 97 (Unwin, 1887).

rather in the possession of intellectual genius and capability of inventing and constructing all such, as discoveries of materials and need of such inventions and works arise.

We by no means suggest this view as probably true, but merely to show that it has *as much* foundation in fact as the other, so often assumed as if it were necessarily true. The question should be allowed to remain an open one until some further evidence arises.

The great founder of Christianity, "instead of trampling on the world like the Stoic, or despising all but his own race, like the Jew, would have us reverence the world, and love it. . . . While Stoicism, then, from its imperfect human sympathies could not, and Judaism from its narrowness and pride, would not make headway in the virgin soil of barbarism, Christianity, by giving free expansion to the Mind, heart, and imagination, was in its essence favourable to an advance in Civilization." [1]

The reader will remember that we did not propose to introduce any new theory. The division of Truth into Two Kinds is not new. Descartes (A.D. 1596) had the merit of first making it known; then Leibnitz; and later Reid and Immanuel Kant—the latter much more fully and directly; but none of these great philosophers seems to have realized its *primary importance.* Kant, as we have recently found, names the one kind Pure *à priori* Cognition, and the other kind Empirical *a posteriori* Cognition, and introduces Geometry as illustrating the former, just as we have done. But instead of resting his argument, as we have, on this one foundation, he mentions it very shortly—almost incidentally—and at once, and at very great length, proceeds to apply the idea to Pure Ethics, *i.e.*, the Truths of Moral Philosophy. Here he finds that Ethical Truths are very rarely pure, that is, they generally have some element of the Empirical in them, or some relation thereto, which leads him into one of the most intricate and diffusely comprehensive expositions we have of Pure Reason. To explain these and to answer critics, he wrote a new Treatise [2] equally voluminous and

[1] "Civilization and Progress," by John Beattie Crozier, p. 444 (Longmans and Co., 1888).

[2] "Metaphysics of Ethics" (Clark, Edin., 1869).

learned, which only philosophers can appreciate. The great and primary importance of the distinction and division of Truths into Two Kinds was never clearly apprehended, and soon became buried out of sight in volumes, divisions, sections, and sub-sections, as in not a few other thinkers' works, and readers generally find them bewildering and inconsistent, if not contradictory.

Kant was followed by a host of philosophic writers, some of them eminent, but all less or more criticising and disputing his views, and those of each other; and so the subject continues, even to our own day, "in most admired disorder."

Who has not in his angling days stood on the margin of some inland lake, on a quiet summer evening, and seen a fine trout, with provoking impunity, leap up near the centre of its glassy surface? From its splash a circling wave, followed by endless circling waves, all ever expanding in diameter, flow outward, till they one by one lave the distant shores. Glittering in the sunshine with life-like curves, and in admirably regular succession, they form a quiet picture of singular beauty, such as Art may only try to imitate. Let another trout so leap at some other point of the surface, and a new system of circular, ever-widening waves arises, with similar results, but greatly distracting the eye, and disturbing the harmony of its silent music. Let a third and a fourth fish leap, and the result is utter confusion—the beautiful vision is destroyed.

Yet such is a picture of the state of Mental Science for the past centuries; and it is so now, with increasing confusion. No philosopher, however great, wise, and eminent, has succeeded in forming a general Theory or School *which his successors will adopt, or even approve.* Of Descartes, the famous French philosopher, it was said that the *Universal* Mathematical Science which he sought after, was only the prelude of Universal Science of all-embracing character. Even Comte (1797), the founder of the Positive School,[1] admits that Philosophy is defeated in its attempt to reach an absolute principle of Unity. But still each

[1] "Social Philosophy of Comte," by Professor Caird, 1885. Preface, p. xii.

rising philosopher in turn proceeds to write not one, but rather several books. Chaucer writes of a contemporary :—

> " He better liked to have at his beddes hedde
> Twenty books, clothed in blacke and redde,
> Of Aristotle and his philosophie,
> Than robes riche or fiddle or psalterie."

Now-a-days such books count by hundreds, too many for enumeration.

The chief cause of this multiplicity of books is, we think, the practice of treating the MIND under numerous separate heads, or faculties, or mere names, such as Reason, Consciousness, Understanding, the Will, Mental-Conception, Abstraction, Æsthetics, the Feelings (generally called the Affections of the Heart), Imagination, Intellect, Wisdom, Mental-Perception, Reverence, Reflection, Memory, Introspection, Hopefulness, and other names. And not only so, but some of these, mere faculties of the Mind, are further discussed, each under several subsidiary names or conditions, such as Real and Ideal, Mediate and Immediate, Objective and Subjective, or Analytical and Synthetical, and so on. This too, at great length, and sometimes, as by Kant and others, in new divisions and sections, often hopelessly involved, as if several of these words and names were each a *separate* and independent Entity or Part of the Mind, instead of being, as all of them are, either the Human Mind itself in action, or else its several states or *conditions* mentally considered from different points of view. For is not Consciousness (Thought) just the Mind in action? And are not Reasoning, Reverence, Reflecting, &c., mere expressions of the varied Moods or Conditions of the Mind—some of such latter class of words having simply relative significations? Max Müller expresses himself very strongly on this point. He says, "We deny that there are such [separate] things as Mind, Intellect, Understanding, and Reason. . . . It is sheer philosophical polytheism to speak of sense, mind, reason, intellect, understanding, as so many independent powers."[1] Is

[1] "The Science of Thought," by F. Max Müller, pp. 72–74 (Longmans and Co., 1887).

not Mind the Man, and Man the Mind? or to borrow the words of St. Augustine, "The Mind is all in the whole, and all in every part" (or rather Faculty).

Sir William Hamilton (b. 1788) has the merit of somewhat checking the increase of such names, by showing that Consciousness was the only one of them practically *useful* or necessary, as it constituted the fundamental form of every act of Knowledge, and that indeed Consciousness and Knowledge each involve the other. He says that nothing exists for us except in so far as it is known to us, and that nothing is known to us except certain properties or modes of existence which are relative or analogous to our faculties. On the other hand, he adds, "We are not warranted in denying as possibly existent what we do not know." If I say, "I am conscious that I know this is Monday,"[1] or "I am conscious that I desire to be acquainted with the author of this poem," would it not be exactly equivalent to saying, "I know that this is Monday"? Even this word "know" is not really necessary; I may simply say, "This is Monday," "I desire," &c. Of course there is no objection to the use of any intermediate words, provided always that their use does not suggest to us the idea of Parts of Mind. Indeed the use of some of them is in many cases necessary alike for precision and brevity, and accordingly we will so use them when needed, but always having clearly in view that they represent Mind, not Parts of Mind, *i.e.*, not separate Entities.

The discussion of such questions is not new. Whether the Dialogue between Socrates and his pupil Alcibiades quoted by Hamilton[2] is genuine or not, it is worth giving in this connection as a curious specimen of argumentation.

"*Socrates* To converse and to use language—are not these the same?

"*Alcibiades.* The very same.

"*Soc.* But he who uses a thing and the thing used—are these not different?

"*Alci.* What do you mean?

"*Soc.* A Currier who uses the cutting knife—is he different from the instrument he uses?

[1] Hamilton's "Lectures on Metaphysics," vol. i. p. 192.

[2] Ibid., vol. i. pp. 163-4-6.

"*Alci.* Most certainly.

"*Soc.* But the Currier; does he cut with the instrument alone or also with his hands?

"*Alci.* Also with his hands.

"*Soc.* He then uses his hands, and in his work he also uses his eyes?

"*Alci.* Yes.

"*Soc.* The Currier is therefore different from his hands and eyes with which he works?

"*Alci.* So it seems.

"*Soc.* Now, then, does not Man use his whole body?

"*Alci.* Unquestionably.

"*Soc.* But we are agreed that he who uses and that which is used are different?

"*Alci.* Yes.

"*Soc.* A Man is therefore different from his body?

"*Alci.* So I think.

"*Soc.* What, then, is the Man?

"*Alci.* I cannot say.

"*Soc.* You can at least say that the Man is that which uses the body?

"*Alci.* True.

"*Soc.* Now does anything use the body but the Mind?

"*Alci.* Nothing.

"*Soc.* The Mind is therefore the Man?

"*Alci.* The Mind alone."

To the same effect Aristotle asserts that the Mind contains the Man, not the Man the Mind. "Thou art the soul," says Hierocles, "but the body is thine." Hamilton says, "I who possess organs and thoughts, am therefore neither these organs nor these thoughts. . . . But if I try to conceive myself existent without a thought, . . . I am unable. . . . A Suspension of thought is thus a suspension of any intellectual existence."

A recent writer speaks of the Emotions as the Soul. He says, "It is the emotional part of Man that is his soul, and is immortal, and not intellectual." This attempt to place the Emotional in opposition to the Intellectual is a fallacy. As we have seen, the Intellect is Mind, an Entity or faculty of Mind; but Emotions

such as Love, Fear, Tenderness, &c., are not entities, but only *conditions*, or affections of the heart, or more properly of the Mind. The affections, and specially Love, is the best index of man's state of mind, and exercises more influence in the world than even Intellect, but they are allied, or at least not necessarily opposed. Both belong to Mind, and are of the UNIVERSAL sphere, being alike Immortal.

The faculties of Mind may be illustrated by those of the body. The latter consists of Organs and Limbs of sense and action which operate directly on the Material outward world, both living and inert. These organs and limbs are parts of the body, although not independent of it, because although I speak of my "strong right arm," its acts are really the acts of the body *as One*. Even much more so, the Mind is One and indivisible—being a spirit it has no substance (to use Locke's phrase) and no parts.

This question of Parts is somewhat confusing. Thus Hamilton writes of a Triangle as consisting of six parts—Three Straight Lines and Three Angles. But a triangle is formed by any three straight lines in the same plane (not being parallels) produced till they meet, when they *must* enclose a space, possessing three angles. The three angles are not three parts, but rather *three necessary* [1] properties of the triangle.

The Mind obtains its perceptions of Matter and the visible Universe through the faculties of the body, and such form some of the subjects of the ratiocinations of the Mind, upon which its judgments or opinions are formed; and, on the other hand, the mental action of Mind upon the outward material world is performed through and by the living body. These perception-impressions, and the ratiocinations and judgments thereon, are not lost, but can be less or more completely recalled and reconsidered by the Mind, in proportion to the strength of its memory. This faculty or condition of the Mind is in many cases greatly assisted by another faculty, generally treated by philosophers at great length under the head of "The Association of Ideas." The Mind thus becomes a vast storehouse of knowledge—ever increasing—not only of perception-impressions, but of ratiocinations, opinions, and judgments generally, as well as those of its original constitu-

[1] See Hamilton's "Lectures," vol. ii. p. 194.

tion, innate ideas, and *à priori* truths. The Mind is never perfect, but is ever becoming more intellectually endowed, and hence age is naturally associated in the Mind with wisdom. Thus Campbell wrote :—

" 'Tis the sunset of life gives me mystical lore ;
But alas ! how short does this sunset appear." [1]

" The more we live, more brief appear
Our life's succeeding stages ;
A day to childhood seems a year,
And years like passing ages."

For as "the shadows lengthen, as the day declines," so do the thoughts and aspirations of the Mind brighten and crowd around the close of human life. Thus Waller (1680) wrote :—

" The soul's dark cottage, battered and decayed,
Lets in new light thro' chinks that time has made.
Stronger by weakness, wiser men become,
As they draw near to their eternal home."

"What a piece of work is Man ! how noble in reason," [2] and yet how true it is that we are only scholars—those of us "three score and ten," or it may be four score, quite as much so as the boys. And are not all of us finding out that the more we learn the more clearly do we see how ignorant we really remain !

" So wonderful
Is human nature, and its varied ties
Are so involved and complicate, that none
May hope to keep his inmost spirit pure,
And walk *without perplexity* through life." [3]

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[1] "Lochiel's Warning." [2] "Hamlet," act ii. sc. 2.
[3] Goethe's "Iphigenia in Tauris," p. 202, translated by Anna Swanwick (Bohn, 1850).

LECTURE IX.

The Sphere of Instinct—The Instinct-Mind and the Soul-Mind—Trained Instinct is not Mind—Other Distinctions between Man and Animals.

Man is distinguished by Reason (Mind); whilst Man and the lower animals in common are possessed of Instinct, which, as we have seen, occupies itself with the preservation and well-being of the individual and its offspring. Its operation is more obvious in the lower animals than in Man—so much so that in some quadrupeds and birds the power of Imitation and Animal-memory seems to take the semblance of Reason; for Instinct displays Memory and Observation in an almost incredible degree of intensity. But this semblance to Reason, as it seems to us, is partly the result of Man's training—by hunger, or by still more cruel treatment—and does not originate with the individual animal; nor do such artificial accomplishments descend to the next generation. Instinct-power may be increased or diminished by change of climate or food, or by protection from former natural enemies, and by the varied surroundings of the animal; but it can never advance beyond its own province.

In Man also Instinct is possessed for his personal preservation and guidance, and it regulates, for the most part, the countless movements and processes of his body, of which Mind may be, and generally is, unconscious, and over which it rarely exercises any control. Instinct is essentially an attribute of all animal *Life*. Paley describes it as prior to experience, and independent of instruction. Of human Instinct Shakespere wrote:—

> "By a divine Instinct, men's minds mistrust
> Ensuing danger, as by proof we see
> The waters swell before a boist'rous storm." [1]

[1] "Richard III." act ii. sc. 3.

The subject has become somewhat involved by the introduction of the Evolution theory into its consideration. This however, need not alter our definition as above set forth, because, however great changes and physical improvements Evolution may produce upon any irrational animal, the power of Instinct will adjust itself to meet the dangers of its altered condition, but so far *only* as regards its own province, to wit, the preservation and well-being of the individual, but not its *natural improvement, beyond Imitation, and the sphere of its destined use* in the world. Indeed, such improvements by training are sometimes accompanied by deterioration of the powers of certain instincts, which nowhere are more active than in the animal's natural or wild state.

Instinct in Man is a much more important factor than it at first consideration appears. For example, bravery or courage is to some extent a constitutional gift, and influenced partly by Instinct. The Mind may firmly resolve to perform some brave and noble deed in battle, but, no matter how strong the reasons urging to its accomplishment, the influence of Instinct may sometimes, in the absence of high constitutional courage, cause failure at the supreme moment of peril to the Life, and that, notwithstanding the most resolute will. In this case there seems to be a *momentary* rebellion of Instinct against the sovereign Mind, called into action *involuntarily for the preservation of Life.* But it is only momentary; for Mind (Free Will) must ultimately prove supreme.

In the routine of our daily life, Instinct even more than Reason acts as our *ever-present* guide. I resolve to take my usual walk in the country after consulting my barometer. So far Reason decides, but thereafter very much resigns the reins to Instinct, which pilots me throughout my walk, and even, it may be, throughout most of the general routine of the day. Unless an unusual interruption arises (such as engaging with a friend in conversation), my mind may be quite occupied by some favourite study. According to the absence or the frequency of such interruptions, my mind will be more or less passive and even ignorant of many of the ordinary incidents and surroundings of the day, or become Absent-minded, as such a mood is usually named.

Instinct of this kind is sometimes called "habit," but its operations otherwise are extremely important and multifarious; and so very obscure as to be beyond the ken of Consciousness (Mind) and not to be searched out. So far, however, as knowable, and except at some rare supreme moment of imminent danger to the *life*, Instinct is the servant of Reason, which can at any time resume its normal supremacy, as Master and superior of the body. Mind is a spiritual (*i.e.*, UNIVERSAL) Entity, Instinct is a NATURAL endowment; and consequently they are incommensurate, and cannot amalgamate, although their separate lines of action *seem* to become mutually intervolved.

Comte fails to show that Instinct is not essentially different from Mind. Man, he says, shares with the brutes a twofold life, Instinctive and Rational; the difference between them being the greater or less development of the cerebral organ, or the various modifications of the nervous system.[1] In connection with this matter, Sir William Hamilton, writing on the subject of Instinct, is puzzled to account for the "whole apprehension of distance," &c., which some animals possess from birth, and the remarkable innate perception of vision and touch which they exhibit. He adds: "How can we determine whether and how far Instinct may not in like manner operate to the same result in Man?" Argyll says—"Well might Sir William Hamilton ask this question. It is one which philosophers will find hard to answer;" and agrees with him that "the operations which are intuitive may best be conceived as the result of natural revelation."[2] He gives some very interesting examples of the intuitive ideas of the young of birds, entirely independent of any parental or other examples. There is a family of birds in Australia of which we are told that "from the moment the young are hatched (even in absence of the parent) they feed themselves, and run and fly and roost on trees, as if the world, on which they have just opened their eyes, had been long familiar; . . . . a fact of immense significance in the phenomena of organic life. . . . . But there is no fact standing alone—not one, which is not bound to the whole order of Nature by deep analogies."[3] In the

[1] "Comte's Philosophy of the Sciences," by Lewes, sec. xxi.
[2] "The Reign of Law," p. 412. [3] Ibid., ch. vi.

above case it is clear that the highest Intellect would be of no avail.

If our preceding definition be correct, this difficulty, so far as we can see, can be solved only by recognizing that all such facts are *entirely* the operations of Instinct in both Animals and Man, Reason (*i.e.*, Mind proper) having nothing to do with them. These facts are much more prominently seen in Animals than in Man, because animal senses are immensely more powerful and keen than Man's. In Man, whose infant life is tedious and less natural, their operation is also less obvious than in the case of the lower animals, whilst in them it varies greatly in amount, in proportion to the various necessities of their existence and surroundings.

Instinct is a NATURAL endowment, a property of Animal Life originally conferred by the Infinite Intelligence; just as the UNIVERSAL property of Mind (Reason) was conferred on Man exclusively. It, Instinct, is neither immortal as to duration nor indefinite as to degree, but strictly limited to the necessities of animal existence.

Perhaps the Duke of Argyll's ascription of intuitive operations to "the result of Natural revelation" may prove questionable to some of our readers. It is indeed not merely desirable but necessary that the difference between Instinct and Mind proper should be kept clear. Some writers have named the Mind of Man his Soul, so that in one view Man may be said to be possessed of three distinct properties: (1) A Material Body; (2) An Instinct-Mind (which includes all his animal properties and appetites); and (3) A Soul-Mind (which is immortal, and includes Reason, and all Mind's other faculties). Under these heads there certainly is less confusion of thought—the first and second being NATURAL facts, the third a spiritual or UNIVERSAL truth. Emerson wrote—"All goes to show that the Soul in Man is not an organ—not a function like Memory or Comparison—is not Intellect or Will, but the Master of both—is the background of our being in which they lie. It is not a faculty, but a *Light*." In short, the Soul is the human Mind itself.

The lower animals, on the other hand, are possessed of a Material-Body and an Instinct-Mind, but they reach no higher.

Notwithstanding that these — *i.e.*, Body and Instinct — are nominally the same as possessed by Man, they may be in some sense different, and in many cases more powerful in degree. Thus, for example, the elephant's body is more powerful than man's, and its Instinct may be more acute.

Wonderful cases are from time to time recorded showing that Instinct assumes a semblance of Reason, but a semblance only; for animals cannot generalize, so that ideas of equality, beauty, comparison, meanness, &c., are to them quite unknown, for these imply Abstraction. One of the best imitations of Reason which they show is perhaps the wonderful power of Imitation or mimicry in several animals and fishes. By adopting the colour of, and feigning resemblance to, some other animal, vegetable, or stone, they often secure immunity from a pursuing enemy. This is entirely an act of Instinct, for preservation of their life. Another remarkable imitation of Reason is shown by beavers in cutting down trees, and therewith building their houses at the margin of the stream, and even in banking up the stream, to keep the water at the proper level. All this is purely instinctive; but the supposition that they drive piles into the ground is erroneous. This would involve the use of some kind of tool, which Animals never either make or use.

Again, the faces of all the irrational creatures look downwards to the soil, while Man, and Man alone, is formed to walk *erect* and look upwards to the heavens. It, therefore, seems to be the province of Instinct to look earthward, but that of Reason to look not only "before and after" in time, but also upward in space. Our great poet has beautifully expressed this thought:

> "What is a man,
> If his chief good, and market of his time,
> Be but to sleep, and feed? a beast, no more.
> Sure, He, that made us with such *large discourse*,
> *Looking before, and after*, gave us not
> That capability and *godlike reason*
> To fust in us unused."[1]

Even this fact alone seems to give us assurance that Life in

[1] "Hamlet," act iv. sc. 4.

Man is not altogether the same kind of life as that of the lower animals. To prove the contrary, we think still more cogent reasons are needed than those yet found even by some of the most eminent Naturalists.

An Evolutionist admits that "much of the mystery of Instinct arises from the persistent refusal to recognize the agency of Imitation, Memory, Observation. . . . Yet there is ample evidence that such agency must be taken into account. That Reason ever forms any part of it however, we find no evidence of whatever. . . . Thousands of birds annually fly out to sea and perish, showing that the Instinct to emigrate is imperfect."[1] But then neither Reason nor human observation are so. We know that fishermen often go out to sea deceived by the usual weather prognostications and perish in the gale.

Some apparent exceptions to our definition of Instinct in Man are, we think, capable of explanation if carefully studied; and, as regards the irrational animals, no exceptions can be proved. In themselves they really have shown no fraction of natural progress towards Reason, nor the very least tendency towards improvement. Under Man's coercion an apparent improvement may appear, but it is unnatural and artificial, and disappears in the next generation, if left to Nature.

Some animals show great affection towards those who aid them in their natural means of preserving their own, or the life or well-being of their young, by supplies of food or protection from enemies; but only on such grounds. They have no feeling of justice, magnanimity, or generosity, apart from such considerations, and apart from their natural qualifications and endowments for usefulness to Man. For there is no waste in Nature, and no Animal is without some use in the service of Man, often very indirectly; and the same holds true of all vegetation. So far as we know, this guiding principle in Animals is directly or indirectly based on Instinct selfishness. It may be truly said that selfishness is an active principle in Man also; but all men have at the same time a higher guiding principle, less or more active. No doubt Man can train some animals to perform great

[1] "Darwinism," p. 442.

services in saving life, by instigating their special *natural* instincts into action.

The question of training is one of great importance; for while no animal can be trained to act (except by mere imitation) beyond the sphere of Instinct, Man has the power of greatly cultivating an animal's special qualities. This seems to strengthen the theory held by Owen, and some other authorities, that many animals such as the horse were created primarily and *specially* for Man's service. Sir Walter Scott shows the value of training in the case of Dandie Dinmont's terriers, Pepper and Mustard, as compared with that of little Wasp, whose master admitted that its "education had been somewhat neglected."[1] "Ay, sir, that's a pity—it's a great pity that—beast or body, education should aye be minded. . . . There's auld Pepper and Auld Mustard, and young Pepper and young Mustard, and little Pepper and little Mustard; I had them a' regularly entered, first wi' rottens—then wi' stots or weasels—and then wi' the tods and brocks—and now they fear naething that ever cam' wi' a hairy skin on't." A terrier naturally flies at all animal vermin. Such a dog in a state of nature would do so to destroy an annoying and very undesirable competitor on his domains. But one domesticated would do so partly for the same reason, and partly because he could read his master's approval in his eyes. Neither of them would do so merely for food, as a cat would naturally do with mice and small vermin. Animals sometimes unite in *defending* themselves from a common foe, but not in showing sympathy to a fellow-creature suffering from wounds or sickness, rather, indeed, leaving such to die alone. This is shown by a recent newspaper anecdote. Out of a number of cows feeding in a field, one accidentally broke its leg. On seeing its bleeding wound, the other cows attacked their wounded comrade and killed it.

The story of Androcles and the Lion is possibly true, but explainable only on somewhat selfish considerations. Not long ago, a number of kangaroos were sent from Australia, *via* Liverpool, to Philadelphia, U.S.A. Two of them, a pair called Jack and Flora, were unfortunately separated, and sent in different ships from Liverpool. Flora constantly called for

[1] "Guy Mannering."

her mate, and on the voyage two little ones were born and carried in her pouch. Jack arrived a week later at their destination. Flora seemed to scent his coming. Her joy and excitement knew no bounds, and, when they met, there was a remarkable scene of mutual affection. This is a fine example of purely instinctive affection, sexual, but *not* rational.[1]

Dr. Cope[2] alludes to the Mygale spider, which was observed by Dr. McCook to substitute cotton for her own silk for the lining of her nest; but this is only another illustration of the strength of the Instinct faculty, which, failing a sufficient supply of the proper material—silk—seizes the best substitute therefor within reach—all in view of preserving her life and comfort. It is just the same feeling which we so frequently see in crows. Where nice straw or hair is not to be had for nest-building, they freely carry off the finest lace articles they find from the laundrymaid's bleaching-green. But in all this there is no evidence of Mind proper.

Quite recently a well-authenticated anecdote appeared in the newspapers. A cat was carried, apparently well-covered up in a basket, from a large town, by a somewhat circuitous railway route to a village forty miles distant, in the centre of another county. It was very kindly treated, and, after a day or two's supervision, was left to make acquaintance with its new surroundings; but it soon disappeared, and was given up as lost or killed. Three days afterwards, a letter from its old home told of its arrival there in a state of extreme prostration—hungry and travel-stained, and with its fine fur sadly disarranged, as if it had swum the river which crossed its path homewards. This it must have done, unless it made a considerable *détour*.

This incident may be contrasted with another very different. In the year 1871, several gentlemen formed an exploring party to travel through the Yellowstone Region in the Rocky Mountains.[3] One day a member of this party, Mr. Evarts, having been accidentally separated from his companions as also from his horse, implements, and gun, when in a dense forest of firs,

[1] J. G. Wood in *Good Words*, October, 1887.
[2] "Origin of the Fittest," p. 385.
[3] "Wonders of the Yellowstone Region," by J. Richardson (London, 1874).

found himself lost. Without food (other than a very few thistle-roots) or any means of shelter, and latterly without fire, he wandered aimlessly about *for thirty-seven days* in a state of extraordinary suffering. He was found at last by his fellow-explorers not very far from the place at which they parted in a most deplorable state,—alive, but scarcely recognizable. The cat travelled, without knowledge of the road, in two days perhaps as many miles as this gentleman, a brave and qualified explorer, with some idea of the neighbouring localities, did in thirty-seven. Pure Instinct was far superior to Reason in such an emergency, and the extraordinary sagacity of the cat is shown in its full strength, just because Reason was absent, the sole motive being the preservation of its life and the well-being of its progeny. Had it possessed a shade of Reason, it would have understood that neither was endangered by remaining in its new home. Argyll writes that: "*On her own narrow sphere Instinct is a surer guide than Reason*,"[1] and certainly these facts form an excellent corroboration of his words.

With reference to the wonderful instinctive knowledge shown by some animals Sir John Lubbock says, "There may be fifty other senses as different from ours as sound is from light. These and a thousand other questions remain for solution. The familiar world which surrounds us may be a totally different place to other animals. To them it may be full of music which we cannot hear, of colour which we cannot see, of sensations which we cannot perceive."[2]

The swallow of to-day builds her nest *exactly* on the model of the first historical swallow, and shows not one iota of improved workmanship in the operation. Two dogs will fight over a bone, but no two ever deliberately agreed to barter one bone for another.

"The autumnal spider," as was remarked by M. Claudius, "spun its web among the Romans in the same wonderful mathematical form, with peripheries, radius, and centre, and as Ælian remarks, "it does its work without Euclid. It sits in ambush in the centre of its web just as it did a thousand years ago."

[1] "The Reign of Law."

[2] "The Senses, Instincts, and Intelligence of Animals," p. 192 (Kegan Paul, 1888).

But Language is the most marked distinction between Man and the lower animals. Speech, except in so far as depends on Imitation, as in parrots, monkeys, &c., is beyond the reach of the mere animal, because Language is framed by a process of Abstraction,[1] one of the principal functions of Mind.

No doubt numerous instances have been recorded, not always very correctly and impartially, of apparent Intellect shown by different animals, and in various ways. The popular mind, we fear, has long been unintentionally misled by numerous and sometimes well-authenticated anecdotes; and before us is a volume of three hundred pages of such, showing wonderful so-called proofs of Reason in Animals, especially in pets. But keeping in view their *extraordinary powers of observation and keen perception*, with their faculty of Imitation, we are satisfied that for all of these Instinct, and Instinct alone, can account. The entire absence of Reason is shown by an old, and, we believe, an authentic anecdote. A believer in Animal-reason went to purchase a speaking parrot from a trainer. Several birds glibly spoke. One, "Merrily danced the Quaker's wife"; another, "Glad to see you," and so on. One however proved taciturn, but when the trainer asked, "Why don't you speak?" said, "I think the more." Astonished, the purchaser secured the feathered philosopher, but at home discovered that it could when so asked always say, "I think the more," over and over again, but to the intense mortification of his new master, nothing more. Of course due allowance must be made for the influence of Man's example and training, especially in the case of domestic pets. But over and above this influence, there is to be considered the *immense* superiority of the organs of sense, already mentioned, which many animals possess, and with which those of Man cannot be compared. For example, see the remarkable acuteness of some wild birds, which can detect the motion of a mere insect, or scent the slightest smell of food at distances almost incredible. "Animals hear sounds beyond the range of our hearing and can perceive the ultra-violet rays which are invisible to our eyes."[2] Then we see the Arab's horse, the shepherd's dog, and

[1] Stewart's "Philosophy," ch. iv.

[2] Sir John Lubbock's "Senses of Animals," p. 191 (Kegan Paul, 1888).

the house cat—all of which can see, not the thoughts exactly, but the wishes of their master in his face, *as no fellow-man can*, and act accordingly; but still only Instinctively, and free of reason, although sometimes in a manner singularly resembling it, and yet more often where reason would be of no avail.

This remarkable acuteness of some Animals in reading their master's wishes has not received the attention it deserves. The schoolboys can prognosticate their teacher's temper—

> "and read
> The day's disasters in his morning face."[1]

This is an easy task in comparison, but to the dumb world it is of great importance that *Man's eye and his every movement may become to some Animals a kind of Language which they can read with marvellous quickness.* Next to the eye the hand seems the most emphatic exponent of his mind and wishes. Montaigne (1533), the eminent French philosopher, says: "With the Hand we demand, promise, call, dismiss, entreat, deny, encourage, accuse, acquit, defy, flatter, and indicate silence, and with a variety and multiplication that almost keeps pace with the tongue." This is in reference to our fellow-men, and in reference only to the Hand; but some Animals, having our whole features and body in view, can read such Language with fourfold acumen—in some cases, perhaps, tenfold. Speaking of animal instincts and intelligence, Sir John Lubbock says: "To ascertain their adaptations and their relations to the forces of Nature . . . constitute the true interest of Natural History, and may even give us a clue to senses and perceptions of which at present we have no conception."

If the reader will keep this in view he will be able to explain many anecdotes of Animals, which we everywhere meet with, as arising from Instinct alone. It must be observed further that this unspoken Language is by no means always intentionally used by us; to animals it may be so generally, but to our fellows perhaps more often unintentionally. The famous saying that Language (words) was given to man to conceal his thoughts

[1] Goldsmith.

is not by any means so true of this mute Language. Some animals, we believe, read our wishes *quite irrespective of our* intention that they should do so, or not.

It would appear that many of the instances usually given to prove the existence of Mind in some animals really prove just the reverse. Here is one quite new. A lady relates that she is certain her little dog knows her intentions regarding the day's visiting, even without her speaking to the dog or any one in the house. She goes out paying visits daily, accompanied by her little pet. There are two houses in the village where he cannot be taken—one, because he might frighten the game, and the second for some other good reason. The dog sits beside her when dressing to go out, restlessly impatient to get away; but on those occasions when she is going to either of these two houses, he instinctively knows it, and, betaking himself to a favourite corner pillow, which he occupies when left alone, settles down for a nap. There is no regular routine in the visiting, nor difference of dress, or any of its accompaniments, nor any indication whatever of her intention. The only conceivable indication must be her countenance, which, without uttering any word, or making any sign whatever, reveals to the dog what her intention is. She says that were she to change her mind as to visiting these houses, even at the last moment, the dog would know almost as soon as she, and jump up with alacrity! This, she says, proves that "he possesses more Reason than many men do;" but this is obviously a misconception. Mind (Reason) could give the dog *no* information here, for there is nothing to reason upon. But Instinct judges without reason. This lady, in changing her mind would (quite unconsciously) think with complacency that she was to give the dog a pleasure, and he would instinctively see the fact in her face, as no one possessed merely of Reason could.

We have said that Instinct is blind. In corroboration of this we quote from Sir John Lubbock. "One of the most striking instances of stupidity is mentioned by M. Fabre in the case of his favourite Bees. He chose a cell nearly finished and took away part of the cell covering; and of another cell only half finished, he broke away a little of the wall. In both

cases the bee repaired the mischief, *the operation being in the natural order of her work.* But now comes the curious fact. In another series of cells M. Fabre pierced a hole in the cell below the part where the bee was working. . . . The stupid little bee never thought of repairing the breach, and went on as if nothing had happened." Again "he made an important large hole, but she proceeded to pour into this vessel of the Danaides, load after load of honey, which of course ran out at the bottom as fast as she poured it in at the top. All the afternoon and next morning she laboured at the fruitless task; *at length when she had brought the usual complement of honey, she laid her egg and gravely sealed up the empty cell.* . . . In some mysterious way the bee [instinctively] *feels* when she has provided the proper supply." The bee's apparent reckoning of numbers is only apparent; she cannot count, but by mere instinct brings a supply ample, but no more, and *always the same*, irrespective of contingencies.

It has been said that on rare occasions, during what we call a fine "Indian summer," some singing birds in the gardens will commence to sing as in spring-time, and give indications of preparing to mate. This requires confirmation; but it is well known that fowls, during an eclipse, go to roost even at midday so soon as the sun becomes obscured, and wake up again when he resumes shining. Assuredly Instinct is blind, and also evidently unable to compute Time.

Another distinguishing mark between Instinct and Reason may be added. Animals in their wild state eat their natural food in preference to any other, however finer or more luxurious. The natural food of animals needs no preparation whatever. Although blackbirds watch the gardener sowing his peas, and sees them grow up, they cannot reason from cause to effect, but so soon as the gardener leaves an opportunity, the birds dig up the peas as far as they can, and eat them. They are purely selfish, no experience teaches them, and they go on to do so year by year, nor are they ever known to drop a seed *intentionally* into the ground. Man acts in an exactly contrary sense; he prepares the soil, cultivates every grain and fruit and herb, improving them to the highest state of perfection. Every delicacy which Nature can produce

and every beautiful flower are sought out and brought from the ends of the earth, and with endless condiments garnish his dinner table, to suit his own fastidious taste and that of his guests. Thus Parnell (1679)—

> "Rich luscious wine a golden goblet graced,
> Which the kind master pressed his guests to taste."[1]

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[1] "The Hermit."

LECTURE X.

CAUSATION—INVISIBLE CONNECTIONS—GRAVITATION—INERTIA—ELECTRICITY AND GALVANISM—THE CORRELATION OF PHYSICAL FORCES—THE INCOMMENSURABILITY OF INSTINCT AND MIND.

SIR WILLIAM HAMILTON, writing of the theory of Causation, speaks of a numerous series of intermediate agencies, of which we possess no knowledge; and, consequently, he adds, we can have no consciousness of any causal connection between "the extreme links of the chain—the volate, and the act-moving." This touches the great question of the operation of the Mind upon the Body, of which we have no perception. Here, again, the confusion gendered by these imagined intermediate links, and the erroneously so-called Parts of Mind, appears, and gives an idea of *distance* between the Mind and the living Body which does not exist. For it is obvious that there is a point of contact or touch (if such words can be used in this mystical question), but *where* we cannot see. Milton, in the material but somewhat analogous or typical case of Heavens and Earth, writes:—

> "And now in little space
> The confines *met* of empyrean heaven
> And of this world."

And so Dryden:—

> "Betwixt heaven and earth and skies
> There stands a place confining on all three."

Between Consciousness (Mind) and the living body of Man nothing can be conceived to intervene. How they, although in immediate contact as it were, do mutually communicate is unknown. Like the obscure operations of Instinct, the question is

shrouded in darkness, nor are we warranted in suggesting any possible relation between the two circumstances. In the words of a recent writer: "The gulf between Consciousness (*Mind*) and the movements of the molecules of nerve-*Matter*, measurable as these are, is impassable; we can follow the steps of the mechanical processes of nerve-changes till we reach the threshold which limits the known, and beyond that barrier we cannot go."[1]

Here it must be observed that while in Man there obviously is intercommunication between the Mind and its Body, there is, so far as we know, no such communication between Mind and any other Matter in the Universe, whether living organisms or inert matter. Thus it appears that at death the Mind ceases to have any means whatever of communication with the outward world.

While we can conceive the possibility of Mind (Spiritual and UNIVERSAL) communicating with the Body (Material and NATURAL), and, indeed, see and feel that such communication *must* exist, yet, as already stated, of its mode of actual operation we have no perception. This difficulty "arises not from any misconception as to what Mind is (for of this our knowledge is direct), but from a misconception as to what Matter is, and what the Forces are which we call material."[2] To explain this mysterious action, Descartes suggested the theory of "Direct assistance of God;" but Leibnitz subsequently taught the more philosophic doctrine of the existence of "A pre-established Harmony." Shakespeare says: "There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy;"[3] and perhaps we must reckon the present subject one of these things.

In Nature we have another somewhat analogous illustration, but only in the Material Sphere, namely, in the Attraction of Gravitation. According to the highest authority, we are told that Force can only act where it is; but, as Carlyle says, "Where is it?" Do we not see it acting where it is not (supposed) to be: the boy with his loadstone can make his wooden swan, with its needle inside, swim towards his hand. *Where does the force act* here? Is it in the loadstone, in the needle, or in the air which lies between them? A similar question arises as to the action of

[1] "The Story of Creation," by Edward Clodd, p. 152 (Longmans, 1888).
[2] "The Reign of Law," p. 285.
[3] "Hamlet," act i. sc. 5.

Gravitation by the Sun upon the Earth, and of its action by the Earth upon the Sun, with some ninety-two million miles of apparently empty space between them.

The question of mutual contact remains an important one. Newton declared that "without mutual contact it was to him inconceivable that inanimate brute matter should, without the mediation of something which is not material, operate upon and affect other matter."

Amongst the Laws or Forces of Nature, Gravitation stands pre-eminent, and its discovery by Newton, like the sunrise on a misty morning, suddenly scattered the shadows and misconceptions with which Natural Truths were then enshrouded. So overmastering did it become that some men hesitated to think of it as only *one* of the Natural Forces, and not rather a separate part of Creation itself, and even as a UNIVERSAL Truth.

We have seen that it is only a NATURAL Truth. In our present system of Natural Laws, it is obviously necessary to the existence of the Planetary Motions. Indeed, were the Attraction of Gravitation to cease, not only would their orbits be lost, but they would by their axial centrifugal motions fly into atoms in space. While, therefore, in one sense, Gravitation is *necessary* under the *existing* constitution of nature, it is not a NECESSARY and UNIVERSAL Truth. It is requisite that we keep in mind these two very different meanings of the word "necessary."

The density of our globe, *i.e.*, its Specific Gravity, depends upon Gravitation, and its pressure increases as we descend towards the Centre. But for it the waters of the ocean would fly off at a tangent, and therefore the speed of the diurnal revolution requires to be, and consequently is, restricted so as to keep this tangent force *largely within* the strength of Gravity at its surface. So largely is Gravity in excess that no cannon ball, nor any projectile which either Man or any force of Nature now throws off, will escape beyond our atmosphere by overcoming such excess.

These matters still continue to be the subject of philosophical discussion, and this question of how Gravitation-force communicates between the Sun and the Earth (if Force can act only by impact) remains as yet unsettled. May not Newton's doubt

about Gravity being essential and inherent in Matter be well founded, after all? Instead of being essential and inherent in Matter, is it not rather only an independent property of Matter—not of planets and solid substances only, but of all Matter—solid, liquid, and gaseous—not even excepting the most rarefied air or Ether conceivable.

If this supposition be allowed, Gravity extends throughout the whole bounds of our Solar System, and so, putting every atom of Matter in contact and communication with all and every body, solid and gaseous, great and small, in the System, and all with each—not even excepting the atoms of Ether—which will act with a force of attraction in proportion to their quantity or weight, besides serving, if need were, as a means of communicating, as some suppose, the attractive force of the more dense bodies to each other. It is remarkable that Dante (A.D. 1300) suggested a similar idea. He called this Ether the "Crystalline Sphere"—*il primo Mobile*, being the primary cause of motion of the planets—this, of course, long previous to Newton's discovery of Gravitation. Scientifically considered, it is evident that, however indefinitely attenuated this Matter (*i.e.*, Air or Ether) may be, it *must* exist throughout Space, and that no vacuum is possible therein. This being so, the boy's loadstone and the floating needle further illustrate this point; the contact in his case being in and by the atmospheric air, and the law of the force being that in all cases its action is inversely as the square of the distance.

There is an interesting analogy, and also a contrast, between the sun's rays on the one hand and the Gravitation-attraction on the other. The sun's rays, or Solar Spectrum, seem to be a three-fold emanation, consisting of (1) a White Light, which is resolved by the Spectroscope into the seven colours of the rainbow; (2) rays of Heat, which are invisible; and (3) Chemical rays, of much scientific importance, although also invisible—the Heat rays being outside the Light rays of the Spectrum on its one side, and the Chemical rays outside the Spectrum on the other. These Sun-rays act outwards from the sun's disc, in straight lines passing through the transparent Ether of Space with a force in the inverse ratio of the square of the distance. On the other hand, the Gravitation attraction of the sun is inwards towards its *centre* in a

straight line, its force being also in the inverse ratio of the square of the distance—these two sun forces thus acting in opposite directions.

That Heat rays lose their force in this ratio is well known, and it is assumed that Light rays and also Chemical rays do so in exactly the same ratio; indeed, many treat Light and Heat as one, and they certainly appear inseparably connected. That Gravitation loses its force in the same ratio is also well known. Faraday, one of the greatest authorities on such subjects, once suggested this pertinent question: "According to the admitted Law of Gravitation, two masses attract with four times their force if their distance be diminished a half, and at only one-fourth of the same if their distance be doubled." Now his puzzling question was: "What becomes of the lost force in the latter case?" This is a new view of the subject, and we are not aware that his question has been clearly answered. It might be imagined that Heat rays are found to lose their power by radiation and divergence in this ratio by passing through the presumable medium of Ether existing throughout the whole Solar System, and hence the Law. But is it not very remarkable that the loss of Gravity should be subject *exactly* to the same Law? for it is *not* influenced by any such obstruction. "The Sun warms and lights the earth by wave-motion . . . transmitted through a material called luminous Ether, which fills all space, . . . transmitting radiant heat (or light) without itself becoming heated." [1]

Inertia is defined by saying that "a body in motion will perpetually continue in motion, and a body at rest will remain at rest, unless acted upon by some external force." The first half of this definition cannot be called in question, nor will the second half be so, although it is difficult to see that it can be experimentally proved; for there is no such thing in the visible Universe as a body at *rest*, so far as we know, and Inertia, therefore, seems more entitled to be called "innate, essential, and inherent" in Matter than Gravitation is, because it (Inertia) exists only *in* the body or Matter, and does not act outside of or beyond it, as Gravitation does.

[1] "Popular Lectures," by Sir William Thomson (Macmillan, 1889).

Electricity, Magnetism, and Galvanism are now generally considered as belonging to one family; and Gravitation, if not another member of it, is evidently nearly related. This law of Diminution of Power by the square of the distance seems a uniform law of the Forces of Nature. Gravitation and the force of the Solar Rays are prominently so, but recent experiments seem to indicate that Electricity, Magnetism, and Galvanism, and their correlations, are probably subject to such law; and probably also the Molecular Forces. The law, however, does not seem applicable to Inertia, and this suggests the question: Can Inertia be called one of the Forces of Nature? or is it not rather an innate and essential property of Matter, as above suggested?

Of recent years great advancement has been made in the investigation of Electricity and its cognate sciences. These Forces seem to be actively prevalent throughout Nature. Even Man's body is variably electric or magnetic, and the Earth itself is a great magnet, like almost every piece of Matter, but with this peculiarity, that its Magnetic Axis does not seem to be its Polar Axis, nor even its greatest diameter, as in other cases, but a diameter very considerably inclined from the former. No doubt the reason of this apparent anomaly may yet be explained.

Electricity and Galvanism seem to be one, although the method of their production is different. The former may be called mechanical, being produced by friction; the latter may be called chemical electricity, being produced by chemical affinities. The poles of both are positive and negative. Magnetism is a different manifestation of power, having its poles north and south only. Chemical Galvanism possesses the *peculiarity*, that an increase of its power cannot be got by increasing the dimensions of the cells of the battery, but can be so by increasing their number.

The peculiarity of the magnet is this: It does not point to the Polar star, nor to the axial pole of the Earth, but to a point some 20 degrees to the west of it. Further, although at the Equator the magnetic needle lies level, it *dips* downwards as we move northward or southward, with a gradually but *largely increasing* dip, apparently suggesting some powerful attractive matter not upon the Arctic surface, but sunk below it very considerably.

This circumstance is very remarkable, and suggestions as to its cause have been given which are not by any means clear.

The science of Electro-Magnetism has made wonderful advances of late years, and we may expect important revelations to follow the numerous experiments now making in its relation to the Telegraph, the Telephone, and Light. The present state of the science is popularly shown in Forbes's "Lectures."[1]

The Physical Forces have the remarkable characteristic of being both invisible and silent. Gravitation, Heat, Electricity, Magnetism, and Galvanism, and the Molecular forces, are all normally so, although some of them—as Electricity—are, when under certain conditions, the reverse. But their existence and operations in all circumstances can be traced, and even their powers measured. The Correlation of the Physical Forces—that is, the transmutability of one into another—seems to be established in so far as that any one of them may generally be made to do the work of another. But that they are really all *identical* does not seem probable. For example, Gravitation and Heat differ from Electricity thus far, that the former seem to pervade the body of every piece of matter, while electric force is sometimes found only upon the outside surface of a conductor (Matter), and always *shows* itself in two opposites—positive and negative. Again, Gravitation acts in a straight line uniformly and invariably under all circumstances, irrespective of surroundings; while Electricity seems to act divergently, and is extremely variable under different conditions and surroundings. Further, as already stated, the rays of Heat and Gravitation-force differ in this important respect from each other, that Gravity appears to be in no degree intercepted by a third opaque body, while Heat rays are. Thus, when the Earth is eclipsed our temperature falls quickly, but the attraction of Gravity is not affected in the least, for while the moon is *apparently* intercepting the Sun's rays of both Heat and Gravity, the earth continues attracted by the latter with unimpaired force.

We must admit that we have failed to find any real analogy in the correlation of one physical force with another physical force, to illustrate the relationship or mode of communication of Mind with the living physical body in Man. Even Professor Tyndall

[1] "Electricity," by George Forbes, F.R.S. (Longmans, 1888).

admitted that "the passage from the physics of the brain to the corresponding facts of Consciousness is unthinkable. . . . The chasm between the two classes of phenomena still remains intellectually impassable." The conditions are not commensurate, for we must keep in mind that all these forces of which we have been treating above are physical and arbitrary, as before stated, and therefore their truths are not Universal, but only Natural truths; while Mind is a Universal fact. We have avoided reference to the Vital forces, because they belong to Life, which may be destroyed, but defies examination. Were such examinations possible, perhaps a real analogy might be found; but, with two unknown quantities before us, further investigation in that direction seems vain. Professor Tyndall writes: "The scientific investigator finds himself overshadowed with awe. . . . It associates him with a power . . . which he can neither analyse nor comprehend. Life and its conditions set forth the operations of an inscrutable power. We know not its origin; we know not its end."

Four different hypotheses have been proposed to explain the problem of how intercourse of entities so opposite as Mind and Body could be accomplished, and to the first and second we have already referred, viz., the system of "Assistance or Occasional Causes" and that of "Pre-established Harmony." The third is "The Plastic Medium," that is, a medium supposed to be partly Material and partly Spiritual. This idea is to be traced to Plato; but, as Hamilton said: "Between an extended and an unextended substance, there can be no middle existence." The fourth hypothesis is that of "Physical Influence." "This system is simple, but it affords us no help; . . . if the Soul be unextended it can have no connection by touch with the body, and the physical influence is inconceivable or contradictory." In short, in the words of Pascal, "Man is to himself the mightiest prodigy of Nature;" but he is unable "to conceive how a body can be united to a Mind; yet this is his proper being." To this Hamilton adds: "A contented ignorance is indeed wiser than a presumptuous knowledge; but this is a lesson which seems the last that philosophers are willing to learn." This difficulty does not apply to the animal Body and its Instinct, for Instinct is not an entity,

as Mind is—but merely an attribute or endowment of Life, and both Body and Instinct belong only to the NATURAL sphere.

In relation to the analogous subject of Forces, Herbert Spencer has said: "How Force existing as Motion, Heat, or Light can become a mode of Consciousness; how it is possible for aerial vibrations to generate the sensation we call sound, or for the forces liberated by chemical changes in the brain to give rise to emotions—these are mysteries which it is impossible to fathom."

When the evening twilight sets in, the Mind begins to vacillate, and, the Solar light ceasing, Man's faculty of attention gradually lets go its hold as the eyes are closing. The limbs are prostrated, and the body becomes a kind of vegetable. Shakespeare truly wrote :—

> "Sleep, that knits up the ravelled sleave of care,
> The death of each day's life, sore labour's bath,
> Balm of hurt minds, great Nature's second course,
> Chief nourisher in life's feast." [1]

And although it may seem apparent that—

> "The sleeping and the dead
> Are but as pictures;" [2]

yet there is this great difference, that the sleeping man still breathes; for, although he seems to have no communication with the external world, his process of nutrition and circulation unconsciously continues. In certain cases of trance or syncope, this appears doubtful, but if the body is placed under water for a short time, death will result. Still we cannot say that this condition furnishes us with any analogy to the communication which personally exists during the whole period of life between man's Mind and his Body. In sleep, the Mind and body seem to have lost their communication. The former may also be in repose, resting as it appears, or partially so, dreaming in a kind of mental phantasmagoria, very illogical and always uncontrolled by the Will.

[1] "Macbeth," act ii. sc. 2. [2] Ibid.

"O sleep, thou ape of death,"[1]

wrote Shakespeare; and Chaucer calls dreams—

"But interludes, which fancy makes.
When monarch Reason sleeps, this mimic wakes,
Compounds a medley of disjointed things."

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[1] "Cymbeline," act ii. sc. 2.

LECTURE XI.

JUDGMENT—PHILOSOPHY—THE PHILOSOPHERS AND THEIR SYSTEMS—POSITIVISM.

THE Mind of Man, acting upon true knowledge, and quite free of doubt, must pronounce true judgment. Then why, it may be asked, so much difference of opinion in the world? Because men in general unconsciously bring preconceived opinions, self-interest, passions, and prejudices to the consideration of almost all subjects, and hence so much inharmonious disputation. Hamilton says that "the evidence of Consciousness is authentic," and that "Philosophy, as it affirms its own possibility, must affirm the veracity of Consciousness." Leibnitz says: "If our internal experience could possibly deceive us, there could no longer be for us any truth of reason." But philosophers, says Hamilton, "have seldom or never taken the facts of Consciousness (Mind)—the whole facts of Consciousness, and nothing but the whole facts of Consciousness; they have either overlooked, or rejected, or interpolated."[1]

Whatever, therefore, the Mind is truly informed of through the healthy senses is a NATURAL Truth; and whatever the *truly informed* Mind perceives, altogether apart from empirical sources, in the healthy exercise of Reasoning and free of prejudice, must be a UNIVERSAL or spiritual Truth. Such conceptions are necessarily true, and the Mind cannot truly think otherwise, and *must* so decide; for no argument can have any sufficient standpoint other than in the Mind itself. Were this fact realized, perhaps volumes of words might be saved!

This will appear to be a dangerously Transcendental doctrine, seeing that the human Mind is obviously far from being perfectly good or wise, but subject to passions, which ever tend to mislead

[1] "Lectures," vol. i. pp. 265–7.

its judgments. Pascal, the philosopher of Port Royal, held extreme views on this point. But, as we have already said, the Mind is possessed of a marvellous Monitor, called *Conscience*, which acts as a perfectly independent and trusty judge; silent till wrong is done, but sure to speak then with most commanding and unquestioned authority.

The opinions of Spinoza are too mystical and profound to be quoted for our present purposes. As Principal Caird says, "We find him ascribing to Mind a power over itself and its own internal activities, which the body does not possess." He further held that "the essence of Mind is intelligence, ... a knowledge which pertains only to the infinite intellect of God. . . . But the human Mind is only a part of that infinite intellect." [1]

The importance of Conscience can scarcely be over-estimated, for neglects of its monitions may be forgotten, but, like Banquo's ghost, they will at some most inopportune moment arise; and, like Macbeth, we shall find we have trusted to "juggling fiends"—

> "That keep the word of promise to the ear,
> And break it to our hope." [2]

There seems to be a mutual relationship between Freedom of the Will and the Conscience, although these are entirely distinct in their action. It is evident that if we possess not Freedom of Will, there could be no field for the action of Conscience. Materialists "assert that there is nothing more in the Universe than a series of Physical antecedents and consequents, evolving out of one another through all Time. If, therefore, you insist that the Will has no real existence, but is merely the mental manifestation or shadow of molecular vibrations in the brain, . . . you should deny *real* existence to our other conscious mental attributes. . . . On the same grounds as you deny the real existence of the Will, I can deny the real existence of the Intellect." [3]

No doubt Conscience is not omniscient, and sometimes may

[1] "Spinoza," by Principal Caird, pp. 204–5 (Blackwood, 1888).
[2] "Macbeth," act v. sc. 7.
[3] "Civilization and Progress," by John Beattie Crozier, p. 201 (Longmans and Co., 1888).

judge under ignorance, and be misled by error, nay, even in some minds, become muffled by long-continued rebellion against its dictates; although not so long as the Mind itself is in a healthy condition. But Conscience is ever faithful—no bribe can purchase either its leniency or its silence. It seems to act as the Mind's assessor, the more clearly when without training—ever upholding Truth first, and then the Beautiful, but never interfering with the freedom of the Will (*i.e.*, the Mind).

The independent judgment of each individual Mind must, therefore, regulate its own lawful actings, and is without appeal to other minds. Descartes held that whatever was clearly and distinctly thought must be true. The Sciences, he held, are but the intelligence of Man—all the details of knowledge having no value save as they strengthen the Understanding; and the end of all study ought to be to guide the Mind to form true judgments on everything that may be presented to it. He further believed that, "through the truthfulness of the Author of all Truth, he derives a guarantee for his perceptions, in so far as these are clear and distinct." Kant says, "Reason (Mind) is spontaneously practical, and gives that Universal law to Man which is called the Moral Law."[1] Sir Wm. Hamilton's conviction was that "the philosophy of Common Sense represents the highest reaches of human speculation."

The original meaning of Philosophy was "the love or search after knowledge." Auguste Comte defines it as "the explanation of the phenomena of the Universe." Certainly this restricts it to a limited portion of knowledge, but Professor Ferrier more truly describes it as "not Truth, but reasoned Truth." Dr. Reville, an eminent French scholar, defines it thus: "It is the free search after higher Truth in the world and in Man, on the basis of acquired knowledge and observation." Philosophy, as sometimes taught, practically ignores all the more obvious avenues of knowledge, such as one's own perceptions, and such especially as the Senses furnish, and begins its search even of the external world in Mind itself.

Dr. Johnson kicked his foot against a stone, and so, without

[1] Immanuel Kant's "Metaphysics of Ethics" (1869), p. 91.

further reasoning on the subject, decided that Matter truly existed. Bishop Berkeley (1684) assures us that the Stones and the World itself are not real substances, but merely ideas of the Mind; while some learned writers proceed to reason us into the belief of their existence as only "Permanent Possibilities of Sensation." This they do by voluminous and profound trains of arguments—certainly all needed, to give the reader a glimpse of the definite meaning of these words. Ordinary readers, who do not see the difficulty involved in the matter, will, we fear, be reminded of Shakespeare's words. They seem to

"Climb o'er the house to unlock the little gate;"[1]

and such ill-fitting varieties of theory will perhaps recall Dean Swift's account of the strictly scientific tailors of Laputa, who measured Gulliver for a new suit by taking his elevation with a Theodolite, and his other dimensions by rule and compass. The fit proved not good; but this excited no surprise, being common enough in Laputa. It was held quite satisfactory, as being scientifically done.

One of the newest definitions of Philosophy we have seen is this.[2] Philosophy professes to seek and to find the *principle of Unity* which underlies all the manifold particular truths of the separate sciences, and in reference to which they can be brought together, and organised as a "System of Knowledge." If this includes all sciences without exception, it seems excellent, but unfortunately among the throng of eminent searchers no one as yet has succeeded in finding this principle of *Unity;* nor does it appear that agreement is yet arrived at, either as to the method of search or as to the constitution of its different elements. Perhaps this principle of Unity is as difficult to find as the keynote of "the Music of the Spheres,"[3] or as to point to "Where the Night parts with the rosy Morn," or as to discover the "Golden Key that opes the palace of Eternity"[4]—in short, unattainable.

Philosophic study seems to have always had a peculiar charm

[1] "Love's Labour Lost," act i. sc. 1.
[2] Professor Edward Caird's preface to "Comte's Social Philosophy" (1885).
[3] "Pericles," act v. sc. 1.
[4] Milton's "Comus."

for the most intellectual men of the age, from Socrates (B.C. 469) and all the philosophers downwards to our era. They appear to have assumed a technical language, and stand upon a higher platform than other men—even above the devotees of Science and Literature. As with the great poets, "their souls have been like stars, and dwelt apart," not only from common men, but even from each other. It will, we think, be admitted that almost without exception they have been men of the highest character for integrity, and, in the words of Professor Caird, "possessed of an unmistakable instinct for Truth."

After the Middle Ages had passed, Descartes (A.D. 1596) and Bacon (1561) led the way to a freer spirit of investigation; and at intervals there have followed, amongst others Spinoza (1632), an independent Jew, a pure Monotheist; Locke (1632), the champion of Empirical Science; and then Leibnitz (1646), the greatest of German scholars, teaching doctrines directly opposed. Leibnitz's desire was to penetrate on the one side to the very root and origin of existing ideas, and on the other to apply them to practical ends; he made many attempts, but not successfully.[1] Berkeley (1684) and Hume (1711) followed with their Idealistic theories, having some points of resemblance, but of directly opposite tendency. Reid (1710) in Scotland and Kant (1724) in Prussia afterwards arose to refute the theories of both; and the latter gave in his "Critick of Pure Reason" a new impulse to pure philosophical inquiry. His successor, Fichte (1762), changed his master's severely independent argument to an Ideal Transcendentalism; and amongst a host of lesser lights, who quickly followed, the usual contradictions abounded. Of these the most eminent were Schelling (1775) and Hegel (1770), who formed the famous School of Identity (Knowing and Being); followed by Cousin (1792), the brilliant exponent. His contemporary, Comte (1795), an original genius, founded the well-known School of "Positivism," having many admirers, but few acknowledged disciples of note. In our country the most eminent contemporary of these was Sir Wm. Hamilton (1788), whose well-known criticism on the Kantian Philosophy, and that of other well-

[1] "Leibnitz," by John Theodore Merz, Edited by Professor Knight (Blackwood, 1884).

known writers, has given a considerable impetus to such studies, at least in this country. Later still, we have had John Stuart Mill (b. 1806), a very eminent thinker, great in Logic and somewhat high-handed criticism—especially of Hamilton;[1] G. H. Lewes, a clever scientific writer; and Herbert Spencer, so well known as an original exponent of Social Science, and eminent in the philosophy of Evolution. Notwithstanding this free and wide divergence of opinions amongst philosophers, and the liberality of the so-called Republic of Letters, "literary judgments," says a recent critic, "tend to be arbitrary, and, in particular, to be conservative. . . . The human mind is as slow to accept new Art as to accept new Truths. . . . Goldsmith protested that there never was an unbeaten path trodden by the Poet that the Critic did not endeavour to reclaim him by calling his attempt innovation."[2]

Fashion seems to reign in Philosophy as elsewhere. Each of the great writers has his followers, but which of them can claim an important disciple who will subscribe to his views? Of recent years perhaps the most popular in this country were Hegel, a charming idealist, and Comte; but both seem to be declining in favour. Comte's claim to be a great philosopher is somewhat questionable. There is no doubt as to his qualification as a thinker, and generally as a man of original genius, though somewhat prophetic and erratic. He has been unusually fortunate in his English commentators—J. S. Mill, G. H. Lewes, and Professor Edward Caird, all of whom, however, differ from many of his doctrines; but they have done much to shield his writings from unfriendly criticism and misconception, to which they certainly lie very open. Lewes even describes him as one of "the greatest thinkers of modern times."[3] He is by no means consistent with himself, but this is not surprising, for he was a philosopher at sixteen, and, it is said, wrote some five hundred pages of one of his great works in three months! His knowledge of the Natural Sciences and Empirical Truths generally was wide, and his style somewhat popular.

[1] J. S. Mill's "Examination of Sir Wm. Hamilton's Philosophy" (1865).

[2] "Essays Toward a Critical Method," by J. M. Robertson, p. 65 (Unwin, 1889).

[3] Comte's "Philosophy of the Sciences," by G. H. Lewes, 1853.

Here are some of his sayings: "The individual man is a mere abstraction, and there is nothing real but *Humanity*. . . . The God who made all things work together for good to his creatures has disappeared with the fictions of childhood. But his place has been taken by '*Humanity*,' conceived as a great providential existence which sustains and controls the life of the individual man, and in which he finds a sufficient object for all his devotions." [1]

Comte had the advantage of following some greater philosophers than himself. "Has not Plato bequeathed to us idealism; Descartes, the autonomy of the mind; Spinoza, anti-dualism; Leibnitz, the idea of substantive force; Kant, that of the sovereignty of duty in life? Each system of Philosophy has its day. It appears; it puts itself forward; then it falls to pieces and gives place to another. . . . The really powerful systems do not disappear without leaving . . . some elements which become henceforth a part of the general inheritance." [2]

Professor Huxley, a greater than Comte, does not believe that Positivism will succeed Christianity. He says: "The incongruous mixture of bad science, . . . the new anthropolatry known as Povitisism will not climb into the vacant shrine. But when the Positivist asks me to worship 'Humanity'—that is to say, to adore the generalized conception of men as they ever have been and probably ever will be—I must reply that I would just as soon bow down and worship the generalized conception of a wilderness of apes." [3]

Comte writes of "the provisional *régime* which ends in our day;" for like some other writers of the French revolutionary period he assumed that the world had now reached a grand new era of "Sweetness and Light," as "sweet and musical as bright Apollo's lute," [4] the very Millennium of Humanity.

The main feature of Comte's Philosophy of Positivism is this: He threw aside altogether the Absolute and Infinite as being unknowable, and limited his philosophical research to

[1] "Social Philosophy of Comte," by Prof. Edward Caird, 1885.
[2] Reville's "History of Religion," p. 190.
[3] Professor Huxley in *Nineteenth Century*, February, 1889.
[4] "Love's Labour Lost," act iv. sc. 3.

the merely Empirical phenomena. Surely as well might he have thrown aside the whole Material World at once, on the ground that Matter itself is unknowable. He ignored UNIVERSAL or spiritual Truths, and so nothing higher was left for his system than NATURAL Truths, which he based upon the Natural Sciences, including pure Geometry as *merely* one of them. In limiting Philosophy to so very narrow a field, did he not forget the very meaning of the word? The Absolute and the Infinite—Space and Time—the Past and the Future, may all be beyond human *comprehension*, but the Mind demands to look into them, and can certainly conceive of their existence—it may be with reverence and awe, but conceive of them it must. "In the nature of Man, as an intelligent, self-conscious being, there is that which *forces* him to rise above what is material and finite, and to find rest nowhere short of an Infinite, all-comprehending Mind." [1]

Even Professor Edward Caird says that "Comte's view of the limits of knowledge cannot be maintained except on principles which would be fatal to the existence of knowledge altogether." [2] Farther: "Can men institute a real providence for themselves in all departments—Moral, Intellectual, and Material?" Comte answers "Yes!" Lewes writes of Comte's views of Life thus: "What Life is we know not—cannot know." He objects, however, to your "calling it a spirit, *as if you knew!*" [3]

J. Stuart Mill also objects to Comte's rejection of Metaphysics, and to other points of his Philosophy. Although denouncing Metaphysics and Theology, Comte claims to be a religious teacher, and tried to establish a new Theology of his own, "more in accordance with the advanced views of the age," and in these views, perhaps, has a few disciples at the present day. "But whatever may be said of Comte's Philosophy as a whole, he possessed that unmistakable instinct for Truth which renders even the errors and inconsistencies of men of genius more *instructive* than the unexceptionable reasonings of many judicious persons who follow the beaten track of thought, and therefore need no repentance." [4]

[1] Principal Caird's "Philosophy of Religion," p. 86.
[2] "Philosophy of Comte," p. 164.
[3] Lewes, "Comte's Philosophy of the Sciences," p. 215.
[4] Professor Edward Caird's "Philosophy of Comte," p. 23.

Such was the eulogy of a learned admirer, although not a disciple; but from a recent letter in *The Athenæum*[1] by Professor Baynes, we learn that a still greater critic held a very different opinion. Addressing Comte's friend, Lewes, one day, Carlyle said: "I looked into Comte some years ago, and soon found he was one of those creatures that bind the Universe up into bundles and set them all in a row like stooks in a field—one of those fellows who go up in a balloon with a lantern to examine the stars. I was soon done with him." Severe certainly; but allowance will be made for the great thinker's peculiar style.

The originality of Comte's theory is, we think, subject to question. It contains some resemblance to Chinese ideas of religion. The Chinese worship Humanity in the past; Comte inverts this into a worship of future Humanity. Somewhat similar in form, though much more unwarranted and extreme opinions, were published by Holbach, one of the semi-atheistic apostles of the French Encyclopædist School in which, however, Comte must not be classed. Holbach deified Nature as self-existent, producing monsters of indescribable forms, without design, the progeny of mere Chance. Diderot appears to have countenanced Holbach's book,[2] which even Voltaire did not.

Comte was no atheist, for he recognized some Great Original Unknown God; but he was an enthusiastic admirer of Diderot, whom he called the greatest genius of the eighteenth century—a judgment certainly extravagant. The reader will be reminded of an almost identical eulogium of Comte by G. H. Lewes, equally extravagant. Carlyle has greatly modified these opinions, and has perhaps rendered a service to Truth in doing so. Mr. John Morley[3] does Diderot full justice as a *littérateur*, critic, and reformer; but as a philosopher his reputation does not stand high.

[1] April, 1887.
[2] "The System of Nature," 1770.
[3] "Diderot" (Macmillan, 1886).

LECTURE XII.

Theories of Creation—Not Beginning at the Beginning—The Genesis of the Earth—The Origin of Life.

No controversy has been more persistently maintained than that which relates to the Creation—first, of the Material World; second, of Life; and third, of Mind. Concerning the creation of Matter, Reason knows nothing whatever. Of our Solar System, three of perhaps the most eminent men of their day have, in succession, offered what may be called Evolution theories of Creation—Kant, Laplace, and Sir William Thomson—besides others of lesser note; but none of them begins at the beginning! Kant (1724) commenced by assuming mere Vapour, but could not advance one step towards the Evolution of a Sun, without further assuming Motion and Gravitation. In this, however, he was very much imitating Democritus (450 B.C.), the author of the old Atomic Theory, which claimed to account for the whole system of Nature by an infinite multitude of Atoms, having a primary motion. Gravitation was discovered by Sir Isaac Newton twenty centuries later, which Kant of course added.

Laplace (1749), the great French astronomer, showed the mathematical impossibility of Kant's Sun being globular. He then began anew by assuming a Globular Sun "ready made,"[1] and evolved Planets out of gaseous matter, thrown off by centrifugal motion from this *Central* Sun; and Herbert Spencer seems to adopt the same view.[2] But the like mathematical impossibility applies to this idea as to that of Kant, namely, that such Planets could *not* be globular, but must be convex-lens or wheel-shaped. To remove this objection a modern mathematician proposed to begin with a chaos of stones, or solid matter, from which (and

[1] "Agnosticism," by Dr. Momerie.

[2] "First Principles," ch. ix.

of course assuming Motion and Gravitation) he evolved a central Sun such as ours is.

It is difficult to see how stones or any other solid matter could remain solid during the formation of a sun. The rush of such solids to a central focus by the force of Gravitation would, we presume, evolve heat so intense that any matter we know of would become plastic and molten in the act, so forming by its axial revolutions not a globular, but an extremely oblate Spheroid, as in other cases.

Fiery Meteors, although numerous, are seldom *observed to fall on the Earth;* but on the 27th of November, 1885, one was *seen to fall* at Mazapil, in Mexico. It was a metallic mass, weighing 10¼ lbs., and descended in a cloud of phosphorescent vapour, its crust being in a state of fusion. It consisted of Iron, 91·21 per cent.; Nickel, 7·83; Cobalt, 0·65; Phosphorus, 0·31 per cent. Some writers supposed it was a fragment of the comet of Bela. Meteorite stones of great size have been found at different times. The "Bendigo," found in 1785, weighing six tons, and another of 22½ tons, found in West Greenland in 1870, are well known. There are three Meteorites in Glasgow Museum, described by Sir W. Thomson in his Lectures.[1]

These theories—especially that of Laplace—were received with some favour, because the motions of our Planets and the planes of their several orbits, although not quite in accord with such an idea, are not very different from those which a similar mode of evolution would naturally produce. Indeed Geikie says, "The present condition of our Earth is very much what, according to the Nebular Hypothesis or theory, it might be expected to be."[2]

Our globe seems, in the absence of more data, to be more nearly a perfect sphere than might be expected, if formed originally of Nebular Vapour, especially since we have been told by astronomical calculation that it once revolved on its axis with vastly greater velocity. Some fifty-seven million years ago, not to go farther back, it is said to have revolved round its axis in less than seven hours! Since then its rate of rotation must therefore have been gradually diminishing. No doubt the explanation of its

[1] "Popular Lectures," p. 416 (Macmillan, 1889).

[2] Archibald Geikie's "Class Book of Geology," 1886, p. 301.

almost spherical form is its extreme density at its centre, indicating a metallic nucleus. This, however, does not well accord with a Nebular Vapour origin, although it cannot be said to contradict it. The subject might furnish an interesting calculation in mechanics, if we had the necessary data as to pressure, &c.

The theory of Laplace may be considered somewhat more in detail, and we may do this by following the examination of his hypotheses by the late able mathematician and astronomer, Mr. R. A. Proctor. Laplace suggested that "the whole mass of Matter out of which the solar system was formed was one immense disc, extending beyond the path of the remotest planet now known, and *rotating as one gigantic whole*. . . . The ring would gradually shrink as its heat was radiated into space, until the outer parts, *retaining their original velocity*, could no longer cohere, but would be left outside in the form of a gigantic ring. This ring, as it further shrank (along its whole length now) would dissolve into fragments, and these would eventually coalesce into a single planet—the outermost. Then another would form in the same way, and another, and yet another, until at last there would be left in the middle that great mass that was afterwards to govern that family of worlds. Each planet, at its beginning being like the original gaseous disc, would go through a similar process of contraction, and form subsidiary moons." [1]

Mr. Proctor goes on to say—"Laplace's theory, if we grant its initial assumption, accounts fairly for all the features of the solar system, except the singular distribution of the planets into families. . . . But," he adds, "unfortunately the initial assumption on which the whole theory depends is utterly impossible. . . . Few probably know that a solid disc of steel extending only to the earth's orbit could not move as a single mass. If the central part of such a disc—say a region as large as the Sun's globe—were set rotating as by some mighty hand, the outer parts would not feel the impulse until more than ten months had elapsed. But imagine," he continues, "a disc extending to the orbit of the planet Neptune, thirty times farther from the centre than the earth's path. Imagine, farther, such a disc-shaped region of space, not occupied by a mighty mass of steel, but by a vaporous

[1] "Other Suns than Ours," pp. 21–2 (London, 1887).

mass of some kind many thousands of times more tenuous than the air we breathe. It is such a disc that we have to imagine according to Laplace's theory, rotating as a single mass. No argument is really needed to show that this is absolutely impossible." How this rotation would theoretically be impossible Mr. Proctor does not clearly explain. Seeing that the "immense disc" of vapour was originally "rotating as one gigantic whole," we think that all the planets formed out of it would by Inertia *continue* their rotation round the sun at the former velocities of their particles respectively. No doubt Mr. Proctor's impossibility had relation to a *rigid*, solid disc of steel, not to a disc of ELASTIC vapour, which need not necessarily revolve in orbits at speeds corresponding to the axial speed of the Sun.

Curiously enough, in the preceding page Mr. Proctor refers to the conclusion of Clerk Maxwell and others, that the rings of Saturn are not solid, as hitherto supposed, but "rings consisting of myriads of tiny satellites, like sand on the sea-shore for multitude." Here we have, not the same, but, we think, an analogous case. These revolving rings of Saturn are now discovered to be, not solid, but a congregation of minute particles, *each* revolving independently, but in harmony with all the other particles, so as to appear one ring, and serve all the purposes of a solid ring, perhaps more perfectly. In like manner, the atoms or particles of the original gas might, we can imagine, *continue* to revolve *as one disc mass*, without any need of farther impetus from the central portion or body, but simply by the laws of Gravitation and Inertia, which they *already* possessed. Practically, however, the idea does seem somewhat fanciful.

Mr. Proctor refers to the singular distribution of the planets into families, which has not yet been explained, but he points out the curious analogy which obtains between the Sun and his more immediate attendants, compared with Saturn and the various bodies which revolve around him. The beautiful laws of Kepler are such as Chance will not account for. The proportional law existing between Distance and the Periodic Time of the Planets, as also the singular equality of the times of the Moon's axial and its orbital revolutions, and, indeed, all the laws of Motion, show evident Design. Perhaps some future Kepler will yet discover a

new additional law of relationship between Distance and the Velocities *in the orbital, combined with the axial motions* of the Planets, calculated at some point of uniform distance from their respective centres; perhaps also in relation to their respective densities, or perhaps in relation to the angle of obliquity of their axis to the plane of their orbit respectively. At present some of these data are not definitely ascertained. The weight of a Planet in relation to its size is, of course, its specific gravity, and probably some Law may be discovered to account for the extremely small density of the great Planets in relation to their immense axial velocities, and consequent centrifugal forces.

This grand Nebular Theory of Creation so eloquently propounded by Laplace has held the field amongst the savants ever since his day. But it seems now to be endangered by a trio of formidable rivals, which of recent years have come to the front. These are—the Vortex Theory, which it is understood has been reconstructed by three of our most eminent mathematicians; then the Ascending-Meteoric Theory of Mr. Norman Lockyer; and third, the Descending-Meteoric, or Eruption Theory, of Mr. Proctor.

The Vortex Theory is old in *name*, the term having been used in relation to Descartes' theory of the rotation of the planets; but his theory has since been shown to be unsatisfactory.

We shall best describe its new position by quoting Mr. S. Laing's account of it. He says: "An attempt has recently been made, based on abstruse mathematical calculations, to carry our knowledge of the constitution of Matter one step farther back, and identify atoms with ether. This is attempted by the Vortex theory of Helmholt, Sir William Thomson, and Professor Tait. . . . The blowing of soap-bubbles gives the best clue to the movements of waves of light, and through them to the dimension of molecules and atoms. . . . In the case of the Vortex theory, the idea is given by the rings of smoke with which certain adroit smokers amuse themselves, by puffing into the air. These rings float for a considerable time, retaining their circular form, and showing their elasticity by oscillating about it and returning to it if their form is altered; and by rebounding and reverberating

energetically, just as two solid elastic bodies would do, if two rings come into collision. If we try to cut them in two, they recede before the knife, or bend round it, returning, when the external force is removed, to their original form, without the loss of a single particle, and preserving their own individuality through every change of form and of velocity. This persistence of form they owe to the fact that their particles are revolving in small circles at right angles to the axis or circumference of the larger circle which forms the ring-motion, thus giving them stability, very much as in the familiar instance of the bicycle. They burst at last, because they are formed and rotate in the air, which is a resisting medium; but . . . in a perfect fluid free from friction these vortex-rings would be indivisible and indestructible; in other words, they would be atoms."

"The Vortex Theory assumes, therefore, that the universe consists of one uniform primary substance, a fluid which fills all space, and that what we call Matter consists of portions of this fluid which have become animated with vortex motion. The innumerable atoms which form molecules, and through molecules all the diversified forms of Matter of the material universe, are therefore simply so many vortex-rings, each perfectly limited, distinct, and indestructible, both as to its form, mass, and mode of motion."

"The theory is a plausible one, and the reputation of its authors must command for it respectful consideration. . . . It is based solely on mathematical theory. . . . No one has proved the existence of such a medium, or of such vortex-rings. . . . Moreover, the theory is open to some obvious objections. . . . How can aggregations of imponderable matter acquire weight, and become subject to the law of gravity, which, . . . as we have seen, is one of the essential and permanent qualities of atoms? . . . And if it had weight, however small, how could the enormous mass of Ether filling all space produce no perceptible effect?" Again, "How could the motions requisite to form the vortex-rings be impressed on them? . . . Energy can no more be created out of nothing than Matter, by any process known in nature."[1]

But a great difficulty this theory has to contend with is the fact

[1] "A Modern Zoroastrian," by S. Laing, pp. 32–35 (London, 1887).

that no such vortex-rings can be shown by any experiment, because we have no access to any gas, having the properties and condition of the *free* Ether of space, which is unconfined and boundless. The coloured vapour, or smoke-rings, give a very imperfect representation of them, although they show some very curious properties. The eddies we see in streams of running water are, perhaps, somewhat analogous, but also fail to represent them correctly. It thus appears that the vortex theory must be proved by purely mathematical calculations.

The other two theories to which we have referred are those of Mr. Lockyer and of Mr. Proctor. The first is based upon examination of the orbs and meteors of the system, by means of that wonderful modern instrument, the Spectroscope—the greatest revealer of the secrets of distant worlds. It tells us almost all we need to determine their constituents chemically, and the nature and conditions of their light, even distinguishing primary from reflected rays. The results ascertained are that all the Planets, and the Sun, are of the same or similar material, and also that their light is similar in kind.

The modern telescopes have revealed to us the fact that both inter-planetary and inter-stellar space are evidently crowded with meteors and shooting stars. Of such, there are daily seen passing our globe some twenty millions, and their total must be millions of millions—simply innumerable; and most of them of extremely diminutive size. They seem to travel in streams or zones round the Sun, and are sometimes connected with Comets. When the Earth intersects such streams we have a grand display, as occasionally witnessed on November nights. They must frequently fall into the planets, but being of trifling size and weight do not appear to add to the weight of our globe in any appreciable degree. They are composed of minerals, metals, and hydrogen or other gas, in a state of semi-fusion, judging from their spectra, and from the examination of some which have fallen on the Earth.

Mr. Norman Lockyer's theory is based upon the hypothesis that the universe is built up of such insignificant meteorites that they collide and aggregate into larger bodies, eventually forming the Sun, Planets, and their Satellites. This eminent authority has proved by his Spectroscope that the spectra of the light emitted by

Suns, Stars, Meteors, and Comets is the same as can be obtained from actual Meteors which have fallen. This is a fact of immense importance, but it does not definitely prove that the meteors make worlds, because it equally supports the converse idea that Meteors are the children of suns and comets. The theory, however, will account for the intense heat of the sun and that of the planets, because, travelling as they do, these meteors by collision would produce intense heat, increasing with their velocities. In a paper recently read before the Royal Society, Mr. Lockyer said that, "All self-luminous bodies in the celestial spaces are composed of Meteorites, or masses of vapour produced by heat brought about by condensation of meteor-swarms due to gravity."

Mr. Proctor's theory is the converse of this.

In the year 1871 Professor Young, of Princeton, N.J., observed a tremendous solar eruption, which appeared like filaments of glowing hydrogen, each many thousands of miles in length. These seemed to be ejected from the sun at a rate of 145 miles per second, till they reached a height of 210,000 miles, where, losing their lustre, they faded from view. Subsequent observations have detected numerous similar eruptions, proving that the sun has the power of ejecting such volcanic matter, and at such velocities as preclude its return to that body.

Mr. Proctor tells us that all the planets were originally molten matter; slowly cooling down they became solid, at least in their outer crusts, but remaining luminous; their third stage being that of our Earth as at present. Judging from the increase of heat, which we find in its deepest mines, it is shown by calculation that our globe is still molten matter at a depth of about thirty miles, which appears to corroborate his opinion.

He assumes that all the Planets, when in their early or sun-state of being, would in like manner throw out similar volcanic-like eruptions, with force sufficient to overcome their respective powers of Gravitation attraction. All such fiery matter would be meteoric, and thus space would be crowded, as we see it is still, with immense multitudes of such luminous meteors, or shooting stars. Those thrown off by the planets would form into orbits circling round the sun; but those thrown off by our central Sun itself would necessarily be travelling at such an angle thereto as would

prevent the possibility of their acquiring such orbits, and they would generally travel outward into inter-stellar space.

Nor is this all. The fixed stars are all suns, and, judging by their amount of light, they are of vast size. One of them, Sirius, is estimated to be a thousand times larger than our sun, and its heat is found by Mr. Lockyer to be so transcendent that its spectra cannot be matched by those of electricity, nor any other heat known to us. Mr. Proctor assumes that these fixed stars frequently throw off immense quantities of similar eruptive matter, necessarily at prodigious velocities, some of which would reach our solar space, and be eventually absorbed into the orbs of our system. Indeed, he adds, "it becomes clear that no small portion of the present mass of each planet must have been derived from the process of meteoric aggregation."

Several years ago, much speculation prevailed as to the Sun's means of maintaining its heat. May not the vast number of such meteors falling into it to a considerable extent supply the explanation? Regarding our Globe, there has probably been much exaggeration in the reports of the number of Meteoric "falling stars," but from recent observations of certain localities they seem frequently to extend over a surface of from three to ten miles. On examination they appear to be fragments of a large Meteor which probably took fire on entering our atmosphere, and exploded into a multitude of small stones. Of course the number falling into the Sun must be immensely greater, not merely in proportion to its great diameter, but much more in consequence of its enormous power of attraction. But here we must not attempt any further details. Enough has been said to give some slight idea of Mr. Proctor's theory.[1] He cannot give us visible proofs of its truth, but, if he is correct in his initial facts and suppositions, his treatment of them, which is purely mathematical, should give true results.

Such are the four theories of the creation of our Solar System now before us—Laplace's, the Vortex Theory, Mr. Norman Lockyer's, and Mr. Proctor's. There is yet one other versatile thinker on such subjects, to wit, Mr. Samuel Laing. He propounds a

[1] "Other Suns than Ours."

new theory, viz., that of the "principle of Polarity," which he applies universally to Matter, organic and inorganic, to Life and to Mind alike. He very ingeniously shows it as underlying all existence known to human faculty. However, as he does not appear to place Polarity as other than a condition, although a universal one, we presume that he does not claim it as another theory of creation. We will, therefore, not discuss his ideas here, but simply refer to his interesting book.[1]

According to Helmholtz and Soule, "the Sun and his heat originated in a collision of smaller bodies, generating, as they must do, an exact equivalent of heat for the motion lost in collision." Sir William Thomson says, "Meteoric action . . . is . . . not only proved to exist as a cause of solar heat, but it is the only one of all conceivable causes which we know to exist from independent evidence."

Treating of the question of the Sun's existence, Newcomb concludes "that it is hardly likely that the Sun can continue to give sufficient heat to support Life on the earth . . . for ten million years from the present time." Helmholtz's idea is twenty million years, and that of Pouillete twelve millions; but Thomson says, "I think it would be exceedingly rash to assume as probable anything more than twenty million years of the Sun's light *in the past* history of the earth, or to reckon on more than five or six million years of sunlight for time to come."[2]

Thus have we considered the question of the beginning of our Solar System, reserving till our next Lecture the subject of the Ether of Space. The beginning of Animal Life we cannot discuss. It is beyond our mental grasp. We cannot say what Life is, but we may assure ourselves of what it is not.

Life cannot be the mere aggregate of the material chemical substances composing the living being. Cuvier says that "it is inconsistent to suppose that Life can itself be produced by those affinities." "The mystery of Life is as impenetrable as the mystery of simple Being," says a recent writer, "and perhaps the most mysterious phenomenon of existence is Mind. Mind involves Life. But Life is not co-existent with all Matter, nor is Mind co-existent with all Life."

[1] "A Modern Zoroastrian." [2] "Popular Lectures," p. 390.

Mr. Wallace, treating of the question of the beginning of Life, writes:—"The first stage is the change from inorganic to organic. . . . This is often imputed to mere increase of complexity of chemical compounds, but . . . even if we admit that it may have produced protoplasm as a chemical compound, it could certainly not have produced *living* protoplasm. . . . There is in all this something quite beyond and apart from chemical changes, however complex. . . . The next stage is still more marvellous, still more completely beyond all possibility of explanation by matter, its laws and forces. It is the introduction of sensation or consciousness, constituting the fundamental distinction between the animal and vegetable kingdoms. Here all idea of mere complication of structure producing the result is out of the question. We feel it to be altogether preposterous to assume . . . that an *ego* should start into existence a thing that *feels*, that is *conscious* of its existence."[1]

[1] "Darwinism," by Alfred Russel Wallace (Macmillan).

LECTURE XIII.

Ether—Various Theories as to its Nature—Is it Material and Ponderable?—Experiments.

No final decision on the great question of Creation can yet be arrived at, whether reliance is placed on authorities or on numbers. Time alone may decide. In the first place, no philosopher so much as attempts to explain the *original* creation of anything. But even in the secondary domain of the subject, a fatal objection seems to be common to all the more widely accepted theories—that they do not sufficiently take into account the existence and properties of Ether.

That Ether exists may be shown by various considerations. It is the medium through which Light, and presumably Sound, are brought to us from afar. Both travel on or by waves of Ether or Air, though at different rates of speed, by what is generally known as undulatory motion. The idea that Space is an absolute vacuum is universally repudiated. But here this question arises. Seeing that Ether, however rare, and however elastic, is not a spiritual entity but a *Material* (*Matter*), *it must be ponderable in some degree.* How comes it that the planets, travelling *at great velocities*, are apparently unaffected by it? Even a minute resistance would, in course of time, give indication of its effect. Again, if Matter, it must have some power of Gravitation; but there is no trace of this, either active or passive. No doubt this last objection may partly be met by saying that its attraction, being universal from all directions, is not felt in action, but this in nowise explains its non-resistance to planets, and more especially such attenuated bodies as Comets, rushing through it at enormous velocities. The only answer that can be given to this question, therefore, seems to be that Ether may not be subject to Gravitation, an answer which at once seems to contradict the greatest,

indeed almost the only indisputable Material Truth we possess —Newton's grand discovery of Universal Gravitation.

The Ether fluid is of great importance in this discussion. Mr. Lockyer says :—"To account for the transmission of light, physicists have to assume the existence of an all-pervading, *imponderable*, fluid, inappreciable to any of our senses. This they call Ether, and, according to their hypothesis, the vibrating molecules of the luminous body impart their vibrations to the Ether, by which they are transmitted in the form of waves that travel with an inconceivable velocity to the receiver. . . . All bodies, whether far or near, are visible to us by means of their unrest. . . . *The normal condition of every thing in Nature is a state of most beautiful and exquisite unrest ; . . . and, if it were not so, there would be for us no External World.* From every material substance, including all distant worlds, the vibrations of their smaller particles or of their largest masses come to us along a medium which scientific men call Ether ; not that they know all about it, but because it is necessary, in order that their work may go on at all, that they should assume that there is *something* infinitely finer than Matter, and *not at all like the attenuated matter which pervades all space.*"

This paragraph appears to us clearly expressed, except the last few words which we have italicized, and which seem to suggest a great original idea, yet somewhat puzzling. The Ether of which Mr. Lockyer writes is different from "the attenuated Matter." The only other Matter known to us as specially attenuated is that which forms the luminous "tails of comets," but as that cannot be shown to "prevade all space," it fails to satisfy his definition. No doubt it might be assumed that this "attenuated Matter" may become luminous only under exceptionally high temperatures, as in the tails of comets.

Mr. Lockyer's definition of Ether possesses this remarkable advantage that it gets quit of the difficult questions arising out of Gravitation-attraction. This something, "infinitely finer than Matter," forms a medium along which the vibrations of the smallest particles and the largest masses of the distant worlds come to us. Mr. Lockyer stops short of explanation, for which, therefore, we must wait. But it appears *necessary* to conclude that this Ether possesses Extension and yet is not Material, and therefore,

not subject to Gravity, so that it will not form even the most minute obstruction to planetary motions. It is invisible and silent, forming the vehicle for conveying the waves of Light, and probably those of Sound—"The Music of the Spheres." So our great poet seems to have thought :—

> "There's not the smallest orb which thou behold'st,
> But in his motion like an angel sings,
> Still quiring to the young-eyed cherubins.
> Such harmony is in immortal souls;
> But whilst *this muddy vesture of decay*
> *Doth grossly close it in, we cannot hear it.*" [1]

This Ether in an entity, but not a spirit, for it is arbitrary, and therefore belongs to the NATURAL sphere. It is apparently without analogy in nature, unless *Light* or *Life* can suggest one. We must confess that it is, at any rate in the existing stage of our scientific knowledge, beyond our comprehension.

Writing of this Ether, Sir William Thomson says :—"I move through this 'luminous ether' as if it were nothing. . . . Comets make a disturbance in the air, and perhaps the Ether is split up by the motion of a Comet through it. . . . We cannot say that it is electricity. . . . What can this luminous ether be? . . . It is something that the planets move through with the greatest ease. It permeates our air; it is nearly in the same condition . . . in our air and in the inter-planetary space. The air disturbs it but little ; you may reduce air by air-pumps to the hundred-thousandth of its density, and you make little effect in the transmission of light through it. . . . What we know of the luminous ether is that it has the rigidity of a solid, and gradually yields. . . . You may regard the existence of the Ether as a reality of science. . . . The fundamental question as to whether or not Ether has gravity, has not been answered. . . . We have no knowledge that Ether is attracted by gravity ; it is sometimes called imponderable, because some people vainly imagine that it has no weight, I call it Matter."[2]

"There are," writes Mr. Oliphant, "many elements in nature called imponderable, simply because at present hydrogen is the

[1] "Merchant of Venice," act v. sc. 1.

[2] "Popular Lectures and Addresses," vol. i. pp. 326–9 (Macmillan, 1889).

lightest thing we can weigh—in other words, they are not really imponderable, but only imponderable as far as we have got. This is admitted, and is illustrated by Mr. Crookes in what he calls 'the *fourth* state of Matter.'" This fourth is "a form and condition vastly more rarefied than the lightest substance known —so we pass from the solids, which were formerly called Matter, to liquids, from liquids to gases, from gases to electricity and magnetism, from these to aeriform or radiant matter; for we learn from Ganot's 'Elements of Physics' that that subtile, imponderable, and eminently elastic fluid called the Ether, distributed through the entire universe, pervading the mass of all bodies, the densest and most opaque as well as the lightest and most transparent, is composed of atoms; and not merely do the atoms of bodies communicate motion to the atoms of the ether, but the latter can impart it to the former. Thus the atoms of bodies are at once the sources and the recipients of motion. All physical phenomena, referred thus to a single cause, are but transformations of Motion."

"In the present state of science we cannot say whether the Forces in Nature are properties inherent in matter, or whether they result from movements impressed on the mass of subtile and imponderable forms of matter through the universe. The latter hypothesis is, however, generally admitted." [1]

The question of planetary creation must be left in the hands of the scientists. The several theories on this subject are necessarily different and inconsistent with each other, and none of them as yet commands general acceptance. The one fatal difficulty which none of them can overcome is that of this Ether of space; for, scientifically considered, if it is Material (however attenuated) it must possess Extension and *some* ponderability, and be subject to Gravitation. If it is Immaterial, it is in itself not conceivably possessed of Extension so as to *fill* all space. But as it necessarily requires to pervade all space, no explanation seems possible, unless we assume it to be a new entity now discovered, or else some mere thing or force, such as Gravity, pervading or "*indwelling*" some *material* entity which possesses extension, and fills all space. *Or, on the other hand*, if Ether is itself *material*, it will

[1] "Scientific Religion," 2nd edit., p. 35 (Blackwood).

have Extension, so filling all space, and serving to communicate Gravitation, Heat, &c., from one Orb to another. This, of course, is entirely without proof, and cannot yet be allowed. "Poisson, the eminent French geometer, has endeavoured to solve the question in relation to the evolution of light by affirming the probability of an atmosphere of electricity surrounding the earth, and lying above the atmosphere of air. He supposed that the meteorites, rushing through this electric atmosphere, would decompose the electric fluid, . . . and that by such electric decomposition light and heat would be evolved." Mr. Lockyer, no doubt wisely, refrains from premature explanation. Mr. Proctor wrote—"The whole subject of the origin of our Solar System is full of difficulties"—certainly a very candid admission, and the scientific world is now by his lamented death deprived of his further aid in its elucidation.

We have thus seen the contradictory results which arise in treating Ether as imponderable, and we now propose to assume that it is ponderable, and treat of it as such.

If *ponderable*, it is a *Material* entity, and consequently is subject to and possessed of *Gravity* in proportion to its density or mass; and, being Material, is possessed of Extension, filling all space, at least within the bounds of the entire Solar System. It does not contradict the great Laws of Sir Isaac Newton; for it necessarily attracts and is attracted by the Sun, and all Planets and Meteors. Consequently it must in some *minute* degree, by friction, impede or retard all their orbital motions, as previously stated; for friction must arise wherever two material moving things are in touch. Here there appears a difficulty to our assumption, for we *observe* no evidence whatever of such retardation of planets; that is to say, no diminution of their Inertia, if there be any, has been detected as yet.

The Forces of Nature having possible relations to Ether are Gravity, Inertia, Heat and Light, Electricity, Galvanism, and Magnetism, and none of these is Material. They are all in themselves immaterial, having neither Ponderosity nor Extension; for although their influences may extend throughout all space, it can do so *only* by their *indwelling*, or becoming a

mere *condition* of, some *Material* thing in Nature. Now if it be that Ether is this "same material thing," such a fact would be another proof that Ether, *by which* they are enabled to so pervade all space, is itself *Material*.

At one time Heat was supposed to be a material thing, but now every schoolboy knows that an iron rod may be made red-hot, and yet be found no heavier whatever thereby. Light, which is generally considered to be the same as Heat, and the electrical forces, are all found equally imponderable. Heat permeates a material body throughout, whereas, as Faraday by an ingenious apparatus showed, electrification is *external*.

Let us examine and define the exact meaning of the word imponderable. This is by no means very evident. That which is imponderable is without Weight. Now Weight has *not a definite but only a relative meaning*, depending altogether upon the *locality* of the thing being weighed. For example, although a cwt. of lead will always weigh 112 lbs. in any locality, this is because *both* the lead and the 112 lbs. weights are in the *same* locality. But suppose it were possible to have the scale containing the lead on the ground level, and the scale containing the weight at a great elevation in the air by having the balance suspended to a balloon; the lead would then show itself heavier than the 112 lbs. weight. The cause of this would be the attraction of the Earth's centre. So it is evident that "weight" is entirely caused by Gravity, and the actual "weight" of anything varies in proportion of the square of its distance from the Earth's centre inversely, if we set aside all other planetary attractions.

It thus appears that, although we always speak of weight as a definite something, it is not so, and in reckoning the properties of Matter so far as known, we should not say Extension and Weight, but rather Extension and Density. Thus the word Ponderable should not, we think, be considered as meaning *heavy*, but rather *dense;* and denseness or specific gravity is bulk in conjunction with weight. We will defer the further discussion of this question till we have considered some preliminary points involved in it.

Recent research seems to show that all action of these imponderable Forces of Nature must be due to the intervening of

some material thing (call it Ether) existing between the mutually acting bodies. Mr. George Forbes says—"The existence of such a medium seems to be necessary for an ultimate explanation of Gravity and Electricity." This reminds us of Sir Isaac Newton's suggestion of old, so far as regards Gravitation. He declared that "without mutual contact it was to him inconceivable that inanimate brute matter should, without the mediation of *something* . . . operate upon and affect other matter." Mr. Forbes goes on to say that "We are almost certain that such a medium does exist. The theory of Light has almost conclusively proved that there is such a medium pervading all space, and penetrating between the molecules of material bodies."

"It was our great philosopher Faraday who realized that all electrical phenomena are produced by the electrification of a medium which fills all space. Faraday asked himself, 'Does the induction in a certain space vary when different insulating materials occupy that space?' He appealed to experiment, and received the most important reply which experiment ever gave him—which was simply, Yes! This brilliant discovery of Faraday's was extended and confirmed by a laborious research. . . . His idea, now universally accepted, was that we must abolish the idea of electricity being a Material." [1]

We have said that these Forces are all correlative. "In all experiments with electric currents we have continual evidence of the transformation of Electrical into Heat energy." And this seems equally true of Galvanism. But that Heat and Electricity are absolutely *identical* is by no means evident from what we know of their apparent properties, as we have already shown. "Heat and Light radiations are all absolutely identical except in colour."

Of late great attention has been given to Magnetism, which is now believed to be "another manifestation of the same electrical energy." Mr. Forbes says "the most complete developments of the theory of Magnetism go far to prove that Magnetism is due simply and solely to the existence of a large number of small electric currents in the Molecules of Iron, &c." [2] This explanation,

[1] "Lectures on Electricity," by George Forbes, M.A., F.R.S., pp. 27–29 (Longmans and Co.).

[2] Ibid., p. 63.

however, seems to infer that the axes of all electrified conductors (Matter) are true Polar Magnets.

Every magnetic body has two Poles, North and South. If you take an iron rod with its North Pole on your right, and cut it in two, or in twenty, or in a hundred parts, each such part, *however minute* in length, will have a North Pole on the right, and its South Pole on the left. This infers that every molecule of magnetized matter is in itself a separate magnet. If so, this is a most important fact. It suggests that the particles or Molecules of the Material Ether of space may all be separate magnets—the South Pole of each attracting the North Pole of its adjacent particle, thus connecting by a chain as it were every Solar body with all the rest of the System. Without an Ether in some sense Material this would be impossible.

We have gone much further into this subject than we intended, because it is better to try to meet difficulties than to merely evade them. The reader who desires a concise exposition of Electric Magnetism should consult some popular work on the subject. The greatest discoverer in this field of science was Oersted. The commercial and industrial applications following his great discoveries are innumerable, as witnessed by the Telegraph and its *confrères*, many of which we owe to the wonderful inventive genius of Edison.

Having all these considerations in view, we now return to the question of the retardation of the Planets by friction of the Material Ether. Scientifically there is no getting quit of this objection; but as there is no reason we know of against such supposition, we may suppose that the rarefaction of the Ether is *indefinitely* great. That is, the Ether is so almost inconceivably rare as to reduce such friction to *the verge of zero.* Thus the retardation of the Planets would be quite imperceptible to human observation or calculation by any means known to us, and if friction can be so indefinitely reduced, the period of time which may elapse before its effects can be observed may also be *indefinitely* great beyond our limited means of detection. This idea does not imply that an actual vacuum may exist in space, nor that the extreme rareness of the Ether would cease to act as a medium for Gravitation.

That friction will be proportionally reduced by the increased rareness of Ether or air can, we think, be illustrated by Mr. Crookes' Radiometer. This consists of a glass globe from which the air has been exhausted less or more perfectly. Inside is a vane, poised on a very delicately formed pivot, which on exposure to the sun's rays is seen to revolve with a speed varying according to the heat. This heat seems to excite molecules of the *residual* air in the globe into motion; or possibly it creates a minute electric current therein. But eventually the friction will be proportionally increased by increased imperfection of the vacuum, which can never be made perfect.

LECTURE XIV.

ORIGIN OF LIFE AND MIND — THEORIES — EXPERIMENTS AT CREATION—PROTOPLASM—THE FIRST CAUSE—EVOLUTION DOES NOT OF NECESSITY DENY IT.

WITH regard to the origin of Life and Mind, the controversy has long been carried on, and with increasing acumen, chiefly by the Zoological Evolutionists. The literature on this subject would now form a small library. They assume that Man was evolved from the Ape; the Ape by numerous stages evolved from the Reptilia; the Reptilia from the Mollusca; and the Mollusca, by many more stages, evolved from Protoplasma. The more modern Evolution Naturalists perhaps differ as to the exact line of descent, but all claim that Man is evolved from a Monad.

Protoplasm consists of a lump of inorganic matter similar to, not the same as, Protein, a mixture of carbon, gases, and water, under "favourable conditions." Here arises the crucial question —Whence comes the first "spark of Life" and of Mind? None of these elements of dead matter contains them; and, this being so, all the heaping up of these elements, and of all known elements, including even Electricity and Galvanism, and the non-vital Forces of Nature, can never produce them. Even although amalgamated in endless combinations, and in all and every known condition, "favourable" or otherwise, of temperature or surroundings — and although transposed and mingled throughout millions of ages—can they ever produce Life and Mind? As well might one go on for ever adding up columns of ciphers, expecting to obtain the smallest fraction of a sum. "Out of nothing nothing comes"; nor can they be gained even by piling Ossa upon Pelion. Science has failed to show that such transmutation is possible. However, an important distinction must be drawn between Life and Mind. We can believe in such transmutation as

far as mere Animal Life is concerned, for it is not absolutely incredible, but as regards Mind the "Two Kinds of Truth" show that such transmutation is absolutely *impossible.*

Other theories of the origin of Life and Mind have been proposed by different writers. For example, the idea that all Matter is accompanied by what has been called "Mind-Stuff." Bruno, a Pantheistic philosopher of Naples (burned A.D. 1600), a martyr of science, held that a spirit exists in all things—evidently a mere assertion; and Haeckel says: "All bodies are equally animated; whenever there is corporeal substance there is also mental power" —also a mere assumptiom. Another suggestion is that, in some unexplained and mysterious way, vitality is added during, or at the moment of, evolution, which just amounts to a *new Creation;* and finally, it is held by some that Life never had a beginning.

That Life never had a beginning is a proposition of a kind in which, perhaps, Metaphysicians delight; for it seems impossible either to prove or disprove it by strict logical forms. But what Metaphysics seems powerless to prove, Geology has arisen to solve, we think, definitely. That Dr. Paley's watch must have had a beginning is generally *assumed* as an obvious fact, but still no witness appears to give evidence that at some previous period it did *not* exist, and so his argument seems open to question as logically not perfect. But now, to use the words of a geologist, Geology shows that "all organic existences, recent or extinct, vegetable or animal, have had their beginning." The primitive rocks show that there was a time on our earth when organic Life was not. . . . By what, or through whom, did these races of nicely organized plants and animals begin to be?" For where Life has been it must needs leave some footprints on the sands of Time; even a worm must leave some trace of its existence. "Nature," says Goethe, "will be repeated. All things are engaged in writing their own history." It is, moreover, evident that this argument is not invalidated, but strengthened, by the theory of a fiery cataclysm on this globe, such as some think is indicated by the igneous rocks, and the supposed semi-fusion by heat of its original condition, ages before the existence of organic life. Consequently such ideas only add to the force of the argument that *all* our organic creations had a beginning *subsequent* thereto.

According to Mr. Spencer, "It is no more needful to suppose an absolute commencement of organic life, or a 'first organism,' than it is needful to suppose an absolute commencement of social life, and a first social organism;" but the parallelism of these two things is not clear, for they are not commensurate. Our TEST shows that here a fallacy lurks. The elements of Protoplasm are all only dead matter (NATURAL), while social *Life* contains the element of Mind (a spiritual, *i.e.*, UNIVERSAL, truth). The difficulty is obvious, and the Materialistic Evolutionists fail to meet it. Professor Haeckel, in his book, "The History of Creation; or, the Development of Earth and its Inhabitants by the Action of Natural Causes," distinguishes between the creation of Matter and the creation of Material Forms, on the ground that the former is beyond human comprehension. Is not the latter equally so? He says that "Creation in the first sense—the coming into existence of Matter—does not concern us here at all. . . . The process, *if indeed it ever took place*, is completely beyond human comprehension; . . . the scientific history of Creation is concerned only with creation in its secondary meaning, namely, the coming into being of the forms of Material Bodies." This seems to us a convenient but most unphilosophical way of escape from the general question of creation at large, for science has no more to do with the one than with the other. It seems somewhat akin to Comte's plan of declining to deal with truths other than those limited to the *Natural* sphere. This method of evading a question, on the ground that we do not know, would be fatal to all argument; for how little there is that we really do know! It is not true that we cannot conceive that the Infinite exists because we cannot comprehend it, or, to quote the words of Mr. Curtis, "Although we can only define the finite, the infinite is not the less a subject of true thinking."[1]

Mr. Spencer's argument appears to us somewhat intangible, because, however far back we may go into the ages, there evidently must have been some *point*, even by the Evolution theory, when Matter began to evolve upwards to Man, and some definite *moment when Life began* to show itself in one or more moving creatures, however diminutive. "To Laplace it must have

[1] "Creation or Evolution" (London, 1887).

been apparent, as it is to us, that the whole of this process of Evolution implies *a commencement*—that however far back we go in time we come to a point at which the mutual relationship *must have begun*." [1] The theory of indefinite, unlimited Evolution here seems a fatal objection to itself. For if there has been no Evolution, the idea that Matter and Life had no beginning would at least cease to be so illogical, although contradicted as this is by facts of Geology. Hence we have a complete contradiction between unlimited Evolution and the "past-Eternity-of-Things" theory.

Any other belief seems equivalent to a claim for the existence of Life and Animal-Consciousness, not only in a Mollusc, but even in Protoplasm, or whatever else is lower or earlier in the scale of animal being. And this, too, from its *first* beginning, back in the dawning of Time, and onward till the vastly later period in time when (by some slow process of development) animal life reached upwards to a creature possessed of *some* appreciable or reasonable degree of perception of *the external* world around and beyond it.

That Lives, scarcely deserving of the name, without feeling or conscious perception, in creatures all of types lower than the Invertebrate, could have occupied this grand world of ours by themselves alone, and for indefinite or incalculable ages, and yet without any capacity for enjoyment thereof, is to us an idea too irrational for thought, a direct waste, and contradicted by the obvious "Husbandry in Heaven." Mr. Spencer cannot surely mean this, for, while one of the chief Evolutionists, and, like Abou Ben Adhem, "exceeding bold," [2] he is, we believe, at the same time one of the most painstaking of thinkers—too elaborate for most readers, but fair, and often clear—not given by any means to subterfuge. What, then, does he mean?

All these theories of Creation by Evolution fail in showing us how even the material Planetary System came into existence; for every one of them presupposes existing Matter, it may be in Chaos, and even then they all pre-suppose important pre-requisites. For example, Inertia-Motion, and Gravitation.

Then, as to the first beginning of life, even Sir William Thomson's suggestion does not seem satisfactory. He said that

[1] "Nature and Man," p. 396.

[2] Leigh Hunt's Poems.

Life may have been brought by some meteoric stones falling upon the earth; but if so, whence had these stones this element of Life?

As to the theory of Creation of Life by Evolution out of dead organic matter, the evidence is apparently a failure. When the question came before the British Association, if we remember aright, at Newcastle, now many years ago, great expectations were evidently entertained by several scientists that the numerous experiments then in vogue would show that Galvanism and Electricity were the great factors in originating Life. But the event proved a complete disappointment, and it is remarkable that ever since that time little has been heard of these potent forces of Nature in connection with this subject. Then, however, juvenile would-be zoologists tormented hundreds of frogs to death; and some sanguine scientists experimented on living men, and, it was said, even essayed to "call back" the Spirit from the border-land of the great "Divide," forgetting Shakespeare's appeal in "Lear":—

> "*Kent*. Vex not his ghost: O let him pass! he hates him
> That would upon the rack of this tough world
> Stretch him out longer."[1]

But the experiments were in vain. Motion was obtained of the muscles, but merely mechanical. Perhaps also valuable knowledge of a curative character; but Life, as most thinkers predicted, eluded research. Alas!

> "Can all Saint, Sage, or Sophist ever writ
> People this lonely tower, this tenement refit?"[2]

Undoubtedly, however, these half-boastful experiments did much harm in originating a general and unreasoning prejudice against all speculations, even although well-founded, which it has taken many years to quite overcome. Even Dr. Darwin thus wrote:—"As for Rotifers and Tandigrades being spontaneously generated, my mind can no more digest such statements, whether true or false, than my stomach can digest a lump of lead. Dr. Bastian

[1] "King Lear," act v. sc. 3.

[2] "Childe Harold."

is always comparing Archebiosis, as well as growth, to crystallization—but this I cannot believe." [1]

Professor Caird says: "Protoplasm, the supposed physical basis of Life, cannot be placed on the level of mere chemical compounds. The protoplasm which can be analysed, and of which the chemical constitution is known, is not living, but dead protoplasm. If a substance manifests at one time qualities which are purely mechanical or chemical, and at another time such functions as those of assimilation and reproduction, the legitimate inference is that the new phenomena are due to a *new factor* not present at the first analysis." That is to say, *Life is beyond the ken of chemical analysis.*[2] Thus it may be possible to analyse the substance of a human organ, and find its elements to be certain chemical substances (metalloids and metals), the same or similar to those of any other animal's organ, but to analyse any *living* organism, so as to evolve the origin either of Life or Mind, is in vain; and thus all search in this direction is effectually barred.

Herbert Spencer seems to claim Mind as a mere evolution from animal Instinct, an idea which is surely inconceivable by any one who keeps clearly in view the absolute distinction between Instinct and Reason (which we have already insisted on). They are essentially *incommensurate*—the former being a NATURAL Truth, the latter a spiritual and UNIVERSAL one. Between these is a gulf as wide and complete as can be imagined.

Although Darwin and the other great Naturalists did not proclaim antagonism to the doctrine of a First Cause, some of their followers have, we think, been less careful, and seem gratuitously to assume that the doctrine of Evolution fully carried out *necessarily* disproves the existence of a First Cause.[3] The theologians, under the same erroneous impression, have generally opposed this Evolution doctrine with the greatest persistence, and, with few exceptions, long refused to look at the scientific facts upon which it is based. This has been for them most unfortunate, because the facts remain, and have given their opponents an apparently easy victory. But the facts, thoroughly examined, while clearly

[1] "Life of Darwin," vol. iii. p. 168 (Murray, 1887).

[2] "Comte," by Prof. Caird, p. 103.

[3] "Agnosticism," p. 126.

proving the truth of Evolution, or Development, or Natural Selection, *do not disprove a Supreme First Cause*, inasmuch as Evolution is *Limited* in its sphere of operation, and is simply an example of one mode of His operations as exposed to man's observation, but nothing more, so far as any evidence has appeared.

Professor Huxley, in a letter to *The Spectator* in 1866, wrote: "It is, and always has been, a favourite tenet of mine that Atheism is as absurd, logically speaking, as Polytheism." Even on the question of Miracles, Argyll writes that it "*now* seems to be admitted on all hands, that the question of Miracles is simply a question of evidence," as, indeed, all questions of fact should be. Professor Huxley says that, "Denying the possibility of Miracles seems to me quite as unjustifiable as speculative Atheism."

There was and is a tendency to impute Infidel and Atheistic opinions to the advocates of Evolution generally. This is very unfavourable to an impartial study of this important theory, and is evidently a mistake. All the *great* teachers of these opinions, we think, have admitted that above and beyond Evolution there exists a Great Power—the original Creator of the Elements of the material world; and they stop short of the extreme views more recently proclaimed by their imitators, sometimes under the shadow of their great names. This class are sometimes experts in science, eminent especially in Palæontology and Zoology. They appear to us to have become so learned in the most minute details of these sciences that every even apparently trifling circumstance is laid hold of, upon which, with singular perseverance, they build up, step by step, but sometimes leap by leap, the most wonderful hypotheses. One learned scientist writes thus: "Facts demand an ever deeper penetration, and *transport* us into that *creative state of enthusiasm* which, being the imaginative faculty of thinking man, raises us above those who remain standing amid their own surroundings."[1] We are here apt to recall the words of our great poet:—

"Such tricks hath strong imagination."[2]

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[1] "Mammalia," by Prof. Oscar Schmidt, p. viii preface (London, 1885).

[2] "Midsummer Night's Dream," act v. sc. 1.

With one it is the hoof of the horse, with another the number of teeth possessed by Mammals, and out of these, and even out of microscopic objects, they "make up" a history of Man, and seem surprised that other thinkers hesitate to see with their eyes. This class of scientists has been very numerous during the last twenty years. Every successive year they seem to have been more and more anxiously expecting that some great new fossil examples would be discovered. We mean such fossils as would surely fill up the many gaps in their Mammalian genealogical trees. But specially a fossil of Ape-Man is coveted, such as would clearly show the truth of their theories, to the reproof of those who presently prefer to wait patiently for more light.

But they are evidently greatly disappointed. Mr. Darwin *candidly expresses his surprise at the absence of this necessary fossil*, as well he might, and Mr. Wallace seems anxiously expecting its discovery. It appears that their views are making no advance, more especially of late; indeed, one authority admits that the study of Anthropology can in no way boast of having made any definite progress during the last ten years.[1]

The name of Cuvier is often quoted as their warrant for great speculations. Cuvier's words, "Give me a tooth and I will build up the whole animal," may have been probably true if a tusk of the genus Mastodon was meant. But the assumptions of some more recent Cuviers are many times more wonderful. By the mere *number* of his teeth they will write Man's history backwards to the ape and the reptile. We certainly ought not to apply the word "absurd" to any scientist's opinion, but the contention that animals rise in the scale of intelligence according to the lesser number of their teeth seems an *unmeaning* assumption. If the reptile has more teeth than the tiger, and the tiger more than the ape, the *obvious* reason is that each has just the *exact number it requires* to devour and masticate its peculiar food *most perfectly*. But the climax of unreason is surely reached by the extraordinary suggestion that *because* Man may have fewer teeth he is only a higher class animal than his so-called "ancestor" the ape! Man's food is different, and *he can cook it*, so that additional teeth would be both unnecessary and inconvenient.

[1] Prof. Schmidt's "Mammalia" (London, 1885).

In order to eke out these ideas as to the origin of Life some metaphysical theory or proposition is commonly taken up. Perhaps that "Consciousness is an attribute of Matter, which is Monism"; or it may be this opposite doctrine, that "Consciousness is a product of the evolution of Matter and Force"; which different propositions appear to us purely gratuitous and contradictory opinions, both alike remaining to be proved. We have already seen that Consciousness (Mind) is really independent of Matter, being immortal, and thus a spiritual or Universal Truth, and directly opposed to both.

Cuvier's eminent pupil, Richard Owen, accepted the limited theory of Natural Descent, that is, under a special Divine direction, and this view of Evolution commends itself to numerous thinkers. He said, "I believe the horse to have been predestinated and prepared for Man, . . . the manifestation of an Almighty Will, working towards a definite purpose." Gaudry, one of the best qualified naturalists of recent years, while maintaining the incontestability of the theory of Descent, "remains," says Professor Schmidt, "within the realms of Miracles, and supposes a Personal Creator to have directed the countless forms of development towards definite and pre-ordained purposes."[1] He, however, admits that Gaudry, "in a very admirable work, has given an account of the main substance, and the results of all the Palæontologico-Zoological inquiries."[2]

Professor Schmidt may be classed as an extreme Evolutionist. He says: "The alternative as to whether Man was created or developed can no longer be raised, now that we are exercising the free use of our reason." This seems a high-handed sort of Agnosticism, very unlike Mr. Huxley's definition of the creed. Prof. Schmidt continues: "Man's dentition has to be judged from our experiences made in the Mammalian group. . . . We shall not hesitate to maintain that the ancestors of Man possessed a fuller number of teeth, as long as deductions are justified from the observation of facts."[3] It is unnecessary to maintain what is not denied; but, as we have already stated, the common-sense

[1] Schmidt's "Mammalia," pp. 48, 63, 64. [2] Ibid.
[3] Ibid., p. 298 (London, 1885).

fact evidently is, that the *so-called* Ape ancestors of Man had the number of teeth *best* adapted to their needs, and Man (without reference to the Ape) has just the number of teeth *best* adapted to his needs, which are quite different.

Some one has said[1] that "to be *certain* is no more than to have courage in our opinions," is the root of Kant's Philosophy. Whether this be so or not, as regards Kant's, it seems to be a distinguishing mark of that of Professor Schmidt.

[1] *Academy*, 1890, page 31.

LECTURE XV.

THE CONFIDENCE OF PHILOSOPHERS—FACTS AND LOGIC—DIFFICULTIES OF THE EVOLUTION THEORY—DR. DARWIN'S VIEWS—THE PROTOPLASM THEORY.

IN a conversation in 1769, the French philosopher, D'Alembert, perhaps the most distinguished literary writer of his day, started the *supposition*, or rather two suppositions, and then evidently believed in them as *matters of fact*, "that, after the destruction of all Life by the extinction of the Sun, a repetition of the development of the plants and animals that formerly existed would recommence with the rekindling of the heavenly body which diffuses force and life. For nothing else is conceivable but that the causes once again set in motion should produce the same effects *as they had already done*." But he omits to show us how they had already done so. This is an excellent illustration of "begging the question." In fact, D'Alembert begs both the major and the minor premiss of his syllogism.

The concluding proposition is true and logical, but *only* provided that the Sun *had been extinguished*, and *also* if it be true that it *had really created the original* plants and animals—two pure assumptions without proofs. It is evident that any proposition can be proved, however erroneous, provided that we may assume imaginary premisses in this way. If Diderot accepted this logic (which seems scarcely possible), he surely had forgotten his own well-known maxim, "that the first step towards Philosophy is incredulity." In literature he was a giant, but by no means so among scientists; while as a philosopher, his utterances, often parodoxical,[1] seem frequently unfounded assertions.

Here, for example, are two illustrations of so-called logical reasoning. All allow that the writer of what are called

[1] "Diderot," by John Morley, vol. i. p. 114.

Shakespeare's dramas must have been the king of men, a man supremely wise, an intellectual giant. One party says, it is inconceivable that William Shakespeare, a mere playwright of uncertain scholarship and unknown to fame, could be their author, and the only man who could have written them was Bacon, the most eminent genius of his era, and of European fame. Here the conclusion is formally quite logical, yet actually false, being built upon two premisses, apparently warranted, but really untrue. Some one said to Copernicus, after he announced his great discovery, that the Sun was the centre of our Solar System: "If the world were constituted as you say, Venus would have phases like the moon: she has none, however. What have you to say to that?" Copernicus saw the logical force of the objection, but confident in the truth of his great discovery, he answered: "I have no reply to you, but God will be so good as that an answer to this difficulty will be found." And it was so, for, some eighty years afterwards, Galileo invented the telescope with which the phases of Venus were, for the first time, revealed. But, as the Count de Maistre (by whom this anecdote was related) said, the great astronomer was dead, and saw them not. Here the logic was not at fault, but the premiss, on which it of course rested, was so, because, although apparently true, it was really false.

"Logic," says Sir William Thomson, "is to language and grammar what Mathematics is to common sense; logic is etherealized grammar. . . . More ships have been wrecked through bad logic than by bad seamanship."[1]

If we understand them aright, Haeckel and his school hold that Evolution alone accounts for the existence of the Natural world, and repudiate any special purpose or Design. Even chance is self-contradicting by this theory, because extreme Evolution is placed very much in the position of an unvarying, unlimited, and *inexorable* law. Now, although it be not formally put forward as a kind of personal deity or giant ogre, the logical inference which follows from the doctrine so held is that Evolution must have been going on for ages of indefinite duration, rising from protoplasm upwards, and must inevitably continue

[1] "Popular Lectures and Addresses," pp. 285–6 (Macmillan, 1889).

to go on for ever, unless some miracle interpose; and surely Haeckel's school does not admit miracles.

If so, we ought now to have fossils and specimens of Apes and Men in all stages of evolutionary advancement; and the longer the time required in the process, it is evident the more numerous ought such specimens now to be. Yet not even one has been found. Indeed, an important circumstance is recorded, showing the reverse of this. Associated with the remains of various animals, numerous bones of Man were found, included in the breccia of the Cave of Brumquel, in France. Owen (a great authority) considered the evidence of their contemporaneity clear, and he held that the human skulls there obtained showed no indication whatever of an inferior or transitional type. If the facts be as stated, this evidence is as good as is attainable on the subject.

There is some *apparent* evidence of development shown in the case of the horse's hoof; but Dr. Cope admits what seems evidence of an opposite kind in the monkey. He says, "Between the brains of the lower and the higher monkeys, no difference of function or of intelligence is perceptible."[1] In or over the Coal measures we have Lignite, which Geikie says is "a compressed and chemically changed condition of vegetation, and may be regarded as an intermediate state between peat and coal."[2] That no such changed or changing condition of Apehood has been found by the Palæontologists is certainly remarkable, and a most important fact in this argument.

Herbert Spencer seems more logical, if equally unsatisfactory. He says that belief in Special Creations is "not countenanced by a single fact; . . . no man did ever see a special creation, . . . no one ever found indirect proof of any kind that a special creation had taken place"—the hypothesis "is absolutely without support of any kind." Now, did Mr. Spencer ever *see* a creation by Evolution? No; neither Creation nor Evolution is seen except in its results. Did any man ever *see* "an instance in which an animal of a distinct new species *was being naturally evolved* out of one of an entirely different organization? We lay

[1] "Origin of the Fittest," p. 149.

[2] Geikie's "Class Book of Geology," p. 210.

stress upon the "naturally," because we must exclude domesticated animals, and all such as are confined or cruelly treated by Man. Besides, there were no domestic animals existing during the long past ages of Evolution. That there is no cross-breeding between animals *in Nature* of two different Species is known. Humboldt, using the words of Müller, says: "The different races of Mankind are not different Species of a Genus, but forms of one sole Species;" and Cuvier says, "The human Species appears to be single."

This kind of argument, however, is not very convincing. As to seeing a special creation, we can see around us indirect and circumstantial evidence in abundance. Mr. Spencer makes no distinction between instantaneous creation and Creation built up by Evolution with visible Laws, and of deliberate forethought, design, and purpose.

It is to us extremely difficult to define Herbert Spencer's philosophical belief, notwithstanding his voluminous writings and the honest freeness with which he expresses his opinions. But he is evidently a believer in the existence of one Supreme Power. The following seems to us a touching confession of his views on this most important subject:—

"Once more we are brought round to the conclusion, repeatedly reached by other routes, that behind all manifestations, inner and outer, there is a Power manifested. Here, as before, it has become clear that while the nature of this Power cannot be known, while we lack the faculty of forming even the dimmest conception of it, yet its universal presence is the absolute fact, without which there can be no relative facts. Every feeling and thought being but transitory, an entire life made up of such feelings and thoughts being also but transitory; nay, the objects amid which life is passed, though less transitory, being severally in course of losing their individualities quickly or slowly, we learn that the one thing permanent is the Unknowable Reality hidden under all these changing shapes."[1] Strange that here no gleam of immortality appears to illumine the subject, and brighten this mournful sunset.

[1] "Principles of Psychology," ii. p. 503.

The history of living organisms has been epitomized in the following sentences:—

"Evolution of living types is a succession of elevations of platforms, on which succeeding ones have built. The history of one horizon of life is that its own completion but prepares the way for a higher one, furnishing the latter with conditions of a still farther development."[1]

Yes, but what is the history of the *first* horizon of Life? for this is the primary object of our search. Mr. A. R. Wallace said, "If a thousand material elements in a molecule are alike unconscious, it is impossible to believe that the mere addition of one, two, or a thousand other material elements, to form a more complex molecule, could in any way tend to produce a self-conscious existence."

Into the discussions which have arisen over Dr. Darwin's theories, in a Geological sense, of course we cannot enter; but we will, even at the risk of being common-place, try to give our non-scientific readers some indication of its main points.

In his "Origin of Species," Darwin states his views thus: "I believe that Animals have descended from at most only four or five progenitors, and plants from an equal or lesser number. Analogy would lead me farther. . . Therefore I should infer from analogy that probably all the organic beings which have ever lived on this earth have descended from some one primordial form, into which life was first breathed."

Geology, however, refuses to confirm this idea. The known strata of our globe consists of, (1) and lowest, *Primary* rocks; (2) of *Secondary* and (3) of *Tertiary* formations. Of these the *Primary* are thickest, and represent by far the longest period of time, and are usually divided into different sections. In the lowest, or Cambrian section, there are no traces whatever either of plants or animals. In the Silurian section Tribolites and Cuttle-fish are found, and in the upper section Fishes appear. In the highest Primary section, reptiles and insects first appear. In the *Secondary formation*, Birds and Marsupial mammals are found, then soft-scale fishes. In the lower strata of the

[1] "Origin of the Fittest," by Prof. Cope, p. 433 (Macmillan).

Tertiary formation are found Bats, Dolphina, Bees, &c.; in its middle strata, the Ape, the Dog, Lion, Ox, Whale, &c., appear; and, finally, in its highest strata, other Mammals and Man are found.

Now, nowhere in this chain of Life is there evidence of one species Evolving another. But singular evidence to the contrary incidentally appears in the fact that the Cuttle-fish, the *earliest* discovered Life, have organs of sensation of the most perfect kind. Dr. Darwin was puzzled with this, for he said that "the belief that an organ so perfect as the eye could have been formed by Natural Selection is more than enough to stagger any one." Now, unfortunately for his theory of continuous development, it has been found by Sir David Brewster, that the eye lens of the Cuttle-fish, one of the very earliest animals, "is as perfect and more complex than even that of Man." "No deviation," says Cuvier, "in the ordinary form of this animal (the Cuttle-fish) has ever produced or can constitute a being placed beneath it; nor can, or ever will, its better development give rise to a series of animals of a more perfect species to be placed above it. . . In vain shall we attempt to approximate these mollusca to some fishes whose skeleton has almost disappeared. . . In a word, we see here Nature passing from one plan to another, making a leap, and leaving between its productions a manifest *hiatus*."

To meet the objection of the first appearance of Animal life in so complete a form, Dr. Darwin maintains the extreme imperfection of the geological record, and suggests that there must be strata much older than the known *azoic* formations, or those without life, not yet discovered. This is, of course, an assumption, the truth of which must remain extremely doubtful until a discovery of such supposed strata, with some evidence of yet older and lower animal life, be made. Dr. Darwin, while evidently expectant of such discovery, honestly admits that—"He who rejects these views on the nature of the geological record will *rightly reject* my whole theory. For he may ask in vain for the numberless transitional links which *must* formerly have connected the closely allied or representative species found in the several stages of the same great formations."

While Dr. Darwin seems to fail in the Geological platform of

the controversy, he is apparently more successful on that of the Naturalist. His pre-eminent discoveries, and his singularly clear exposition of them, led to the discovery of his great theory of Evolution, and primarily secured its popularity. It is quite beyond our power to give any concise description of them. We believe the reader may safely trust to his facts; his deductions therefrom, however, must be open to general criticism. For this his freedom from mere dogmatism gives every facility, inasmuch as he framed his opinions upon his previously discovered facts, and not, as we all are in danger of doing, to wit, seeing facts through the coloured medium of our preconceived opinions.

Von O. Loew and Bokorny suggest that "the cause of the living movements in Protoplasm is to be sought for in the intense atomic movements, and therefore easy metamorphosis, of its Aldehyde groups of components,"[1] the molecular movements becoming molar, to use the language of Lester Ward. That "*intense atomic movements*" may produce Heat or Light or Magnetism, or even Decomposition, or new chemical Combinations is conceivable, but Consciousness belongs to none of them. This is just a reversal of the relations of these phenomena as held by Dr. Cope; but is it not equally devoid of logical meaning? Aldehyde is a semi-gaseous fluid obtained by passing alcohol through red-hot pipes.

Professor Cope (whose work we propose to quote freely, because he seems one of the ablest of the living writers on Evolution, in its entirety) writes that Protoplasm "is manufactured by living plants out of inorganic matter, the hydrogen, carbon, nitrogen, and oxygen contained in the atmosphere and in the earth. As dead plants will not perform this function, this action is regarded as in some way due to the presence of life. The energy peculiar to living protoplasm, and derived primarily in part only from the sun's rays, directs energy so that the complex molecular aggregation Protoplasm is the result. This is the only known method of manufacture from inorganic matter of this substance."[2] (Can this manufacture be shown

[1] "Protoplasma," i. (Munich, 1881).

[2] "Origin of the Fittest," 1887, p. 431.

by experiment under inspection?) "The first piece of protoplasm had, however, no paternal protoplasm from which to derive its being. The protoplasm-producing energy must, therefore, have previously existed in some form of Matter not protoplasm. This is also suggested by the fact that it really antagonizes the chemical forces. . . . The plant life is a derivative of the 'primitive life,' and it has retained enough of the primitive quality of self-maintenance to prevent it from running down into forms of energy which are below the life level—that is, such as are of the inorganic chemical type or the crystalline physical type. . . . If, then, some form of Matter other than Protoplasm has been capable of sustaining the essential energy of Life, it remains for future research to detect it." [1]

This entire paragraph seems at first sight a puzzle. However, let us try to discover its meaning. Protoplasm is manufactured out of inert matter by living Vegetable plants (not dead plants). The energy peculiar to the *life* of the Protoplasm (thus manufactured), " and derived primarily in part only from the Sun's rays, directs energy so that the complex molecular aggregation Protoplasm is the result. This is the only known method of manufacture from inorganic matter of this substance." Here we appear to have Animal Life evolved from Vegetable life, its energy being derived primarily in part only from the sun's rays. We thus seem to have very quietly leaped across the gulf which divides Living Animal matter from Vegetation, before we are aware of the act! The natural assumption seems to be that this Animal Life was derived from the plant. Vegetables are not living creatures as Animals are. Then, where or when, and by what process did *this animal Life* begin, or become evolved out of inorganic inert matter into either the plant or the Protoplasm? Animal Life and Vegetable Life are very different; there is not even an analogy between them. Vegetable Life is derived from the germ of its seed, which survives the individual plant, and reproduces itself even at the distance of thirty centuries! Animal Life does not survive the *individual* Life for one minute!

If the allusion to "Chemical types" and "Crystalline physical type" refer to the idea of Crystallization as typical of Life,

[1] "Origin of the Fittest," p. 431.

the illustration cannot be admitted without explanation. There is really no similarity between crystals and living matter, or living organisms. The crystal in forming is possibly possessed of two properties — mere *chemical*-heat, and minute resulting motion, although of this fact we are not aware—while the Living matter is possessed of vital-heat and motion, also of inward absorption, and growth by *assimilation* and feeling, as also of sexual affinity and powers of reproduction. Of all these the crystal is absolutely devoid. The crystal may increase in size, but *only* by *accretion* externally, that is, the addition of more crystal matter to its outside. It is therefore evident that it is possessed of none of these attributes of growth, even in the *minutest degree*, and consequently is quite incapable of developing Life.

The Protoplasm theory by no means seems a satisfactory explanation of Life. Earth, Air, and Water, are all swarming with living creatures, or germs of life, so minute as to be invisible to the naked eye. There will always be uncertainty, therefore, as to the first indication of life in the mass of protoplasm, because no care can prevent these living creatures from access to it, more especially because some of them are not destroyed by heat, even at the boiling point. Mr. Huxley candidly writes: "No one has ever yet built up one particle of living matter out of lifeless elements; every living creature, from the simplest to the highest, has its origin in pre-existent living matter." [1]

But there is another claimant to the name of Protoplasm. Professor D'Arcy Thomson has, in a recent lecture, described the Amœba, a living creature, a tiny, semi-transparent mass of jelly. It has a certain shape, but could alter its outline for that of a centipede, and by this power of altering its outline it could move. It possesses the functions of motion, nutrition, feeling, and also the power of reproduction. It is composed, one-half of Carbon, and the rest of Hydrogen, Oxygen, Nitrogen, and a little sulphur. Some fifty years ago a Frenchman found there was something in this stuff peculiar to itself, and called it Protoplasm. The Amœba seems often to take a long rest; it secretes a shell, and remains in this for a time, and neither eats nor does anything else. After a while the shell bursts and the animal is more active than

[1] Art. "Biology," *Encyclopædia Britannica*, 9th edition.

ever, and very often reproduces. A cell is an independent unity of living protoplasm, and the difference between an Amœba and all other animals is that it was composed of one cell, and other animals of many cells. It may possibly be found that what we have so long known as Protoplasm may really be an Amœba in disguise, or some other living (not dead) matter, somewhat similar.

LECTURE XVI.

PLANT LIFE AND ANIMAL LIFE—THE SCALE OF CREATION—THE IMPASSABLE GULF—BRIDGES OF SMOKE—BRIDGES OF IDEAS—DIFFERENCES OF DEGREE AND OF KIND.

DR. COPE may be sometimes obscure; but he is candid enough to admit that Protoplasm is not so clearly the origin of (animal) life as is generally supposed, and that the true material origin may still remain to be discovered. Living Protoplasm, he tells us, is manufactured by plant life. That mere Vegetable life can produce Life, Animal-Mind, and even Rational Mind is, we repeat, by no means scientifically established. The latter hypothesis, indeed, is inconceivable, and as we have seen, impossible. In using the phrase "Animal-Mind" we, of course, always mean mere *Instinct*, and nothing more.

But Dr. Cope declares that plant life is derived from "*the primitive life*." This is somewhat tantalizing, for it leaves us just where we were. We want to know from whence "the primitive life" was derived, and whether it is mere Vegetable or Animal life. Dr. Cope is a very able scientist, but evidently he does not know, or he would tell us in fewer words; for of words he is a master.

"Men who spend their lives in investigating the properties of Matter are very apt to forget that there is anything else, and at last to become incapable of conceiving the possibility of immaterial existence." [1] We do not wish to apply this stricture to Dr. Cope, who speaks of "the Divine *Spirit* planted in Man," and uses many other similar words of spiritual import. But scientists generally see the facts of their own science with birds' vision, keen but very contracted in scope, and, we fear, through spectacles of such high magnifying power that they too quickly

[1] "Agnosticism," by Dr. Momerie, p. 24 (Blackwood).

form philosophic theories thereon. Then every other consideration is apt to be cast into the shade, or looked at only in the light of such theories. Indeed all of us—

> "Figure to ourselves
> The thing we like, and then we build it up,
> It may be on the rock—or on the sand."

True philosophers, on the other hand, having no special science or theory before them, will take a more extensive and impartial view of them all, and especially of their relative merits and probabilities.

"It is evident that there is a manifest progress in the succession of beings on the surface of the Earth. This progress consists in an increasing similarity to the living faunas, and among the vertebrates, especially in their increasing resemblance to Man. But this connection is not the consequence of a direct lineage, . . . nor does Man descend from the Mammals which preceded him in the Tertiary age. The link by which they are connected is of a higher and immaterial nature, and their connection is to be sought in the aim of the Creator, . . . whose aim was to introduce Man upon the surface of our globe."[1] Agassiz held the doctrine of the successive creations of higher organized beings on the earth, and his opinions are always entitled to consideration, whether we may agree with him or not.

Scientists must be supreme in their own sphere; but as we have seen the extraordinary differences of opinion amongst the Philosophers, so here also great differences appear amongst the Scientific Evolutionists on many important points.

One of the most important finds of fossils in modern times was that of the landslip of Pitkermi, near Marathon, in Greece. Within the small space of 300 paces by 60 paces were found an almost incredible accumulation of remains of Vertebrates and numerous gigantic four-footed creatures of primeval times, including the Dinotherium and the Mastodon, also the Rhinoceros, and Carnivora surpassing the Lion and the Panther of Africa, with numerous other creatures. Much has been doubtfully made of the examination of these remains, said to belong to intermediate forms, of which the want had been so greatly felt. But, on the

[1] Miller, "Principles of Zoology."

other hand, the disappointment was evidently great *that not a single anthropomorphous Ape was found.*

Then, that such an extraordinary and varied collection should have been found crowded in so small a space seems to indicate the result of some sudden physical catastrophe, contrary to the new doctrine that no such catastrophe has ever occurred on our globe. This new doctrine seems also somewhat at variance with the Glacier theory of the Ice Age; and the discovery now made that Siberia contains abundant remains of great Mammals, such as Elephants, Mastodons, and the like, and also of a rich vegetation; and farther, with the appearance of sea-shells on mountain tops, even far inland. These may possibly be otherwise explained, but perhaps not rendered more probable, than by the theory of an important upheaval of portions of the earth's surface, or a *sudden* reversal of the then existing climates.

"The process of succession," Dr. Cope maintains, "has been towards greater effectiveness of mechanical work. There are also cases of degradation, as in the growing deficiency of dentition in man. . . . We are now brought to the question of the relations which mind bears to these principles. The question as to the nature of mind is not so complex as it might seem. . . . An analysis reduces it to a few principal types or departments—the departments of the intelligence and of the emotions, and the will, *if such there be*, . . . three groups as applied to both men and the lower animals. . . . But the question of the material of the mind, the original raw stuff out of which mind was made, is one which is claiming attention now, as it always has done. . . . This is sensibility, mere simple sensibility, unmodified sensation, *or Consciousness.*" We must remark that this word *or* seems quite incongruous here, connecting, as it does, Sensation, a NATURAL fact with Consciousness, a UNIVERSAL entity—two incommensurable things.

But Dr. Cope seems completely to ignore the grand question, Whence comes (1) this mere simple sensibility, *i.e.*, Animal life, or (2) *Consciousness? i.e.*, Mind. No doubt the learned Professor would tell us plainly if he could, but he plunges boldly into the gulf under a cloud of learned words having no direct relation to *this* question. Having emerged, and all along believing im-

plicitly in his theory, he does not see that he has failed, like every one else (as we think), to accomplish his self-imposed task of carrying his ordinary readers across this unfathomable gulf. But we continue the quotation, which *now* relates to the organ of the brain, and so seems practically to evade our great question.

"Sensibility," he writes, "in connection with Memory is sufficient for the accomplishment of wonderful results." Here is another puzzle. *Sensibility* can have no connection with *Memory*, because Memory *as yet* does not exist. It is a result which arises out of Instinct in Animals and of Mind in Man. At this first step in the argument there is no Memory, nor anything to remember. But we resume his argument. "It is only necessary to impress the sensibility with the *stimuli* which the world affords, whether from the outside or the inside, to have the record made, and to have the record kept."[1] This may be all very well, as a description of that wonderful storehouse the Brain, but the writer has forgot to tell us whence came "sensibility." He goes on to say that "Among wonderful things this is perhaps the most wonderful, that a given form of Matter should be able to retain a record of events, a record which is made during a greater or less degree of sensibility;—which is retained in a state of insensibility; and is finally returned to the sensibility by some curious process of adhesion, as the results of impresses, which are found on the material tissue concerned. . . . And these simple elements of mind are found in animals." Here he seems to substitute the *Material* brain for Memory, which is a faculty of Mind in man—a *Universal* entity. Memory is an endowment of Animal Instinct also, which, however, possesses no element of Mind, whatever.

Sundry writers contrive to bridge over the gulf in this or some other similar way as by a *coup de main*, and the feat reminds us of Camilla, who could—

> "Trip o'er the unbending corn and skim along the main."

But ordinary mortals, we think, require more solid footing.

There seem to be some Nature-philosophers who hold that we

[1] "Origin of the Fittest," p. 309.

have no knowledge of anything but the Matter and Motion which lie within the range of experience. Other metaphysicians, again as Dr. Carpenter says, "have reasoned as if our concern were with Mental operations alone, and as if the abstractions in which they deal had an existence *per se*, without any relation to the phenomena of Nature." Professor B. Martin well said that "all true Science involves both the knowledge of Nature and the knowledge of Man." A philosopher can have no complete knowledge of either without investigating both—which of course includes Mind.

We have repeatedly referred to the impassable gulf which lies between the Ape and Man, that is, between Instinct and Mind, or, in other words, between Animal Instinct and Reason. We have seen that attempts to cross this gulf have all signally failed. Our readers may remember that an ancient explorer of Central Asia—Marco Polo, we think—discovered a people who contrived to communicate with the spiritual world by the means of smoke. They even married their young people to *deceased* friends in a most formal and binding manner by means of a marriage ceremony and feast amongst friends of both parties, all detailed in due form on a written parchment, signed, sealed, and witnessed by the relatives. This was then solemnly burned, and the contents duly carried up to the now betrothed party in heaven *by the smoke of its flame.* So also were their prayers and offerings to the deity conveyed upwards to him. Thus did they bridge over the great chasm which lies between Earth and Heaven. The idea was a very beautiful and poetical one, and probably some remains of it may yet be found. But of course, like the learned theories we have been discussing, it will not bear examination either by our Test or by that of Logic; and the scientific gulf remains unbridged.

A voluminous champion of Animal Instinct has re-appeared, whose eminence in literature must command a full consideration of any theory he puts forward. Mr. St. George Mivart, Mr. Wallace, Professor De Quartrefages, and other eminent authorities,[1] hold that the difference between Man and the brute

[1] "Mental Evolution in Man," by George James Romanes, LL.D., pp. 16, 17, 177 (Kegan Paul and Co., 1889).

is one of *Kind*, not of *Degree;* but Mr. Romanes holds an opinion exactly the reverse—a distinction, this, of the very first importance. The writers named concede the theory of Evolution generally, but Mr. Romanes extends it from Ape to Man. His suggestions for filling up the gulf of separation is very original. He accomplishes it by "Ideas." These ideas are—(1) Simple ideas, or *Percepts*, of Animal life; and (2) General ideas, or *Concepts* pertaining to Man. Still the gulf remains; but to bridge it over Mr. Romanes suggests a third idea, or intermediate stage, which he calls *Recept.* Here is his definition: "A Percept is a simple idea, and means *taking wholly;* a Recept is a complete or generic idea, and means *taking again;* a Concept is a general or abstract idea, and means *taking together*—that is, a Concept is a re-cognition of things previously cognised. Recept implies no intellectual activity, being a mechanical [?] combination of simple ideas, such as children and animals form." With animals this Recept idea never becomes a Concept, but as children grow and reflect, their idea of Man becomes Conceptual. Thus the whole distinction between Man and the brute creatures consists in the presence or absence of Conceptual thought—that is, of Self-Consciousness.

So far we find little to differ with in all this, but we must confess our inability to see wherein a simple Idea or Percept can, by *mere repetition*, make any upward advance whatever except by accretion. Put a piece of lead into a crucible, and *repeat* this by adding another piece of lead, and another, and still another a hundred times repeated, and we find not the Philosopher's Stone, not a trace of gold—the product remains only common lead. Or take a thought such as "Truth is good," and then repeat this "Truth is good," "Truth is good,"—there is no change in the fact, nay, although we repeat this a thousand times, Truth does not become any higher or better than at the first. Here we have an illustration of the word *Degree* as opposed to the word *Kind.* With the lead illustration we have a change of Degree but not of *Kind;* and so in regard to the thought we have no change of Kind whatever.

Thus, we think, Mr. Romanes's theory of an intermediate state between Instinct and Reason fails. He seems to class children

with the lower animals as being incapable of Reason. This, we submit, is a mistake. An infant may be *ignorant*, but still is a true Man, and, although not yet *matured*, the germ of Reason is in him, as the germ of wheat is in the simple sprout bursting through the soil in spring. Time *only* is required to show that the infant is a Man possessing Reason as well as Instinct, and harvest will show that the germ is wheat.

The second step in Mr. Romanes's theory is that from the Recept to the Concept. He tells us that a Concept is a Recept with a *name*, but the exact meaning of this we shall fail to comprehend unless we study his very elaborate illustrations, which, to use his own words, resemble a study in Algebra. It is possible that we have misunderstood the learned writer, so very fanciful do these propositions, as we have tried to condense them, *appear*. His argument is masterly and not illogical; yet it is based upon mere opinions, apparently harmless, but which when examined seem to have no solid foundation. He assumes, for example, that [educated] Negroes have never executed one stroke of original work. It may be questioned whether the ancient Hindoos generally were more inventive. Again, he says that Geologists treat the absence of Fossil Apehood as of little importance. Dr. Darwin did not think so; indeed the fact seems one of the most damaging proofs we have against Man's descent from the Monkey.

Instinct and Mind are absolutely incommensurate; that is, they are not of one *kind*. The proposition of the extreme Evolutionists, that Instinct can evolve itself into Mind, is an illustration not of *Degree*, but a change of *Kind*.

To a believer in Evolution supreme and *unlimited*, who holds this proposition, the theory so carefully elaborated in Mr. Romanes's able work may seem logical enough; but if he is writing for thinkers generally, he can scarcely be said to have contributed much towards solving the difficult question before us.

But we are indebted to him for one consideration. He more resembles the Eagle than the Ostrich. By this new attempt to bridge the gulf he has practically consented to recognize it, while many of his school seem to ignore its existence; and thus at any rate he possesses the courage of his opinions.

Mr. Romanes supplies several interesting anecdotes of brute

intelligence. Those bearing upon their remarkable recognition of Man's wishes as revealed in his face and gestures (the Animal's substitute for lack of language) confirm largely what we have said on that important point.[1] One or two of them we may quote very concisely. To illustrate the gesture-signs of monkeys, he relates how a male monkey begs the body of a female which had just been shot: "The animal came to the door of the tent, and, finding threats of no avail, began a lamentable moaning, and by the most expressive gestures seemed to beg for the dead body. It was given him. He took it sorrowfully into his arms and bore it away to his expecting companions." Here is another: "Sir Wm. Hastie records that one of his officers . . . saw a female monkey running along the rock with her young one in her arms. He fired, and the animal fell. On his coming up she grasped her little one close to her breast, and with her other hand pointed to the wound which the ball had made above her breast. Dipping her finger in the blood, and holding it up, she seemed to reproach him with having been the cause of her pain, and also that of the young one, to which she frequently pointed."

We here see evidence of Instinct-intelligence, but none of Reason, if we omit the *inferences* of the narrator. In the first case, we see an illustration of the force of Instinct, which we have defined as *limited* to the preservation and well-being of the animal and its offspring, or, as in this case, its sexual affection. Probably it did not know that its mate was quite dead, for Mammals, as a rule, neither bury nor seem to take an interest in their dead. In both cases the most remarkable feature is the way in which the creatures carried the female monkey and the infant monkey. Apes do not usually *carry* their infants or wounded mates in their arms exactly as women do, because this infers that they *run or deliberately walk upright* upon their hind legs, thus acting the part of a biped, the peculiarity of Man only. We wish the narrators had been more explicit on this point. For the rest, we think that the extraordinary talent of reading gesture-signs, which some animals possess, may extend to the use of such gesture-signs by themselves. In the case of all such anecdotes, in which the element of Wonder exists, we must bear in mind the *natural* and

[1] "Mental Evolution in Man," chaps. vi. and viii.

unconsciously sentimental tendency to exaggerate less or more. In both these cases the kind-heartedness of the gallant Officers is evident. Perhaps they felt some remorse at the result of their thoughtless action in firing the shots.

We may be permitted here to refer to the persistent manner in which we have insisted upon the importance and *necessity* of keeping clear the distinction between Instinct and Mind, which we show to be incommensurate. This is a point entirely at variance with the argument of Mr. Romanes throughout. Our "*Two Kinds of Truth*" TEST shows the same objection to his theory. Ideas of Mind (Man) belong to the UNIVERSAL sphere, and are eternal; Instinct-Ideas are mortal, and belong to the NATURAL sphere.

To return to Dr. Cope. We have endeavoured in the preceding pages to reproduce his explanation of the place occupied by Matter in the creation of Mind and Life. We have been obliged to shorten the details, but let the reader carefully study the argument in full, and then ask himself if he is one iota nearer an answer to the question, "How and at what point of the process does *Mind* come upon the platform?"

Dr. Cope states the difficulty clearly enough. It is a question, he says, "of the material of the mind, the original raw-stuff out of which mind was made." And again, "We are told by some of our friends that law implies a lawgiver, that Evolution implies an evolver; the next question is, Where is the lawgiver? Where is the evolver? Where are they located?" He does not seem to meet these inquiries, but amongst other considerations he tells us that "first in order come the sensibilities of the animal, which we have traced to simple Consciousness, or *stimuli*, upon notice of which he immediately begins to move." Evidently the sensibilities are not first in order, if Dr. Cope has traced them to simple Consciousness; but he seems to have forgotten that this is the very question waiting for an answer—Whence and when comes Consciousness or Mind? Again: "The primary stimulus of all kinds of motion is necessarily touch. If a stone falls upon the tail of some animal which has a tail, he immediately gets out of that vicinity. . . . Then, the animal is constantly assaulted by the

dire enemy of beasts, hunger, an instinct which is evidently universal, to judge from the actions of animals." This seems to have fashioned in large part all forms of Life, from the least to the greatest, from the most unorganized to the most complex. "Each exercised itself for the purpose of filling its stomach with protoplasm. . . . Among primary instincts must be included that of reproduction." [1]

This question requires some further consideration, because there is an important distinction between Man and the Animals. In the case of Man the mere Instincts of sexual passions is less openly shown. Shakespeare illustrates this by making Troilus hide its expression in poetic language of great beauty :—

> "*Troilus*— . . . I stalk . . .
> Like a strange soul upon the Stygian banks,
> Staying for waftage. O, be thou my Charon,
> And give me swift transportance to those fields . . .
> And fly with me to Cressid!" [2]

This, however, is only the passion of Man's Instinct. But Love is of the *Whole Mind*, Instinctive and Rational; and that great exponent of the human heart portrays the exquisite purity of this affection in even more passionate longings, full of hope, but impatient of obstacles :—

> "*Imogen*— . . . Good news, gods!
> O, for a horse with wings! Hear'st thou, Pisanio,
> He is at Milford Haven: Read and tell me
> How far 'tis thither. If one of mean affairs
> May plod it in a week, why may not I
> Glide thither in a day? . . . Speak
> . . . Say, how far it is
> To this same blessed Milford." [3]

And so also "Romeo," in Capulet's garden :—

> "Can I go forward when my heart is here?
> Turn back, dull earth, and find thy Centre out." [4]

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[1] "Origin of the Fittest," by Dr. Cope.
[2] "Troilus and Cressida," act iii. sc. 2.
[3] "Cymbeline," act iii. sc. 2. [4] "Romeo and Juliet," act ii. sc. 2.

So also Thackeray—perhaps our greatest master of sarcasm—seems to clearly portray this distinction between mere Instinct-passion and Love in the case of his hero,[1] with Miss Costigan on the one hand, and with Laura on the other; or if Arthur's pride makes him seem a somewhat cold lover, Laura's true affection cannot be questioned. Of course, *all* human love, from the nature of the case, necessarily comprises sexual as well as mental affection. Tennyson writes :—

> "Am I not the nobler thro' thy love?
> . . . Wait, and Love himself will bring
> The drooping flower of knowledge changed to fruit
> Of wisdom."[2]

And Coleridge thus shows Love as of the *whole mind* :—

> "All thoughts, all passions, all delights,
> Whatever stirs this mortal frame,
> All are but ministers of Love,
> And feed his sacred flame."[3]

Southey has well written :—

> "With life all other passions fly;
> They sin who tell us Love can die."[4]

While, much earlier, Manning (A.D. 1300), the first of our English poets, wrote :—

> "Nothing is to man so dear
> As woman's love in good manner,
> A good woman is man's bliss
> Where her love right and steadfast is."

"After the sexual Instinct comes the sensation of resistance or anger, when its interests are interfered with."

Dr. Cope further writes : "So you see it is a matter of necessity that Mental phenomena lie at the back of evolution, provided always that the connecting link of the argument—that motion has

[1] "Pendennis."
[2] "Love and Duty."
[3] "Miscellaneous Poems."
[4] "The Curse of Kehama."

ever affected structure—be true. Of course the development of Mind becomes possible under such circumstances." Not very obvious, we think. If Mental phenomena produce Evolution, to say that Evolution may develop Mind is reasoning in a circle, is it not? But once more, Whence came the Mind which produced the phenomena?

Here he has already reached the development (*i.e.*, improvement or extension) of Mind, while his readers are still waiting, *first*, to be informed of the *creation* of Mind. The only words directly bearing upon the point are those quoted above.

Behind all is Consciousness, and Consciousness is just Mind in action, so that to say that Mind is evolved out of Consciousness is like saying that Mind is evolved out of Mind! No doubt he uses the words "Sensibility" and "unmodified Sensation," but he adds "*or* Consciousness," which, in his view of this subject, seems the proper word; to us the other two rather tend to confuse his statement without improving its sense. We must here hold this point as referring to the human mind alone. If, however, as seems evident, he includes the lower animals, then his whole argument is without foundation, and is to us altogether inadmissible, unless the phenomenon he refers to is not "Mental" but merely Animal-Consciousness. In that case it may be supposed that the beginning, not of Mind, but of *Life*, is his question. In both cases, however, his proposition remains devoid of proof.

In truth, the word "Consciousness" seems to be Dr. Cope's *bête noire*. It has a definite and well-understood meaning as an abstract noun, and is generally used in Philosophy as being more or less equivalent to the word Mind; but sensibility and sensation are not Entities at all—they merely represent qualities, conditions, or relationships.

We will further consider this word Consciousness in our next Lecture.

LECTURE XVII.

Mind-Consciousness and Instinct-Consciousness — Animal Instinct is Unprogressive—The Test Applied again.

The confusion arising from the use of the general word Consciousness seems another result of not distinguishing between Mind-Consciousness and mere Instinct-Consciousness, a distinction as important and complete as can exist. The first is another name for Mind, or faculty of Mind itself, while the latter is a mere attribute of Instinct. As previously pointed out, Consciousness proper is just another word for the *Human Mind itself in action*, and in argument must always be so understood. Instinct-Consciousness in the lower animals, on the other hand, is always simply an expression used for the Animal Senses in action. So also *sometimes* in Man. A recent original writer describes Consciousness as "a concomitant of change, that is, of the contact between one state and another. A feeling which if we *always* have, we should not be conscious of."[1] This is excellent as regards Instinct-Consciousness, both in Animals and Man, but totally inapplicable to Mind-Consciousness. Thus my Mind may be at rest, as in profound sleep; and supposing my blanket falls aside, I immediately *feel* an impression of cold, and *Instinctively* draw it back, an operation of which my Mind (Consciousness) has no knowledge whatever. For this action the proper word should be simply "Instinct-Consciousness." If Dr. Cope would use the word "Instinct-Consciousness" only, when speaking as he does of the first indication of Life, he would greatly simplify the matter to his readers.

Mere Life, however, has never yet been proved to be Mind. By using the word "Consciousness" only in the one case, and "Instinct-Consciousness" in the other, the reader would come

[1] "A New Era of Thought," by Hinton, p. 59 (Swan Sonnenschein, 1888).

to understand clearly the writer's meaning. The promiscuous use of the word "Consciousness" only perpetuates the existing confusion. In our illustration we have supposed the person asleep, in order more clearly to show our meaning; but even in waking hours such Instinct-feeling is unceasingly in operation, and generally entirely unperceived by our Mind-Consciousness. *The importance of Instinct in Man is greatly under-estimated.* It is the main guide in our daily life and ordinary work, Mind being almost always merely contemplative, until some new condition or event calls for consideration.

Here we are again at a standstill as to how and when Mind appears. In one passage (p. 230)[1] Dr. Cope just touches the subject. But in making this farther quotation we must premise that, although it may be granted that in many cases Effort and Use, *within certain limits*, seem to modify structures, the admission will not assist his argument, because such actual modifications are apparently confined to the individual animal, and do not necessarily extend to its descendants, or at all events do not extend to any individual of a different species. Farther, if by "Mind" he means anything more than Instinct-Mind, his statement appears to be untenable. His words are: "If then we grant the propositions—first, that effort and use modify structures; and second, that effort and use are determined by Mind in direct ratio to its development, we are led to the conclusion that Evolution is an outgrowth of Mind, and that Mind is the parent of the forms of living nature. . . . This is, however, to *reverse* a very usual evolutionary hypothesis, viz., that Mind is the product and highest development of the universe of Matter and Force. The contradiction is, however, not so absolute as at first appears. By Mind, as the author of the organic world, I mean only the two elements, Consciousness and Memory." This looks like a wish to evade the question—surely most unlike Dr. Cope—and does not really obviate the confessed contradiction.

Here again is confusion. *Consciousness is Mind*, and is the word which best expresses Mind in action. Human Memory is a faculty of Consciousness (Mind), and represents Mind as recalling anew its own previous ratiocinations or facts formerly known to it. Of

[1] "Origin of the Fittest."

course Animal Instinct possesses Instinct-Memory also, but it has no relation to Reason (Mind) whatever.

Turning back to p. 31, on the "Origin of Intelligence," we read: "The growth of the Mind in animals has no doubt followed the same laws obeyed by that of Man. The foundation qualities from which all the phenomena of intellect may be derived are: . . . Memory and perceptions of resemblance and difference." [Instead of these being foundation qualities, we hold that Memory is a mere supplementary quality, as also is perception of resemblance; indeed, in animals the latter is a kind of Memory also.] "These traits are well known to be possessed by many animals, and perhaps to some degree by all. . . . Their possession will be modified by . . . the ease with which Consciousness may be aroused."

Further, at p. 33, Dr. Cope writes: "We have seen that the development of the habits of animals is in strict obedience to the preference for pleasure and avoidance of pain. Pleasures and pains, of course, express sensations which evolve Consciousness." In this and the preceding paragraph we must hold that Animal Consciousness is meant. But, as we have shown, there never is *in Nature* any development in the habits of animals as a race. In *individuals* there may be, by Initiation and man's impositions, the acquisition of certain tricks and apparent improvements, but these naturally end with that individual's life.

Dr. Cope, in his article on "The Origin of the Will," [1] again introduces the subject of Consciousness, but the discussion of his views is extremely metaphysical and perplexing from its minuteness. Two or three sentences only we shall quote: "If there be no inherent power of controlling the attention, and none of restraining the pressure of motive, then there is no Will in any proper sense of the word; and man is an irresponsible automaton. . . . The attempts to correlate it (Consciousness) with the physical have so far been utter failures, although the vital forces, to which it gives direction, are evidently not excluded from the laws of quality and quantity. The common hypothesis, that Consciousness is the product of evolution, appears in view of this primary fact to be irrational; while the

[1] "Origin of the Fittest," p. 437.

converse, that evolution is a product of Consciousness, is far more likely to receive ultimate demonstration." On these points, we can only have partial agreement. But we will await the "demonstration."

But, in truth, the whole subject appears to be in a condition somewhat resembling that of astronomical science during the period between Ptolemy and Copernicus. The system of the former was of course full of contradictions, and had to be explained and propped up by endless arguments and theories, some of them valuable, although the inductions therefrom were never satisfactory. But on Copernicus revealing his great discovery that the Sun was the centre of our system, and not the Earth, the confusion which had so long abounded disappeared as completely as darkness does before the rising sun.

And in like manner the confusion surrounding the question of "Consciousness" will, we believe, disappear when men cease to mix up Instinct with Reason, which they necessarily do when they consider Instinct to be the same as Reason, only less perfectly developed—a fatally erroneous assumption, and, as we have seen, entirely devoid of proof.

While the Protoplasm theory has failed to command general acceptance, few holding that it satisfactorily accounts for Life, there is another fallacy in the argument which remains to be pointed out, and one, too, of much greater importance. Dr. Cope throughout apparently assumes, *as if it were a matter of course*, that if he could account for Life he would thereby also be accounting for Mind, and throughout he appears to mix the two so completely together as, quite unintentionally, to confuse his readers. Here, however, we think, he only follows the example of Evolutionists generally.

We have quoted so largely from Dr. Cope because his work evinces much thought. To the ordinary reader his style will appear convincing—not because of his arguments being really logical, but because he writes with an apparent assurance of certainty in his conclusions, which carries his reader across vast gaps before they are aware of losing safe ground. Here is a very good specimen: "The Animal life may have *originated* in this wise. Some individual Protist, perhaps accidentally de-

voured some of his fellows." [He omits to say whether this Protist was alive. If alive, how could it *originate* animal life? If not alive, how could it eat its fellow?] "The easy nutrition which ensued was probably pleasurable, . . . and soon became a habit. The excess of energy thus saved from the laborious process of making protoplasm was available as the vehicle of an extended consciousness. From that day to this Consciousness has abandoned few, if any members of the animal kingdom." [Animal Consciousness, we presume, can be abandoned only at death.] "In many of them it has specialized into more or less Mind. Organization, to subserve its needs, has achieved a multifarious development."[1] Here the confusion, which to us is dense, arises from again failing to see that Consciousness *is* Mind. "Specialized" is a climax in his argument.

But mere assertion is not argument; and we leave such feats, which to us seem to resemble the shooting of Niagara, without remark to the intelligence of the reader.

Here we must repeat that when we state that there never is improvement or development in Animal life, we mean in the natural state, free from the coercion of man. But of course some classes of animals naturally possess much higher intelligence than others. Even in the case of domesticated animals we believe that if a pair of these, quite young, were taken off to their original wild forest, they would not only fail to show any of the artificial tricks and accomplishments of their parents, but would exhibit all their wild habits—as for instance in their nest or lair formation—*exactly* on the model of their species centuries before, or as near thereto as material and situation rendered possible. Of course this would not be by imitation, for they would never have seen such formation in progress. If, on the other hand, we could try [but of course we never can] a similar experiment with a pair of human children upon an uninhabited island, and a second pair upon another exactly similar island, these two pairs would eventually make, or build, or construct huts, or other residences *differing* somewhat from each other. The explanation of this evidently is that the Animals

[1] "Origin of the Fittest," p. 433.

would always act *exactly* in the same way, the Instinct *Motive* being their *only* guide, without any free will; whereas the human pairs would each exercise their free will (Mind), and choose plans or invent methods less or more different from the other.

The reader will now see why we have so much insisted upon the necessity of maintaining clear the distinction between Instinct and Reason; and here we propose to *demonstrate* that they are, and *must* be, different.

Bear in mind what we have already shown as to the existence of TWO KINDS OF TRUTH—(1) NATURAL Truths, which, although true, are *not of necessity* so, being empirical and arbitrary, and subject to change—belonging only to Time, and so being perishable; (2) UNIVERSAL Truths, which (like the propositions of Geometry) are necessary Truths, belonging not merely to Time, but to Eternity, and so being imperishable.

Now Instinct is a NATURAL attribute of Animal Life, *necessarily ending with the individual animal life, and consequently must cease to exist at the death* of that mortal life.

On the other hand, Reason is a faculty of Soul-Mind, a UNIVERSAL Spiritual Entity, and like the Soul-Mind itself is *necessarily* eternal.

That the Mind of Man is immortal is so generally admitted that here it may be assumed. That the Instinct-mind of the animal creation ceases to exist at the death of the individual body we have already shown; but this is not so universally admitted. However, its truth so forces itself upon the mind by its own logical consequence, and the obvious nature of the case, that it may be assumed, at least till some proof to the contrary is found—which, however, we are assured never can be.

That Instinct and Reason are *absolutely incommensurate* is, we think, true by demonstration.

LECTURE XVIII.

Immortality—The Belief of the most Ancient Peoples.

There are some truths, even the most obvious, that cannot easily be demonstrated by arguments. I now write at noon; the sun is concealed by clouds, but no one present will doubt that I write by his light; however, were a scientific denizen of some different system, who had never seen a clouded sky, suddenly to appear, perhaps I should fail to prove that fact to his satisfaction. Immortality seems to be one of these truths. Professor Seth of St. Andrews,[1] while believing that Immortality is a conviction *necessary* to the permanence of Morality, does not think that it can be demonstrated by Philosophy. Well, supposing this to be so—which is not clear—is there one thinking human being among ten thousand whose mind does not *feel* its truth?

That there are in the present era a very few men of culture who disbelieve in a state of future existence beyond the grave is, however, true. The subject is one of first importance, and we will now proceed to inquire as to the belief of the most Ancient peoples on this point.

Memphis, the oldest capital of Egypt, has completely disappeared. "Of its palaces, temples, shrines, its pillared courts, its obelisks, its fountains, its splendid citadel, its sculptured temple of Ptah—the trophy of early Egyptian architecture—not a stone remains." So writes a recent traveller. "But," continues this writer, "the Egyptian's idea of Spirit and *Immortality* has triumphed over time. . . . The tombs remain as their eternal witnesses. . . The embodiment the Egyptians gave to their idea of an *eternity* was its justification. . . . The city of the dead remains and tells its

[1] "Hegelianism and Personality," by Prof. Seth (Blackwood and Sons, 1887).

story, . . . stretching nearly twenty miles from north to south, something of its extent and character can still be guessed."

The histories, so far as such exist, of the Phœnicians[1] and of the Hittites, support the view that the more remote hints we obtain indicate a purer religion than those less remote, while all indicate less or more directly a prevalent belief in *Immortality*. The same may be said of the Fire-worship of Persia, and that of the somewhat fabulous Zoroasterians.

Of recent years, much new light has been thrown upon ancient Babylonian history, by a class of Philologists such as Professor A. H. Sayce. If their views are correct, we must add many centuries to the hitherto received Chronology of the World. Chaldæa, instead of being one of the oldest nationalities, was only the successor of two prior contemporary nations, named Accadian and Sumerian, who were said to be the inventors of Cuneiform writing. We have no reliable record of these times. Most of the records that have come down to us are obviously based on Traditions and Legends, or other older literary productions. "The great Epic of Gisdhubar is little more in its present form than a redaction of earlier poems relating to the Hêraklês of Erech. . . . Thus its story of the Deluge shows clear traces of having been compounded out of at least two older narratives, in one of which the catastrophe was ascribed to the Sun-god, in the other to Bel."[2] The magical texts "reach back to a period when the Semitic conception of a Supreme Baal was utterly unknown—when, indeed, there was no definite conception of a god at all." [Of course this can only mean *unknown* to the authors of the texts.] "The world . . . was peopled by supernatural powers, each of which was . . . a spirit." This Spirit was simply that which manifested Life: the stereotyped conclusion of the old Accadian exorcism is, "Conjure, O Spirit of Heaven! Conjure, O Spirit of Earth!" This distinction evidently indicates a belief in *Immortality*. Dr. Sayce says: "I must here diverge in order to emphasize the fact that very few of the earlier texts of Sumer and Accad have come down to us in their original form."[3]

[1] "Phœnicia," by George Rawlinson (Unwin, 1889).

[2] The Hibbert Lectures, 1887, by Prof. A. H. Sayce, pp. 326-7. [3] Ibid.

These peoples, who were the first occupants of the valleys of the Tigris and Euphrates, seem to have originally come from the Persian Gulf. It was to the Accadians that the beginnings of Chaldæan culture and civilization were due. Their language and features were different from those of the Semites, the Chaldæan-Babylonians, and Assyrians, who succeeded them. They are represented to have been Magicians, with considerable knowledge of the Stars. Possibly this arises from our misunderstanding their hymns as suggesting some mystic importance in the number *seven;* but the most remarkable fact, if it can be so called, connected with them is their having no knowledge of a God, and being without image worship. This evidences an extreme antiquity, possibly greater than even the Egyptians can show, evidently anterior to the epoch of Sun-worship. For their belief in Spirits, as distinguished from *material* Idols, indicates higher and purer conceptions even than those of the Sun-worshippers who succeeded them. No doubt they may have become Astrologers and superstitious, and finally, by mixing with the Semitic Chaldæans, Fire-god and Sun-worshippers; but they bequeathed to these successors an *advanced educational knowledge.* This appears from the fact that the Chaldæans and Babylonians were known as *educated peoples generally*, more so than the Assyrians, who conquered them, and carried off their literary riches to Nineveh.

"About 2000 B.C., the Accadian was gradually superseded by the Semite, and before long the Accadian language itself became extinct. The beginning of Semitic supremacy (Babylonian-Chaldæan) was marked by the reigns of Sargon I. and his son Naram-sin, who established their seat at Accad, where they founded an important library." [1] Sargon's dynasty was soon overthrown through the conquest of Babylonia by Khammuragas, from the mountains of Elam. The period of Sargon of Accad is elsewhere given by Professor Sayce as B.C. 3700 (p. 21 of his Lectures). But there is great uncertainty about the Chronology, and much difference among the learned on this whole subject. Professor Sayce even confesses that there is "difficulty connected with our needful dependence upon the broken tablets of Assur-

[1] The Hibbert Lectures, 1887, p. 18.

pani-pal's library. . . . None of the tablets that are derived from it are older than the eighth century before our era. . . . We are generally told to what library of Babylonia the original text belonged, but we look in vain for any indication of date."

Professor Sayce's estimated date of 3700 B.C. has recently received (July, 1889) a singular corroboration from Egypt. Professor Edouard Naville, of Geneva, delivered a lecture in London upon the historical results of his excavations at the ancient city of Bubastes, the sacred city of Bast, the Cat-headed goddess. Remains of the great temple of Bast, described by Herodotus, have been discovered. The monuments ranged over a considerable period, from the time of the fourth Egyptian dynasty, B.C. 3700. Mr. Naville discovered the royal inscriptions of Cheops and Cheferen, the builders of the first and second Pyramids, and thus throws some light upon an obscure portion of ancient history—the time when the Hyksos or Shepherd-kings reigned in Lower Egypt. He inclines to assign to these invaders Babylonian or Mesopotamian origin, associating their inroads in Egypt, in the twenty-third century, with the invasion of Babylonia, B.C. 2280, by the Elamites.

But Dr. Sayce, lately returned from a visit to Egypt, has furnished us with a new "archæological surprise." "A discovery," he writes, "has been made in Upper Egypt, which . . . has most important bearings on the history and criticism of the Old Testament." On the higher bank of the Nile is a long line of mounds, now known as Tel el-Amarna, which cover the remains of an old Egyptain city. "In the fifteenth century B.C., Amenophis III., who carried the arms and influence of Egypt as far as the banks of the Euphrates, married a Syrian princess named Teie, . . . daughter of Tuisratha, king of Matanni. . . . Teie brought with her into Egypt Semitic followers, and a Semitic form of faith." This included belief in *Immortality*, which belief was not necessarily new to the Egyptians. They worshipped Baal under the symbol of the winged solar disk, familiar to us on early monuments of Western Asia, and adored under manifold titles as the visible image of the Supreme "Lord or Baâl." Amenophis IV., his son, who married another princess of Syria, endeavoured to impose his Asiatic faith upon his Egyp-

tian subjects, and the great officers of state bore names which proved them to have been of Canaanite or Phœnician extraction. A struggle ensued between himself and the powerful priesthood of Thebes, the result being that he left the capital and built a new city farther north, in a new style of architecture. In its centre was the palace of "the great King." His name he changed to Khu-u-Aten, and carried with him the royal archives and correspondence. This consisted of clay tablets with cuneiform characters in the Babylonian language.

The correspondence was found a year and a half ago! It shows that in the days of the eighteenth Dynasty *literary intercourse* was going on between all parts of the civilized Eastern world. There must, therefore, have been *numerous schools* then for education, as well as large libraries. Dr. Sayce says "a vivid light is cast on the name of the Canaanitish city Kirjath-Sepher, or 'Book-town.' . . . At all events, the discovery of the tablets of Tel el-Amarna shows that writing was known and practised in Palestine *before the days of the Exodus, or the introduction of the Phœnician alphabet*, and that, therefore, the earlier records of the Old Testament need not have been so dependent on tradition as is ordinarily supposed." The letters of Tel el-Amarna were written "by the kings and governors of Babylonia and Assyria, Mesopotamia, and Eastern Kappadokia, Syria, and Palestine, . . . and fix the date of the correspondence to about B.C. 1430, Palestine being at that time a dependency of Egypt."

The rise of the nineteenth Dynasty marks the reaction against the policy and principles of Khu-u-Aten, and the successful revolt of the Egyptian people, and the Semite was crushed or expelled. "It is accordingly in the founder of the nineteenth Dynasty that we look for the new king 'which knew not Joseph.' The Oppression did not last for centuries; at most it could have covered a period of a hundred years. . . . At last, therefore, we have found solid standing ground . . . for the events which issued in the Exodus. . . . These tablets . . . cannot be the only ones of their kind. They bear witness to the existence of similar libraries in other parts of the civilized world." [1]

[1] "Letters from Palestine before the Age of Moses," in *The Newbery House Magazine*, for Sept. 1889, by Professor Sayce.

We make these quotations, not only because of their importance, but because they at last give us a date (B.C. 1430), at which early period there is shown to exist a high state of literary civilization, and indicate a preceding period, probably *long anterior*, of similar culture. Do we find a higher, or even an equal degree of literary advancement in the East existing even a thousand years later?

That the belief of these several ancient peoples in Immortality was generally held is questioned; but in some Ancient Texts their many references to Hades, and the fact that they prayed they themselves might live "for ever" hereafter in "the land of the silver sky," seem to remove doubt on the subject, irrespective of numerous other evidences. It thus appears that among the most ancient peoples a belief in *Immortality* was less or more clearly held. A French writer, resident in China, writes: "Having by the everlasting solidarity of generations established the immortality of the soul, the Chinese considered it contradictory that its separation from the body should cause it to lose any of its attributes." [1]

As for the savage tribes discovered in modern times, all seem to have had some belief in a future world, less or more distinct; and of all the nationalities presently existing on the earth, there are none who seem altogether ignorant of this truth of *Immortality*. A recent writer [2] well observes "that rudeness of form is no evidence of age"; and another says, "Much uncertainty hangs over the whole of the pre-historical question regarding the appearance and habits of primeval man; still less have we any grounds on which to form conclusions regarding his mental, moral, and spiritual capacities, and his relation to those civilized races which, both in the Old and New World, have left us admirable proofs of high mental endowments, and of powers of constructive art." [3]

On this subject the human remains found in the Auvignac cave in France, described by M. Gartet, afford grounds for inferring that the aboriginal cave-dwellers practised funereal rites indicating a belief in Immortality.

[1] "China," from the French of G. Eug. Simon, p. 41 (1887).
[2] Sir J. W. Dawson. [3] Prof. Edw. Hull's "Geological History," p. 146.

We extract the following sentences from Dr. Beal's book relating to Indo-China Buddhism (A.D. 645): "The Master then preached to them about the future punishment in Arichi of those who gave themselves up to murder, robbery, and impious sacrifices, and other evil deeds. How would you then risk the woes and the long-during Asankheya (the lowest of the Buddhist Hells) of ages for the sake of this body of yours, which is but, in point of time, as the lightning flash or the dew of the morning. . . . The earnest desire of Hiuen-Tsiang was to behold the future Buddha and dwell with him in Tusita Heaven."[1] Nothing would be easier than to multiply such evidence of a general belief in Immortality. The natives of Mexico and Peru, when discovered by Pizarro, held this belief; and their predecessors in prehistoric times evidently did so also. It would appear, moreover, that they combined with it the practice of human sacrifices.

In this connection we will fortify ourselves here with the opinions of various Poets and Philosophers. Chateaubriand says: "In the Elysium of the Ancients we find none but heroes or persons who had been fortunate or distinguished on earth. . . . Poverty, Misfortune, and Innocence were banished to the Infernal Regions."[2]

In Homer's "Odyssey" we read:—

> "O son of woe! decreed by adverse fate
> Alive to pass through hell's eternal gates.
> All! soon or late are doomed that path to tread:
> More wretched you, twice number'd with the dead."[3]

According to Kant, "God is a necessary conception of thought—an irresistible belief of the Soul." Hence his famous Trilogy—"God, Virtue, Immortality." Socrates, although he refused to worship the gods of his country, was no Atheist, neither was Plato, Cicero, or Epictetus, who, while they may not have believed in *such gods*, yet enjoined men to worship in the established form. They thought it wiser to comply with the laws than to contend.[4]

[1] "Life of Hiuen-Tsiang," by Samuel Beal, D.C.L., pp. 89 and 217 (Trübner and Co., 1888).

[2] "Génie du Christianisme." [3] Book XII. Pope's translation.

[4] "Natural and Revealed Religion," Dr. Clarke, p. 180.

Jean Paul Richter (A.D. 1763) said that "He who finds a God in the physical world will also find one in the moral, which is History. Nature forces on our hearts a Creator—History a Providence. . . . I could with less pain deny Immortality than Deity."[1] Victor Cousin (1792) wrote: "God is doubtless the author of the world, but He is especially the father of humanity: His intelligence is ours. So that our justice and charity, related to their immortal example, give us an idea of Divine justice and charity; there is between Him and us a living and sacred tie."[2]

There is another strictly logical test which we may apply to the belief in a great original Creator. We have seen that this belief is entertained not by theologians only, but by almost universal consent, even of the most advanced thinkers. The exceptions are, we think, very few in number and not exceptionally eminent. Now, if such Creator can be judged only by His own visible creation, we must concede to Him—first, Power, and second, Wisdom—not such as we would concede to any created being, but Power *absolutely unlimited*, and, by inference, Wisdom also. Our Minds cannot logically conceive any limits whatever to His existence.

Speaking of the Human Spirit, Goethe recognizes in it powers "capable of indefinite growth and expansion, and did not doubt that there is an invisible realm in which, after it has fulfilled its mission in the present world, it passes to new and higher destinies."[3] Coleridge is thus described by Carlyle: "A sublime man, who alone saved his crown of spiritual manhood, escaping from Materialism . . . with God, Freedom, Immortality still his—a King of Men." Byron wrote of—

> "A fit abode, wherein appeared enshrined
> Our hopes of Immortality."

An absolute disbelief in Immortality is probably much more rare than we generally think. Thus David Hume (b. 1711), when in grief at the death of his mother, said to the Hon. Patrick Boyle, "Though I threw out my *speculations* to entertain

[1] Carlyle's "Essays."
[2] "Modern Philosophy," p. 100 (Clark, Edinburgh).
[3] "Goethe," by James Sime (1888), p. 187.

and employ the learned and metaphysical world, yet in other things I do not think so differently from the rest of mankind as you may imagine." [1] In the year 1766, Hume thus spoke of his friend J. J. Rousseau: "Rousseau is not what you think him; he has a hankering after the Bible, and indeed is little better than a Christian, in a way of his own."

"What evidence have we," it has been asked, "that there is anything in Man that is immortal? His reason waxes and wanes as does his body." [2] The fallacy here is quickly exposed by the application of our TEST. Man is a duplex creature, and as such he waxes from infancy to Maturity. Subsequently his body, which belongs to the NATURAL sphere, and is consequently mortal, wanes and dies. His Mind, which belongs to the UNIVERSAL sphere, is consequently immortal, and never either wanes or dies. Shrouded as it is in a decaying body, it may seem to be waning, but it is only ceasing to act upon the senses as these organs decay.

> "The Soul's dark cottage, battered and decayed,
> Lets in new light thro' chinks that Time has made." [3]

"It is observable," says a well-known French historian, "that in all ages and in every country the several nations of the world, however various and opposite in their character, inclinations, and manners, have always united in one essential point: the inherent opinion of an adoration due to a Supreme Being." [4]

Belief in God and belief in Immortality always seem to infer each other. The truth of Immortality seems rather to have been assumed as a *necessary* corollary to the belief in a Supreme Being than formally insisted upon by the ancient pagan nations. Max Müller has said, "Without a belief in personal *Immortality*, religion surely is like an arch resting on one pillar—like a bridge ending in an abyss." [5]

[1] Dr. A. Carlyle's "Autobiography," p. 273.

[2] "The Record of a Human Soul," by H. G. Hutchinson, p. 82 (Longmans, 1888).

[3] Poems by Waller (1680).

[4] "Ancient History," by M. Rollin, Principal of Paris University (trans. 1817), preface.

[5] Lecture on the Vedas.

We will close this Lecture with a quotation from a philosophic poet :—

"Unto each Man his handiwork, unto each his crown,
The just Fate gives ;
Whoso takes the world's life on him and his own lays down,
He, dying so, lives.

For an hour, if ye look for him, he is no more found
For one hour's space ;
Then ye lift up your eyes to him and behold him crowned,
A deathless face."[1]

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[1] Swinburne's "Songs before Sunrise."

LECTURE XIX.

THE ORIGIN OF REASON — THE TESTIMONY OF SCIENCE — DARWIN, SPENCER, MILL, CARPENTER.

Now, above and beyond all the other issues in our argument, *the one outstanding point—important a thousand times more than they*—remains: Whence comes Reason, or the Human Mind? Here is a yet higher creation than that either of Matter or Life to account for. Setting aside Instinct, which, as we have found, is something quite different, whence comes Human Intellect (Soul-Mind)? Mind must have existed before Matter, for the conception of Matter without Mind is impossible, and therefore this Mind must have been that of the Supreme Creator. Coleridge "speaks of Reason as . . . the eye which sees Truth's transcending sense, . . . indeed regards it as a ray of the Divinity in Man."[1] Goethe said that "Matter can never exist and be active without Mind."

Geologists tell us that Man appeared last of all upon the earth, that is, after earth and all its creatures—his subjects and servants—were prepared for him, their master and lord, over whom he rules with absolute sway, although under certain conditions, or laws of Nature.

A modern poet has told us that—

> "All are but parts of one stupendous whole
> Whose body Nature is, but God the soul."

"Thus are we led to the culminating point of Man's intellectual interpretation of Nature—his recognition of the *Unity* of the power of which her phenomena are the diversified manifestations. Towards this point all scientific inquiry now tends—the intimacy

[1] "Studies in Poetry," by Principal Shairp (1886).

of that *nexus* between mental and bodily activity, which, explain it as we may, cannot be denied." [1]

Somewhat in connection with this part of our subject, there is a most remarkable statement made by Dr. Darwin. It relates to the difference between Mind and Instinct, and reveals his consciousness that, if Animals are not possessed of Mind, his theory of Evolution would fail. His words are—"If no organic being excepting man, *had possessed any mental power, or if his powers had been of a wholly different nature from those of the lower animals, then we never should have been able to convince ourselves that our higher faculties had been gradually developed.* But it can be shown that there is no fundamental difference of this kind." [2] *Now*, on the contrary, *we have seen that no organic being on earth except man is possessed of* ANY MENTAL *power whatever, and that his powers are of a wholly different nature from those of the lower animals.* Inasmuch as their powers are in no degree mental, but only Instinct-attributes, we submit that it *cannot* be shown that there is no fundamental difference of this kind. The conflict of fact is here complete, but there is no conflict of opinion; for Dr. Darwin, with that candour which so distinguished him, admits that his theory fails *unless it can be proved that the Animals are possessed of Mental power, less or more.* This is a very important point in the great argument, which we must keep in view.

Speaking of Mr. Herbert Spencer, a recent writer has well said, that "The leading idea of Mr. Spencer's philosophy is the *Unity of Life* and its development by evolution." Amongst his later utterances is an article entitled "The Factors of Organic Evolution." It treats of the subject in a manner far too minute for general readers, and deals with Protozoa and Metazoa, and embryonic development, and other occult nervous transformations. However, the article is of very great interest to Embryologists, especially in regard to the new idea that organic matter is evolved from the outside surface of inorganic matter, and that animal organs are evolved from the outside, or epidermis, of such organic matter.

[1] Dr. Carpenter's "Nature and Man," p. 208 (Kegan Paul, Trench and Co., 1888).

[2] "Descent of Man," chap. iii. (Murray, 1888).

But, at the risk of misrepresenting his views, we must content ourselves with very incomplete quotations. Mr. Spencer says, with most commendable frankness: "Biologists in general agree that in the present state of the world no such thing happens as the rise of a living creature out of non-living matter. They do not deny, however, that at a remote period in the past, when the temperature of the Earth's surface was much higher than at present, and other physical conditions were unlike those we know, inorganic matter, through successive complications, gave origin to organic matter."[1] This last point may be questioned; but the statement, as a whole, contains a very important admission.

Here at last we have a theory that *Heat*, which belongs to the *Natural* sphere, is the originator of the transformation, but when we next expect the evolution to proceed to the transformation of organic matter to *living matter* and Mind, we are left in the dark as before. Mr. Spencer very candidly says: "In the absence of that cyclical series of Metamorphoses which even the simplest living thing now shows us as a result of its inherited constitution, there could be no *point d'appui* for natural selection. How, then, did organic evolution begin?" The article concludes in a disappointing manner. It gives no definite opinion, but rather hints uncertainty in the closing lines—"This article . . . will perhaps serve to show that it is as yet far too soon to close the inquiry concerning the causes of organic evolution." A conclusion in which all will probably agree.

Of course this is greatly better than Dr. Cope's argument, which he assumes to be without doubt complete; but our scientific readers will naturally ask, How does *heat* create animal Life? Gentle heat, we know, promotes growth in the Vegetable Kingdom; but heat indefinitely increased produces combustion, and is the great destroyer not only of life, but also of all organic matter as such. The question still remains unexplained. Professor Huxley wrote wisely that "Science commits suicide when it adopts a creed."

One of the current fallacies in the world of thought is an unreasoning prejudice against Logic. The cause of this is obviously

[1] *Nineteenth Century*, May, 1886, p. 769.

the circumstance that the results of many so-called Logical arguments have proved wide of obvious Facts. But in no such cases was Logic at fault; for the premisses on which the syllogism was founded were either not true or else incomplete. Nothing tends to keep the Mind free of doubt or *confusion* so much as Logic, but care must be taken to start from a sure foundation. It may be confidently affirmed that Logic is always true, and conversely that no "Truth" is true unless it be logical, no matter by what authorities it may be supported. Another reason of this prejudice is that Logic has frequently been associated in the mind with mere Dogmatism, with which, however, it has no necessary relation whatever; indeed, it has been observed that in any discussion the illogical disputant is generally the most wordily dogmatic. Geometry (but not mere Natural Science, as Mr. Mill supposed) affords the best illustration of pure Logic, because its Propositions are necessarily founded on previously *ascertained* facts.

Whenever a conclusion is propounded which seems illogical, we may assume that there lurks in it error of some kind which must be searched out. If not, we shall be building a tower with a rotten foundation-stone, which will prove fatal to its stability when the pressure of the hurricane comes, no matter how excellent its architectural design, or how rich its ornamentation. As a recent writer says, "A prehistoric fallacy of idea and term is certainly sufficient to wreck any critical process." [1]

Logic alone may be used as a Test of the truth of any Religion. Thus Buddhism owed its wonderful progress in the East to its proclamation of a universal Catholicism, but its contradictions and puerilities strongly appear when we study it logically. Some Religions may ask our acceptance of doctrines and facts *beyond* human knowledge or experience, but when these are, as in some cases, *logically contrary to human Reason*, founded on UNIVERSAL facts, they cannot be allowed.

Buddha seems to have arisen in India at a period of religious apathy in the East, similar to that when Mahomet, twelve hundred years later, took the more Western nations by storm. Unlike Mahomet, Buddha propagated his views, not by the sword, but

[1] "Essays Towards a Critical Method," p. 131, by J. M. Robertson (T. Fisher Unwin, 1889).

by teaching and example—he being distinguished for simplicity, disinterestedness, and beneficence. His religion, which long superseded the religion of Brahmin in India, and subsequently almost that of Confucius in China, was remarkable for the hold it took upon the mind of hundreds of millions in India, China, Thibet, Central Asia, and Japan. "Its founder seems to have been the first Agnostic, yet his followers overlaid its simplicity and inverted its principles, so that its founder, who denied a god, they now worship as God himself!" [1]

Its literature forms quite a library of contradictions, and appears to be rendered more so by the difficulty of its translation. Buddhists believe in Transmutation, Immortality, and future rewards and punishments.[2] It has now existed in the world for twenty-four centuries, and, according to some authorities, its followers number more than four hundred millions, quite a third of the human race.

Perhaps no better illustration of an illogical religion could be found than in that of the Chinese. A recent French resident [3] shows that their religion is much older than Confucius. He did not found their religion, but merely consolidated it. Even now there seems no clear definition of the tenets obtainable. It is, however, with some modifications, the religion of some hundred millions of Chinese, and dates from unknown antiquity, thus in length of time surviving all other ancient *national* religions, with possibly one exception.

There is no name more prominently associated with Logic than that of John Stuart Mill. His "System of Logic" was published in 1843, and was hailed by very enthusiastic commendation, especially from the Liberal thinkers and writers of the day, among whom, and, indeed, generally, he was a great favourite. "His main contention is that the Syllogism is a *petitio principii*, the conclusion being, he said, contained in the premisses, and that the real process of inference is from particular case to adjacent particular case." He held that Logic should include

[1] See "Texts from the Buddhist Canon," translated by Professor S. Beal.

[2] "Life of Hiuen-Tsiang," by Professor S. Beal (Trübner and Co., London, 1888).

[3] "China," from the French of G. Eug. Simon (1887).

the procedure of Science, which other writers on the subject had taken care to exclude. It gives the reader a clear idea of what Science is doing; but it might be urged that Logic "somewhat unduly extends its boundaries when it covers all that Mill makes it cover."

Mr. Mill's desire was to explode the *a priori* view which the Cartesian school held of the origin of knowledge. The latter laid stress on the invariable and unconditional character of the relation between Cause and Effect as a proof that it was mental —not derived from Experience; while Mill held that this relation was purely Empirical, somewhat in accordance with the views of Locke and Hume. "We need not follow him through all the twists and windings of the attempted justification of so strange a position." The question practically reduces itself to a dilemma. He is therefore always trying to get wide-reaching truths out of the changing and fragmentary experience of our three-score years and ten; "the solution is paradoxical, and inadequate to the problem." [1]

Men of genius may, and, indeed, frequently do and say many illogical things, and sometimes express opinions of a contradictory nature, such as would quickly extinguish ordinary writers. Of this Comte and his admirer, John Stuart Mill, both undoubted geniuses, are examples. Mill is distinguished in Science, Metaphysical Philosophy, Logic, Political Economy, Sociology; and, indeed, he is eminent as a thinker on almost all subjects. One of his biographers, from whom we have made some quotations very briefly, says that Logic "especially ought to rest on sounder metaphysical foundations than can be discovered in the work of Mill. If it be true that these foundations include irreconcilable dogmas, then the shiftiness of the groundwork must in time make itself felt in every department of the superstructure." [2]

In trying to find the cause of Mr. Mill's inconsistencies we must have in view the peculiarity of his education and the character of his Mind. His dislike to dogmatic statements made him so very receptive of other men's views that he did not hold truths firmly, and was naturally unqualified to be an

[1] "John Stuart Mill," by W. L. Courtney, chap. iv. (Walter Scott, 1889).
[2] Ibid., p. 81.

authority in a science so mental and positive as pure Logic. He seems never to have realized the fact that there are *Two Kinds of Truth*, and so treated what are simply Empirical, *i.e.*, NATURAL Truths, as if they were UNIVERSAL Truths. Hence the confusion into which his famous "System of Logic" led its readers. This work, we think, shows that he was a deep and anxious thinker, and a man of unquestionable veracity; but its title seems somewhat a misnomer.

The early friendship of Carlyle and Mill was remarkable. There were some points of resemblance, but many more of difference between them. "Carlyle, with all his might, believed in God. 'Might and right,' he said, 'do differ frightfully from hour to hour, but give them centuries to try it in they were found identical.'" "Mill was a Necessitarian, if not a fatalist. He yielded to the conviction that concerning the origin of things nothing whatever can be known." "Carlyle was the Prophet of the Latter Days, Mill the Apostle of Benthamism." "But," Mr. Jenks adds, "it does not do to attempt too close definitions of the positions of philosophers; no one really understands them but themselves, and outsiders get into trouble if they meddle with such mysteries."[1]

Let us apply Logic to some of the extreme Evolutionists' arguments. To those who have studied the subject superficially their most telling argument is that of Haeckel on Embryology. He shows microscopic drawings of the Animal embryos and that of Man at different stages. Those of Mammals have all a singular resemblance to each other, and at the earlier stages to that of Man. He exhibits this circumstance as a *proof* that there is *no* original difference between them. The reader is readily led to assume that *if so*, then that of the Man must subsequently develop into a higher stage of life, by different surroundings, favourable circumstances, greater lapse of time, or otherwise.

This *seems* conclusive proof, but let us examine the subject *logically*. We know that there are some minute seeds so like each other as to be indistinguishable to the eye, but after sowing they produce plants very dissimilar, and *then we know that they*

[1] "Carlyle and Mill," by Edward Jenks, B.A. (George Allen, 1888).

were not the same, and that we were mistaken in thinking so. But for the sake of argument let us admit (although not strictly true, as improved microscopes may some day show) that there is, as shown by Haeckel, some clear resemblance between the embryos of two different Mammals — say, for example, the dog and the monkey. Now, did any Darwinian ever know the embryonic dog grow or develop into anything but a dog, or the embryonic monkey into anything but a monkey? It is evidently a universal Law of Nature that like produces only like, and no sane man ever expects a new Mammal to appear amongst his flocks and herds. The fact that the embryos *appeared similar is no proof that they really were the same;* for we *know* by universal experience that the one contained the germ of the dog, the other one the germ of the monkey. That such germs were not visibly and obviously different is of no logical force, because we *know* from the evidence of our senses and universal experience that they nevertheless are so, for *knowledge must supersede both Appearance and Opinion.*

But if this argument holds true as between one Mammal and another, its force is a thousand times greater in the case of the monkey and the Man; for in this case we have to cross an unbridgeable gulf, inasmuch as Man possesses, in addition to the Mammals' distinguishing qualifications, a most important possession, absolutely invisible, viz., a Soul-Mind, a UNIVERSAL entity beyond all microscopic search! Some questions have been raised as to the point of time when this new possession is obtained. No one who understands its nature need be told that it is not new, or separately obtained. The life-germ of the Man contains it as inherent in itself. It has descended from the parents in an unbroken line of descent even from the first pair, and each germ contains within itself the germ of its next generation, and so on without end, so long as the life itself continues and propagates.

In this argument of Haeckel's the flaw in its Logic is hid in the careless admission that the embryos "*were the same.*" They were we *know not* the same, although perhaps to outward appearance they may at first seem very similar. But a yet higher test remains. The Man-infant will speak; the monkey *never*

will, train it as you may. Now Language is the index of Reason, and Reason of Immortality, and if we apply our TEST to the subject, we see that Reason (Mind) belongs to the UNIVERSAL Sphere, Animal Instinct to the NATURAL, and the two are therefore absolutely incommensurate.

Agreeing as we must do with much in Dr. Carpenter's book, we are surprised to find him treating the important subject of Embryology in a way which, to us, seems almost equally illogical with Professor Haeckel's. Man is "an animal," although not one of "the Animals," and consequently the human embryo is similar to that of the dog and other mere animals; but, while similar in appearance, we KNOW that it is essentially and absolutely different, as is proved by universal experience. He says: "Why should we assume in the case of Man a special *creative* exertion of Divine power, when everything points to a *continuity of the same original plan of action.* . . . To myself the conception of a continuity of action which required no departure to meet special contingencies, because the plan was all-perfect in the beginning, is a far higher and nobler one than that of a succession of interruptions such as would be involved in the creation *de novo* of the vast series of new types."[1]

All this is erroneous assumption, for there was no special *contingency* to meet. Man's creation was a *separate* and original creation, irrespective of the Animals. He resembles them *in structure and instinct*, which show that there was only one Creator; but mentally they evidently have nothing in common. Both Creations were all-perfect in plan at the beginning, and there was no necessary *continuity* in the case. Whether this can be logically shown or not, it is surely quite as probable as the opposite assumption. Was Xerxes more *noble* because he was a slave to his own laws than had he reserved power to alter a law, however perfect, into another equally so? But there is here no departure whatever by the Creator from his original plan, nor the slightest need for any. The first man was an original creation, and each human primordial germ contains within itself all the elements of a continuity of the Creator's original plan for Man. In like manner each brute germ contains within itself the elements of

[1] "Nature and Man," p. 407 (Kegan Paul, 1888).

a continuity of the Creator's original plan for the different species of brutes respectively.

It seems to us a waste of time to discuss so clear an argument farther. The explanation of such confusion of thought arises, we think, out of a wish to show Evolution as an actual supreme power in Nature, and so dispense with any needed oversight on the part of the original Creator. But it is obvious that oversight was not more needed in the one case than in the other. The application of the Two Kinds of Truth Test would quickly clear up this confusion.

In Shelley's "Scenes from the *Magico Prodigioso* of Calderon" there is an argument between the Student and the Devil.

> "*Dæmon.* On impossible
> And false hypothesis there can be built
> No argument. Say, what do you infer
> From this?
> *Cyprian.* That there must be a mighty God
> Of supreme goodness, and of highest grace,
> All sight, all hands, all truth, infallible,
> Without an equal, and without a rival,
> The cause of all things and the effect of nothing—
> One power, one will, one substance, and one essence,
> And in whatever persons, one or two,
> His attributes may be distinguished, one
> Sovereign power, one solitary essence
> One cause of all cause.
> *Dæmon* [*surely aside*]. *How can I impugn*
> *So clear a consequence?*"

Can the reader impugn this logical exposure of Prof. Haeckel's famous so-called evidence of Man's oneness with the Ape? He who takes up an illogical position in any argument, however plausible, is like the man who sat upon the branch which he was in the act of sawing off from the tree, or like him who in the rising storm

> "Pulled down the roof-tree of his hut
> To feed the fire."

LECTURE XX.

Evidences of Design—Limitations of Natural Laws—The Husbandry in Heaven—Compensations.

A great question still remaining in dispute is one on which only the extreme Evolutionists are at complete variance with other thinkers. It is this:—

Is there evidence of *Design* in Nature and in its evolutions? This must be admitted by such Evolutionists as believe that there was a Great First Cause behind and beyond Evolution. Can the few who do not admit this disprove it? And then without it every system yet proposed looks back into blank darkness, and onward seems to lead only to confusion. To the solution of this question the minds of all thinking men should now be directed, rather than to questions of obviously less importance in the interests of Truth, the farther discussions of which only appear to "more embroil the fray."

It seems obvious that, if there be no Design, Chance must rule in Nature. Goethe pithily said, "Provision has been made that the trees do not go into the sky"; and Carlyle as pithily adds, "Means are always there to stop them short of the sky!"[1]

Ever since Nicolas de Fevre (1665) pointed out that chemistry was the art of *separations* as well as of transmutations, it has been found that with every increase of temperature or dissociating power, an increased number of bodies has been resolved into their simple elements or component parts. Now what are called simple bodies are reduced to only some seventy. Mr. Norman Lockyer writes: "The question, then, is . . . an appeal to the law of *continuity*, nothing more and nothing less. Is a temperature, higher than any yet applied, to act in the same way as each higher temperature which has hitherto been applied has done?"

[1] "John Sterling," by Thomas Carlyle, p. 37.

Or, as he very pertinently asks, "Is there to be some *unexplained break* in the uniformity of Nature's processes?"[1] Let "THE TWO KINDS OF TRUTH" answer. It tells us yes! for Heat is a NATURAL fact, and therefore cannot be increased indefinitely. But it possibly may be increased further than it has yet been, till *all* bodies be reduced to their simple elements. It is vain to speculate farther, for a point might *possibly* be reached in a heat so transcendental as to consume all, and so Fire only would remain! Was this not the dream of some Eastern Gnostics?

But Fire, or rather Heat, is not a material substance, and cannot exist irrespective of Matter; so that such transcendental Fire, having, as suggested, consumed all else, would itself cease to be! *Hence this "Law of Continuity" in every direction would by indefinite increase end in Extinction.* Every human passion continued to excess ends in death of the body: even excess of Joy may produce death. Certain musical sounds end in silence, and excess of Light gives Darkness. It thus appears that all these considerations illustrate the fact that Nature itself is not eternal. Sir William Thomson evidently supports this theory. He says, "It seems most probable that there is for every gas a *limit* beyond which the density cannot be increased by any pressure, however great.[2] It has been found by Mr. J. Homer Lane, that in a globe of any Gas or other substance, the density at its centre is twenty times its mean density, provided only it be of one kind throughout.

This subject of Design is a branch of inquiry into which space forbids us to do much more than enter, although it is one of great importance. Besides, it is one already discussed by able writers, and is, indeed, more familiar to general readers than such matters usually are. Those who have read "The Reign of Law" will recall the illustrations of Design so clearly drawn from the wings of the sea-gulls and other birds. It is a subject which every intelligent person of observation can study for himself, almost as well as any scientist, and from almost every object in Nature, animate and inanimate.

Thus the very irregularities and obliquities of the several movements of our globe are not only conditions *necessary* to the

[1] "Chemistry of the Sun," Preface, p. x.

[2] "Popular Lectures," p. 400.

existence of our System, but at the same time are also such as *best* adapt it for the use, comfort, and well-being of its inhabitants. Even the fact that the orbits of the planets are not circles but ellipses is an advantage, for a planet receives more heat thereby than if its orbit were circular.[1] Elliptical orbits are clearly necessary and advantageous as regards climate and health, and contribute to gratify the taste with all varieties of the beautiful, instead of the dull and dreary uniformity which their absence would create. A great anatomist—Bichat—long ago said: "If every one were cast in the same mould there would be no such thing as beauty. If all our women were to become as beautiful as Venus de' Medici we should for a time be charmed, but we should soon wish for variety."

So far as concerns human government, it may have been well said, "Behold, my son, with how little wisdom the world is governed!"[2] but who can truly say so of the supreme government of the Natural World as seen in all the objects around us? The numerous apparent exceptions are, when fully understood, only apparent, as, for example, in the complaint "that of fifty seeds" Nature "often brings but one to bear."[3] Why, the other forty-nine seeds, apparently waste, are available in many instances for further crops, and in feeding countless millions of birds, beasts, and insects, besides furnishing food and medicines for Man, and serving important uses in Commerce and the Arts. In many cases where seeds would otherwise be lost, Nature provides them with gossamer wings, wafting them in millions over broad seas and parched deserts to aid in feeding the teeming populations of animals and fishes which live therein. What human government can provide for its hungry subjects half so successfully as Nature does for hers? It seems difficult to consider these facts, and not see in them Purpose and Design.

And yet in reference to this kind of so-called "failure" it has been seriously argued that in Nature "the prodigality is far more conspicuous than the wise economy of which so much is said." So wrote Mr. G. H. Lewes,[4] somewhat in imitation of Diderot's

[1] "The Moon," by R. A. Proctor, p. 73 (Longmans and Co., 1886).
[2] Oxenstiern, 1583. [3] Tennyson, "In Memoriam," liv.
[4] *Fortnightly Review*, July, 1867, p. 100.

logic; and we must quote Argyll's rejoinder, which seems complete. He says that "it is altogether irrational to regard such a fact as an exception to the attainment of Purpose in Nature. . . . One purpose of seed-bearing in plants is the reproduction of their kind; . . . . another purpose is the support of animal life. . . . . The intention with which a grain of wheat is so constituted as to be capable of producing another wheat-plant is not the less in the nature of Purpose, because it co-exists with another intention, that the same grain should be capable of sustaining the powers and enjoyments of Life in the Body and in the Mind of Man. On the contrary, the power possessed by most plants, . . . of producing seed in a ratio far beyond that which would be required for one purpose is the *sure indication and the proof that another purpose larger and wider was in view*. . . . But this is only one example of a class to which an indefinite number of other examples in Nature may be referred." The fruit and berry-bearing trees afford an example of another kind of double purpose. While the fruit supplies food to man and birds, the real reproducing seed inside the fruit is not thereby necessarily lost; of this the Mountain Ash is a fine example. "There are indeed innumerable examples where the meaning of 'like failures' is not equally evident to us. . . . But the same argument applies to all."[1]

Undoubtedly Nature is prodigal of life. Emin Pasha wrote in one of his letters:—"I hear a noise on the roof of my hut, for even there the ants build their passages, and destroy the work of human hands. Indeed our life here in the interior of Africa is a constant struggle with the superior forces of Nature, and the overwhelming life of plants and animals."[2] The earth, the air, the sea are crowded with living creatures, large and small—the myriad mites and the great rhinoceros and the whale. From the depths of ocean to the highest mountain top, every spot where the sun shines, and every spot where he never does, are teeming with living forms. There is one exception—Fire, which, instead of sustaining life, destroys it.

[1] "The Reign of Law," fifth edition, p. 175.

[2] "Emin Pasha in Central Africa," trans. by Mrs. Felkin, p. 24 (Philip, 1888).

If we consider the matter for a moment we must be appalled to think of the inconceivable amount of food so vast an army daily consumes. Not one, Man excepted, cultivates the ground or produces food for itself. No doubt the earth produces meat for the vegetarian portion of the creatures entirely without their aid; but all the rest feed upon these, and upon each other, the strong devouring the weaker, and the living the dead, not, however, in any capricious and arbitrary way, but so designed and *regulated* that there is no unnecessary waste of life. Indeed, the balance between production and waste is so perfect that the loss of one species or its too rapid increase might possibly prove injurious to all. The tendency of animals to increase enormously in number is very striking. Even the elephant "would increase from one pair to fifteen millions in five centuries if no natural check existed."[1]

This is a most beneficent arrangement in Nature, since Man only buries his dead. Otherwise, instead of furnishing an enormous amount of food for countless millions of creatures, the putrid remains of even a few months' deaths would so pollute the atmosphere and the waters as quickly to poison the inhabitants who live in them. This is either an accidental arrangement, or it shows profound wisdom and design. We think it is obviously another instance of the "Husbandry in Heaven."

Where I now sit, I see four butterflies—gaudy flowers of the air in holiday attire—disporting themselves in the sunshine. For the last half-hour I have been admiring their beautiful but apparently purposeless evolutions as they dance through a quadrille without music, and never seem to tire of their unique gambols. Ever apparently about to collide, they never do so, although continually crowding about the same space. But there is purpose in their fluttering manner of flight, full of movement with *apparently* little progress, entirely unlike any other mode—so that the numerous birds in the garden may try to catch them in vain, and even the boy with his net-bag finds his sport very much more fatiguing than he reckoned on. May it not be his first lesson of life—a warning of the unsatisfying pursuit of pleasure and of the vanity of human wishes? But for their peculiar kind

[1] "Life of Darwin," by Bettany, p. 82.

of wings these fragile creatures could not for a single day escape extinction. There also we see Purpose and Design, as indeed we seem to do in every object and operation in Nature.

Looking to the defencelessness of numerous creatures, and the powerful means of offence possessed by many other species, one would naturally suppose that the latter would in a short time prove the only survivors. But every species seems to be provided with just sufficient agility or cunning, and no more, as enables them to maintain their own share of the earth and its enjoyments, and to accomplish their duties and *fulfil the proper usefulness of their lives, whatever that may be*, without unnecessary fear. This thought is beautifully expressed by our great philosopher, Shakespere—

"*Queen Hippolyta.* I love not to see wretchedness o'ercharged,
And duty in his service perishing.
King Theseus. Why, gentle sweet, you shall see no such thing."[1]

We may take Hippolyta as uttering the spirit of Nature. And is not a similar thought suggested by Lawrence Sterne's familiar saying that "the wind is tempered to the shorn lamb"?

This balance of wrong and right, of pain and pleasure, of suffering and redress, seems almost a Law of Nature, without which life would not long be possible. Throughout we must observe how very soon the greatest catastrophes are ameliorated, repaired, and forgotten, covered over by the veil of Time, as Nature covers over her scars with beautiful verdure. So also in the sphere of Life; if Nature wounds with one hand, in her other she carries a remedy oftentimes more than sufficient to cure. In the political world something similar exists; tyranny is redressed by its own violence, and liberty springs out of oppression. Even sympathy with the downtrodden is a valuable amelioration, when the oppressor is confronted and rebuked by the true man. To Shakespeare we owe a beautiful illustration of this. In the tent scene at the Battle of Philippi, Brutus, suspecting Cassius of oppression and "vile means," and an itching palm, nobly says—

[1] "Midsummer Night's Dream," act v. sc. 1.

"By Heaven, I had rather coin my heart,
And drop my blood for drachmas, *than to wring*
From the hard hands of peasants their vile trash,
By any indirection." [1]

Even the quarrel and the touching reconciliation of these two historical characters afford another example of this general principle of compensation—"How 'scaped I killing?"

To the unfortunate, the bereaved, the sufferer, crushed to the earth by too heavy burdens, how often have we heard of the magical power of even a true sympathetic word! Hope revived, and they were saved. If flesh is heir to "a thousand ills," she is also heir to two thousand ameliorating compensations.

It is difficult to imagine any stronger proofs of Wisdom, Intelligent Purpose, and Design than these several considerations indicate, both in Physics and in Mind.

There are certainly apparent exceptions to this general rule, as in regard to wild beasts whose lives become dangerous to man; but we find they give way slowly as their domains are needed for the use of their lord and master. Again, certain species have become extinct, perhaps because of some change of climate or other outward circumstance, or perhaps unable to maintain their ground against new and more powerful invaders of their domains, and *no longer needed* to preserve the balance between the offensive and the defensive in their special spheres.

But there is another apparent exception. The advocates of Evolution generally say that there is a continual improvement or development going on in the Animal World, arising from Natural Selection. It is known that there is at certain seasons a fierce battle carried on between the male creatures for possession of their females, said to result in the "Survival of the Fittest," and hence a continual improvement in the Species. Very great stress is placed upon this fact in the general argument, but probably much more than the facts, if carefully ascertained, would warrant. For it seems to be assumed that the vanquished males are killed. So far as appears they very rarely are either killed or disabled, and it is more probable that the vanquished merely retire to a safe

[1] "Julius Cæsar," act iv. sc. 3.

distance, and are followed by a sufficient number of the females; for Nature does not intend Polygamy, seeing that in Mammals generally the births by no means provide for it. The deerstalkers can say how many dead they yearly find in the Highland forests, or elsewhere, and the keepers can tell how many skins of males they find. If this be so, the progeny of both the fittest and the less fit will soon again become commixed. Indeed, the battle in the case of some animals occurs only once or twice a year, at breeding time (a limited period), after which they may all again herd together till next season, when another battle will commence —and so on. But it is evident that by such a system no special families of the fittest can long remain separate, so as to secure a permanent higher class species. Besides, this reference to deer forests is scarcely a fair one, because there they are in some degree unnaturally forced to congregate, instead of enjoying ample freedom of range, as in nature. We prefer writing of animals in a perfectly natural state. Those under confinement and training of man may secure a "Survival of the Fittest," as in the case of the Bedouin's Arabian horse, but such cases are, in view of the great argument, of trifling importance.

In Eastern travel we are accustomed to the unpleasant sight of the camel's skeleton, bleaching in the sunshine. The patient animal, sinking under his too heavy burden, lies down to die. Quickly, perhaps prematurely, robbed of his skin by tyrant man, under whose cruel treatment he has fallen, he is left to the swarm of hovering vultures to devour, an example of "Wretchedness o'ercharged, and Duty in Man's service perishing." How different kind Nature's treatment of her wild animals! At a good old age, she leaves the dead lion with a decent covering of valuable fur, near its lair in the thickest of the forest, or half-buried in the sand, probably to afford food for countless insects and birds. Travellers have often remarked that the dead bodies of such wild beasts are very rarely found. Another instance, this, of the considerate wisdom with which Nature governs her subjects, as compared with Man's government of his. Even his pet animals, although fed with delicacies from his own table, would enjoy their lives much more if left free to roam in their native homes, and find their own food by natural instinct.

LECTURE XXI.

Design in Beauty and Utility—Adaptation—The Theory of Chance—The Existence of Evil—Balance of Good and Evil—The Book of Job.

We would take one other illustration of Design — that of Beauty and Utility in Nature's works, as compared with those of Man. All Nature's works harmoniously combine beauty with utility, but the first result of Man's work is to mar the beauty and harmony of hers. His great engineering works—railways, tunnels, fortifications, quarrries, and even gold mines—are comparatively ugly, and it is only by Art, an ornamentation borrowed from Nature, that their bare unsightliness is concealed. Even Nature herself begins at once to weave a covering—a beautiful veil of flowers and verdure—for the wounds man makes upon her bosom and outlines. The best works of Art and Genius are all but conceptions suggested by Nature. Schiller has told us, "That which we feel here as beauty we shall one day know as truth." The most beautiful forms are those of the living person, and the famous Orders of Architectural beauty in the ancient columns and arches were evidently originally suggested by the palms and other trees.

These beauties of Nature in outline and form, so eloquently taught us by John Ruskin, are the special delight of Man—as such, the mere animals regard them not. For example, the brilliant plumage in birds serves as a sexual attraction, is generally confined to one sex, and is also probably necessary for ready distinction amongst the multitude of their varieties. Were all Nature's beauties created by mere Chance out of Chaos, without Design? If not, by whom? Whether visible or mental—

"A thing of Beauty is a joy for ever."[1]

[1] Keats.

"Beauty is Truth—Truth Beauty—that is all
Ye know on earth, and all ye need to know." [1]

So also the Sublime in Nature is in close harmony with Man's mind, but to this feeling the Animal nature is alike blind and dead.

Somewhat in connection with these ideas of Beauty and Utility, is it not a fact that Man cannot share his joys with the irrational creatures, nor they theirs with him? for naturally man shrinks from close fellowship with them as a rule, and more especially with such animals as nearest approach his own in structure! If a man were condemned to share a prison cell with a gorilla, would he not shudder, and ask rather for a wolf as a comrade? On the other hand, we observe that all animals in a state of Nature shun man with fear and dread. The mere thought of such companionship would destroy Man's ideas of Poetry and the Beautiful, and all that tends "to render life delightful." [2]

This is no argument properly speaking, but it appears to be an indication that there is really no relationship between them further than this, that both are formed of earth, and alike bear marks of a *common Creator-Architect* in their structure, *although certainly not of a common Creation.* Their Life is obviously of a different *kind*, there is evidently a profound gulf between them, absolute and immeasurable, and that is the gulf between mere Natural Instinct and Immortal Mind.

After all, the whole assumptions of the Materialists, and they are marvellous in their variety, seem to result in this—that the same *ideal* can be generally traced in the structure of the whole Animal world, ancient and modern. This, however, is only another proof of the ONENESS of their Creator, and teaches us once more that there is Utility as well as "Husbandry in Heaven." 'Because," says Mr. Wallace, the joint author of the great Evolution Theory, "man's physical structure has been developed from an animal form by Natural Selection, it does not necessarily follow that his mental nature, even though developed *pari passu* with it, has been developed by the same causes only." [3]

[1] Pope. [2] Thomson's "Seasons."
[3] "Darwinism," by Wallace, p. 463.

For if the Ape and the Man have somewhat similar bodily structures, it proves nothing to us beyond the circumstances that this structure, so varied, is in each the *best adapted for their respective conditions of life on the Earth.* But they are not the same: for example, the fore-limbs of the Gorilla are *very much* larger, and otherwise differently framed, but still the very best suitable for *its use* in climbing trees. The structure of Man's hand is unique in Nature; no other hand *can* handle a tool by any amount of training. Yet had arms such as Man's been *best* for the Gorilla's use, there is no obvious reason why they would not have been given to it. Man's arms are better adapted for cultivating the ground, and a thousand other purposes positively useless and impossible to the Ape. Indeed the hand of Man is one of the most wonderful pieces of mechanism in existence.

Here are the grand outstanding distinctions of Man. He only is made to walk erect; and he only can kindle a fire. Were Man descended by Evolution from the Ape, would not some savage people be discovered, in process of development not yet complete, still walking on all fours, or devoid of language, or otherwise retaining some beastly physical disability? Or, on the other hand, would not some *advanced* Ape be found walking erect, and nursing its young in some way more like that of Woman? We do not mean by imitation, but *naturally*; indeed imitation was impossible when Evolution began, for then no Man existed. Man only can use and make tools; and he only can cook his food; he only can improve himself and the world around him; and all because he only is possessed of Reason, and further, because, so possessed, he only can speak.

It has been affirmed that there are human beings so debased by savage life that they are very little superior to the brute creatures. This may appear so, but there is always an impassable gulf between the two. To quote an old writer: "By means of Abstraction (Mind) the most stupid Savage, when two objects of sense are before him—the piece of gold which he wears as an ornament, and the glittering bauble exhibited by the stranger—will barter his gold for the bauble. Not so the brute, which will neither barter, nor borrow, nor lend. Indeed,

although it has perception of form, it has no perception of the æsthetic."

Suppose that a newly-born human infant and an infant ape of the most advanced type were "exchanged at nurse," would the human infant, kept apart from man and running wild with its foster-mother, grow up without a ray of Human Reason? And would the ape-infant, brought up and educated with every advantage of a child of the family, show any sign of human intellect or *human speech?* In both cases surely not; although we should not expect the boy to turn out quite another Romulus, and found another Rome! To say, therefore, that Man *ever* sinks to the same platform as the irrational animals is, we think, an unfounded assertion, but the high condition of instinct and intelligence in some animals as compared with the savage and degraded human intellect is apt to give rise to the misconception.

The question of the *original* creation of Sex is one of which Naturalists have as yet failed to give us any satisfactory scientific explanation. Even the most careful investigations fail to find the law of its evolution,[1] so we must wait for more light. Mr. Oliphant says, "There is no more potent argument in favour of Design in the order of the Universe than is supplied to us by the existence throughout it of the sex-principle." Mr. Lockyer has well said that "no doubt the future progress of science will show that we, after all, are looking through a glass darkly, and are not yet face to face with the whole truth. We must all of us be content to have our work criticized and expanded by future work, by researches carried on with greater skill, and with more elaborate methods and higher views, while it is certain that we shall get a much higher and much richer truth out of further inquiries."

This argument of Design has been, in some rare cases, turned somewhat in this way. Seeing there is so much evil and suffering of all kinds in the world, the Designer of it must have been malevolent, instead of benevolent! It is indeed true that the existence of evil is one of those mysteries generally held to be insoluble. Now if Nature is, as appears, really Benevolent, and Death not being an evil, it is possible that but for Man's Freedom

[1] "The Evolution of Sex," by Prof. Geddes and J. A. Thomson, 1889.

of Will, Evil would not exist in the world! This appears very paradoxical, but we think it is logical. For if otherwise Man himself would be good by *necessity*, and thus a mere machine without blame or praise—an irresponsible creature.

Are the evils which exist not the result of human creation, especially in the majority of cases of suffering and premature death? Have not wars, the slave trade, drunkenness, ambition, cupidity, selfishness, culpable recklessness, passion, and other causes occasioned more unhappiness, cruelty, and loss of life than what Coroners have called "the visitation of God" has caused, and that with no compensating benefits? But if Nature wounds, she also brings Balm and Chloroform to the sufferer, and compensations not seen by us. This branch of the subject we considered in our last Lecture, but only partially.

There are Torrid zones, Blizzards, parched Deserts, Earthquakes, and inharmonious Tempests on the earth; but are there not still more ample stores of Temperate and Tropical zones, fruitful fields, beautiful hills and dales, glorious sunsets, harmonious music, and everything to delight the ear, the eye, and taste of him who has health and mind to enjoy them. Instead of monotony, the varied elevations of the land, and the zones of various temperature—shown by the Isothermal lines—each rich with its own appropriate grain and luscious fruits, invite man to cultivate and enjoy them all. Mines of wealth in Metals and Carbon invite the inventive genius, with which Man alone is endowed, to use them in his own service. Nay, he may harness the Animal world and the whole forces of Nature to aid him in improving the world at large.

Then as to the evils of life, as Novalis (1772) wrote: "There are properly no misfortunes in the world. Happiness and misfortune stand in continual balance. Every misfortune is, as it were, the obstruction of a stream, which, after overcoming this obstruction, but bursts through with the greater force."[1] Virgil wrote:—

> "Endure the hardships of your present state,
> Live and reserve yourselves for better fate."

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[1] Carlyle's "Miscellaneous Essays," vol. ii. p. 57 (Chapman and Hall, 1867).

And Shakespeare :—

"If ills be necessary,
Then let us meet them like necessities."

And :—

"Things at the worst will cease or e'en
Climb upward."

"No one," said Lamartine, "ever rivetted the chains of slavery round the neck of his brother, that God did not secretly but irresistibly weld the other end of the chain around the neck of the tyrant." And J. S. Mill has told us that for the smaller vexations of life, "a night's sleep is a sovereign remedy." John Wilson, an old English poet, wrote (A.D. 1660) :—

"What would any man desire?
Is he sad? then here's a pleasure.
Is he poor? then here's a treasure.
Loves he music? here's the choice
Of all sweet sounds in her sweet voice."

When "March with his hammers comes knocking at our doors," as the old Breton ballad has it, and we churlishly strive to exclude him, it is well we should not forget the words of quaint old Francis Quarles [A.D. 1592], containing the soundest philosophy—

"And were it for thy profit to obtain
All sunshine? No vicissitude of rain? . . .
There must be both. Sometimes these hearts of ours
Must have the sweet, the seasonable showers
Of tears ; sometimes the frost of chill despair
Makes our desired sunshine seem more fair."

And again :—

"Sweet Phosphor, bring the day
Whose conquering ray
May chase these fogs ;
Light will repay
The wrongs of night.
Sweet Phosphor, bring the day!"

And so Shakespeare :—

"We, ignorant of ourselves,
Beg often our own harms, which the wise powers
Deny us for our good ; so find we profit
By losing of our prayers." [1]

And by a careful study of these considerations we may come to say with the Egyptian *soothsayer*—

"In Nature's infinite book of secrecy
A *little* we can read."

And could we all

"Find in loss a gain to match,"

we should never again hear re-echoed the question—"Is Life worth living?"

This unmeaning question, "Is Life worth living?" is, indeed, not so often heard from the sufferer by misfortune, as from the mere modern Epicurean or Dilettante. He finds even the luxury of trifling or of pleasure begin to pall upon the senses, or else the *ennui* of existence becoming unendurable. Thus the "ills of Life," real or imaginary, are evidently more equally divided amongst men than many complainers suppose.

There is still another view of the subject, of an entirely opposite kind, which is seldom considered. The joys and pleasures of Life, even the highest and purest, are rarely or never realized up to our anticipations. Otherwise, they are transitory, and at best alloyed by some ingredient of *imperfection*, more or less trifling. Let us think of our school holidays. How eagerly were they looked forward to! How great the enjoyments in store! When they closed, how much had these fallen short of our anticipation! Illness, or death of friends, sickness, accidents, rainy weather! We recount such things only to further emphasize the truth of Immortality, by pointing out the utter unsatisfactoriness and *incompleteness* of the present Life, in all circumstances.

"It was inevitable," says Mr. John Morley, "that the first problem to press on men with resistless urgency should be the

[1] "Antony and Cleopatra," act i. sc. 2, and act ii. sc. 1.

ancient question of the method of the Creator's temporal government. What is the law of the distribution of good and evil fortune? . . . This tremendous question has never been presented with such sublimity of expression, such noble simplicity and force of thought, as in the majestic and touching legend of Job." [1]

Could the era of Job be ascertained, it would throw much light upon the question of Ancient Civilization. But its date is embedded in endless traditions and contradictory modern criticism. It is popularly placed late, perhaps just because the high culture and learning it reveals is supposed to be incompatible with an era prior to that of Moses. But, for that very reason, we venture to believe in its extreme antiquity; for are we not finding that instead of a progressive advancement, as generally assumed, there must have been successive periods of great retrogradation in the world's history?

Theologians frequently urge that the Hebrew Scriptures may not be scientifically accurate, because their aim and purpose was to teach Religion, and not Science. This argument is somewhat lame; besides, it does not hold good, for the opening chapters of Genesis, combined with Nature's teachings, are the foundations of much material science. In the same sense there is almost no modern Science which this Book of Job does not directly or indirectly show to have been fundamentally known. Of these we may mention Astronomy, Natural History, Pneumatics, Agriculture, Mining, and Metallurgy, Geology, Writing, and general Literature. A biographer of Galileo claims amongst his greatest discoveries, "that Air has weight," but Job speaks of the "*weight of the Wind*," not as a discovery of his, but as fact then obviously known. This fact, one of the highest scientific importance, evidently had been lost in subsequent "dark ages," until it was rediscovered, probably 3,500 years later, by Galileo.

Another circumstance may be mentioned which greatly strengthens the claim of high antiquity. No reference is made by Job to any Peoples or Nations except the Chaldeans, the Ethiopians (or Egyptians), and the Sabeans. The latter was long supposed to be a mere tribe of Nomade Arabs, but was recently

[1] "Critical Miscellanies," vol. ii. p. 292 (Macmillan, 1886).

ascertained to have been a very ancient nation, whose capital was in South Arabia,[1] between which and Syria an active commercial intercourse was long carried on by land as well as by sea. Throughout this great extent of territory, alphabetic writing in various forms was known and practised. These three were, so far as we know, the only powerful nationalities existing in or about the nineteenth and twentieth centuries B.C. It therefore seems probable that the great nationalities of Babylon proper, Assyria, Phœnicia, Media or Persia, and Greece, had not become settled or predominant powers until after the days of Job.

The circumstance that Job makes no reference to any of these nations, nor any reference to their religions or gods or idols or Human Sacrifices, nor indeed to any religion but his own (evidently a primitive natural worship of the Great Creator, and a firm belief in Immortality) is remarkable. The one exception is his singular notice of Sun-worship, and his clear conception of its infidel character. Now, considering the high civilization of Job, as well as of his learned friends, and the extremely wide scope of their observations, arguments, illustrations, and incidental references generally, it does seem almost incredible that these other nations were then existent, or that the worship of Images was yet practised. If this supposition is allowable, the era of Job must be relegated back to a period as old as the days of Abram (about 1900 B.C.), thus indicating that if the Book was written in Job's own day it is the oldest writing in the world, not even excepting those of Moses, about 1500 B.C., and the oldest Vedas, supposed about 1400 B.C. The language of the Book is Hebrew, but largely mingled with Arabic, totally dissimilar to any other of the books of the Hebrews.

The reader will see that the object of this digression is to illustrate and support our view regarding the theory that the *oldest* civilization was higher than the much more recent.

[1] Sir J. W. Dawson, *Contemporary Review*, December, 1889.

LECTURE XXII.

Adaptation of Means to Ends — Latent Forces of Nature—Possible Future Discoveries of Design.

It is remarkable that every thing and every force in Nature is made exactly suitable for its normal purpose, and no more. The Tree resists the ordinary storm, but when the exceptional hurricane comes the forest shows a number of trees, few or more, prostrated—some torn up by the roots, some broken across the main trunk, others stripped of branches, others of leaves, showing an exactly proportional strength in its several parts.

The Sea itself is made chemically and mechanically suitable for preserving the life and enjoyment of the multitude and variety of its inhabitants, and for the best uses of the mariner. A little alteration in its constituent parts, or of its specific gravity, would be fatal to both. The same remark applies still more forcibly to the Atmosphere, for a *very slight* increase of its storms, or in any of its constituents would render existence inpossible. We see proofs of this from time to time, fortunately on a small scale, but they show how scant the reserve of power or efficiency is in each case—another proof of the "Husbandry in Heaven."

The Earth is one vast Laboratory, a grand Chemical Arcanum, in which organic and inorganic forms are continually being reduced to their elements, and as continually being reconstructed in new forms. A perpetual battle is going on between decay on the one hand and renovation on the other. The Air, the Earth, and the Sea, alike are ever actively at work in pulling down and building up. Evils are ever being checkmated by good; the plague and the locust are confronted and overcome by the thunderstorm and the cyclone. We are taught by Physiology that vegetation is daily purifying the atmosphere by absorbing its noxious gases. "In chemical combustion and animal respiration a vast quantity

of oxygen is being converted into carbonic acid gas, but the vegetable kingdom is daily absorbing the noxious gases" from the atmosphere. Thus "the vegetable world may be said to promote a kind of circulation of nutrition between the chemical and the animal kingdoms of nature." Under the sea other chemical transformations take place, more out of our observation, but we know that great Coral islands are continually being built up in the ocean by very diminutive zoophytes—enough to change even our geographical maps.

In various countries, the traveller sees vast numbers of tiny tin-plate pitchers inserted into the Pine-trees, to collect the resinous gums in which they are rich. From this resinous gum are manufactured turpentine, rosin, &c., very valuable in medicine, and in the arts, and in manufactures. The trees in the south of France cover a vast extent of flat swampy country, often less or more submerged, which but for these trees would probably be uninhabitable from malaria fevers and other miasma diseases. But their resinous gum is rich in ozone and other emanations, so highly aromatic and antiseptic as to counteract these ills. Indeed, in their neighbourhood there is now a favourite residence for invalids. The same, or somewhat similar qualities, are claimed for the famous Eucalyptus trees. The French have largely planted them in Algeria, and the Romans, to a small extent, in the Campagna, and in both cases they appear to be thriving and beneficial.

In all these cases the evidence of Design is very clear. To attribute them, or any one of them, to Chance seems to our ordinary minds impossible.

But the proofs of Design surround us everywhere, and we will only farther notice one less frequently considered, but of great importance, namely that of the Latent Forces of Nature. The subject is somewhat more purely scientific than we care to handle, but we will try to illustrate it by a familiar example. Coal contains Potential Force, but it is *Latent*, unless the coal be heated to a certain point. When burning it suddenly unites with the Oxygen of the atmosphere, and, ceasing to be Latent, becomes an *Actual* Heat-Force of great importance. The composite mineral has been resolved into its constituent elements, to wit—(1) Carbon;

(2) Oxygen; (3) Hydrogen—but in various proportions. In this act called Combustion, it gives out Force or Motion by creating Heat—Motion and Heat being correlative Forces. Nothing remains but a little earth or ash, and a smoky vapour, chiefly Carbonic Acid, while the Coal, as such, no longer exists, and its Potential Force is brought into use.

This Heat best converts itself into motion by the use of a complicated *Tool* called the Steam Engine. The Water in the engine-boiler is converted into steam by the Heat, and this confined Steam, by virtue of its great elastic pressure, solely caused by and increasing with increase of heat, produces a revolving motion by the intervention of the cylinder, condenser, and crank. It is a mistake to suppose, as almost all do, that a new Force *is obtained by the Water being resolved into its constituent elements.* This does not take place. Steam is not a constituent of Water, but simply and entirely Water still, in a new form, *i.e.*, vapour, instead of fluid. For, unless where there is a blow-off, the whole Steam is condensed (by the loss of its heat, from contact with some cold surface) back again into Water pure and simple, and nothing is lost; so that no Power is got out of either Water or Steam. Nothing can be made of nothing, neither can such a *new* mechanical Force be obtained unless by the *consumption* of some material possessed of Potential Force, as in the case of coal, wood, petroleum, or other carbon and gases. But here there is no *consumption* of Water (or Steam).

It has long been known that Water is itself a great Potential Force, and that it can be decomposed or resolved into its constituent elements, and so becomes an Active Power. These are—(1) Hydrogen; and (2) Oxygen—in exactly equal proportions as to weight, but in volume as two to one. By a galvanic trough Water has been so resolved into its two constituent elements—Hydrogen gas and Oxygen gas, by which what was Latent may become an available Force. This Hydrogen, by combustion in the common atmosphere, would give intense heat, and thus a new Force would be at our disposal. By the admixture of Carbon, we could have the equivalent of the common Carburetted Hydrogen gas of our street lamps; and if burned in Oxygen a flame much more intense would result. Hitherto, however, this decomposi-

tion of Water has been effected only in the laboratory, as an experiment, and it is a somewhat slow and expensive process.

There is another method of decomposing Water, by the use of Sulphuric Acid and Zinc. But what we wait for is a practical mode of operation on a cheap scale.

Water can also be decomposed or resolved into its two elements by exposure to iron plates at a very high temperature, and also, under proper arrangements, by Electricity. We cannot discuss the subject farther here. It must suffice to point out that at the present day great expectations are being entertained that, by Electric or other modes, new Forces will be made available for Man's use, destined to effect great revolutions in lighting, heating, and motive power. Scientists have long looked to Water for a new Motive power other than the Water-wheel or the Turbine tools, but hitherto no practical and economical method of obtaining it has as yet been devised. In the recent great advances of Chemistry, and specially of Electric science, the desideratum may probably be ere long discovered.

The fact that Water is a Latent Power in Nature, designed for Man's use, as all other Forces are, in enabling him to rule, subdue, and civilize his earthly kingdom for his benefit and the good of his fellow-men, is evidently a proof of wise prevision and Design. That such powers have been Latent perhaps shows that Nature conceals them from Man only to stimulate his Reason and inventive genius in discovering and using them!

When we consider that Water and Air, both Latent Powers, rich in Hydrogen or Oxygen, are the most abundant and best-distributed elements in the world, how wonderful would the discovery be of any method of obtaining from their decomposition an active Motive power to speed the vast navies afloat upon the ocean! It is merely a dream, but other dreams as wonderful have turned out realities. If realized, it will form another great illustration of Design. A poet wrote :—

> "With caution judge of possibility.
> Things thought unlikely, e'en impossible,
> Experience often shows us to be true."

Although on a small scale, what promises to be a successful

step in that direction has recently been announced, to wit, "the Priestman Petroleum Engine." Here, a Vapour of hot air and common petroleum oil is commixed and exploded by an electric spark in the cylinder of an Engine. After being started, this Engine works automatically, and may possibly be fated to prove a motor for many purposes. Common petroleum is cheap and plentiful, but if further inventive genius should succeed in harnessing the Hydrogen of Water and the Oxygen of Air to such work, instead of, or rather in conjunction with, the Carbon of petroleum, a yet nearer approach to the realization of our dream would be attained.

A somewhat similar invention was made by Mr. Kelly, of Philadelphia, several years ago, which was said to have resulted in a new Motor. He claims to have discovered that such a change can be effected by rapid vibration in the Atoms of which Air is composed as to produce what he names Atmospheric Disintegration, by liberating a subtle essence of energy so great as to exercise an immense pressure. He does not seem to have produced a Motor of practical utility, so far as yet publicly known; but a great advance has been made if the fact of such disintegration has been found possible.

Another invention still more recently introduced in this country is that of Water-Gas. It is claimed that by introducing a current of Steam into a special kind of retort, or enclosed fire heated up to an excessively high temperature, the water (steam) will be decomposed. Its Hydrogen, by a certain arrangement, can be separately carried by pipe into a gas-holder, and utilized in the same way as Coal-Gas now is. That the idea is a true one seems practically proved, but there is very great difficulty in getting up and in maintaining the heat necessary—almost a transcendental heat. Unless this difficulty and others which seem to arise can be overcome in the experiment, no practical advance will be made.

As neither Matter nor any of the Forces of Nature can be destroyed by any operation of Man, some of our younger readers may question the statement that Coal ceases to exist by combustion. It ceases to exist as Coal, and is thus practically lost, though of course its elements do not cease to exist; whereas the

Water in the steam-engine simply changes its form, not an atom of it being necessarily lost or destroyed. In the case of the Coal, the Latent Force has been converted into Active Force, in the form of heat. This heat remaining in the steam does not cease to exist by the condensation of the steam, but passes through the condensed water, and thence into its surroundings, and so disappears from observation by its diffusion in space. The Heat-Force in chief is transposed into Motion by the engine, and passed by the machinery into the work which it accomplishes. Hence it may be said to have spent itself, for it has escaped from Man's service as a Force.

Thus the earth, the sea, and the atmosphere are continually receiving by such combustion minutely small additions to their temperatures—no doubt too trifling for calculation; but it would be curious to trace them to their final goal. The Latent Heat of the Coal was originally deposited therein by the Sun's rays, and it is not impossible that the Sun thus receives some minute part of it back again through the Ether of Space, along with the central heat of our planet (which is said to be still continuously cooling down), and also with the heat-rays reflected from its surface.

Wherever there is Motion there is heat resulting (unless in a vacuum, which nowhere absolutely exists). Every planet, therefore, rushing through space is, we presume, ever producing heat in some infinitely small degree by friction upon the Ether. Heat is not itself ponderable Matter, but, if Ether be in any degree ponderable, this friction must, in some minute degree, be gradually lessening the speed of the planets, and in some indefinite period of future time they must fall into the Sun, and so prove that our system is not eternal. We give these speculations as mere subjects for thought. They form no portion of our main argument, and some of their assumptions are yet uncertainties.

That neither the Steam nor the Steam Engine produces Force or Power, they being merely tools used by Heat in doing so, will be best illustrated by the Archer's Bow. Here we have the cross-bow—a branch of wood, capable of elasticity, but having neither latent nor active Force in itself. When, however, *by the vital force of the archer*, it is drawn or bent as far as possible, it *then* pos-

sesses this (*once vital*) force—neither less, *nor more*—and when its trigger is touched this force is discharged into the arrow, which flies through the air with the *force the archer imparted to the bow*, and the elasticity of the bow itself adds nothing whatever thereto. Its use is merely that of a *tool* by which the vital force of the Man can be much more effectively communicated to the arrow than could otherwise be done. This is not a "Mechanical Power," but somewhat similar; and the same remarks apply to what are so called—as the Lever, and the Wheel and Axle, &c. Such "Mechanical Powers" give no new or additional Power whatever to that worked through them, but are valuable as *Tools*, enabling Man to use his vital power to accomplish what without them would be almost impossible, but always by a *corresponding* loss of speed, as all schoolboys know.

This name, "The Steam Engine," is evidently a misnomer. It ought to be called the Heat Engine, or more properly, *The Fire Engine.*

Thus it appears that Man cannot *invent* any New Force or Power in Nature. Those self-revealed he can appropriate to his service. Those which are Latent, Nature keeps concealed. All Man can do is to discover the existence of one, and then try to Invent a key to open its prison cell.

LECTURE XXIII.

DISTINCTION OF SPECIES — THE HARMONIES OF NATURE— DOUBTFUL EVIDENCES IN THE DOMAIN OF SCIENCE—THE AGE OF MAN.

THE question of the distinction of Species in the Animal Kingdom is evidently one of importance, but modern Scientists carefully avoid giving us any definition of the term, while still freely using it in their discussions. This of course renders all argument, on either side, vague and unsatisfactory. We must, therefore, recur to the highest authorities who have attempted it.

The father of Zoology as a science was Aristotle, who divided the whole Animal Kingdom into two great sections—the Vertebrata, or red blooded; and the Invertebrata, having a colourless fluid instead of blood. Coming to modern times, Linnæus made six sections—Mammalia, Birds, Fishes with gills, the Amphibia with lungs, Insects, and Worms. Then followed Cuvier, who arranged the animals into four great divisions, thus :—

I. Vertebrata, including Mammalia, Birds, Reptiles, Fishes.

II. Mollusca (Invertebrata), including Oysters, Shell Fish, Snails, &c.

III. Articulata, including Insects, Worms, &c.

IV. Radiata, including Jelly-fish, Infusoria, &c.

A very complete system of the Animal Kingdom was proposed by Agassiz, also of Four great divisions, similar to that of Cuvier, but with more numerous sub-divisions. These last, however, are not of general importance.

And finally, we have the popular scale of divisions, viz. :—

1st, Beasts; 2nd, Birds; 3rd, Fishes; and 4th, Molluscs.

This, although not perfect, is not far from being adequate; for the varying characters of Mollusca, Articulata, and Radiata are by no means clearly distinguishable in several cases, and are interest-

ing only to the Zoologist. Even he is sometimes unable to distinguish between them.

It has been said that Linnæus' aim was to class together "as one Species all those individual animals that agree in essential points, *and have descended unchanged from the same ancestors.*" Later Zoologists modify this supposed line of descent ("which involves the idea of the miracle of Creation"), by including the agency of Variability.

All attempts to find the true classification of Nature in the Animal Kingdom have evidently failed, so that only divers approximations can be made. Perhaps this difficulty arises from the Evolutionists' assumption that Animal Life is progressive in a straight line, beginning with Protoplasm, or whatever may be the first Life, upwards step by step, and species to species, till Mammals are reached. But this theory is not found to correspond with facts. To use the words of an old writer in reference to the works of Linnæus: "In the method of Nature the *straight line* is blended with the circle and the sphere, so that each object depends not merely upon those which precede and follow it, but upon those which surround it. . . . This method of circles within circles is manifestly the true method of Nature in all her works." But it is a method which to human reason seems inextricable.

If the Evolutionists confined their theory, as Agassiz suggested, to Species, or even to the *four great Classes* of Beasts, Birds, Fishes, and Molluscs, the transmutations therein would better commend it to reason as probable; but when it extends from Mammalia to Man it becomes simply impossible to most thinkers, and we claim to have already *demonstrated* this by that universal Touchstone or Talisman and TEST of facts—"the Two Kinds of Truth."

Hitherto we have treated the subject of Nature and Man on somewhat scientific lines, for no one seems to have been able to do so strictly. But there is yet one view of the whole matter which should not be altogether avoided—we mean the Æsthetic and Poetic one, pure and simple, and aside from the question of Design, already considered. This the Agnostic and the Material Evolutionist do not, we fear, appreciate; for it seems to be generally evaded by them.

Looking dispassionately to the visible Universe, Man—even the most untutored man—is unavoidably influenced by a feeling either of awe or of pleasurable emotion, leading him to bow down to some unknown Power higher than he. He will not do so to a Fetish (for, as we have seen, Fetishism is always an indication of an effete and corrupt *old* Religion). But in the absence of any revelation he will very naturally do so to the Sun; for to the Sun universal Nature always appears to bow. His beams are the great source of heat, and "it is impossible to soil them by any outward touch." The eagle soars far above the clouds to meet his gaze; and all the planets seem only to serve and encircle his throne.

> "Hither, as to their fountain, other stars
> Repairing, in their golden urns draw light."[1]

He makes the day, measuring out Time; and when he appears to hide his face we are left in darkness and cold. Every flower lives only in his smile, the trees offer their fruits, and the earth lays her wealth of corn at his feet. The great planet and the tiny dew-drop alike reflect his glance. Rivers present his cup, flaming comets appear to bear up his train, and all Earth seems to spread out his great altar. Then how grandly silent is his reign! Yet musical surely, although its melody is by us unheard. Thus Milton:—

> "Harmonious sounds on golden hinges moving;"

and Swinburne:—

> "Because thou hast kept in those world-wondering eyes
> The light that makes me music of the skies;
> The music that puts light into the Spheres;
> The sound of song that mingles north and south."[2]

Confusion is unknown, and to the ignorant his power will appear supreme. On his deathbed Mirabeau, referring to the Sun's setting, cried, "If he is not God, he is his cousin-german."

[1] "Paradise Lost," bk. vii.
[2] "Songs of the Springtides," p. 33 (Chatto and Windus, 1880).

This original Sun-worship seems to have become gradually and increasingly degenerated everywhere by causes now unknown.

Referring to such degrading religions generally, an eloquent writer has said: "A divine religion will replace that which has been degraded by Man's inventions, and divine mysteries supersede those which have been derived from sources more or less impure."

Whatever may be the cause, Religions founded on error not only fail to improve, but always seem to degenerate, losing such simple beauty as they may have originally possessed, then becoming sensuous, and finally morally debased and effete. Even Sun-worship, which seems at first to have been simply beautiful, eventually did so degenerate step by step to Fire-worship, then to the worship of Baal, and down to Ashtorath, to Moloch, and even lower—to beasts and contemptible things. And following Religion, Art and Architecture, as we have seen, also declined from their pinnacle of genius gradually down to the platform of commonplace.

And now even to us, with all our Nineteenth-century knowledge and Civilization and Art, do we find anything so beautiful as are the simplest of Nature's works? Look at the wayside daisy with a good lens, and the ocean shell, and say, does not the most highly finished and perfected work of man's Art, in the comparison, look coarse and ashamed? Is it very wonderful that even in the present day, and amongst ourselves, are some few Pantheists who yet appear to worship Material Nature?

So much for Beauty and Art. Now let us look at Greatness and Utility even in the Vegetable Kingdom. A recent writer [1] thus speaks of the great Banyan tree of tropical lands: "Each tree is in itself a grove, and some of them of an astonishing size, as they are continually increasing." One is "supposed to be the same as that described by Nearchus, the Admiral of Alexander the Great, as being able to shelter an army under its far-spreading shade. High floods have swept away a considerable part of this extraordinary tree, but what still remains, after more than two

[1] "Wonders of the Tropical Forests," by Dr. Hartwig, p. 30 (Longmans, 1888).

thousand years, is nearly 2,000 feet in circumference. On the march of an army it has been known to shelter 7,000 men. Such is the Banyan—more wonderful than all the temples and palaces which the pride of the Moguls has ever reared," greater even than the famous Moorish mosque of Cordova, with its 1,200 granite columns. Milton's beautiful lines are by no means over-drawn :—

> "The bended twigs take root, and daughters grow
> About the mother tree; a pillar'd shade
> High over-arched, and echoing walks between."

"The Hindoos consider its long duration, its outstretching arms, and overshadowing beneficence as emblems of the Deity, . . . and under the Banyan they perform morning and evening sacrifice." So much for its grandeur — and its utility is further enhanced by the fruit which it yields.

Did all Nature's marvellous grandeur and wealth of beauty come by chance? or was it made for the delectation of dead matter, or for a mollusc, or for monkeys alone—and that for vast ages of time? No, this is not conceivable by ordinary men—it is worse than waste, surely altogether out of concord with the "Husbandry in Heaven," seeing that all these were absolutely incapable of enjoying its grandeur.

Much attention has been bestowed upon the evidence which seems to be given by the Stalactite Caves on the question of prehistoric Man, and the era of the various fossils there embalmed, or buried in their floors. The stalactites are formed by the droppings of rain-water from the superincumbent soil. The rain-water is impregnated with carbonic acid, and, passing through the overhead subsoil, generally of lime or limestone, leaves a deposit, which, after evaporation, is Carbonate of Lime, forming Stalagmites upon the floor of the Caves. From observations made, it is found that a certain depth of such deposit is formed on the floor in a given period, and is said to furnish a measurement of its age. Thus, from the thickness of the floor-deposits, above the fossils found in the caves, the periods of time which have elapsed since the deaths of the various animals are ascertained by calculation.

The remains of primeval Man are said to have been so found in the Caves in France, and the fossils of numerous animals in Caves of our own country. To those who have visited these Caves, or those of the Peak in Derbyshire and at Torquay, the data for such calculations will not, we think, appear very certain. If the deposits of *Ancient* centuries had always been made at some uniform rate as those of the present century, the calculation might of course be correct; but there are evidently numerous probable causes why it may not have been so. For example, the superincumbent soil being unchanged, the lime it contained must have gradually been becoming *much* less pure, and so chemically less strong and active than it was at first, or say even thirty centuries ago. Consequently, the rate of deposit would gradually and seriously decrease. Or, if earthquakes, disastrous flood, or physical catastrophe of any kind had arisen, the deposit must have been extremely irregular. Farther, does not the crowding together, in some instances, of fossil remains of a great variety of animals, in character most incongruous, suggest a sudden alarm, or disaster, or cataclysm of some kind?

The Stalagmite evidence of age is as yet little available in the absence of data sufficiently ancient for comparison with present observations. The best instance we have noticed is that of Walsingham Cave in Bermuda. In 1819, Admiral David Milne presented to the Edinburgh Museum a piece of Stalagmite of Carbonate of lime, sawn from the floor of this cave, in the presence of his son, subsequently Admiral Sir Alexander Milne. This officer, in 1863, estimated that in the interval the drips had added about five cubic inches of new matter. As the whole stalagmite was estimated at 44 cubic feet, this would have required 600,000 years to form, supposing the increase had been uniformly as slow as at present. However, this case does not seem to have been an experimental one, and probably no watchfulness had been shown to preserve the increase intact. There seem to be no sufficient data here; the five drops now forming Stalagmite may possibly have been fifty in number many thousand years ago, and under a very different climate.

Recent observations show that the Earth's crust is by no means stable and solid, but subject in very many places to vibrations

and slight shocks or tremblings. It is, therefore, unsafe to assume that any point of its surface has always been absolutely free of sudden changes, or that its condition, in any respect, has remained uniformly the same throughout past ages, or that even the ordinary changes, which mere lapse of years occasions, have always been uniform.

Whatever may be imagined—for there is no clear proof—as to the existence of a race or races of animals prior to those of the present creation, it is the general belief that the actual race of Man had no predecessor. Goethe said that Man was evidently a new species, and no attempt appears to have been made to show the contrary. Several years ago, some discussion was carried on as to whether the Negro was not of a different race from the white man; but the conclusion generally was that three or four thousand years of exposure to a tropical sun were sufficient to account for the blackness of the Negro. Dr. Darwin says: "It seems at first sight a monstrous supposition that the jet-blackness of the Negro should have been gained by natural selection; but this view is supported by various analogies, and we know that Negroes admire their own colour." [1] Whether this be possible or not, it probably aided the change. Certainly it is now generally admitted that the Negro is one with us, and he has shown, under culture, an intellect equal to that of the average white man. There is every variety of colour and features in the world's different nationalities; and some writers have held that besides White and Black a third class should be called Yellow, such as the Chinese races. Even amongst the Blacks of Africa similar varieties prevail, so that all men on our globe are evidently of one original family. Dr. Darwin says: "All the races agree in so many unimportant details of structure and in so many mental peculiarities, that these can be accounted for only by inheritance from a common progenitor . . . Man." [2]

There is, perhaps, no question on which learned opinion is more different than on that of the time required to effect the changes we see effected in the physical and animal spheres. Hitherto, the estimates of Naturalists and Geologists were vast

[1] "The Descent of Man," chap. xx. (Murray, 1888).
[2] Ibid., chap. xxi.

or indefinitely great; but some recent writers hold an opinion quite the reverse. Instead of millions of years, we now hear of mere thousands as sufficient to accomplish all the changes of animal life. Professor Prestwich, speaking of the Flint-tool Age, says: "All these phenomena indicate long periods of time. I do not, however, find that we are yet in a position to measure that time. . . . That we must greatly extend our present chronology with respect to the first existence of Man appears inevitable; but that we should count by hundreds of thousands of years is, I am convinced, . . . unsafe and premature."[1]

In one of the most ancient Tablets, supposed to be the Babylonian Legend of the Creation of Man, but of which only broken fragments remain, the following words appear:—(No. 18) "In the Mouth of the dark races which his hand has made." On this Mr. George Smith remarked: "It appears that the race of human beings spoken of is the *zalmat-gagadi*, or 'dark race,' and on various other legends they are called Admi or Adami, which is exactly the name given to the first man in Genesis. It had previously been pointed out by Sir Henry Rawlinson that the Babylonians recognized two principal races, the Adamii, or dark race, which was believed to have fallen, and the Surku, or light race."[2] We are informed in Genesis that when the world became corrupt, the "sons of God" intermarried with "the daughters of Men." But there is no clue to the position of either. "The obverse of this Tablet, giving the creation of Man, where it breaks off, leaves him in a state of purity, and where the narrative recommences on the reverse, Man has already fallen."

More recent discoveries of ancient documents throw very little additional light of importance on primeval events; but every year some discovery is being made, which although presently not in itself luminous, may be followed by others, which may with these become so. The mistakes so often made by too hasty decisions is curiously illustrated in the case of Dr. Darwin, than whom no one has a higher character for cautious deliberation. After his visit to the South American coast, he

[1] "Philosophical Transactions, Royal Society," 1862.

[2] "The Chaldean Account of Genesis," pp. 85–86.

said to Admiral Sulivan that "the Fuegians were *a set of savages, probably the very lowest of the human race.*" Some few years afterwards, he wrote: "I have often said that the progress of Japan was the greatest wonder in the world, but I declare that the progress of Fuegia is almost equally wonderful." [1]

This seems to throw some new light upon the question of the Time required for a great Improvement of any Race, and conversely for great Deterioration. Regarding the latter, it appears that whenever any People or Tribe is cut off from a *Nationality*, or other centre of Civilization, by any barrier physical or political, its Deterioration will commence and proceed *just in proportion to the completeness of that barrier.* Finally, no amount of original Civilization will prevent in course of Ages a state of extreme Savagism, and even cannibalism. Contrast the Civilization of the kingdom of Peru with the degeneracy of the Fuegian Tribes of the same Continent, on their first discovery by Europeans, or with that of the South Sea Islanders. Or contrast the Civilization of the Kingdom of Abyssinia with the utter barbarism of the tribes of Central Africa. China was for Ages cut off from intercourse with the "outer Barbarians," but being a great *Nation*, with settled government, she has deteriorated in a very moderate degree. So also Japan.

Dr. J. Beddoe says, regarding "the Natural colour of the skin in certain Oriental Races, that parts of the skin covered by clothing were very much lighter than those exposed to the sun and air." [1]

[1] "Life and Letters," vol. iii. p. 128. [2] *Academy*, November 23, 1889.

LECTURE XXIV.

RELIGIOUS EVOLUTIONISTS—THE PRECISE CLAIMS OF EVOLUTION—THE LIMITS OF LANGUAGE—LANGUAGE AND REASON—THE INCOMMENSURATE—THE DESCENT OF MAN.

PROFESSOR Momerie takes up a unique position in the Evolution controversy. He seems afraid that further discoveries may place him in the wrong, should he refuse to admit now that such discoveries may confirm all that the extreme Evolutionists claim in regard to Protoplasm, the Ape, and *physical* Man. Accordingly, he advises the theologians to give up all these points in dispute with the Evolutionists. He says: "We have seen that the theory of Evolution may be considered, within certain limits at any rate, to be an established fact, and that there are some reasons for supposing it to be true, even up to the extreme point. . . . It may be that the whole material world has been evolved from a primordial cloud of Gas. The whole *Material* world, you will observe. But this leaves unaccounted for just one-half of the universe, viz., the mental half. In regard to Consciousness [Mind], Evolution has not a syllable of explanation to offer. . . . But you cannot conceive that from any combination of Material atoms, immaterial Consciousness has been evolved. . . . Consciousness [Mind] is something which lies altogether outside the sphere of evolution."[1]

Here he comes to the great question of the Creation of Mind, in which, we think, he clearly stands upon secure ground; and really this is the *one point of supreme importance.* It is logically very magnanimous to give up so much as he does in the Material world, although he does not say he *believes* in unlimited Evolution even in that sphere. But he does not very distinctly question the possibility of *Life* being evolved from Matter, or

[1] "Agnosticism," by Prof. Momerie (Blackwood and Sons).

inanimate organs; perhaps for the sake of argument he admits it. But he well says of the physicists: "Consciousness they seem to look upon as a little detail in the development of things, . . . a little troublesome, inexplicable, unscientific detail, with which it is not worth while to concern themselves. The world, they have explained to us, is a world in which evolution rolls on its silent way eternally, unseen and unnoticed. Its most marvellous results excite no attention, for there is no one to attend. There are creatures everywhere performing the functions of Life, but they do not know they live; not one of them . . . is capable of thought or imagination; not one of them has ever had a wish, or experienced an emotion."

John Ruskin speaks of "the personal relation of God to Man as the source of all human, as distinguished from brutal virtue and art." And again—"Man can be happy in the presence and guidance of a Personal Deity, otherwise than a mollusc, a beetle, or a baboon."

The great theory of Evolution, however, has been so much written upon that some readers will be perplexed as to the exact points of the subject to which many of these comments apply. To clear this somewhat, perhaps we had better schedule the points under separate heads, to indicate the progress we are making in their examination, thus:—

There are Five points or divisions of Evolution:—

First. That this Earth and other Planets were evolved from Gas by Gravitation.

Second. That from the inert Matter of the Earth *Life* is Evolved in the form of living Protoplasm, or of some other living thing or being.

Third. That from this living Protoplasm is evolved a series of Animals, rising from Articulata or Mollusca to the Vertebrate animals—Fishes and Birds—up to Apes and other Mammals.

Fourth. The evolution of Physical Man from the Ape;

And *Fifth.* The evolution of Human Mind (Reason) from the Instinct of the Ape.

The *First* is unproved. None of the suggested theories really accounts for it.

The *Second* is a mere theory of the Physicists, for which no definite proof has yet been produced.

The *Third* is entertained within certain limits by many thinking men, and is not inconceivable; but much difference of opinion is entertained as to these limits, especially as regards the four *great classes* of Animals. More evidence may be hoped for here.

The *Fourth* is mere theory. If true, the world should now be partly filled with Apes exactly like men, with Instinct-intelligence highly developed, but without Reason. In short, it infers a world of dumb Bipeds, as yet unknown to us (unknown not only in the living creature, but also in the fossil state), and incapable of any other than animal actions and enjoyment.

The *Fifth*. This is absolutely impossible, and its falsity can be clearly *demonstrated* by our TEST.

The question of Language may be considered under this division. Some Evolutionists seem to assume that Instinct rises into Mind (Reason) by the aid and exercise of Speech. It has been shown that there is no such evolution of Mind from Language; for, although it may be said that Mind is impossible without Language, it is certainly equally true that Language is impossible without Reason—being founded upon Abstraction—a function of Mind, and of which the irrational Animals are entirely devoid.

"The generation of Mind (or Instinct Life) out of Matter is inconceivable,"[1] but that communication exists between them is evident. Each one of us is indeed conscious that his mind acts upon his physical frame. Thus my Mind is now dictating to my hand this present writing, and my eyes are, at the same time, informing my Mind of its form and colour; but yet, the mode of this mutual communication is altogether incomprehensible to us, while that such communication does exist is self-obvious.

Other Evolutionists have tried to explain the origin of Language by combining it with the origin of Mind, and both are mainly attributed to "Nervous Organization" in primeval Man. But the subject is neither intelligible nor definite enough for us. The TEST, however, may be applied to show that the idea is

[1] "Creation or Evolution," by G. T. Curtis.

untenable. Nervous Organization is a NATURAL, and Mind a UNIVERSAL truth, and these, as already shown, are absolutely Incommensurate. Language is based upon Abstraction (also Mind or a faculty of Mind), and so by our *Test* it is impossible that either Mind or Language (both being UNIVERSAL truths) could be Created, or Developed, out of Matter which belongs to the NATURAL sphere.

There seems to be a complete answer to the Darwinian theory of Language in a recent work by Max Müller, one of the highest authorities on this subject. He writes: "By no effort of the understanding, by no stretch of imagination, can I explain to myself how Language could have grown out of anything which animals possess, even if we granted them millions of years for that purpose. . . . I can bring myself to imagine with evolutionist philosophers . . . that an animal without any organs of sense may in time grow into an animal with organs of sense. I say I can imagine it, and should not feel justified in classing such a theory as utterly inconceivable. But taking all that is called Animal on one side, and Man on the other, I must call it inconceivable that any known animal could ever develop language." Professor Schleicher, who, though a Darwinian, was also one of our best students of the science of language, "once observed jokingly, but not without a deep irony, 'If a pig were ever to say to me, "I am a pig," it would *ipso facto* cease to be a pig.'"[1]

The importance of Language as the grand distinction between the irrational animal and Man, is thus put by Max Müller:—

"No Reason without Language,
No Language without Reason."

* * *

Humboldt, whose authority both as a thinker and as a scholar was equally great, declared again and again in favour of the inseparableness of language and thought: "the language of a people is its mind, and its mind is its language; we can never conceive the two as sufficiently identical." Abelard said that "intellect gives birth to language and language to intellect." It is vain and useless to attempt the separation of the two.[2]

[1] "Science of Thought," by F. Max Müller, p. 163 (Longmans, 1887).
[2] Ibid., pp. 45, 46.

The word "Incommensurate," so frequently used in our argument, deserves some illustration, as being of great importance. If any two existent things, or any two ideas, be incommensurate, they can be neither compared nor jointly considered, unless for the purpose of contrast, because there is no point of relationship between them. To use geometrical language, they are not in the same sphere, or not in the same plane. Nor can any force, or the lapse of time, make them commensurate, nor can any amount of mixing, or pressure, or manipulation, make two such things amalgamate.

But there is a great difference between what are known as *simply* incommensurate things and those which are *absolutely* incommensurate. For example, a cubic foot, a pound avoirdupois, and a half-sovereign in money, are three simply incommensurable things, and any two of them are so. These, however, belonging all to the *Natural* sphere, are only "simply" incommensurable, because, with ample specification of details, some relationships might possibly be established between them. On the other hand, no such specification of details can possibly be found to make things in the *Natural* sphere commensurate with things in the *Universal* sphere. Thus Inert-Matter and Mind, Body and Spirit, are incommensurable absolutely, as also are Empirical or Arbitrary facts with Absolute facts; and Instinct with Reason.

Evolutionists rest their system chiefly upon *insensible gradation and vast periods of time.* Müller writes that "Insensible Gradation is self-contradictory, . . . something which is at the same time perceptible and imperceptible. . . . Exact science has nothing to do with insensible gradation. . . . It counts thousands of vibrations that make our imperfect ears hear definite tones. . . . It counts, it tells, it names, and then it knows; though it knows at the same time that, beyond the thousands and beyond the millions of vibrations, there is that which man can neither count, nor tell, nor name, nor know, the Unknown, the Unknowable, the Infinite, the Divine." Horace wrote: "We cannot know, or be expected to know, everything;" and these are of the things we cannot know. Knowledge has been thus defined: "It is but to know how little can be known."

"Fallacy lurks in the word 'Development,' which is now so extensively used, but which requires very careful testing. The admission of the insensible gradation would eliminate not only the difference between Ape and Man, but likewise between black and white, hot and cold, a high and a low note in music; *in fact it would do away with the possibility of all exact and definite Knowledge*. . . . True Knowledge is impossible without definite concepts (that is, Number), and without definite signs (that is, Language)."[1] Truths both NATURAL and UNIVERSAL are, like Knowledge, exact. Carlyle truly said, "It is a mathematical fact that the casting of this pebble from my hand alters the Centre of Gravity of the Universe!"[2]

Nothing is farther from our intention than to offer any new theory opposed to Evolution, or to any other current theory in Philosophy. It is rather to draw the attention of thinkers to that and other prevailing theories of recent writers, and to suggest, as far as we may, such objections or difficulties as occur in their study. And this chiefly in view of encouraging the new thinkers, now everywhere arising, to study them, or at least their prominent ideas, for themselves impartially, and as far as they go critically, or at least *logically*. They should keep in mind that there have been, and still are, great names on both sides of such inquiries, and that the opinions of none of them are of exclusive authority.

Of Evolutionists there are different degrees. Their original leaders, such as Dr. Darwin, were commendably candid. Darwin was a scientific naturalist of great eminence, while otherwise he was a man of judgment, as thoroughly reliable as any other of his contemporary savants. But he did not *know*, nor did he pretend to *know*, that Man was descended from the Ape. Almost all reasonable men seem to admit, and he candidly acknowledged, that the question was not one of absolute fact, or one admitting of decided proof. His theory seems built up upon certain circumstances, disjointed facts, and probabilities, which, taken together, *he* believed sufficient to warrant his conclusions. But none of these facts *proves* his theory, and all the circumstances and probabilities, we think, fail to give a foundation other than mere *opinion*. That is to say, after studying all the conditions of the case, he

[1] "Science of Thought," pp. 166–7–8. [2] "Sartor Resartus," p. 70.

thought his view was the most probable—nothing more. Professor Cope writes thus of Natural Selection: "Each generation would stand exactly where the preceding one did, and the question of Survival would never arise. Selection cannot be the cause of those conditions which are prior to Selection. In other words, Selection cannot explain the *Origin of anything*." [1]

Several of Darwin's followers go farther, and write and speak as if this theory admitted of a demonstration. If so, we have not yet met with it. It may lie buried under volumes of words; but we believe that practical truths are always simple, and can be made concise and intelligible to ordinary minds. No doubt they all honestly believe in their theories; but it seems evident that they also assume and rely upon important additional discoveries of fossils to bridge over serious gaps in their evidences, which are certainly at present *very far* from complete.

Both sides of the question have been very ably discussed, but in writings too numerous and too voluminous for any ordinary reader. There is not amongst Naturalists and Geologists any name more eminent than that of Louis Agassiz (died 1873). Of these views he wrote thus: "Had Mr. Darwin or his followers furnished a single fact that individuals change in the course of time in such a manner as to produce at last Species different from those known before, the state of the case might be different. . . . I shall therefore consider the Transmutation theory as a Scientific mistake, untrue in facts and *unscientific* in its methods." There were other eminent Scientists and Philosophers who declined to fully accept the Darwinian views, such as Buckland, Murchison, and others, down to the present. Many of these, it must be admitted, had not all the facts completely before them; and others who had seem to adopt the view of Agassiz, and wait for further proof.

Geology, it is fully conceded by its highest authorities, affords us very little aid into arriving at these extinct forms which would connect Man with his Ape-like progenitors.[2] According to Lyell, "the discovery of fossil remains . . . has as yet reached no remains connecting Man with some extinct ape-like creature. Indeed, the breaks in the organic chain of Man's supposed descent are admitted to be of frequent occurrence in all parts of

[1] Letter in *Nature*, Nov. 28, 1889. [2] "Creation or Evolution," p. 103.

the series, . . . some being wide, sharp, and defined."[1] These breaks depend merely, it is said, upon the number of related forms that have become extinct; "but there is as yet no proof even by fossil REMAINS that they ever existed."[2] The reader will here be reminded of the logic of the famous French encyclopedist regarding the extinction of the sun, or the *assumed* original creation of plants and animals by its heat—both only imaginary opinions, without any existence whatever.

The opposite theory is that of creation by the Original Creator of all things. This is held by a great number of thinkers, if not of writers (Agnostics seem to exclude themselves—resolving to believe *nothing*). No doubt most thinkers believe in Evolution, but not in its *Indefiniteness and Supremacy*. Many hold that Evolution is strictly limited by Natural Law to Species or Classes. Cuvier describes a Species as a "succession of individuals which reproduce and perpetuate it."

Man is admittedly a new Species or Class, and, as we have seen, there can be no Evolution from a lower *or any other* species to the new species Man. Keeping this fact in view—and, so far as we see, it is, with less or more explanation, generally prevalent—the Evolution of Man from the Ape would be necessarily a contradiction. But we can apply the great TEST of Truth here also. The lower animals belong to the NATURAL, but Reasoning Man to the spiritual or UNIVERSAL platform of Truth, and these are not merely different in *degree* or species, but, as we have shown, they are different in *kind* and *absolutely incommensurable.*

But, altogether aside from these higher considerations, the question now addressed to the common sense of Mankind remains thus: Has Evolution evolved Man by parental descent from the Ape? Or did the Original Creator, when it seemed good to him to produce Man upon the earth, simply create him (as he had previously created all else) a New Creation—that is, as to his *Physical* nature, *on new, but typically similar*, lines to those of prior creatures; but as to his *Spiritual* nature (Mind) upon lines *entirely new and original*, so far as known to us?

However, an appeal to Common Sense, albeit a phrase of Sir

[1] "Descent of Man," p. 156 (Murray, 1888).
[2] "Creation or Evolution," p. 103.

William Hamilton's, is not an orthodox factor in Philosophy. We must not expect its men of genius to be always consistent, nor be surprised although we cannot clearly see the logic of some of their sayings.

Goethe, perhaps the foremost thinker of his generation, found that Atheism was "not only repugnant to his feelings, but seemed to him the last development of human folly. To him the world was but the manifestation of Divine energy; he thought of it as 'the living garment of the Deity.'"[1] The late Robert Browning, Poet and Sage, wrote thus: "It is a great thing—the greatest—that a human being should have passed the probation of life, and sum up its experience in a witness to the power and love of God. . . . I see even more reason to hold by the same hope—and that by no means in ignorance of what has been advanced to the contrary."

Most thinking men will, we believe, confess that the theory of the Evolution of Man from the Ape is repugnant to their natural feelings, whatever their religious views may be. It is remarkable that while Man's form is the most beautiful in Nature, and that of several of the Animals, although far inferior, are distinguished for gracefulness, the Ape is perhaps the least so in the Animal Kingdom!

[1] "Goethe," by James Sime, p. 186.

LECTURE XXV.

Transmutation or Creation of Species—Theories and Difficulties—Unseen Agencies and Unseen Links.

The views of Agassiz have, of course, been warmly contested by those who hold the doctrine of the Transmutation of Species. They were challenged with much vigour by Professor Alfred Newton, in his Address at the meeting of the British Association in 1887, in the Biology Section. Professor Newton summarized the views of Agassiz thus: "*Louis Agassiz pinned his faith on every Species being . . . the result of a single direct act of creation.*"

Now, if this was all, Agassiz has probably some disciples even yet as against the extreme Transmutation theory.

But he goes on to add an appendix. Professor Newton continues: "When he found that physical barriers interposed (as they often do) between two or more parts of the area which the 'Species' occupied, he (Agassiz) did not hesitate to declare that a 'Species' might have been created directly in several places at sundry times, and even in vast numbers. If the same Species of fresh-water fish, for instance, was found in several rivers which had no intercommunication, it had been, he asserted, separately created in each." He proceeds further to say that Agassiz's "belief was, that there had been going on around us a series of mysterious performances, not one of which had ever been consciously witnessed by a human eye. . . . Yet the position of Professor Agassiz was perfectly logical when once his premises were admitted, . . . and it became obvious to all clear-seeing men that one of these alternatives must be adopted—either Agassiz's logical doctrine . . . or the theory of the Transmutation of Species which had been so long condemned because no reasonable explanation of its *modus operandi* was known." Prof.

Newton adds: "I have called these alternative opinions, because I believe that no third course had been suggested by any Naturalist."

Perhaps not. But to ordinary readers it will appear that a third theory is not *impossible*, namely, the pure and simple Agassiz theory as before stated, ending with the words "single direct act of creation"—that is, all the words above which are printed in italics. The "appendix," however, suggests a theory which, although to us not obviously a *reductio ad absurdum*, does certainly appear to be very improbable and quite unnecessary. But whether it is more difficult of belief than the entire theory of Transmutation, which had been so long condemned "because no reasonable explanation of its *modus operandi* was known," is beyond our present purpose. Here the reader will observe that the *modus operandi* of *both* theories has never been "witnessed by a human eye," and that of both it still remains unknown.

Let us look a little at this altered theory, which, simply stated, is this: "*Every Species is the result of a single direct act of creation.*"

It seems obvious that the difficulty of physical barriers interposing between different localities of the globe is *alike* common to all theories, including that of Transmutation.

Yet the idea that some species of Animals, Fishes, and Fowl could, in course of time, travel by degrees to their Antipodes does not seem extravagant. But, supposing this were impossible, *could Transmutation take place in these widely separated areas if there were no animals already there to transmute?* To answer Yes! does seem a *reductio ad absurdum*. As to fresh-water fishes, the salmon, for example, lives well in the ocean; and why may not *any* fish adapt itself by degrees to both salt and fresh water, as well as to Arctic and Equatorial temperatures?

Besides, are we not taught by Geologists that the Land and Water of our globe were very differently related to each other in prehistoric ages? We cannot here enter upon the disputable subject of the Distribution of the Fauna on the Earth's surface. But it has recently been discovered that the Fishes found in the Sea of Galilee are entirely different from those found in the Mediterranean and the Red Sea. This is not very surprising,

seeing that the one is fresh water and the others salt seas. But it is remarkable that the Galilean Fishes prove to be exactly the same as those now found in the great inland Lakes of Livingstonia in Central Africa! This appears to indicate that in some prehistoric age there had been means of communication between these fresh-water seas now so divergent—how destroyed, by a convulsion of Nature or otherwise, we cannot know.

Such a conclusion as this suggests is by no means a novel one, and the extraordinary depression of the Dead Sea and the general appearance of the locality seem to favour it. The surface of this Salt Sea is now far below that of any other sheet of water on the surface of the globe, being 1,300 feet below the level of the Red Sea and the Mediterranean; and it is gradually getting lower, as the evaporation is greater than the supply by the Jordan and other streams. Of course they will in time equal each other, that is, when a yet lower level is reached, because there is an ever-lessening *surface* of water exposed to evaporation, consequent on the sloping sides of its enclosing hills. This evaporation is here excessive, the heat being more intense, perhaps, than at any place, even upon the equator. Another peculiarity of the Salt Sea is its great depth as an inland lake. The water of Jordan as it leaves the Sea of Galilee is clear, but its course is extremely rapid and tortuous, and it carries down great quantities of soil and *débris* into the abyss of the Dead Sea. When we consider, in addition to this, the amount of saline deposit left by unknown centuries of evaporation, we must conclude that the *original* bottom of this sea is *very* far below any soundings now possible. Indeed soundings have become very difficult because of the extreme buoyancy arising from the great Specific Gravity of its water. From an excellent Geological Map, by Dr. Edward Hall,[1] it seems evident that from the locality of the Salt Sea to the north end of the Gulf of Akabah there is a hollow or valley which, in its whole length of upwards of 100 miles, is about six miles in width. Its surface is variously formed of sand, gravel, shingle, and marl. In some prehistoric age this probably was a great water-way, connecting the waters of the Jordan with the Red Sea. For those who have visited the

[1] "Geology and Geography of Arabia Petræa," p. 12 (Bentley, 1886).

locality it is difficult to believe in the doctrine of "Geological Uniformity," and that no Cataclysm has ever occurred on the Earth's surface.

Professor Newton goes on to decide that the Transmutation theory is established, because now there were men who had personally compared the geological formation of the Old World and the New, "who had dredged the Australian ocean and explored Amazonian forests. Out of the abundance of these observations and reflections these men delivered their verdict, and . . . its effect was crushing, . . . and the theory of the Transmutation of Species, fanciful and unreasonable as it had been thought, was . . . established."

No doubt this is very emphatic. But we must ever keep in mind that there is no authority, however high, except fact, allowable in Philosophy. Opinions, although numerous or valuable, must, we think, for a time stand aside; they cannot by their number and weight finally decide in grand arguments such as this. The great name of Agassiz, and the views of these eminent Naturalists, deserve most attentive consideration and respect; but which opinion is the right one, or whether either of them is so, remains for future discoveries to determine.

If these learned travellers have not actually "witnessed with human eye"[1] the process of Transmutation, they have evidently witnessed both Remains of ancient transformations and living examples of it in operation, or what they believed were such; and they have learned numerous other indirect facts and circumstances pointing to the same conclusion. Now, although they were men not likely to be deceived, such evidence is not absolute *Fact*, and must always contain some element of *opinion*, until some great Fossil or living example can be produced such as will convince even the doubtful. Till then, many will prefer to *wait* the progress of events rather than even question such eminent Masters in Science, or throw aside Agassiz's third course as above suggested.

The word "Creation" is referred to by some Evolutionists as unworthy of logical consideration—as outside the pale of argu-

[1] *Nature*, p. 463 (1887).

ment—as inconceivable—a mysterious operation never seen by any human eye. This may be so, but it is not very obvious to us in what respect the Evolution theory of Transmutation is more worthy of argument, seeing that no reasonable explanation of its *modus operandi* is known. Has any human eye witnessed its operation? Now it is curious to observe that this *style* of argument seems almost identical with that to which Darwinism was at first treated by the theologians. It would thus appear that neither theory should be referred to with contempt, the very last resource in a doubtful case.

Much was expected from the evidence which Fossils throw on this question. Mr. Clodd says: "The interest which the study of the erupted fire-used and water-laid rocks awakens, especially in their witness to ceaseless changes through an ever-receding past, becomes more immediate and human when the relics of ancient life-forms are examined; and when their appearance, persistence, or disappearance, their order and succession in an ever-varying, ever-ascending scale, are traced. For in them lies the record of life on the earth through measureless time; the life that was parent of all life that is." But the result has not, at least as yet, proved satisfactory. Even Mr. Clodd, a succinct exponent and advocate of Evolution, is obliged to add: "True it is, that the record is very imperfect, that the gaps remain wide and numerous, even when supplemented by fossils from different parts of the globe. But the wonder is that the blanks are not greater. . . . It is impossible that the vast number of lowest life-forms should have been preserved."[1] This is true, but by no means explains why not *one fossil of Ape-Man* has been found, while fossil remains of Animals, equally "fragile," survive.

It is evident that this question of Creation is a very difficult one to answer. Agassiz's improbable supplementary theory of single separate creations meets the difficulty, but it does not seem at all in accord with the theologians' idea of one Creative fiat confined to one locality. Far less does it accord with the obvious "Husbandry in Heaven," nor altogether with Nature's universal plan, and that completeness, simplicity, and *Oneness* by which her

[1] "The Story of Creation," p. 29 (Longmans, 1888).

works are distinguished as compared with the cumbrous works of Man.

Let us examine Man's inventions—as, for example (practically his greatest), the Steam Engine. Originally each part was constructed solely for its own individual purpose—large, heavy, costly, working very inefficiently, and altogether noisy and inelegant. Look at it now—small, concise, and efficient, each part combined most intimately with the others, so as to form together a compact and sufficient framework for the whole, and thereby economizing greatly weight, space, material, friction, and coal. And now we see this Steam Engine adapted to a thousand purposes for which it originally was unavailable—in short, one of the greatest wonders of modern times, and a triumph of Man's mechanical genius. How was this attained? Simply by gradually approaching Nature's plans, and copying her unity, symmetry, *and husbandry*, so beautifully combined. If Man's other inventions are examined, we think the same features will be found throughout—first, the "cumbrous work of man," and then gradually an approach to the simplicity and efficiency of Nature.

Then, as to Nature's work, look at the human head :—

"The dome of thought—the palace of the soul!"[1]

Within that wonderful ball are placed the organs of all the senses, as well as those of speech and mastication. Here is contained the most important of all Material things—the Brain—the seat of Reason and Centre both of thought and action—the mysterious meeting-place between Mind and Body. Canopied with a thin shell, and poised on a mere pivot, Eastern women can thereon carry half their own weight, with lithesome grace. And then its front—look at "the human face divine"!—that wonderful exponent of every human feeling and index of the brain, revealing elegance, beauty, and the *surpassing dignity of Mind*. It would surely be impossible to point to a finer specimen of Nature's Unity and *strength*, combined with the Husbandry of space.

[1] Byron, "Childe Harold."

LECTURE XXVI.

Direct and Indirect Creation — Natural Selection — Rudimentary Organs in Man — Arguments from the Form of Man.

Amongst the difficulties suggested by the theory of direct Creation are these: (1) That some animals are found on islands and in localities of the globe separated by vast continents and oceans, evidently of the same species, but of different varieties (perhaps not more than change of climate and food, with time, might account for); (2) that even in localities comparatively near to each other, and communicating by land, animals are found essentially different from each other; and (3) that in some cases, as in Australia, some classes are almost exclusively confined to one locality. There are in this distribution many facts and peculiarities "which do not admit of a satisfactory interpretation, and may not appear comprehensible."[1]

Amongst geologists there is difference of opinion as to our Earth's history in past ages; but many eminent men think they have seen traces of one or more great changes or convulsions upon its surface—convulsions so considerable as to convert land into sea, and to raise great tracts of submerged land into mountain heights. The eminent French naturalist Gaudry, here an important authority, says: "Without doubt at one time Europe was connected with Asia by uninterrupted plains now covered by sea"; and it is generally thought that the great inland Caspian Sea originally communicated with the Ocean.

Of course all theories of creation are only "guesses at truth"—at best only opinions resting upon no certain foundation, and beset with objections of various kinds. But do not such considerations suggest a somewhat probable theory of the creation of animal life on the earth?

[1] Professor Heilprin, "Distribution of Animals" (London, 1887).

Let us assume Agassiz's formula so far: Every species is the result of a direct act of creation; or, seeing that the word Species has not yet been mutually defined, read it thus:—

"*Every distinct Class of Animal is the result of a direct act of Creation.*"

We may suppose that the whole Animal Kingdom was called into existence by one direct united act both as to time and locality. The dry land being *then* one continent, or connected together by not impassable barriers, the various animals may have dispersed themselves abroad, even to the most distant localities, partly by *natural selection* as to climate and other circumstances, partly by fear of their more aggressive or natural enemies, and partly in accordance *with their adaptation for travel.* These probabilities are strengthened by the fact that the most distant localities are poorly supplied with Mammals, not only sparse in number, but poor in size, strength, and varieties. As in the great continents of Australasia, these are—like the Kangaroo—rapid travellers, and so defenceless that they could not survive in the other continents of the world where wild beasts of numerous varieties prevail.

This appears to be not only the most probable theory, but the theory which best meets all the difficulties above mentioned. That some considerable convulsion has subsequently arisen many believe to be in accord with Geological and Geographical facts. As to Man, it is not necessary to suppose that he was dispersed over the globe at the same time as the animals, because he could, by his own devices, reach even the most separated or distant shores at any subsequent time or times, in accordance with his love of improvement and adventure, which characteristics animals are entirely devoid of. We think it will be found that Animals generally frequent a comparatively limited extent of territory, and, if migratory, return to the same locality.

In leaving this branch of our inquiry, we will try to explain the difference of opinion amongst Geologists regarding the past history of our Earth. The one party, led by the high authority of Sir Charles Lyell, maintain the theory of *Uniformity*—that is, that no cataclysm or convulsion has ever occurred, other than the ordinary present forces and processes of Nature can account for

—that, in short, Nature works uniformly. More recently, however, this view has been questioned. The subject is discussed at great length by a recent writer, Mr. Howorth,[1] who confronts the theory of Uniformity with the facts of recent Geology. His argument is to show that a great cataclysm occurred at the close of the Mammoth period, and was occasioned or accompanied by a great Flood, pointed out in the traditions of almost all Races.

Professor Huxley appears to aim at reconciling the two parties. "To my mind," he says, "there appears to be no sort of theoretical antagonism between Catastrophism and Uniformitarianism; on the contrary, it is very conceivable that catastrophes may be part and parcel of uniformity." This is a perfectly logical suggestion, but without any basis of facts.

Mr. Howorth states that Captain Elliot, U.S.A. Navy, obtained a block of limestone from Santas, in Brazil, which contained a Human skull, teeth, and other bones, together with some fragments of shells. Remains of several hundred other human skeletons were found embedded in a similar calcareous tufa, less solid than the Guatemala rock. "Portions of the bones were invested with a stalactitic deposit of carbonate of lime. . . . The rock in which the skeleton was embedded consisted of fragments of shells united by a stalactitic matter, and contained nodules of carbonaceous matter." The soil over this *so-called* rock supported a growth of tall trees. We may here remind our readers of the very uncertain character of stalactite soil as evidence of age. The growth of these trees does not involve a great period of time. Part of the ancient Pompeii was similarly covered. On this subject D'Orbigny "appealed to a cataclysm involving a huge flood of water." Again, it is to the sudden rise of the Cordilleras that he attributes "the sudden movement of the sea, which invaded the continent and overwhelmed the Mastodons, the Megatheriums, and multitudes of Animals daily being discovered in the caverns and fissures of the mountains of Brazil—all the Species, in fact, which are extinct." [2]

[1] "The Mammoth and the Flood," by Henry H. Howorth, F.S.S. (Sampson Low, 1887).

[2] Ibid., chap. xii.

Dr. Lund says: "The existence of the Human race in South America goes back not only beyond the discovery of that part of the world (by Europeans), but very far back in time, probably as far back as the former geological age; for several animals seem to have disappeared from the ranks of creation since the appearance of Man in this hemisphere. The race of men who lived in the earliest times were of the same type as the men who were living there when discovered by Europeans."

There are two standard proofs, insisted upon by Evolutionists as quite unanswerable. The first is the fact of Natural Selection, and the other the remarkable fact of Rudimentary Organs in Man. But too much seems to have been made of the former. It is based chiefly upon the circumstance of the battle continually carried on by the stronger male animal against the weaker, so eventually securing a higher or select class of the animals. We have already shown that this result is not, and cannot, at least in the *Natural* or wild state, be obtained. Besides, we have seen that the less fit are not killed generally, and their progeny just mingle with those of the fittest in next mating season. This fact, therefore, which at first sight appears so very formidable, amounts to comparatively little. We fail to obtain any new or higher class or species of animal, always excepting the cases of Man's interference, which, however, Nature repudiates. Dr. Eimer says that "Natural Selection is insufficient to account for the Evolution of the Organic World, because it is essentially the rule of Chance."[1]

But the Rudimentary argument does look formidable. However, the difficulty becomes less obvious when we consider that the Mammals generally are possessed of Rudimentary Organs. Man is possessed of rudimentary mammæ, as also are the male quadrupeds. Rudimentary Organs are apparently useless to the possessor, but neither hurtful nor inconvenient, and generally are very insignificant.

Perhaps the best explanation of these apparently unnecessary organs will arise out of this consideration. Even Evolutionists, almost without exception, admit an Original Creator of the

[1] *Nature*, June, 1888, p. 123.

World, supremely powerful, wise, and prescient, and all observation reveals to us the *remarkable* Husbandry in Heaven, and the ONENESS of His work. Thus *one comprehensive* architectural or *typical* Design appears to have been laid down for Mammals generally, but admitting of adaptation or varieties of certain organs, as required to best serve the necessity and comfort and efficiency of every separate kind of Mammal—in short, the *very best, and probably the only possible, perfect general design required to suit the whole, and the circumstances of each variety.*

Man seems, in the opinion of many eminent thinkers, to have been a separate and entirely different creation, inasmuch as he was evidently destined for a vastly higher platform, and endowed with a spiritual element—Mind—*entirely new.* None of the Animals were capable of any improvement whatever, physically or instinctively, beyond their own Natural sphere, either of themselves, or of the world around them. But Man was destined to rule them all, and to mentally improve himself and all around him; to discover and invent, and to use all the elements of Nature in improving the world, and the condition and well-being of his fellows.

But no new architectural Design or physical form was needed for Man, seeing he was to be a Mammal inhabiting the earth, and the *best type of such was already prepared;* therefore nothing *more suitable* was possible other than the same great comprehensive Design already revealed; for Nature never wastes power, but wisely husbands it. Some critics may think this sentence questionable, but is it not true and logical; for surely nothing which is perfect can be improved? Man's physical form is altered from the frame of the Mammals so far only, and no farther, than his different destiny and work on earth required, so as to be *perfectly* fitted for his usefulness and happiness. If, for example, he should be possessed of two molar teeth more than he uses, these will be rudimentary, *scarcely perceptible,* and perhaps aid in improving the contour and beauty of his face. In like manner the rudimentary toe or hoof of the Horse, is evidently strengthening to the limb, and its removal would not improve its symmetry. Professor Huxley evidently puts no value upon this question of rudimentary organs. He with great candour

wrote: "Such cases as the existence of lateral rudiments of toes, in the foot of a horse, place us in a dilemma. For either these rudiments are of no use to the animals, in which case . . . they surely ought to have disappeared, or they are of some use to the animal, in which case they are of no use as argument against Teleology [Final Causes]." [1] Be this as it may, in such cases as we have above given, these facts can scarcely be called useless. The Rudimentary objection is indeed, when looked at in this light, reduced to little more than a name.

Although man is ever reminded of his physical resemblance to the lower animal-creation, he is not to be considered as merely a superior specimen of these; for, in *no degree* whatever is he a blood relation by paternal Descent. However, being in fact a Mammal, he is generally called an animal; but, as Shakespeare has it, he is indeed of these "*the paragon*," and should never forget that he stands upon a higher and different platform, and is evidently intended for a higher destiny.

Man is born naked, the animals are born clothed with hair. The little hair Man possesses is one of his most graceful ornaments, and we think it is absurd to call it Rudimentary. The clothing he wears is his own manufacture, made from the spoils of the chase, or the growth of the field. The resemblance he bears to the Ape is somewhat fanciful, and in some respects the word *contrast* would be applicable.

Evolution as a theory tends to lower Human nature, and detracts from the dignity of Man's position in the Universe, by insisting upon his relation by descent with the lower Animals. Yet Darwin, Comte, and others of its advocates, preach a coming time when not Man but *Humanity* is to reach a more exalted position. Shakespeare, however, held an ennobling view of his present standing: "What a piece of work is Man! How noble in Reason! how infinite in faculties! in form and moving how express and admirable! in action how like an angel! in apprehension how like a god! the beauty of the world! the paragon of animals!" [2] To Man belongs this world, and of all that it contains he is the sovereign lord and master—and how

[1] "Life and Letters of Charles Darwin," vol. iii. p. 119 (Murray, 1887).

[2] "Hamlet," act ii. sc. 2.

great is his birthright! "This goodly frame the earth—this most excellent canopy the air—this brave o'erhanging firmament—this majestic roof fretted with golden fire." Here Man's relationship is referred to the Divine rather than to animal parentage. Certainly such a view is very much more ennobling and elevating to contemplate, and one to be cherished in view of Man's great future destiny. For is he not immortal? heir of a state compared to which the present life can only be conceived of as a mere child's training-school! A higher state of existence remains for man, not indeed for a future "Humanity"; but for *us*, the present men individually. *If only for a future Humanity—this "Good Time" coming—of what avail to us and all the thousands of millions of the human race who are now in their graves?* Tennyson said—

> "Be near *me* when I fade away,
> To point the term of human strife,
> And on the low dark verge of life
> *The twilight of eternal day.*" [1]

Professor Henry Drummond has told us of a colony of "Primeval Men" discovered in Central Africa, hidden away in the endless forests in terror of one another, and of their common foes the slave-dealers. Here in small native villages they dwell in virgin simplicity, "without clothes (?), without civilization, learning, or religion; thoughtless, careless, and contented. These men apparently happy, have practically no wants. One stick pointed makes him a spear, two sticks rubbed together make him a fire, fifty sticks tied together make him a house; the bark he peels from them makes his clothes; the fruits which hang on them form his food. . . . His entire earthly possessions are buried with him. . . . His pipe, his rough knife, a mud-bowl, and last his bow and arrows, the bowstring cut through the middle." [2]

Here the reader will observe a perfect contrast with the mere animal. He does not live absolutely naked, but is a tailor, a fire-maker; he is not a *mere* builder like the beaver, but constructs a house by tying sticks together, in a *mechanical* operation

[1] "In Memoriam," stanza l.

[2] "Tropical Africa" (Hodder and Stoughton, 1888).

involving some *kind of tool*, and no doubt by using his knife. He is consequently a Tool-maker. How he procures the metal to make it is not stated. He is also a potter, and a maker of bows and arrows, and evidently could cook his food. No doubt his civilization is of the lowest type, almost, for he has been kept down by two potent causes—War with his fellow tribes and the slave-dealers. These shut him up in his hiding-place; but remove these causes, and these so-miscalled primeval men will gradually advance in the scale of improvement which the mere animal can never do. That he has some belief in Immortality is indicated by his burial ceremonials. He is possessed of Language, and therefore of Reason, and probably has some kind of religious idea.

If Conscience is not one of the Faculties of Mind, and is independent of the Will, it may be asked on what basis does it stand as a judge of conduct? The only answer seems to be, that this basis must be *inherent* in Mind itself—in every human mind. Hence Hamlet well said:

"Thus Conscience does make cowards *of us all.*"

Every Savage has some idea of Right and Wrong—of right it may be very faint, but of wrong strong in the inverse proportion of his amount of civilization, and hence his intense spirit of revenge. Thus the Moral Law is embedded in his constitution, although he be ignorant of the Decalogue as such. Hence it is that every Savage people yet discovered religiously worships some god or gods — our "First Commandment." Generally so very overpowering is this religious feeling, or superstition, that he will sacrifice his all, and even lacerate his own flesh. The other "Commandments" he will observe very imperfectly, but still they will exercise some restraint upon his acts in relation to his fellow men.

The only exception to this religious (superstitious) feeling seems to be this newly discovered tribe in Central Africa. Perhaps the altogether exceptional state of siege they seem to suffer may have destroyed, or nearly destroyed, the tendencies of their human nature. We are all indebted to Professor Drummond for their discovery.

On several of these points above discussed thinkers are generally agreed, while on others the question of Natural Selection leads to various differences. Thus one writer says : " It is apparent that there are limitations to the power of Selection, in regard to the effects that are to be attributed to it. . . . It will not do in scientific reasoning to ignore the limitations to which all experience and observation point with unerring certainty, so far as experience and observation furnish us with facts. . . . There is an impassable barrier which Nature never crosses, an invincible division between the different Species of animals. We must conclude with all the scope and power that can be given to Natural Selection, that Nature has not developed a higher and differently organized animal out of a lower and inferior type." [1]

Even Dr. Darwin, speaking of Natural Selection, says, with most commendable candour : " But how far the present condition of living beings is due to that cause ; how far, on the other hand, the action of Natural Selection has been modified and checked by other Natural Laws, by the unalterability of types, by atavism, &c. : how many types of life originally came into being, and whether they arose simultaneously or successively—these and other similar questions remain unsolved, even admitting the theory of Natural Selection."

[1] " Creation or Evolution," pp. 91–92.

LECTURE XXVII.

First Ideas of Selection—Darwin—Intimations of Immortality—Variability in Nature—Its Limits.

The theory of Evolution by Natural Selection, first made familiar to the general public in the works of Dr. Darwin, was never claimed by him as exclusively his own. The honour of its enunciation is shared by Mr. R. A. Wallace, to whom the idea independently occurred, and who wrote an Essay "On the Tendency of Varieties to depart indefinitely from the Original Type." Dr. Darwin willingly acknowledged his claim, and even recognized that Mr. Patrick Matthew, of Perthshire, had anticipated the idea in his work on Naval Timber of an older date (1831). But, indeed, Evolution had been suggested by Lamarck, and still earlier by Buffon (1707).

"I perceived," says Mr. Darwin, "that Selection was the keystone of Man's success in making useful races of Animals and plants. But how Selection could be applied to organisms, living in a state of Nature, remained for some time a mystery to me. In October, 1838, being well prepared to appreciate the struggle for existence from long-continued observation of the habits of animals and plants, it at once struck me that under . . . circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The result of this would be the formation of new Species. But at that time I overlooked one problem of great importance. . . . This is the tendency in organic beings, descended from the same stock, to diverge in character as they become modified. That they have diverged greatly, is obvious from the manner in which species of all kinds can be classed under genera, genera under families, families under sub-orders, and so forth. The solution, as I believe, is that the modified offspring of all dominant and increasing forms tend to become

adapted to many and highly diversified places in the economy of Nature."

This great proposition will be admitted generally, if the meaning is strictly limited to its own Sphere; but if the words "*highly diversified places in the economy of Nature*" be elastic enough to include development, say, from the Mammal to the Man, *i.e.*, from the NATURAL to the UNIVERSAL or spiritual sphere, then it is *clearly untrue*, because it eliminates Mind from the question; and we have seen that Mind is the Man. This we believe is already *proved*, and we need not here repeat the *demonstration*.

Darwin only published his discovery in November, 1859, under the now famous title of "The Origin of Species,"[1] a work which has had a very large circulation, and been translated into nearly all the languages of Europe. It at once created a great sensation; multitudes of replies and criticisms on both sides of the question followed, and the controversy still continues. His "Descent of Man" followed some years afterwards (in 1871). It is not to be wondered at that views so striking and original were at first hastily and somewhat unfairly treated by several able writers and speakers; but he maintained his own opinions with considerable dignity, and was so fortunate as to be supported by able and very friendly criticism in the press, very unusual with theories so new. It appears from his Letters[2] recently published that he felt both friendly and unfriendly reviews of his books somewhat keenly, though he met them quietly. This can scarcely be affirmed of some of his followers, who put forward opinions much more positive and still more advanced, and have occasionally assumed somewhat less patient and candid attitudes towards their opponents.

Darwin was evidently a careful thinker, for he pondered over his discovery for more than twenty years before publishing. His Life, now before the public, reveals him as a cautious searcher after Truth, and by no means a controversialist. It seems evident that this theory of his regarding Evolution by natural selection was the study of his life-time, and so engrossed him

[1] John Murray, London.

[2] "Life and Letters of Charles Darwin," by F. Darwin (Murray, 1887).

that, to use his own words, his mind must have become blind to all else, as some men's eyes become colour-blind. To use the words of a friendly critic, he makes a singularly candid confession that a "very curious change came over his mind." At the age of thirty, he read Milton, Gray, Shelley and Wordsworth, and as a boy was passionately fond of Shakespeare, while in the later years of his life he could not endure Poetry, and found Shakespeare intolerably dull! So also with fine scenery—it ceased to afford him the exquisite delight which it had formerly given. He explained this "lamentable loss" of the higher æsthetic tastes by the circumstance that his "mind had become a kind of machine for grinding Laws out of a large collection of Fact;" but he could not conceive how this should have caused the atrophy of that part of the brain on which the higher tastes depend.

Thus he analyses his own mental powers with remarkable impartiality and modesty. His power to follow a purely abstract train of thought was limited, but he thought he was superior to ordinary men in noticing facts which easily escape attention. Of this characteristic of his mind, we think no one who reads his two large volumes on "The Variation of Animals and Plants"[1] will doubt, although they will probably, even after a very laborious study, not admit all his conclusions; for to ordinary readers the evidences on which they are based are generally of an unusually conflicting and uncertain character.

The following quotations are made from the "Autobiography," dated 1876: "The more we know of the fixed Laws of Nature, the more incredible do miracles become"—"I gradually came to disbelieve in Christianity as a Divine revelation"—"I was led—although I do not think that the religious sentiment was ever strongly developed in me—to the firm conviction of the existence of God and the immortality of the soul."

The following, from one of his letters to Mr. Graham, gives a remarkable insight into the state of his mind as regards its own development. He writes that his inward conviction was that the universe is not the result of Chance; but then the horrid doubt arises, whether the convictions of a Man's Mind which have been developed from the Minds of the lower Animals are of any

[1] John Murray, London, 1868.

value, or trustworthy at all, and he asks despairingly if any one would trust in the convictions of a Monkey's Mind!

The following expresses his opinion about Immortality: "With respect to immortality nothing shows me (so clearly) how strong and almost intuitive a belief it is, as the consideration of the view now held by most physicists—namely, that the Sun with all the planets will at one time grow too cold for life, unless indeed some great body dashes into the Sun and thus gives it fresh life. Believing as I do, that man *in the distant future* will be a far more perfect creature than he now is, *it is an intolerable thought that he and all other sentient beings are doomed to complete annihilation after such long-continued slow progress.* To those who fully admit the immortality of the soul, the destruction of our world will not appear so dreadful."

In 1879 he states that he had never in his most extreme fluctuations been an Atheist in the sense of denying the existence of God. To a German student he wrote, "For myself I do not believe that there ever has been any revelation. As to a future life, *every man must judge for himself between conflicting vague probabilities.*" This at least is an evidence of the candid and *tolerant* spirit of the man.

After his five years' voyage with the *Beagle* Exploring Expedition he settled in London. His Life relates an amusing account of a dinner at his brother's, at which Carlyle, Babbage, and Lyell were present. The latter two liked to talk, but Carlyle silenced every one by haranguing during the whole dinner on the advantages of Silence. After dinner, Babbage, no doubt sarcastically, thanked Carlyle for his interesting lecture on the advantages of Silence! Dr. Darwin evidently was not in need of it, but probably Carlyle thought silence and fuller consideration desirable, both for himself and the two others, before committing themselves to, or propagating the new theories then creating general controversy. Carlyle, one of the most profound thinkers of his day, was not great as a Scientist, although eminently so as a Philosopher, and in his eyes silence was here evidently golden. The anecdote is very characteristic of the man.

Darwin's cherished views on the great subject of his life-study were given without dogmatism. He did not thrust them forward

hastily, nor hold them up as absolute certainties, to be accepted without question. But to his own mind they were satisfactory so far as the evidence led; although he considered it incomplete.

Variation seems to be an inherent characteristic of Matter, for there are no two objects in the world exactly alike, if minutely examined. No two stones are so, and the fact becomes still more obvious where Life exists.[1] It is seen in the Vegetable world, for no two leaves are perfectly similar. It is more apparent in the Animal world, and continues to be more and more so as we rise in the scale of being. Thus it is more obvious in fishes than in molluscs, more in birds than in fishes, more in the mammals than in birds, and finally much more obvious in Man than in the irrational creatures. The two Dromios are a creation of Shakespeare, but they are very rare in Nature.

Not only is this so, but, as Dr. Darwin says, "there is a tendency in organic beings to diverge more and more from the original stock" in the course of time. If this divergence were tending towards the unknown or the indefinite, and not in each case *limited* within certain lines, it is obvious that a time would come in the extreme future when all distinctions of Species would cease, and not only so, but distinctions of all kinds would disappear!

It thus seems evident that such divergence cannot be indefinite, but must be restrained within fixed limits. Species is too uncertain a word to use here; but such popular divisions as Molluscs, Fishes, Birds, and Mammals, are distinctions *so obvious* that many men cannot, without farther proof, believe that any one of these classes *ever diverges* into another. As to Man, such an idea seems simply *impossible.*

Dr. Darwin writes: "Whether or not the amount of Variation in any particular direction is fixed, the tendency to general variability seems unlimited. . . . Cattle, sheep, and pigs, have been domesticated, and have varied from the remotest period; . . . within quite recent times been improved in an *unparalleled degree*, and this implies continued variability of structure."[2]

[1] Darwin's "Variation of Animals and Plants," vol. ii. p. 251.

[2] Ibid., vol. ii. pp. 416–417.

We observe here that the Cattle, Sheep, and Pigs, have *not* become anything but Cattle, Sheep, and Pigs (greatly changed certainly, by domestication), and the alteration may go on, but *limited always within the lines* of Cattle, Sheep, and Pigs. The meaning of his words, "and this implies continued variability of *Structure*," is, therefore, to us, far from being clear. Evidently this alteration has not really changed the *structure* of these domestic animals. We may doubtless assume that Dr. Darwin did not mean that, for example, a Salmon could by any prolonged period of "*improvement*" become varied into an Eagle, or that a Pigeon could ever become a Pig!—for he immediately adds, "as Mr. Wallace has recently remarked, with much force and truth, there must be, both with Natural and Domestic productions, a *limit* to change in certain directions."

In illustration of our meaning as to there being in Nature no proved permanent improvement in Instinct, nor Transmutation of one animal's frame into that of another of a different Class, we will take the case of the Caterpillar. A gross-feeding, ugly Worm, with sixteen feet, is in due time metamorphosed into a beautiful, airy Butterfly with wings, floating in the sunshine, and feeding on the nectar of the flowers. Here we appear to have got a creature entirely changed in form, and endowed with new and finer Instincts. But the change is merely temporary and individual; the next generation of this Butterfly will be a mere Caterpillar, without one particle of *improvement* on its parent, so that the Caterpillar of olden time is *exactly the same as that of to-day*. No permanent improvement whatever has taken place. There is no "Evolution" in the case.

Variation in Animal Life is of two kinds—that of Nature by limited Natural Selection alone; and that of Domestication, also natural and limited, but greatly regulated and promoted by Man. In the great question of Evolution it is evident that the latter factor, Man, must be excluded, inasmuch as, prior to the Evolution of Man from the Ape, domestication did not exist. Consequently the "*improvement*" of Animals so much insisted upon as aided by training, ought to be given up by all believers in Unlimited Evolution, and all examples of so-called improvement referred to wild Animals only. Dr. Darwin's illustrations and

facts are, necessarily, chiefly on Domesticated Animals; while, if they had been on Natural Animals, they would no doubt have been more simple and satisfactory. As we have already stated, the whole Animal world is in slavery, being subject to Man's sway, to be moulded by him at will, although always within the limits of Natural Law.

In Darwin's opinion, "the long-continued accumulation of beneficial variations will infallibly lead to structures as diversified, as beautifully adapted for various purposes, and as excellently co-ordinated, as we see in the animals and plants all around us."[1] This, in a limited sense, and if all *idea* of Æsthetic Beauty, and the other Mental attributes are strictly excluded may be allowed.

But in the same paragraph he writes: "In accordance with the views maintained by me in this work and elsewhere, not only the various domestic races, but the most distinct genera and orders *within the same great Class*—for instance, Whales, Mice, Birds, and Fishes—are all the descendants of one common progenitor" [This is certainly "*improvement in an unparalleled degree*"]; "and we must admit that the whole vast amount of difference between these forms of life has primarily arisen from simple Variability . . . But our amazement ought to be lessened when we reflect that beings, almost infinite in number, during an almost infinite lapse of time, have often had their whole organization rendered in some degree plastic" [Is this quite clearly established?], "and that each slight modification of structure, which was in any way beneficial under excessively complex conditions of life, will have been preserved, whilst each which was in any way injurious will have been rigorously destroyed."

We have thus made a great step in advance. But, of course, this is largely only matter of Opinion, remaining to be proved; for the opinions even of the greatest men are *not always consistent with themselves*. But it is well to note that, here at least, Darwin confines the effects of Variation within the limits, if not of a Species, yet of one "*Class*" of the Animal Kingdom—although his idea of a *Class* is certainly very extensive. Any suggestion of a Limit at all, however extensive, would be a most important

[1] "The Variation of Animals and Plants," p. 430.

admission. On this subject we may make a quotation from Mr. Huxley, as follows: "Whales do *not* vary in the direction of producing feathers, nor Birds in the direction of producing whalebone."[1]

Darwin is not a believer in Design. Now, although Variability works out, within certain lines, great improvements or changes, the work is by no means restricted to merely physical effects, such as improving the breed and developing the Animal world generally. It also aids Man in turning the special powers and Instinct-qualities of the various animals into elements of usefulness and help, in his great task of improving the world around him—yet always within fixed limits. Variability is thus aiding Man in his work of cultivating the soil, and generally of promoting the civilization of his race.

Still further, if we carefully consider this subject, we shall see that Variability greatly promotes the beauty of Nature in every direction, and in a thousand ways, so æsthetically educating the eye and the mind of Man. Does not this manifold work give us further evidence of Design, in a way which mere Evolution by Natural Selection would fail to do, unless indeed by rare *Chance*, in which Darwin has no belief?

The Life from which we have quoted was edited by his son, Mr. Francis Darwin, in a singularly able and impartial manner, and met with deserved commendations from all parties.

In relation to the subject of Variation, we quote from the opening address of the President of Section D (Biology) of the British Association meeting at Bath, September, 1888, the following sentences. Mr. Thiselton-Dyer, after referring to Lamarck's vague theory of Tendency, said: "The fact has been admitted by Darwin himself that Variation is not illimitable. No one, in fact, has ever contended that any type can be reached from any point. For example, as Weissmann put it, 'Under the most favourable circumstances, a Bird can never be transformed into a Mammal.' It is deduced from this that variation takes place in a fixed direction only, and this is assumed to be due to an innate law of development. But the introduction of any such

[1] *Contemporary Review*, June, 1888, p. 849.

directive agency is superfluous, because the limitation of variability is a necessary consequence of the physical constitution of the varying organism." This is a specimen of the differences which exist among the advocates of the Evolution theory.

Weissmann, like Lamarck, has pointed out the remarkable persistence of plants and animals in Egypt. At Kew are specimens of plants from Egyptian tombs, said to be four thousand years old. He explains the remarkable fact that organisms may after thousands of years reproduce themselves unchanged, by the principle of the *persistence* of the germ-plasm. This subject we cannot pursue; but it is one of vast importance, and strongly indicates a great Natural Law throughout—to wit, that "Like produces Like."

"Some famous learned men," wrote Matthew Claudius (A.D. 1740), "have thought out another plan of nature. Species, say they, are only resting-steps from the lower to the higher and more developed; so that an oyster becomes a crocodile, . . . and the lower animals become at last men and angels. This is put forward cleverly enough, only that the chief argument against it is—it is not true. . . . Nature never alters the same species, or makes it more perfect."[1] The Autumn Spider spins its web among the Romans in the same mathematical form, with peripheries, radius, and centre, and as Ælian remarked, does its work without Euclid. Moreover, it sits in ambush in the centre of its web now, as it did then, two thousand years ago.

Darwinism, as it has been insisted upon by its extreme advocates as universal and unlimited in its operation, has not, we think, been advancing in public estimation of late years, although the publication of Darwin's "Life" stimulated popular interest in the subject. *Evolution under limitation has no doubt been generally accepted*, but not that extreme view of it which some few recent writers seem to advocate. Max Müller, a well-known authority, writes: "Though everything I have written has been in support of the theory of Evolution, I have had to protest again and again against Darwin's interpretation of that theory."[2] Again: "No

[1] "Homme de Lettres à Wandebeck."

[2] "Science of Thought," p. 89.

student of the Science of Language can be anything but an evolutionist, for wherever he looks he sees nothing but evolution going on all around him. . . . I believe I am correct in stating that at present the most competent judges consider the descent of man from any other kind of animal '*Not Proven.*'"[1] In his "Expression of the Emotions," p. 93, Darwin himself wrote: "I recognize the insufficiency of my own hypothesis"; on which Max Müller remarks: "We cannot sufficiently honour the noble spirit that dictated these words, particularly if we compare it with the manner of other philosophers, who seem to consider the suggestion that they could ever grow wiser as the greatest insult. Love of truth is better than even the full possession of truth,—and Dr. Darwin knew it."[2]

It was not possible for a careful reader of Darwin's "Life" to lay it down without some feeling of admiration for the candour of the man, and sadness at his state of mind. Perhaps there is in print no other such example of simplicity, honesty, and open-mindedness as this "Life" reveals. He was an original genius with grand aspirations for the future of Man, yet all rendered *absolutely futile* by his own Theories; for he confessed as his final belief that he and all other sentient beings are inevitably doomed to complete annihilation. "It is," he said, "an intolerable thought," but he seemed willingly to await his approaching fate with almost cheerful hopelessness! Yet in this hopelessness he did not sit down in the spirit of a martyr's resignation, nor in the proud stoical spirit of the wild Indian under torture, nor with the confidence of the Turk fighting for his faith in view of immediate admittance into Paradise, nor even as if submitting under protest to the unjust sentence of a tyrannical judge. None of these cases illustrate his state of mind; his submission was rather an apparent acquiescence in the absolute necessity and inevitable progress of an Evolution *inexorable, reasonless, and dumb.* As he grew older, he thought "Agnostic" would be the more correct description of his state, but, whatever the name, the bane of his condition was a condition of mind apparently devoid of *Hope.*

[1] "Science of Thought," p. xi.

[2] Ibid., p. 298.

"In these sad words I took farewell:
Like echoes in sepulchral halls,
As drop by drop the water falls
In vaults and catacombs they fell;

The high Muse answered, 'Wherefore grieve
Thy brethren with a fruitless tear?
Abide a little longer here,
And thou shalt take a nobler leave.'"[1]

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[1] Tennyson's "In Memoriam," lviii.

LECTURE XXVIII.

THE PERFECTIBILITY OF MAN: MR. LAURENCE OLIPHANT—A NEGATIVE CREED: MR. SAMUEL LAING—AGNOSTICISM: PROFESSOR HUXLEY.

THERE is an idea prevalent amongst modern Philosophers that an era is approaching when men shall attain to a condition of perfection, or one vastly higher than their present state. Amongst many other writers, Comte, Charles Darwin, and certain theologians represent different phases of this belief; but a new apostle of yet another phase has recently announced his views on the subject in a work recently published. This book expounds a system of Scientific Religion remarkable for the mystical nature of its theory, and the able manner in which it is written. Its teaching is so occult, imaginative, and strange that, but for the well-known character of its Author,[1] it would probably have passed unnoticed. It is extremely difficult to give a fair and concise description of Mr. Oliphant's opinions, which, indeed, are so ambitious and far-reaching as almost to form a new System of the Universe. The main ideas are the *oneness* of Mind and Matter, and the consequent eternity of the latter; the bi-sexual nature of Deity; an intimate relation with the unseen world by the Initiated; and a mystical vital automatic interaction between the individual living and the dead. Hence Theology and Science are both blind guides; and Natural Reason is insufficient as a guide to Divine truth, while both the theologian and the scientist are "intolerant bigots." He does not give his opinions as mere theoretical assertions, but as *revelations* to himself by an Inspiration, which all true men can attain to by long training and self-denial. Those so "Inspired" are a kind of initiated Illuminati, but in no sense form an association, for each man is con-

[1] "Scientific Religion," by Laurence Oliphant, 2nd edit. (Blackwood, 1888).

scientiously and personally bound to act upon his own revelations, and is in no way whatever responsible to others, no matter how conflicting their different revelations may be.

This seems a most inconsistent and presumptuous claim, but Mr. Oliphant explains that the "Angels," or powers of the unseen world, who act upon the Human Mind, are of various kinds—false as well as true, unwise as well as wise, and the result of these communications are farther evil or good in proportion as they are influenced by the personal impurity or purity of the human medium.

It seems probable that the views of Swedenborg and Jacob Boehm have influenced the writer, and the later theory of Hypnotism (the dangers of which he exposes) appear to have suggested or confirmed his ideas.

Let us submit these to the test of Logic. We have seen that the evidence of the Senses is one of the four kinds of Evidence we have of Truth, and, except by one class of Philosophers, it is generally accepted. By virtually setting it aside, the new theory shows itself to be illogical, and contradictory of all experience, and what is illogical we must hold to be untrue. The good faith and singularly honest convictions of this eloquent writer are, however, self-evident. He treats the Bible revelation, as well as all other revelations alike, with a certain respect, but completely turns the argument of the theologian by a new theory of Inspiration, holding that all such written revelations are either coloured by the mind of the prophet, or are not to be read in their apparent meaning, but by a profound *hidden* meaning, intelligible to the Illuminated! Altogether this appears very fanciful; the work of a man of genius, but evidently built upon no solid foundation.

An explanation of what is described as a Negative Creed has recently been published. Its author informs us that he has drawn it up by special request.

Mr. Samuel Laing, certainly an experienced authority, gives the following as the "Eight Articles of the Church of No Belief" (Agnosticism):—

"*Article 1.*—That the subjects which Positive creeds profess to

define are, for the most part, unknowable—that is, beyond the scope of human reason or conception."

1. Some of them may be found to be to us unknowable, but none of them is beyond the scope of Human Reason to conceive or think of, and to form the subject of ratiocination of Minds with "thoughts that wander through Eternity."

"*II.*—That Darwinism—or, in other words, Evolution—by known or knowable natural laws affords the true explanation of all that (apart from Revelation) we do or can know respecting this inscrutable First Cause, its attributes and relations to man, and such mysteries as birth, life, and immortality."

2. (Of course Mr. Laing does not mean that Evolution is "this inscrutable First Cause," but that THE First Cause is inscrutable.) This proposition may be true, but only in a limited extent, and cannot be accepted any more than the statements of Revelation, except on evidence. Both must be held as mere affirmations. Besides, some of Nature's attributes are self-revealed, while Immortality may be said to be affirmed by universal assent.

"*III.*—I have said 'apart from Revelation,' for a revelation, attested by prophecies and miracles, is a conceivable proposition, and might teach us things which, without it, we could never know. But it is a question of evidence, and whereas every fair-minded man must admit that it ought to be extremely strong and almost irresistible, we find it to be extremely weak and wholly insufficient."

3. This may be admitted, except the last line, which some question, and it remains matter of mere opinion.

"*IV.*—It is insufficient, because it rests solely on the assumed inspiration of the Bible—a theory which breaks down when tested by the ordinary rules of criticism, and examined impartially by the light of modern knowledge, unbiassed by any violent prepossession in its favour from tradition and authority."

4. The assumed *inspiration* may so break down, but the Bible itself may still prove *as reliable as History or as any other ancient book*, if examined impartially by the light of modern knowledge, unbiassed by any "violent prepossession" on *either side*.

"*V.*—The theory of Revelation breaks down, because an inspired revelation cannot contain falsehoods, and many of the statements in the Bible are demonstrably untrue, generally as regards the facts of the universe, and specially as regards the origin of man."

5. Apart from inspiration, a *true* revelation attested by prophecies and miracles is admitted to be a conceivable proposition, in so far as containing nothing contradictory of human Reason, and it cannot contain *falsehoods*. Its statements form ground for proof or refutation. If its miracles are admitted, they must have traversed some law of Nature, and the *Natural* facts of the Universe. It must be admitted that the miracle of the *first* creation of Man is *not* logically impossible, nor demonstrably untrue.

"*VI.*—Thus far the Articles of the Negative Creed have been purely negative, and I believe that all who are called Agnostics would agree with them. There are, however, certain positive articles which are generally, though perhaps not universally, held. For instance, the denial of Atheism, and of a purely mechanical Materialism."

6. This may be so.

"*VII.*—Morals and Religion are products of Evolution."

7. This is a mere affirmation. With at least as much reason it might be said that "Morals and Religions are not products of Evolution." Indeed it has been held by some that Civilization itself is the product of Morals and Religion, or necessarily coexistent therewith; and theologians hold that Morals and Religion are the products of Revelation.

"*VIII.*—Polarity is the great underlying law of all knowable phenomena, whether of the inorganic or organic universe, or of the spiritual world of conscience, morals, free will, and determinism."

8. This is a somewhat new doctrine, and may prove to be true so far as the Physical world is concerned. It is not obviously true in the spiritual world, at least, so far as regards Conscience, Morals, and Free Will. Each of us can by introspection test the truth of this assertion.

So that this Creed, like other Creeds, is based largely upon affirmation, and must remain "Opinions." But the world is

indebted to Mr. Laing for reducing it to a definite form, which at last enables us to judge of its credibility. We have already referred to his new theory of Polarity.

A still more—indeed our most—eminent Evolutionist, Professor Huxley, has favoured us[1] with an account of his own mental experiences, and with a definition of an Agnostic, a name of which he was the original author. After reaching intellectual maturity, he says, he was quite sure that he had not "solved the problem of existence, and had a pretty strong conviction that the problem was insoluble." Agnosticism is not a creed, but a method. "Every man should be able to give a reason for the faith that is in him; it is the great principle of Descartes; it is the fundamental axiom of modern science. . . . Positively, the principle may be expressed—In matters of the intellect follow your reason as far as it will take you, without regard to any other consideration."

If you tell a true Agnostic "that you had discovered that two and two make five, he would *patiently* ask you to state your reasons for that conviction, and express his readiness to agree with you if he found them satisfactory." We fear such magnanimous Agnostics are scarce; for in our investigations we have frequently found them impatient listeners to opposing arguments. If they are told of our conviction that the world was at the first not Evolved, but Created by the great Original Power (whose existence very few of them will deny), we have seen no *readiness* to consider this conviction of ours. Perhaps they set it aside, with some indication that the idea is beneath their serious consideration. And yet such conviction is *at least* quite as possibly true as that two and two make five. Professor Huxley, however, seems free of this imperiousness. Indeed he candidly adds: "I am deeply conscious how far I myself fall short of this ideal."

Professor Huxley may be regarded as the leading thinker amongst Evolutionists, and a very wise leader he is, carefully avoiding illogical dilemmas such as the ordinary writers on Evolution generally incur. This he seems to do by repudiating Materialism, and stopping short when in face of the Insoluble, apparently acquiescing in our entire ignorance of cause and effect.

[1] In the *Nineteenth Century*.

Nor does he sneer at his opponents. "I have," he says, "been seriously perplexed to know how the religious feeling which is the essential base of conduct can be kept up without the use of the Bible. The Pagan moralists lack life and colour, and even the noble stoic, Marcus Aurelius, is too high and refined for an ordinary child." In the course of an article in another connection, Professor Huxley wrote that the Materialist's position that there is "nothing in the world but Matter, force, and necessity, is as utterly devoid of justification as the most baseless of theological dogmas."[1]

Lamartine wrote of God:—

> "Space is His mansion;
> Eternity His age; day is His glance;
> The world His image. 'Neath His shadowy hand
> The universe subsists."

Sir William Thomson said, "It is impossible to conceive either the beginning or the continuance of Life without an over-ruling creative power."[2] Speaking of the Hebrew Scriptures, Sir William Jones, the eminent Sanscrit scholar, said that, independently of its origin, "it contains more sublimity, purer morality, more important history, and finer strains of eloquence than can be collected from all other books whatever." Even Heine, perhaps the most defiantly irreligious of poets, "notwithstanding all his repudiations, believed in a Supreme Power. His sole *credo* is very characteristic. 'I may not be over-partial to anthropomorphism, but I believe in the Glory of God.'"[3]

[1] *Fortnightly Review*, February, 1869.
[2] "Popular Lectures and Addresses," p. 350 (Macmillan, 1889).
[3] "Life of Heinrich Heine," by William Sharp, p. 205 (Walter Scott).

LECTURE XXIX.

LIMITED AND UNLIMITED EVOLUTION—THE KEYSTONE OF THE ARGUMENT: REASON AND INSTINCT — ILLUSTRATIONS — SENSE-INSTINCT IN ANIMALS.

IT must be admitted that the Evolutionists are not without numerous apparent evidences for their theories. Many of them may be trifling, separately considered, but others seem very perplexing to the honest seeker after Truth, and cannot be met unless by still stronger opposing ones. The extraordinary success of Darwinism among so many thinking men is, we suppose, to be accounted for by the sudden and prominent light which Dr. Darwin threw upon the *resemblance of Man's physical nature to that of the irrational animals*. His suggestions were so repulsive to human nature, and to theological opinions generally, that they were met by a host of hurried and illogical objections, which often tended to hinder calm discussion on both sides, and greatly aided the popularity of the new idea. Amongst the most difficult facts of the Evolutionists, to many persons, is the remarkable general resemblance of Man to the lower Animals, at least in the embryonic and earlier stages of his life, and indeed to some extent in his physical frame generally. Then follows the existence of Rudimentary parts similar to those in animals. But these questions, as also that of Variations, we have discussed elsewhere. The resemblances are numerous and important, but such only as to reveal the fact that he physically is an animal, although not "one of the animals," and that one Great Architect was the author of both.

The Evolution theory has numerous advocates in almost every field of erudition. The result has been a widespread belief in it on the part of the Scientists, but still more wide in the general field of Literature. There is something simply beautiful and easy

of belief in the idea that all visible things have grown out of a single monad or an invisible gas, and that the process of improvement is still going onwards towards indefinite perfection. Such beliefs may not be very rigidly marked out, but they have great attraction for the young mind.

But those who search deeper into the merits will discover that there are two very different classes of Evolutionists, namely, those who believe in unlimited Evolution, and those who do so in Evolution limited by natural barriers, less or more widely circumscribed. We have alluded to Haeckel, who belongs to the first ciass, and the numerous body of pure Materialists may be also included under it. The second class is much less distinctly defined, because of its members scarcely two of eminence agree as to a common platform. Even Dr. Darwin and Mr. Wallace differ somewhat. Of living men, amongst the most eminent Evolutionists are Huxley, Tyndall, Herbert Spencer, and Thomson, whose views we have already quoted. They also differ somewhat from each other, and sometimes (perhaps only apparently) from themselves. A still more numerous body of learned thinkers, such as Professor Max Müller, and others whom we need not name here, exist as Evolutionists less or more limited, but too variously so to be called a class. But this characteristic still appears evident in all, that while similar in many points, there is no *definite agreement*, amongst either the classes or the individuals.

The keystone of the great Argument still remains—the characteristics of the Human Mind and Animal Instinct, and their supposed relations.

That Mind (Reason) is absolutely different from Animal-Instinct seems to us so obvious a fact that it is surprising to see how bewildering the point has become. While all agree that there is a *difference*, we repeat that even among thinkers no decided opinion or clear perception seems to be held that they are *altogether incommensurate*. Among people generally, the young and the old alike, no more inveterate popular fallacy is entertained than this; that at least some animals possess a *glimmering* of Reason, something more than mere Instinct. No doubt the resemblance of Instinct to Reason is so great in several

cases that only careful examination of the subject in all its aspects will reveal the distinction between the true and the imitation. But time will eventually dispel this prejudice, obstinate as it certainly appears, for it is not founded upon sufficiently careful study.

Some years ago (perhaps ten or twelve) an Ape of the most advanced kind was publicly exhibited in London, apparently under somewhat fashionable patronage. Of those who visited it, many seemed to be disappointed with the reality, which no doubt was very different from the letter-press descriptions of the animal. Others were evidently somewhat disgusted with the pitiful imitation of humanity it was supposed to make—*after we know not what training*. Since then, we think that Naturalists have said less about this being one of our family progenitors—

"Look here upon this picture and on this." [1]

No matter how affectionate and likeable any pet animal may be, Reason is absent. In the most intelligent and noble specimens, Animal-Instinct can never be compared with Reason, even in the most untutored savage; for the savage is possessed of Language, the greatest of all manifest distinctions.

It has been said that animals generally have a kind of speech; but such cries as they emit are instinctive only, and possess *no element of Language*. They are mere cries of instinctive alarm, or pain, or needful sexual or parental invitations or warnings. Man, being an animal, although pre-eminent and predominant, is possessed of similar purely instinctive cries. These he emits involuntarily in cases of sudden fright, or imminent danger, entirely without intention—instinctively, without any exercise of Reason (Mind), although Mind eventually restrains them.

Dr. Darwin has said that there is this great difference between Man's actions and many of those performed by the lower animals. Man has to learn his trade by practice; a Beaver, on the other hand, can make its dam, or canal, and a bird its nest, and a spider its wonderful web, *quite as well* the first time it tries as when old and experienced.[2] Some one has said that the "workmanship"

[1] "Hamlet," act iii. sc. 4.

[2] "The Descent of Man," p. 68 (Murray, 1888).

of the young bird is not quite so good, but the method is the same *exactly*. But what is even still more remarkable, they will uniformly do so although they may never have seen the operation performed by any other. No amount of Reason would accomplish this. In many of Dr. Darwin's Anecdotes, given to show that Animals possess a measure of Reason, he seems to overlook the fact that Man is endowed with Instinct also, although far inferior to that of the Animals. In some respects, as, for instance, that of Attention as well as of the Senses generally, Animals are incomparably superior. Regarding Speech, he says: "The faculty of Speech in itself does not offer any insuperable objection to the belief that Man has been developed from some lower animal."

But, as already mentioned, a higher authority than Darwin (on this subject) holds a different opinion. Max Müller says: "Certain it is that neither language nor the power of language, nor the conditions under which alone language can exist, are to be discovered anywhere in the whole animal kingdom, except in Man. Canaries pour out a flood of unmusical melody. They cannot be taught any tune or musical harmony, except partially, and with great training, and that only by the mere instinct of Imitation. Plato declared that the origin of language was simply incomprehensible, and that words could not have been originally imposed on things, except by a superhuman power." [1]

As we have already shown, anecdotes are numerous which are supposed to illustrate in some degree the existence of Mind in various animals. But if they are carefully examined, and freed of exaggeration, they will, we think, be *all* found devoid of *Intellect*, and only instances of Instinct with a high degree of Imitation, Memory, and Cunning. That animals possess a language of their own is generally believed; but this is an exaggeration. In a recent Lecture to the members of the Edinburgh Philosophical Institution, Sir John Lubbock, a most unquestionable authority, showed this in the case of Ants—generally considered the wisest of insects.

Sir John, speaking of Wasps, described their custom of supplying the female of their young with a certain number of victims, and the male with half the number. How did she know when

[1] "Science of Thought," pp. 173–5 (Longmans, 1887).

she had made up the number of twenty-four? In the same mysterious way "the mother knew whether the eggs contained female grubs, and she supplied them accordingly." It seems obvious that Mind (or Reason) *would be useless here*, whereas Instinct can account for it all.

The question of Arithmetic is one unknown to Instinct, for it belongs to the class of Mathematics, *i.e.*, of *Universal* truths. But although an animal cannot perform the simplest operation in Addition, Multiplication, or Proportion, such as "twice two are four," yet it may possibly know a great many things or events, from 1 upwards even to 24, by the mere exercise of Memory and keenness of observation of *objects*, in both of which qualities it may greatly excel Man. Another explanation of an animal's apparent ability to count may be suggested. The mother wasp, in always supplying 24 grubs to the female of her young, may not count at all, but by pure instinct bring this food twenty-four times—one grub each time. That is, this mother instinctively makes twenty-four journeys, bringing twenty-four supplies of grub; and no doubt *all* mother wasps of this particular species will always instinctively do the same *without counting*, and be more *uniformly* correct in this number than Reason might be by counting them. We have already seen that Instinct, having no free-will or choice, must continue to do the same thing, and cannot do otherwise.

This subject is fully treated by Sir John Lubbock in his recent work.[1] In it he relates several interesting experiments to prove animal intelligence, especially in Dogs. He says: "It certainly seemed as if our dogs knew when the moment of permission had arrived, . . . but scarcely so definitely as to place the matter beyond a doubt. Moreover, dogs are so very quick in seizing any indication given them, even unintentionally, that, on the whole, the attempt was not satisfactory to my mind." Further, in relating Mr. Huggins's experiments in Arithmetic with a very intelligent dog, he says: "Now Mr. Huggins did not consciously give the dog any sign, yet so quick was the dog in seizing the slightest indication, that he was able to give the correct answer. . . . We explain the performance by supposing that he

[1] "The Senses of Animals," &c. (Kegan Paul, 1888).

reads in his master's expression when he has barked rightly: *certainly he never takes his eyes from his master's face.* . . . The observation, however, shows the great difficulty of the subject."

This corresponds with our remarks elsewhere as to Animals reading their masters' wishes, and we are pleased to find them corroborated by so high an authority. But while the Instinct-Senses are thus much keener than in Man, Instinct-Mind is blind. This really forms a leading distinction between them; for while the main characteristic of Human Reason is *Light*, that of Instinct-Mind is darkness: hence the common phrase, the "Light of Reason." Wordsworth, speaking of the Thrush, thus alludes to the *darkness* of its Instinct—

> "he sings
> As if he wished the firmament of heaven
> Should listen . . . .
> His *darkness* doth transcend our fickle light!" [1]

This affords an excellent opportunity of comparing Instinct with Reason. For let us imagine, as some suppose, that this counting proves the possession of Reason. No human nurse could so correctly count twenty-four supplies to her infant; she would constantly be making mistakes as to the number. Or if she were exactly correct, as is the wasp mother, would her daughter, when in course of time married, give the same exact *number* of supplies to her child as she had done? Certainly not, for Instinct is much more efficient than Reason in her own province. But *beyond that province Reason is supreme.* A proof of this is shown by this curious fact: "Ammophila considers one large caterpillar enough; one species of Eumenes supplies its young with five victims; one, ten; another, fifteen; and so on, even to as many as twenty-four. The number is said to be constant in each species. How, then, does the insect know when her task is fulfilled? *Not by the cell being filled;* for if some be removed, she does not replace them." [2]

Other oft-quoted instances of apparent Reason in tame animals, especially pets, are explained on the sole ground of Instinct. The explanation of all such animal acts is either that they are the

[1] "The Excursion," bk. vi. [2] "The Senses of Animals," &c., p. 282.

results of training, and of a high degree of their endowment of Imitation, or, indirectly, the desire for the preservation, comfort, and safety of the individual animal and its progeny; although this is sometimes hidden under many disguises. Instinct, however, is both blind and reasonless.

We think this subject of the superior intensity of Animal senses over those of Man is a very important one in the Darwinian controversy. It appears to have been much overlooked by naturalists. The greatest of ancient poets, Homer, seems to have seen its importance with the acumen of a philosopher, and illustrates it very clearly by introducing the well-known episode of Argus in his fabulous adventures of Ulysses.[1] The famous wanderer, returning to his home after an absence of twenty years, disguised in rags, is received at his own court with insolent neglect, and treated as a beggar by the courtiers. Neither his servant, nor his old nurse, nor his son, Telemachus, recognizes him. Even his beloved and faithful wife Penelope, while treating him with gentle kindness, knows him not. But there was one friend, and *one only*, who did—his dog Argus, now dying of old age :—

> "Thus near the gates conferring as they drew,
> Argus, the dog, his ancient master knew :
> He, not unconscious of *the voice and tread*,
> *Lifts to the sound his ear, and rears his head;*
> *He knew his lord:* he knew, and strove to meet ;
> In vain he strove to crawl and kiss his feet ;
> Yet (all he could) *his tail, his ear, his eyes,*
> *Salute his master, and confess his joys.*"

But the master failed to recognize his old and faithful friend :—

> "What noble beast in this abandon'd state
> Lies here all helpless at Ulysses' gate?
> His bulk and beauty speak no vulgar praise ;
> If as he seems he was in better days,
> Some care his age deserves ; or was he prized
> For worthless beauty? therefore now despised ;

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[1] "The Odyssey," bk. xvii., Pope's translation.

Such dogs and men there are, mere things of state ;
And always cherish'd by their friends the great. . . .
Love fix'd it certain, that whatever day
Makes man a slave, takes half his worth away. . . .
This said, the honest herdsman strode before ;
The musing monarch pauses at the door ;
The dog, whom Fate had granted to behold
His lord when twenty tedious years had roll'd,
Takes a last look, and having seen him, dies ;
So closed for ever faithful Argus' eyes ! "

Under the head of "Reason in Ants," Mr. Beet relates how some of these insects "were crossing a watercourse, along a small branch not thicker than a goose-quill. They widened this natural bridge to three times its width, by a number of ants clinging to it and to each other on each side, over which the column passed three or four deep ; whereas, excepting for this expedient, they would have had to pass over in single file, and treble the time would have been consumed." [1]

"A gentleman residing in Gosport was, when visiting Portsmouth, usually accompanied by his dog in the ferry-boat. One day it so happened that the dog lost his master somewhere in Portsmouth, and surmising that he had recrossed the water for Gosport, sped his way to the house of a bookseller, and intimated by every possible means his misfortune. 'What !' exclaimed the shopman, 'you have lost your master, have you ? Well, here is a penny for your fare across the water.' The dog snatched up the coin, ran directly to Point Beach, dropped the penny into the hand of the waterman, and was ferried across with the other passengers." [2]

Here the ant story is a simple case of Instinct, and doubtless all such ants in similar difficult journeys do the same thing ; Mind would have been a very inferior guide in such a case. As to the dog, the reader will observe that he would naturally call at the shop his master usually frequented, expecting to find him, and certainly *not* for the purpose of begging a penny. The *suggestion evidently originated* with the shopman, and the dog instinctively

[1] "Animal Anecdotes," by H. A. Page, p. 123. [2] Ibid., p. 80.

interpreted his wishes and action in producing the coin. The dog must have seen his master always paying a penny to the waterman, who would, no doubt, know the dog well; so that the whole of the incidents were greatly brought about by these two men, conjointly with the sagacious *instinct* of the animal in seeing their wishes in their faces and gestures.

Mr. A. C. Rogers says: "If an animal does precisely the same thing that a man would do under certain circumstances, are we not justified in concluding that animal and man were moved by the same power?" Yes, possibly so, assuming that the animal did not merely imitate the man. But the difference between the animal's and the man's doings is this: *All* the animal's actions are done by the power of Instinct *alone*, while those of Man are only sometimes so, but at other times under the power of Reason, or of Instinct controlled by Reason. He further says: "Is not memory an act of reasoning? Is it simply instinct that induces a dog to starve itself to death on the grave of its master, or to risk its life unbidden to save that of a helpless child?" [1]

As these are very good specimens of the logic which usually supports the argument that Reason and Instinct are one in kind, we will try to answer the questions. 1st. The animal may do the same thing as the man by mere Instinct, when the thing done was really done by man's Instinct; or, if not so, then the animal may do it by its wonderful faculty of Memory and Imitation, greatly aided, it may be, by the *extraordinary* power of observation which it possesses. 2nd. Memory in animals is *not* an act of reasoning. In Man, also, it sometimes *is not*, as when it is exercised instinctively; at other times, however, *it is* an act of reasoning. It is only affectionate Instinct that induced the dog to starve. Mind would have showed that to starve for any impossible result was *contrary to Reason.* 3rd. In risking its life unbidden to save a helpless child, a dog accustomed to the water is *merely performing its natural and proper work in the world.* It is compelled by this Instinct-motive, aided it may be by Instinct-affection for the child, to do so, and, having *no free will*, it has no choice. Had it failed to attempt the rescue

[1] "Animal Anecdotes," by H. A. Page, 1887, p. vi.

it would have shown that it had no right to live, but was a mere impostor in the world.

The following is given as a striking example of Reason: "One of the Ourangs was accustomed, when the dinner-hour had come, to open the door where he took his meals. . . . When not sufficiently tall to reach as far as the key of the door, he hung on to a rope, balanced himself, and after a few oscillations very quickly reached the key. One day his keeper took occasion to make three knots on the rope, which was thus made too short. The animal, after an ineffectual attempt, recognizing the nature of the obstacle, . . . climbed up the rope, placed himself above the knots, and untied all three in the presence of M. Geoffroy Saint-Hilaire." *It is not stated whether the ape had witnessed the tying of the knots or not*, but the animal evidently had the master's eye before it to read, and to unintentionally guide its proceedings. "The same ape wishing to open a door, his keeper gave him a bunch of fifteen keys. The ape tried them in turn till he found the one which he wanted."[1]

In both cases there was nothing here beyond Imitation and Instinct—sagacity *aided by the keeper's eye*, with his alternate expressions of pleasure or disapproval with its efforts, which the animal's observation could read. At another time this ape had a bar of iron put into his hands, and he made use of it as a lever. Here the same explanation applies. No one ever saw an ape use a bar or rod in this way, or any walking-stick, *unless* under man's training, and aided always by its instinct of Imitation; and even then it could not hold it as a man does, but simply grasp it.

It would be well to have animals watched *in a state of nature*, where no man's actions had been seen. Unfortunately this is difficult to accomplish.

The following story, one of the latest we have seen, is from the Vienna correspondent of *The Daily Telegraph*: "A few days ago the Bishop was sitting at dinner in his own house with seven friends, when all at once a small dog belonging to him ran up, and, seizing the tail of his coat, tried to pull him towards his bedroom door, which opened into the dining-room. At first he drove the

[1] "Animal Anecdotes," p. 120.

animal away, but it whined piteously, and his guests advised him to see what it wanted. The bedroom door was thrown open, and by the light from the dining-room the Bishop and his friends discovered a man hidden under the bed, armed with a large knife. He had escaped from the town gaol, and was bent on robbery."

This story has the great merit of being succinct, and well authenticated, and it deserves notice. The explanation is not far to seek. It was the house-dog, and so qualified and adapted to watch ; and the doing so was the *main* duty of its life. It had seen the thief steal into the house, or had discovered, by scent or otherwise, his presence. Had it been a bull-dog, or a large and brave animal, it would have attacked the bedroom door furiously ; but feeling itself no fit match for the thief, whose object, if it had seen his countenance, it could divine was an evil one, it appealed for help. By intimate acquaintance with its master's face, it would know that he was ignorant of the enemy's proximity, and hence its action. Had it failed to do as it did, it would have failed to perform the *chief* Instinctive duty of its existence, and proved *a failure in Nature's plan.*

A curious instance of affection and faithfulness in the Dog is said to have been recently witnessed in Edinburgh. A country shepherd, having disposed of his sheep, had wandered about the streets till, overcome by fatigue and usquebaugh, he was seen to fall on one of the leading side-walks, his head partially resting upon the railing parapet. Here he lay in a most uncomfortable position quite unconscious, being stunned and wounded by the fall. His faithful collie, his defender and companion day and night, lay down beside him. Some kindly passers-by ran to his assistance, but the dog quickly gave warning that his master was not to be interfered with. Thinking the man was probably seriously injured, quite a crowd gathered round to tender their aid and advice, but the dog faced them all with fierce defiance in his eye, evidently resolved *to do his duty* by watching beside his apparently sleeping master, and no one dared to advance. The police and their weapons notwithstanding, the dog long remained true to his post, for it was felt that the poor animal was only doing its instinctive duty, and should not be killed.

The suggestion that here some indication of Reason must have been present is groundless, for Reason would have somehow realized the folly of so long-continued a resistance. Had some face *familiar to the dog* appeared, the poor collie would quickly have read in it the friendly intention of its owner. Or had the wounded man recovered consciousness for a moment, the animal would in his face have read his master's wishes (without a word spoken) that he should surrender his charge.

Another instance of alleged Reason in animals may be cited from a London paper, the facts being well authenticated. Some cows were feeding in an orchard, and to prevent their reaching up to the apples each cow's head was tied to its knee. One of them was observed to embrace the trees firmly between its horns or otherwise, and so shake its stem that the fruit fell at its feet. But this instance of pure Instinct was altogether independent of Reason, and all animals will cunningly contrive means of reaching to, or otherwise procuring, the food most desirable and tempting. In this case there was not necessarily even Imitation, nor was there any need of training, nor the suggestion of a human eye; for Instinct is in such a case superior to Reason.

White of Selborne, certainly a good authority of his day (1775), wrote: "There is a wonderful spirit of sociality in the brute creation, independent of sexual attachment; the congregating of gregarious birds in winter is a remarkable instance. . . . There were two Hanoverian horses which had assisted in drawing the same gun during the whole Peninsular War. One of them met his death in an engagement; the survivor refused to eat, turning his head round to look for his companion. Other horses surrounded him on all sides, but he took no notice of them. He died from hunger, not having tasted food from the time his companion fell."[1]

Lord Kaimes relates a similar instance: "A canary fell dead in singing to his mate while in the act of incubation. The female quitted her nest, and finding him dead rejected all food, and died by his side." In both these cases the faithful creatures acted, not *reasonably*, but *instinctively*.

A still more curious case of this affectionate feeling in animals,

[1] "Natural History of Selborne," p. 183 (London, 1875).

and their craving for some associate, recently appeared in *The Spectator*. Writing from Tullibelton, in Perthshire, Mr. Alfred Ainger said: "At this house there is a well-bred pointer, named 'Fop.' He lives in a kennel placed in a loose box adjoining the stables of the house. Nearly a year ago a pair of pigeons lived in and about the stable-yard, but one of them died, and its bereaved mate at once attached herself for society and protection to the dog, and has been his constant companion ever since. When not out with the sportsmen on the moor, the dog is in his kennel, and the pigeon is always his close attendant. She roosts on a rack over the manger of the stable, and in the daytime is strutting about, preening her feathers, taking her meals from the dog's biscuit and water tin, and quite as often sitting in the kennel by his side, nestling close to him. Fop takes no apparent notice, but obviously takes care not to crush or disturb her in any way, and allows no other fowls into his apartment." Here also Instinct was acting, not Reason.

We must resume this subject in our next Lecture.

LECTURE XXX.

THE INSTINCT OF ANIMALS IS NOT REASON—INEXACT USES OF THE WORD REASON—MORE ILLUSTRATIONS—QUICKNESS OF PERCEPTION IN ANIMALS—THE INSTINCT OF MAN—THE SOVEREIGNTY OF MIND.

THE question of Instinct and Reason is very fully treated by Dr. Darwin, and he truly says that "it is often difficult to distinguish between the power of Reason and that of Instinct." It is certainly so to those Evolutionists who repudiate Design, and believe that Man is descended by natural selection from the ape. But to those who believe, as Mr. Owen and others do, that animals were made by special design *for the service of man directly or indirectly*, the difficulty will not appear so great; for they see that each separate species, and every variety of each species, requires to be endowed with gifts and qualifications for performing the special service or services for which they were by Nature intended. If this were not so, what a failure and waste of power! That there is considerable waste of power now is obvious from Man's frequent ill-treatment of pet animals. But such waste is contrary to Nature's laws of unity and economy.

Of these endowments Instinct is the general name: and its main aim, that of self-preservation, is necessarily common to all. It is not necessary in relation to *such services* to deny that in the Animal world improvements have been going on, and are going on, within narrow *limits;* that is, the Natural limits of their several fixed uses in the world. For if Man, in *his* great work of improving the world, requires, as population and civilization advance, increased aid from the animals, it is natural to suppose that the irrational creatures will be found qualified to give it within *such definite limits*—that is, each would always be able *efficiently* to fulfil the special designed object of its life; for, if otherwise, the

wisdom and *Design* which all Nature displays would be contradicted.

Dr. Darwin gives a multitude of examples of "Reason" in animals, supported by the highest authorities. We must observe, however, that to relate tales of wonder, especially in regard to one's own pet animals, is very epidemic, and is generally done without a philosophical study of the subject. It has no doubt been said that "it is a significant fact that the more the habits of any particular animal are studied by a naturalist, the more he attributes to reason and the less to unlearnt instincts." This is perhaps true as to a *Naturalist*, but to a philosopher without bias, and having no theory to support, is it not possible that the reverse may be equally true?

We have given so many such anecdotes that we cannot quote more than one or two of Dr. Darwin's. He writes: "Of all the faculties of the human mind . . . *reason* stands at the summit. . . . Few now dispute that animals possess some power of reasoning." We must do so decidedly. Animals possess *no power of reasoning whatever*. Take, for example, the Ape. Mr. Laing tells us that "monkeys enjoy the warmth of a fire, but never put sticks or coals on it to keep it up — much less kindling it when extinguished!" But to resume Dr. Darwin's quotation, "Dr. Hayes remarks that dogs, instead of continuing to draw the sledges in a compact body, diverged and separated when they came to thin ice, so that their weight might be more evenly distributed." Here there was evidently the Instinct of self-preservation, for if it were Reason, surely the reasoning men should have known when the ice became thin and how best to obviate or avoid the danger. But Instinct was in this instance better than Reason. This instinct was a *necessary* gift of the Arctic dogs, for devoid of it they would be *without qualification for their special work* in the world, and consequently worthless. Indeed many animals are rendered so by man's unnatural training. How else can we account for the multitude of mongrel dogs, the pests of our streets; not even useful as scavengers, as in Turkey?

Darwin further writes: "When I say to my terrier, in an eager tone, 'Hi! hi! where is it?' she at once takes it as a sign that

something is to be hunted, and generally first looks quickly all around and then rushes into the nearest thicket to scent for any game, but finding nothing she looks up into a neighbouring tree for a squirrel. Now do not these actions clearly show that she had in her mind a general idea or concept that some animal is to be discovered and hunted?" This he gives under the heading, "*Abstraction, General Conceptions, Self-Consciousness, Mental Individuality.*" Probably the reader will look in vain for any proof of either. If the terrier had acted otherwise, would it not have been a proof that she was *no terrier*, and so one of Nature's occasional mistakes? She finds no scent of game, but sees from her master's eye that *he wishes her to make a search*, and to please him she rushes into the thicket. All this is purely Instinct; and the moment the master retires her eager search will end, for Instinct tells her the search is vain.

Under the head of "*Sense of Beauty*," he writes: "When we behold a male bird elaborately displaying his graceful plumes or splendid colours before the female, while other birds not thus decorated make no such display, it is impossible to doubt that she admires the beauty of her male partner." This display and its effects are surely mere sexual instinct. Darwin indeed candidly adds: "With the great majority of animals, however, the taste for the beautiful is confined, as far as we can judge, to the attractions of the opposite sex." As we have already said, such gaudy colours are often necessary to distinguish one bird from others in the distance, or in the crowd; and the beauty, like all the other æsthetic as well as mental beauties of Nature, is, we think, mainly for the delectation of Man.

Indeed, these instances, given or quoted by Darwin to establish his theory, are, it appears to us, by no means superior in that view to some others already quoted, and are easily explained, as previously shown. Evidently, therefore, the contradiction arises purely out of the circumstance that by most people *the current definition of Instinct is on one side restricted within far too narrow limits, and that the action of Reason is correspondingly far too widely enlarged.*

If we review these numerous anecdotes, it will be observed that in most of them the evidence of Intellect (Mind) which is

claimed for the Animals, is really evidence against such claims. For, in general, the actions described in them either could not have been performed at all by Reason, or otherwise evidently could not have been performed so well as by Instinct. This we have already pointed out in several of the cases; but all in some sense, whether obviously or not, were actions more or less directly prompted, either by Instinct-Imitation, or for the preservation or well-being of the Animal or its progeny. Nearly all of them relate to domesticated pets, and in such cases the actions had been prompted by a cunning desire to propitiate the master's favour, and in most cases performed under the guidance of his eye.

We have referred to Animal Mimicry, which is most curious in the case of creatures not under Man's eye at all. A recent traveller in Central Africa [1] describes the almost incredible transformations that some animals outwardly assume, to escape destruction by more powerful enemies. He describes these as Mimicry by change of colour, or form, or habit. By change of colour, irrespective of its service in sexual selection, two purposes are served, "protective" and "warning." The assumptions are purely shams, but quite sufficient to deceive their enemies, and even Man, unless he is prepared by touch to examine the creatures both carefully and leisurely. Here, however, is no evidence of Reason; all is evidence of Instinct in a high degree. No man could transform himself into the appearance, or form, of any other creature, or stone, or object in nature, as some irrational creatures daily do, and avoid detection. Those Mimic changes have long been known in a few cases, but only of recent years has it been found that, at least in the Tropical climates, myriads of living creatures survive mainly by its practice, and that it applies both for defence and offence even to the larger mammals.

We are convinced that, next to fear of punishment and hunger on the one hand, and kindness on the other, and perhaps also to the instinct of imitation, the chief factor in the training of animals to these feats of *apparent* Reason is the expression of the human face and eye. These reveal to many animals the wishes of their

[1] Prof. Henry Drummond in *Good Words* for January, 1888.

masters, as already stated. A collie will *instantly* read the shepherd's wishes, and turn the sheep as he desires; a single glance of his eyes being sufficient, without a word or even gesture being needed. This power of quickness of perception is really marvellous, and not generally understood as it deserves to be.

Animals often show gratitude, confidence, friendship, and great affection and faithfulness to those who have saved them from enemies, or shown them kindness, and specially to those who have supplied them with food or aided them in their main aim, *the preservation and comfort of themselves and their progeny.* They do not like solitude, and when debarred from the society of others of the same species, will make friends with animals of another kind, sometimes however only after a passage at arms; and so also with one of their own species, *after* a contest of strength.

The reader will excuse the length at which we are discussing this question of Instinct; but he will perceive the reason to be its *primary* importance in relation to the theory of the Evolution of Man from the Ape. *If we cannot see that Instinct and Human Mind are absolutely incommensurate, and that animals are possessed only of Instinct, then we must admit that the descent of Man from the Ape ceases to be inconceivable.* We do not say that such admission concedes the whole argument, but it lends an air of plausibility to the theory, which otherwise it certainly does not possess. Dr. Darwin saw the very great significance of this argument, especially so far as Man and the Ape are concerned.

The popular idea that animals possess some degree of Reason is no doubt encouraged by certain apparent facts. Some men are so ignorant and uncivilized, and others so brutally degraded by vices, that particular animals are really in several respects more intelligent than they—even though absolutely devoid of Reason.

Animals, whilst never showing any natural improvement in the race, may, in some instances, when possessed of remarkable Instinct, temporarily show more intelligence than men of ignorant and debased minds. Even in men of high culture, Instinct is of far greater use in the sphere of NATURE, and is much more active in man's daily Life than Mind; for Mind, although

contemplative in the sphere of the Spiritual and UNIVERSAL, more rarely interferes in his daily life. Of this fact we are generally unconscious, and consequently we, that is, our Minds, are apt to assume credit for very much action which is really Instinctive, and thus we do not see the incessantly watchful merits of the latter faculty. Mind is concerned with matters of a high sphere, and is generally satisfied to relegate all other matters to Instinct, and interposes only when need arises, while at the same time it ever reigns supreme.

We have already pointed out that Mind cannot know or understand Matter; but it is, we think, equally true that the Mind of Man cannot know or understand the operations of his own individual Instinct. Mind can by introspection think of and contemplate itself, but the moment we begin to think of and contemplate our Instinct, instinct has escaped altogether, refusing to be questioned, and we find that it is Mind only that we are contemplating, after all. This difficulty or impossibility of introspection confirms our belief that the two things are *essentially* different, Mind being an entity, while Instinct is merely an endowment or sense of the Animal Life, and in no degree a faculty of Mind.

We have said that Mind can by introspection think of and contemplate itself; but even this is questioned by some writers. Thus Mr. C. H. Hinton writes: "The thinker can never be the subject of thought. . . . Thus we can never . . . think of the Mind of Man except as a material organ of some kind."[1] Now this is one of those questions which become doubtful merely by being argued about. The simple proof is within ourselves. Let the reader introspect his own mind, and say whether he can do so or not. The fact, we think, rather is that he *cannot* think of his mind as a *Material* Organ.

There is a prejudice, or rather a *sentimental* feeling, very widespread on the subject of certain pet animals, which it is difficult to set aside in discussing the relations of Instinct to Mind in a logical way. When this is fostered, as it certainly is, by so pleasant a writer as Frances Power Cobbe, the reader will probably become quite friendly even with the Rat. While she

[1] "A New Era of Thought," p. 83 (Swan Sonnenschein, 1888).

is expatiating upon the wonderful feats of Dogs, Monkeys, and other creatures, the reader has some difficulty in refusing agreement with her throughout. But a little reflection will dispel the illusion that in *any* instance quoted by her there is evidence either of Mind (Reason) or of Moral qualities. Almost all her cases are those of domesticated animals, generally pets. She restricts Instinct within unwonted limits, which makes it illusively appear to obscure the gulf that divides it from Reason.

This, however, is only apparent, inasmuch as most of these performances are the high results of *Imitation*, and the suggestions *reflected* from the master's mind to his face, and there read with the quick perception and memory which Instinct sometimes possesses, and which training tends to perfect. Some men have a bad habit of talking to themselves, and so revealing their thoughts unconsciously, but all men reveal their wishes to their pets without speech, and perhaps most unconsciously to themselves. Animals can have no idea of Morals whatever, and their exhibition of Moral qualities is simply the outcome of their intense Instinct-affection and desire to please their masters. Miss Cobbe truly says that animals are not, "strictly speaking, virtuous even when they perform heroic deeds of self-sacrifice;" and again, "Man may justly appropriate to himself the whole existence of an animal." Again, we must in our estimate of the Dog's animal-consciousness "take into account the fact that he is the docile companion of a being who is morally free, and who is constantly teaching him some of the rules, though he cannot apprehend the *principles* of human Morality." She adds: "The influence of this reflex Morality is very singular."[1]

The idea that some animals possess a sense unknown to us may possibly be true, as illustrated by the stories of dogs and cats especially, who were able to return to their old homes after removal to the most distant localities. On this point Miss Cobbe says: "The theory which best explains these facts is that the creatures in question have a certain sense of the Magnetic currents in . . . marking the direction in which they travel." "Reindeer kids," says Dr. Ray, "when very young, and left

[1] "False Beasts and True" (Ward, Lock and Co., 1888), p. 150, &c.

alone, will in spring always turn North. . . . Buffaloes, whenever they are alarmed, always run Southward."

"A dog feels *anger* as we do; he is susceptible of *hatred*, . . . he is *jealous*, . . . he is *envious*, . . . he is a *glutton*, but not guilty of *drunkenness*." Dogs are only sexually in *love*. Their *maternal affection* is such that the mother will starve herself rather than forsake her offspring. *Gratitude* may be almost said to be a Dog's leading principle. *Fear* is exhibited by Dogs with singular variations. Some are models of Courage, Fortitude, Attention, and Faithfulness, to their masters. It is not clear that Dogs express *Regret*, but they seem to know Grief, Pride, and Vanity. They have a sense of their own *property*, and perhaps of Avarice, and it is said sometimes of *Humour* and *Shame*. The claim for *Faith*, *Hope*, *Chivalry*, *Magnanimity*, is unfounded. What are described as such are mere results, modifications, and trained instances of their attributes of Memory and Imitation and the affection of Instinct. What is called "Association of Ideas" is merely another name for Memory. What is called "*Faith* is Trust in a beloved superior—perhaps the most beautiful of all the attributes of the dog." But this faith is merely instinctive experience and confidence in his master's Faithfulness. What is called his Chivalry and Magnanimity is simply the manifestation of his *natural* qualifications, which he *must* show, even risking his life for others, because, as we have previously shown, he cannot help doing so.

Miss Cobbe says again: "In the region of *Passion and Emotions* he approaches us most nearly, falling short of us only where his intellect" [Intelligence?] "fails to apprehend the abstract objects which engage our feelings." Of Moral Free Agency he does not partake, but "his Allegiance to Man supplies him a shadow of duty."[1] That some animals may commit suicide is perhaps possible, but we think only when under a high degree of training or domestication; in their state of nature probably never.

What Miss Cobbe calls Reflection, Combination, Forethought, and "Arguing from cause to effect," are entirely beyond Instinct;

[1] "False Beasts and True," p. 173.

but many attributes which belong to Mind exclusively are in some way *imitated* by animals. If examined into critically they will prove to be so; or they are unfounded in fact, less or more, and often are the result of sentimental imagination. This writer puts great stress upon the incapacity of animals to speak, but the faculty of Speech is just one of the *distinguishing* features of Mind, beyond the province of Instinct. *To be without Reason is to be without Language.* She candidly says: "The Dog obviously cannot love Art, Science, or Literature; . . . that he has any æsthetic sense or notion of the beautiful or of the sublime in Nature is more than doubtful. . . . The Dog's emotional nature must *exclude* all those passions of humanity which are directed to Abstract objects, and include nearly the entire range of those which concern physical desires and personal affections."[1]

Writing of monkeys, Miss Cobbe says, "The nearer we approach to humanity, the more we are sensible that something is lacking—that great 'Something' which, for want of a better word, we must call by its old name, a 'Soul.' In watching even the most intelligent Ape we are borne down by the sense of what is wanting, rather than of what is present of the likeness to humanity."[2]

It may be observed in passing that the denial of Reason to animals need not blind us to their actual qualities. Cowper has admirably written:—

> "Superior as we are, they yet depend
> Not more on human help than we on theirs.
> Their strength or speed or vigilance were given
> In aid of our defects. . . .
> . . . Creatures that exist but for our sake,
> Which, having served us, perish. . . .
> Attachment never to be weaned or changed
> By any change of fortune, proof alike
> Against unkindness, absence, and neglect;

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[1] "False Beasts and True," p. 130. [2] Ibid., p. 55.

Fidelity that neither bribe nor threat
Can move or warp ; and gratitude for small
And trivial favours, lasting as the life,
And glistening even in the dying eye."

We are by no means satisfied that our Arguments will overcome the settled opinion that Animals possess some Mind, and that Instinct is Mind in the bud ; but it is difficult to give more direct proofs than we have already done. One more argument, however, we will offer.

It has already been stated that Mind (*i.e.*, Reason) is a Spiritual entity, and that all the ordinary routine even of Man's life may be, and really is, for the most part carried on by Instinct. Let us suppose, for illustration, that Men were all suddenly deprived of Reason (Mind) ; then, of course, their lives would be carried on by Instinct alone, and thus resemble that of the lower animals. If we consider this calmly, it will appear that even although their Memory of the past might remain, they could not sow corn, nor reap it, as now, nor make any tool, nor combine together for any purpose. From Memory they might proceed in the routine of their individual daily occupations, but everything they attempted beyond mere animal life would fail, just as the Apes now fail in any of these attempted reasonable occupations and work, even with the light of Man's countenance and encouragement to aid them. They would fail to cook food, and would live just as animals now do, on the fruits and herbs of the field spontaneously produced. They would fail to cultivate or otherwise to raise food, and no Improvement or Invention would be possible to them, because, as we have already said, Instinct-Mind is *blind*.

But their reign would be quickly ended, because the Animals around would immediately perceive *from their faces* that there was "no speculation in those eyes,"[1] and that they were no longer king. If in any degree interfered with, they would individually attack their former masters, and quickly overcome them ; for firearms would be beyond their management, and combination would not be possible. *Of all the Mammals, there*

[1] "Hamlet," act iii. sc. 4.

is none so Naturally helpless as Man. Thus Chaos would come again, out of which there would be no natural escape, for no improvements whatever would be possible.

We have demonstrated by the Universal TEST that Instinct is not merely different from, but absolutely incommensurate with Mind, and consequently it is impossible that it ever can Evolve Mind, not even with Ages of Time, although these were multiplied indefinitely. Evolutionists are ever calling in immense periods of Time to aid their Arguments. But Time never can make a false proposition true—not even can Eternity do this. The gulf between Instinct and Mind is impassable, and in no case whatever does the former possess Reason, even in the most minute degree.

The argument of Instinct *v.* Mind has been all along conducted with perfect sincerity on both sides, and one naturally inquires why on this subject highly educated thinkers should differ so completely. May it not arise from the want of *clearer Definitions* of Instinct and of Mind, in which both parties will agree?—for without this no Argument can lead to any definite result. This need was first affirmed by Socrates, who insisted upon its primary importance.

Evolutionists evidently consider that Animal-Intelligence, Memory, Cunning, Feeling, Animal-Consciousness, Sagacity, Imitation, Eccentricity, Experience, Caution, Obedience, Gratitude, Truthfulness, Faithfulness, Sympathy, Gentleness, Friendship, Affection, Courage, Teachableness, Perception (of colour and form), Attachment (to persons and places), &c., are evidences of Mind. But we submit that this is not the case; they are evidences of Animal-Instinct in its highest development, possibly possessing more Intelligence than some human Minds, but still absolutely different therefrom. All of these, perhaps in a higher quality, if not in a higher degree, are also possessed by the human Mind, yet all of them belong to the NATURAL sphere, being the properties of Human Instinct.

But Mind alone seems possessed of faculties which belong exclusively to the UNIVERSAL or spiritual sphere, as we have elsewhere stated, such as Reason, Mental-Memory, Consciousness, Will, Abstraction, Mental-Conception, Imagination,

Taste, Mental-Perception (of Beauty and Sublimity), Inventiveness, Reflection, Reverence, Introspection, Consideration (Ratiocination). Of these no Animal whatever is possessed in any degree, nor even of the perception of Musical Harmony.

From the previous argument it appears that *the Animal world is ruled and governed by "the Human face Divine."*

Dr. Livingstone, who saw more of wild animals in their natural state than most other men, seems to have believed that the fiercest denizen of the desert cowered under Man's eye. Other travellers, well able to judge, have said that no wild animal will boldly attack a man to his face, unless in the dark. Indeed, some have held that no wild animal, unless under exceptional want of food, will approach Man's presence, unless it is disturbed in its lair, or has had its young carried off, or otherwise has been in some violent way interfered with by aggression upon its wonted rights. No doubt a pack of starving wolves will attack a travelling sledge party, but probably only the horses would be attacked, unless the travellers strike at them. Wild animals confined in caravans obey their keeper even when being cruelly treated, but he is always careful to keep his eye steadily fixed upon the animal's face. If otherwise, his life would be short, and experience proves this by too many examples.

Nor does it appear, either in the desert or in the caravan, that animals combine to attack Man. If they did, how irresistible they would be! Some of the more defenceless animals naturally combine for their mutual help and defence, but they never make any real combination for offensive operations, because this would imply some degree of Reason. It may be observed that even amongst the inmates of our large lunatic asylums no combinations exist. Visitors must notice how eager they generally are to escape from confinement, and if they possessed their reason how easily could they conspire, and by a concerted rush upon their keepers, or by scaling the walls, escape.

Thus the *Sovereignty of Mind* is, we think, obvious, and the Animal world recognizes it in the countenance of Man—their Master, certainly not their cousin.

LECTURE XXXI.

THE "ORIGINAL SAVAGE" THEORY—WHAT WAS PRIMITIVE MAN?—VEDIC HYMNS—ANCIENT COMMUNICATION OF IDEAS—THE HISTORY OF RELIGIONS.

WE have tried to combat the assumption—for it seems nothing more—that Man was originally a Savage, but all our arguments will fall pointless upon some scientific Philologists, who seem to think their views so obviously true as to need no proof beyond affirmation. Thus an eminent learned Professor says: "It is hard to place one's mind on the low level of the infantine intelligence of a savage such as early Man *must have been*. But some aid to that end may be found in the perusal of what the savages of modern times think." The tendency of the savage mind is "to endow the Sun, the Moon, the Sky, or any feature of the physical world admitting of being readily individualized, with a soul and body, with parts and passions like their own."

Some confusion has arisen from thinking that the extreme Savagism found to exist with every discovery of outlying tribes in all quarters of the world represents the *original condition of the human race*, at the time when such outlying peoples separated from the original home of Mankind. That this is so is not supported by a single fact. Indeed, the contrary may be inferred with much more probability from the observed fact, that in cases of such separation, *deterioration begins, and, where a people is left alone, goes on with rapid declension*, ending perhaps in course of ages in Cannibalism.

The theory that Mankind were originally Savages appears to us therefore to arise chiefly from this erroneous supposition.

Our Professor then goes on to say that "The ancestors of the Greeks and Hindus are found to be at one with those of the Chinese and Polynesians of later times in making the Sky and

the Earth a wedded couple of *savages like themselves.* Similar myths are also found in the Norse Edda and in the Celtic." [1]

But he cannot show that such poetical myths really are indications of an *original* Religion. Like Fetish worship, we believe they are more probably indications of a *prior* religion, originally pure but become decayed and corrupt. They are no doubt old, but are without date, and quite unsupported by any such ancient monuments as the *evidently older* Sun-worship can boast of. Could the originators of the primitive Sun-worship, or even the classical Greek Mythology which it suggested, arise from their tombs, would they not stare at such assertions? It is just possible that they might think the name of "Savages" in some respects quite as applicable to us of modern times! A recent traveller in Upper Egypt speaks of the magnificent remains of Thebes, a very ancient city, and evidently once of enormous extent, but now "a stupendous pile of ruins," as "vaster and more impressive than the Pyramids;" and another writer says—"There is no other great ancient city . . . so far back in the past." Its greater monuments are older than Moses, perhaps much older, and the oldest are the finest; the less ancient evincing a decided decline in beauty and taste, although more extreme in dimensions. "By the epoch of the Ptolemies the primal Egyptian idea of beauty and effect had in great measure been lost." We know that their finest works were old before the ancient history of Rome begins. Their builders *must* have been as different from *savages* as we are now. A people so extremely refined in Art were probably then very advanced in Civilization. Their successors were less so, as we have seen, as also were even the Greeks.

Most of the Nile monuments, whether of the earlier or the later dynasties, are covered with huge figures of kings and gods, with every semblance of a face erased,[2]—a fact "by some ascribed to Christian, by others to Mahometan," and not improbably due to modern Egyptians themselves. It is related that "a young foreign nobleman amused himself at Thebes, even in our day, by smearing the beautiful paintings on the tomb of Seti I. with his tallow

[1] Hibbert Lectures, 1886, by Prof. Rhys (Williams and Norgate).

[2] "Ulysses," by W. Gifford Palgrave, p. 92, &c. (Macmillan and Co., 1887).

candle ;" while some tourists behave disgracefully, and chip off bits of beautiful carvings and painted hieroglyphs.[1] Another present-day traveller relates that the dealers at Philo scrape off the beautiful blue colouring from the ruins to stain the articles they impose upon the English and American relic-hunters as genuine "Antikes." May not some far-future historians quote these as instances of civilization in the nineteenth century?

What is called "savage life" is sometimes found in peoples so advanced in civilization as the Greeks. Mr. Lang writes: "The whole of Greek life yields relics of savagery when the surface is excavated ever so slightly. . . . Though the fact has been denied, . . . the fact remains that the Greeks offered human sacrifices, . . . one of the proofs that the Greeks had passed through the savage status. . . . The terrible Aztec banquets, of which the gods were partakers, are the most noted examples of human sacrifices with a purely cannibal origin."[2] Professor Robertson Smith says, "When the human victim is a captive or other foreigner, the human sacrifice may be regarded as a survival of cannibalism. Where, on the other hand, the victim is a fellow tribesman, the sacrifice is expiatory or piacular."

Human sacrifices evidently arise out of, and indicate a state of Savagehood, which, had it been the original condition of Man, or even had it at *any time* been the universal condition of Men, would, we think, have been an insurmountable barrier to advancement. Indeed it is not understandable how any Moral Civilization whatever could *naturally* arise out of it. The question now to be asked is what was the condition of primitive Man? The savage myths of the origin of the world and Man were as inconsistent as they were fanciful. In contrast with the multitude of "these childish pieces of anthropomorphism we have the famous and sublime speculations of an oft-quoted Vedic hymn of the origin of things" from a book which however is supposed to be "late." We quote a few words of it: "In the beginning darkness existed, enveloped in darkness. . . . That One which lay

[1] "Leaves from an Egyptian Note-Book," chap. xi. and xvi., by Isaac Taylor (Kegan Paul, 1888).

[2] "Myth, Ritual, and Religion," chap. ix., by Andrew Lang. (Longmans and Co., 1887).

void and wrapped in nothingness was developed by the power of fervour. Desire first arose in It, which was the primal germ of Mind [and which] sages, searching with their intellect, have discovered to be the bond which connects entity with nonentity. . . . Who knows whence this creation? The gods are subsequent to the development of this [universe]; who then knows whence it arose? From what this creation arose, and whether [any one] made it or not, He who in the highest heaven is its ruler, He verily knows, or [even] He does not know." "Abstract cosmogonic speculation," says Mr. Lang, "like that of this hymn, is the rare exception which we seldom meet with except in the records of a civilized people."

The next Vedic account of creation is as remote as possible in character from this sublime philosophic poem. In the *Purusha Siokta*, the 90th hymn of the tenth book of the *Rig-Veda Sanhita*, we have a description of the creation of all things "out of the severed limbs of a magnified non-natural Man Purusha. This conception is . . . that which occurs in the Norse myths of the rent body of the Giant Ymir. . . . In Chaldean story, Bel cuts in twain the magnified non-natural woman Omorca, and converts the halves of her body into heaven and earth. . . . Among the Iroquois in North America, Chokanipok was the giant whose limbs furnished the raw material of many natural objects; while in Mangaia, portions of Ru, in Egypt of Set and Osiris, in Greece of Dionysus Zagreus, were used in creating various things, such as stones, plants, and metals. The same ideas precisely are found in the 90th hymn of the tenth book of the Rig-Veda." There is, however, no agreement as to the age of this hymn amongst Sanscrit scholars.

We quote from Mr. Lang's book thus freely because it discusses this whole subject in such a manner as to make it interesting. Besides its merits philosophically, it possesses the unusual recommendation of showing little of preconceived theory which *must* be supported.

Mr. Lang says that when we speak of "the Savage mental condition, we mean the mental condition of all uncultivated races, who still fail to draw any marked line between Man and the animate or inanimate things," as if all Nature and physical

phenomena were endowed with human attributes. "This state of mind is nowhere absolutely extinct." [1] It seems to be generally admitted that all civilized peoples have passed through a previous state of so-called savage life, but at what period there is generally no evidence to show. *Whether this state of "Savage life" was the primitive life, however, remains an absolutely open question.* The whole subject has been discussed at great length by eminent authorities, but, in our present state of knowledge, without any definite result on this point. The remarkable fact has been ascertained, to wit, that there is and has been a decided *resemblance* between the myths and legends of almost all the savage or half-civilized peoples of the globe, even those most remote, especially in respect to their absurd inconsistencies, multitudinous gods, human sacrifices, cruelties, and immoralities.

Mr. Lang accounts for their beliefs as far as such a word is applicable, by the fact that to the savage mind the great objects and events in Nature, being common to all peoples and localities, would naturally suggest similar ideas to minds similarly constituted. But other reasons have been suggested, especially this, that there must have been some occasional, perhaps accidental, communication between peoples, even the most distant. Such communications may have arisen sometimes with more enlightened, or it may be with more "savage" races than themselves, while the fact that all originally were of one race, infers that each had once at least communicated with one other community. Perhaps this view is farther strengthened by the fact mentioned by Mr. Lang, viz., that "Another feature of savage cosmogonies, illustrated especially in some early Slavonic myths, in Australian legends, and in the faith of the American races, was the creation of the world, or the recovery of a drowned world, by animals, as the raven, the dove, and the coyote." [2]

Mr. Taylor observes: "So far as history is to be our criterion, progression is primary and degradation secondary; Culture must be *gained* before it can be lost." Perhaps it would be equally correct to say that Civilization must be *possessed* before it can be lost, for Mr. Taylor's words seem to assume that Man was

[1] "Myth, Ritual, and Religion," vol. ii. p. 325. [2] Ibid., vol. i. p. 238.

originally a savage—concerning which we have no knowledge whatever. Fontenelle also assumes that, with the exception of the Israelites, "all nations made the astounding part of their myths while they were savages, and retained them from custom and religious conservatism."

In connection with this subject, Dr. Reville, a distinguished Professor of the Collége de France, Paris, writes, "Unfortunately we find ourselves face to face with a theological doctrine, which we must discuss. It is the hypothesis of a primitive revelation. . . . Our history is met at the outset by the claim of those who will have it that in the very beginning of the human race the creative power revealed to the first men, by supernatural means, the essential principles of religious truth. If this claim be well founded, our history, for a very long time at least, can be nothing more than an exposition of the degradations and corruptions of this revealed truth." In combating this "claim," Dr. Reville takes up, we think, a singularly illogical position. He says: "Here we have, *in the first instance*, Man, as yet in *all points like an animal, incapable of speech or thought.*" Indeed! But where is the proof of this? And at what period was Man found not speaking and thinking? "Some time after this Man is found speaking and thinking. . . . Have we, therefore, the right to conclude that a supernatural intervention has taken place?"[1] This difficulty seems one entirely of the learned Doctor's own invention. There appears no need for any *additional* supernatural intervention whatever. *If the primeval* MAN *was created at all*, he was obviously created, not a mere animal or a savage, but a MAN—and if a Man, of course a complete one. For, whether *created* as a savage or as a perfect Man, it *must* have been by "supernatural" intervention.

But the logic of this writer is after all *not* at fault; for the apparent contradiction may lie in the fact that he is not a believer in this "Primitive Revelation" of Creation according to Genesis (chap. i.), but in that by Evolution according to Dr. Darwin. There is confusion here, for surely Creation *must* precede Evolution. Instead, however, of treating the former contemptuously,

[1] "The History of Religions," translated by A. H. Sayce, chap. iii. (London, 1884).

or ignoring it altogether, as is somewhat common, he devotes Chapter III. of his work to its consideration. Not only does he state his opponents' case with fairness, but he clearly specifies his own objections to it, as partly given above. They may be summed up in this sentence, "We might reply to this theory by the plea in bar with which Science is always justified in opposing views which rest on an appeal to the supernatural."

To assume that Man was not created but evolved only leads back to the next question, "Who created the previously existing creature?" *To get quit of the Supernatural is simply impossible.* Science is not related to the Supernatural, nor is the Supernatural dependent on science: they are not necessarily opposed to each other, but are simply incommensurate. Dr. Reville should logically prove, in the first place, that his plea in bar is philosophically true, instead of merely assuming it.

This style of argument, or rather closing of all argument, seems unworthy of so liberal a thinker: it passed muster in the early part of the nineteenth century, but cannot succeed now that we are within sight of the shores of the twentieth. It savours too much of the War of the Roses era. Thus Shakespeare:—

"*King Edward.* For Somerset, off with his head!
Go bear them hence; *I will not hear them speak*;"[1]

and reminds one of the little loop-doors in the fences of the Spanish Bull-fight arena, through which the human combatant easily escapes from the overwhelming force of his antagonist.

If this eloquent writer believes in a *first* beginning of Man at all, it does not seem *more supernatural* that it was by Creation of Man than would be the *original* Creation of an *animal* or a *savage* —all three acts must be *alike supernatural in the first instance.*

"How," he asks, "could the Divine power have communicated ideas to man as yet incapable of speech or thought?" Why incapable? Was it not *equally supernatural* to create Man without, and with speech? Indeed, *if without Speech, then necessarily without Reason*, as we have already seen, and therefore *not a Man.* He adds, "We will simply open the Book of Genesis and see if

[1] "King Henry the Sixth" (Part III.), act v. sc. 5.

it contain all that they make it say. . . . The first narrative relates the beginning of the heavens and the earth under that simple, majestic, we might say classic form, too often spoiled by the efforts which have been made to found upon it modern cosmology and geology. It contains scientific errors on which we need to pause. . . . It speaks of the heaven, the firmament, as a solid vault, above which the waters are stored; of the creation of the stars after the formation of the earth, and solely for its use; of the appearance of the entire vegetable kingdom before it could be subjected to the action of solar light. . . . Then when animals of all kinds have been created in their turn, God said, 'Let us make Man in our image and after our likeness, and let him have dominion' over all animals. . . . Then the Creator, having finished his six days' work, rests. Absolutely nothing indicates the revelation of any religion or Morals to the first human beings."[1]

Here the reader will remark that the above idea is a pure assumption. It seems incredible that the Great Creator would create an imperfect Man in any respect, whether physically or intellectually. He could not have been either an ignorant savage, an immature big baby, or a fool. His knowledge of every thing around, from the trees and flowers to the heavenly bodies, so far as visible, must have been full and complete, so far as he required or wished to know, and his taste and enjoyment of them all perfect. He would not be possessed of a written language, nor of tools, nor of a telescope, nor of scientific formulæ, but was fully endowed with the capacity of inventing and constructing *all of them* as he discovered their need. Till then they would have been useless to him. Men of greater genius even than James Watt existed before his day, but till then the Steam Engine was not a necessity of the world's civilization. In primeval Man the germs of all inventive genius existed, and have been, and will be in all future time evoked to meet the needs of Civilization as they arise, to the utmost bounds of the possibilities of Nature.

It is beyond our province to attempt an answer to other objections, and therefore we must use the language of other writers for

[1] "History of Religions," pp. 42, 43.

that purpose. For this our space is so limited that we cannot quote, and must try to give their ideas rather than their words. A religious philosopher of the last century, long forgotten and out of print, wrote that the word "Day" may represent an immense period of time, and that fallacy must lurk in the vulgar notion regarding the duration of the "Six Days." He farther said that the "*Seventh Day*" which then succeeded is *now*, and will end with the present order of things. This is, of course, mere speculation, but certainly in the second chapter *the whole period of* Creation is called "*the Day.*" Until the fourth "Day" there was no measurement existing which could indicate the length of a Day, and therefore, logically, the Days up till then *might have* been periods of vast although definite duration. Light was created (we know not of what kind, nor where centred—possibly Magnetic) during the first "Day," and God called the Light Day, and the Darkness he called Night. "It is absurd to imagine that the same 'Laws' could have obtained, when Nature no more resembled what she is at present than the unformed fœtus resembles the full-grown man."

As to the Scientific errors, they are by no means very obvious, when carefully examined. Some seem to assume that the creation of the Elements of Nature was part of the work of the First Day, whereas it is expressly stated that this was done "*In the Beginning.*" Thus, though the opening verse of Genesis does not say so in as many words, it clearly indicates that Matter is not eternal. The "First Day" rather seems to begin with the third verse, *when the measurement of Time began.* "Geology reveals in its strata remains of organized bodies—first of Man, next of quadrupeds, mixed with sea-shells and marine petrification. Still lower, the exuviæ of alligators and other amphibious animals. Deeper still are immense beds of vegetable carbon; lowest of all, solid rocks containing no petrifactions." This description would perhaps be modified by more recent Geologists; but, allowing for the *extreme* conciseness of the Genesis account of Creation, there is no great contradiction of Science. As to the "Firmament" being a solid vault, this word simply means in the original *Expansion* or *Inflation.* Surely there is nothing incredible in believing that a great store of water, or its elements, might float in the

upper atmosphere, or as clouds do (as Astronomy teaches us), in the outer atmosphere of our Sun.

Somewhat related to this subject is the question of the credibility of a general Flood, which has given rise to much discussion. The opponents of the theory suggest its incredibility when scientifically considered, and this is the only point which we need examine logically. If this globe was once a mass of molten or plastic matter, in course of cooling down, it is not inconceivable that a great mass of water or condensed steam may have accumulated under its outer crust. Now, should an eruption of its plastic interior have occurred, such as the late Mr. Proctor and other scientists deemed probable, and even Mr. Huxley considered possible, these accumulated stores of water and steam would perhaps be forcibly ejected into the air. If so, such a phenomenon would necessarily disturb and greatly affect the atmosphere—indeed probably discharge the entire masses of rain stored in its clouds. A flood, such as a catastrophe of this kind would occasion, *might* be so great as to become memorable in all time.

We have no definite knowledge of the amount of vapour and water which the Earth's atmosphere could hold in suspense. But that it is enormous is shown by the fact that 24 inches of uniform rainfall has occurred in 36 hours in Bombay. Another case is recorded of a rainfall in India of 150 inches in five successive days; and in September of 1889 we read of a flood of rain in Japan even more disastrous. Nor can we assume that these extreme cases are the atmosphere's *maximum* power or capacity of carrying water. Under all these considerations it certainly does not appear that we can logically deny the *possibility* that a general Flood has occurred. Its probability is quite another matter, and does not necessarily cross our path.

We will defer further examination of Dr. Reville's critique till our next Lecture.

LECTURE XXXII.

THE GENESIS ACCOUNT OF THE CREATION—A TRUE COSMOGONY — THE CHOICE OF DIFFICULTIES — THE HUMAN EPOCH—THE STORY OF THE VEDAS.

LET us now resume our consideration of Dr. Reville's views on the history of the Creation as recorded in the Book of Genesis. It is not said (in Chapter I.) that the stars were created after, but rather with the Sun and Moon. The marginal reading is evidently the most correct—"the lesser light to rule the night, with the stars also." They were set to give light upon the earth, but it is not said they were *solely* for the use of the Earth. As to the appearance of the entire Vegetable kingdom before the Creation of the Sun's rays, this is explained in Chapter II. "But there went up a mist from the earth and watered the whole face of the ground," evidently indicating heat and growth. Light was previously created, and was probably magnetic or electric. In the Hebrew, the word for sun-light is quite different from the original "Light," and might properly mean "luminary," or "light-holder."

As to Man's creation, there is a decided change of language from that hitherto used in the opening of Genesis. His form is *made* of the dust of the ground, and then God breathed into his nostrils the breath of Life. Here there is no idea of either Evolution or growth. Man is obviously made complete, as already stated, and undoubtedly as perfect a MAN as ever lived, both in body and Mind. As to the revelation of any religious ideas nothing is said, but as God blessed Man and declared him, as everything he had made, "very good," it is scarcely conceivable that he was *ignorant* or void of any useful knowledge whatever which the human Mind needed or could attain to. Accordingly he is made the earthly lord of all. To say, as Dr.

Reville does, that he was *ignorant* because in a state of complete innocence is certainly unwarranted. Are all beings, even Angels, ignorant unless they sin, and consequently "know good and evil"? To be ignorant of Evil is the highest Good, and to know Good is the highest state of Wisdom and Knowledge. Ignorance is symbolized by Darkness, Knowledge by Light.

Several recent writers say that this history of Creation is not a scientific account of Creation *generally*, but only that of the Earth and Man. All that is said of the other heavenly bodies is only in relation to their service to Man. This consideration, if allowed, may in some degree account for the creation of the Earth being mentioned before that of any of the heavenly bodies.

"Certain theological gentlemen and broad-minded philosophers have," said Matthew Claudius, in his quaint way, "raised up a host of objections and doubts and answers and solutions," in relation to the unscientific account of the days of Creation. But he adds, "If the Mosaic cosmogony is to be justified by none of these, it is not the fault of the lock, but of the locksmith. It needs no such artificial justification, and soars away . . . above all objections and doubts, yea, and triumphs." Cuvier, than whom a higher authority cannot be quoted on the subject, wrote thus: "Brought up in all the wisdom of the Egyptians, but in advance of his age, Moses has left us a cosmogony of which the accuracy verifies itself every day in a marvellous manner. Recent geological researches are in perfect agreement with the Book of Genesis as to the order in which organized beings are successively created."[1] No doubt different views of this are sometimes expressed; but not by men of more eminence than Cuvier.

We think we have noticed most of the learned Doctor's definite objections, except his statement that his opponents who "maintain the truth of a primitive revelation are guided by a very evident theological interest"; and again that Protestant orthodoxy believes this a Bible doctrine, and "that its maintenance is necessary to the authority of the holy book."[2] This objection is probably well founded to some extent, but does it not equally

[1] "Discours sur les révolutions du globe."

[2] "History of Religions," p. 36.

apply to the Doctor's own School of thought? Is *it* quite free of all prejudice? or is any one of us free of bias in favour of his own views, however disinterested he may be?

But the main cause of difference in opinion here lies in the belief or disbelief of the opening chapter of "Genesis." Disbelief, however, in its history in no way removes the crucial question of Creation or Evolution. By adopting disbelief nothing is gained to get quit of the former; for, if we relegate the first Creation backward to any additional millions of ages, *it still faces us.* Evolution, as already stated, cannot begin without a *previous* Creation to evolve from, and the only escape is the adoption of the theory that the world or Matter is Eternal. This is to all men unthinkable, or, if entertained, it at once condemns the *possibility* of Evolution, for the two ideas are mutually destructive of each other, as Logic sternly assures us.

The question of the era of Man's appearance upon the earth is one which has an important bearing upon the Evolution theory. In his new volume [1] Mr. S. Laing says that this era must have been immensely more remote than the Anti-evolutionists allow; and he indicates that they support the much more recent date because it seems to favour the Evolution theory less than the most remote period does. This era is variously supposed to have been during the Quaternary Age, the Tertiary Age, the Glacial period, or other indefinably remote period of time—or, to use Shakespeare's words—

"In the dark backward and abysm of Time" [2]

so remote that scarcely any two Savants can agree as to the probable era. In point of fact, there really seems to be no trustworthy evidence on the subject. Whether we may place any of these epochs back to 10,000, or 20,000, or 200,000 years, it matters little—for all such guesses are indefinite and valueless—useful, indeed, as counters are in a game, or as x is in an unsolved Algebraic problem.

[1] "Problems of the Future," by S. Laing (Chapman and Hall, 1889).
[2] "The Tempest," act i. sc. 2.

Let us look into the possible indications of this era. The only hints obtainable seem to be those given by the oldest Fossils of Man, or the evidence of his existence which the work of his hands have left us, the oldest footprints he has made upon the sands of Time. Amongst these are the Stones and Flints, shaped for arrow-heads or cutting tools, and certain rude carvings found on cave bones, the age of which cannot be estimated unless the strata or soils in which they are found embedded give some indication of dates. Those covered by Stalactite we must exclude for reasons already given. The Flints are widely distributed in heaps and in great numbers, indicating, we think, a then correspondingly large and extended population.

Here a question again arises which we have already considered in a previous Lecture. Has there been since then any change by the shrinking of the Earth in cooling down, or any great upturning of its surface by Volcanic eruption, or by Floods, or chemical explosions from intense internal heat, or by Earthquakes, or any Cataclysm such as might have destroyed or disturbed or changed the then arrangement of the earth's strata? Or, on the other hand, is it clear that everything mundane has remained unaltered for all these epochs, and that no change has occurred other than those we see being effected by Time and the ordinary forces of Nature around us? Who is to decide between these opposite theories?

Mr. Laing adopts the latter view, which, however, cannot be said to be that generally accepted. Mr. O. Fisher's opinion seems to be different. He writes that "much of the Water on the surface of the globe was originally secluded in the molten interior, and has been emitted *by volcanic action* in the course of Ages."[1] The question is much discussed at this moment. The Paris Academy of Science offers, amongst other prizes for 1890, one for "Researches on the *agencies that have caused the foldings in the terrestrial crust—part played by horizontal displacements.*"[2] Professor Heilprin, writing of Bermuda, shows that "these islands have undergone *recent movements, part of upheaval, and then of subsidence.*"

Regarding the oldest Fossil skull and skeleton of Man, it is

[1] *Nature*, January 2, 1890. [2] *Nature*, January, 1890, p. 239.

assumed as dating back to the Quaternary Age, and is known as the Constadt type—the next oldest is the Cno-Magnon. "Now this type is not a degraded one, but physically that of a fine Man—tall, with large and symmetrical brain, on a par with the best modern races."

But if Geology does not clearly decide the question as against the claims of the Uniformity theory, Astronomy seems to do so more definitely. In Siberia and in extreme northern lands of Europe, abundant proofs have been found that, at some prehistoric age not very remote, these countries were inhabited by Mammals of great size, such as the Elephant and large ruminants, thus indicating a rich vegetation and a warm or very temperate climate, entirely different from that possessed by them in all historic time. Such a change could only have been produced by some potent force which is not now existent, so far as Science can teach us. There is none amongst the slight variations of the Earth's movements which, even with the aid of any extension of Time, however indefinitely great, could alter the present Angle of the Earth's axis as it lies to the plane of the Earth's orbit. This Angle, which is about 23°, is firmly *fixed* by that apparently essential property of Matter—Inertia. The consequence of this position is to throw the northern latitude of the world into shadow for most of the months; and for even the few weeks of Summer the Sun's rays fall there so slantingly as at best to produce very scant vegetation.

Mr. Laing acknowledges that this Angle of Inclination is a mystery, and he leaves it so. The mystery is not in the fact that such Inclination exists, as it indeed does in all the Planets and Satellites less or more, but in the apparent absence of any force which could have caused it originally, or which could have subsequently altered it. As this, however, is extremely improbable, it seems impossible to account for great changes of climate, unless by the supposition that climate has been affected by some kind of Cataclysm now unknown.

But to return to the Epoch of Man. If the Tertiary skulls of Olmo Castebuedolo and Calaveras are genuine, they carry us back farther than any other evidence of this kind. "Everything about these remains," Mr. Laing says, "is entirely human. . . . We

are still, therefore, without evidence of human evolution from fossils, and the negative evidence remains, that while so many Pliocene and Miocene formations have been explored, and so many [so called] missing links of other animal forms discovered, no such links have yet been found in the case of the human species. . . . It is only when we come to the higher intellectual and moral faculties that the wide gulf appears between man and the animal creation which is so difficult to bridge over." Mere opinions and theories and expectations of future discovery of missing links are plentiful, but to all such inquiries echo answers "Where?" "And yet," as Huxley emphatically asserts, "there is a wide gap between Man and the highest Ape which has never been bridged over, and which precludes the idea of direct lineal descent, although," he says, "it implies relationship." The relationship consists only in their being the workmanship of a common Creator, at least so far as has yet been proved.

There can be no doubt that much disappointment has been felt at the evidence, or rather want of evidence, which the few Fossil remains of Man yet found have given in favour of Evolution. Mr. Laing says, "And yet it is just here where we might expect to find conclusive evidence, but it has hitherto failed us. . . . We find no Fossil remains which stand to modern Man in something of the same relation as the Hipparion does to the Horse."

It must be admitted that, whatever side we adopt in this great question, difficulties still exist. The Genesis story seems at least preferable to that of the Veda writings, upon which probably too many theories are based. It is much less inconsistent with itself —is more definite and clear. Its precepts indicate a nobler and more natural life, and it is less disfigured with absurd puerilities, personal boasting, and self-glorification, innumerable gods, and cruel immoralities. Not that the Hebrew people were free of cruelties and immoralities; but these were unconstitutional and contrary to the teachings, or at least the spirit, of their Moral Law, while their whole polity sternly condemned idolatry and human sacrifices. Perhaps these very points of superiority tend to suggest the doubts which some yet entertain as to the authenticity of

the Book. It has certainly been subjected to scathing criticism by many writers of the highest talent; but still, at least regarded as a whole, it maintains its position.

One of the difficulties which occur to the honest inquirer is this. Seeing that all peoples have probably emerged from a state of barbarism, before and beyond which history entirely fails us, what are we to say of the highly enlightened primeval Men? The Genesis history gives us the only suggestion we have pointing to a deterioration of Men, through Adam's disobedience, and in the rebellion of Cain. Sanskrit accounts of this deterioration seem too absurd for belief. Cain's race appears to have obtained supremacy, and this might, no doubt, in the course of a few centuries more or less, have resulted in a general degradation of mankind, with possibly the exception of a small community less thoroughly debased. As before stated, an old writer suggested that "the Sons of God" mentioned in Genesis may have been of the line of Seth, while "the daughters of men" whom they married were the descendants of Cain. The suggestion seems logical enough, provided we assume the genuineness of the history.

But, as Dr. Reville points out, such curious rehabilitations of prehistoric times are in this argument not allowable. It is, however, obvious that since we have no remains whatever either of Man or his works extending back to primeval times, or even approaching them by unknown centuries, no evidence can be formed to prove either side of the question. Thus there seems only one course open to thinking men, namely, that we should not quarrel over the absolutely unknown, but keep (not contemptuously) both "Genesis" and the Veda writings as they are, and search and wait for new light from any quarter.

But, in the meantime, we can compare them by the *internal* evidence of their respective contents. The Veda writings are very extensive, and consist of several works of different, but all of unknown, dates. The word Veda signifies Knowledge, and each writing seems partly metrical and partly in prose. Sometimes it addresses the deity in adoration or thanksgiving; at other times, and more generally, it directs, and narrates, and petitions. It gives directions as to Sacrifice, recounts mystical legends, and sometimes treats of speculative doctrines. The meaning of the

word "deity," however, is by no means clear, for some hymns deify things, such as the sacrificial post or the war chariots, and these are invoked as *devatâ*.

The earliest of these Vedas, or what is left of them, are by some claimed as the oldest writings we possess; subsequently, however, the hymns appear to have been transposed and garbled in such a manner that it is not surprising if much of the original beauty of the Veda poetry is lost. The allusions made in them sometimes evince an advanced state of civilization, not of Nomadic, but of City life, great kings, and vast riches. They indicate a knowledge of Astronomy, Medicine, Metallurgy, and Music, and not less of the chief vices of our modern society. Caste is not known, which shows a prehistoric antiquity. The first hymns are addressed to *Agni*, the next to *Indra*, that is, the Sun and the elements of Nature; after these to the deities collectively. The authorship of the hymns is various. It is difficult to give a specimen of these writings; they are so extremely disconnected and vague,—occasionally philosophical, but often ridiculous. Here is a condensed indication of their style:—"Once upon a time Cattle did not stand still to be taken by the gods for food. Turning to the gods they said, 'You shall not obtain us. No, no!' . . . They frightened the animals, which then returned to them. That is the reason that up to this day the sacrificial animals are turned towards the *Yûpa* (their head being bent towards the sacrificial post to which they are tied). Then they stood still to be taken by the gods for their food. . . . The man who is initiated (into the sacrificial mysteries) offers himself to all deities. Agni represents all deities, and Soma represents all deities. When the sacrificer offers the animal to Agni and Soma he releases himself from being offered to al deities"; and so on in varying legends, equally unintelligible and indefinite.

The Veda writings are held to be Divine communications, and claim to have existed from eternity, yet it is self-evident that they have been the gradual product of a long period of time. The intermixing of different portions may have destroyed their continuity, and in this way confused the purpose and meaning which otherwise they may have possessed.

It seems to be suggested by some recent writers of eminence that these writings are older than those of the old Biblical historians and Hebrew prophets, and that the remarkable resemblance of several historical legends or facts and ceremonies related in both indicates that the latter had been copied from the Veda writings and other Sanscrit literature. But it is *equally* obvious that possibly the copying may have been made by the authors of these Veda writings, so that we can judge only by comparing their relative probabilities.

A public speaker recently said at Manchester that "the differences between phenomenal and supernatural religion is one upon which no compromise is possible. It admits of no gradations—it is true or it is false." [1] But as both Hebrew and Sanscrit writers assume the supernatural, we have here no element of distinction between the rival authorities.

[1] "Addresses," &c., by A. J. Balfour, LL.D. (Edinburgh: Douglas, 1888).

LECTURE XXXIII.

HEBREW RECORDS—THEIR CHARACTERISTICS—THE HISTORY OF JOB—INTERNAL EVIDENCES IN ANCIENT RECORDS—CHARACTERISTICS OF VARIOUS RELIGIONS.

THE Hebrews, although for generations in bondage, yet survived and maintained solidarity, and some independence as a nation, until well within historic time; and even yet they remain to some extent a separate people, though without a country. Their Manuscripts, jealously guarded as they may have been, must have been re-copied several times, but are not more questionable now than those of any other people. More than this need not be said. The Egyptian Hieroglyphics and Papyrus writings we have already considered. Those preserved upon Obelisks and other buildings are perhaps the oldest and most valuable, but are naturally very condensed; while those on Tombs are more personal than national, and there is, at least in the former, no certainty that the writings are really as old as the granite ruins.

The authenticity of the Bricks and Tablets of Chaldea has seldom been questioned. Whether they are equally old or not is quite uncertain; but, in consequence of their broken condition, the impossibility of rendering the meaning of the writers intelligible deprives them of their otherwise great importance, both in a historical and in a mythical or religious point of view. Here are, as a specimen, a few lines from an old text:—

"A prayer to Assur, the King of the gods, ruler over heaven and earth—the father who has created the gods, the supreme first-born (of heaven and earth), the giver of the sceptre and the throne. (To) Nin-lil, the wife of Assur the begetter, the creatress of heaven and earth. (To) Sin, the lord of command. (To) the Sun-god, the great judge of the gods, who causes the lightning to issue forth. (To) Anu, the lord and prince. . . . (To) Rimmon,

the minister of heaven and earth, the lord of the wind and the lightning of heaven. (To) Istar, the queen of heaven and the stars. (To) Merodach, the prince of the gods. (To) Adar, the son of Mul-lil, the giant, the first-born. (To) Nebo, the messenger of Assur. . . . (To) Nergol, the lord of Might. (To) the god who marches in front—the first-born. . . . (To) the seven gods, the warrior deities, . . . the great lords of heaven and earth."[1] And so on in other Hymns, from which the list of gods might be multiplied almost indefinitely. It might be reasonable to suppose that the word "seven," which frequently occurs, had reference to seven planets, but it probably has a much more indefinite meaning.

The writings of Moses describe the creation of our Earth and of all organic Matter and Man; and the story as we have already seen, whether true or not, is succinctly told. The Veda writings, and Assyrian Tablets having reference to these, are exactly the reverse, and rendered more unintelligible by the continual introduction of numberless gods.

Job appears to have lived in otherwise prehistoric times, when Sun-worship was prevalent, although he appears a worshipper of the true God. The extreme antiquity of Job may be inferred from the fact that his references to Sun-worship indicate a highly refined, semi-spiritual adoration, entirely different from the sense of subsequent references. At a later time it appears to have become polytheistic, and corrupted into Fire-worship.

M. Renan refers to Job as a mere Bedouin or Nomad Chief, and says that the book was composed by an Israelite. To any careful reader these two statements must appear incredible. Job was "the greatest man of the East." His sons lived each in his own house—not tent. Job offered up burnt-offerings for his "very great household," being a kind of priest as well as a king, evidently long prior to the Levitical worship. Job knew of one Supreme God, and of the sin of idolatry; but, from the entire absence of reference to any Jewish rites, evidently lived before the days of Moses, possibly as early as the days of Abraham. His treatment of his menservants and maidens indicates a far higher

[1] Hibbert Lectures, 1887, p. 122.

condition of civilization than that recorded of any subsequent Eastern government.[1]

The early Hebrew writings may be favourably compared with the Vedas, both for their moralities and for their style.

These views of the extreme antiquity of Job are generally in accordance with those of Dr. Godet of Neuchâtel; but he finally assumes 1000 B.C. as the era of Job for the following reasons: This eloquent writer speaks of "*the very advanced stage of development of philosophical thought which such a treatise pre-supposes.* The book of Job is nothing less than a *Theodisy* (*i.e.*, the Justification of the Divine government). . . . And, unless we are mistaken, we must come down as far as the reign of Solomon to find such an age. . . . Under the influence of the genius of Solomon, there grew up in his court a school of *Wisdom* . . . of an altogether new kind." M. Renan is of the same opinion as to the date; he said "that facts of the kind which furnish the theme of the Book of Job never took place till towards B.C. 1000." But this is by no means obvious, because the facts are of a kind altogether unique. Indeed we think they are less probable in a late than in a very early age.

The suggestion here is that the development of philosophical thought was one of progressive advance from a more ignorant ancient age up to the enlightened era of Solomon. But we have fair reason to believe in retrogression as well as of progression of civilization, and *for that reason* would venture to carry Job's era back to a very remote date. The countries named in the book are not familiar to us; the country of Bildad the Shuhite, and Zophar the Naamathite, are quite unknown; there are no references to the Hebrews or any other *nation*, though the language of the Book is Hebrew, saturated with Arabic. The Sabeans were probably an Arabian nomadic tribe; but (it may be at a much later period) a kingdom of Saba existed in Southern Arabia. The Chaldeans are spoken of as three bands of men, robbers, or cattle stealers. Egypt is the only country definitely referred to. The only money mentioned is the *Kesila*, a coin of the patriarchal period. The musical instruments are those

[1] Job xxxi.

mentioned in Genesis.[1] Job's oxen were plowing, and mention is made of the furrows of his fields, and his crops were wheat and barley. It is scarcely credible that Job, who was a pure Monotheist, and refers only to Sun-worship, could have lived in the era of Solomon without making some allusion to Hebrewism, and to the numerous false religions of surrounding nations. This is the more improbable, considering the wide field and very voluminous nature of the discussions of Job and his several friends.

Now we have seen glimpses of high civilization existing long anterior to Solomon's era, with advanced knowledge of Geometry and Science, especially Astronomy. All these seem to have been familiar to Job, conjoined with a philosophy highly moral and religious, in many respects not inferior to that of Solomon. For very similar reasons, therefore, to those of Godet for fixing upon the era of 1000 B.C., we would suggest an era even anterior to Abraham! The culture and learning of his age is indicated by the frequent mention of such terms as the Bear, the Pleiades, the bands of Orion, and the signs of the Zodiac. Then the incidental mention of the Gold of Ophir, the Topaz of Ethiopia, Sapphires, the Onyx, Jewels of fine Gold, Coral, Rubies, Pearls, Crystal, all show the great refinement and civilization of his era. The advanced knowledge then possessed of Arts and Sciences is proved by works apparently worthy of our own age. The Refining of Gold, the Mine for Silver, Iron taken out of the earth, Brass molten out of the Stone. There is nothing incredible in this knowledge of mining and Metallurgy at a period far anterior to the era of Solomon. We are told by Genesis that most of these arts were known to the early descendants of Cain.

Job seems to have lived in a kind of happy valley, secluded from surrounding tribes, and at an age in the world's history before the formation of the great *Nations* of the East. May it not have been even anterior to the prevalence of any false religion other than a pure Sun-worship, and prior to the writings of Moses and to the era of the Veda writings of India? Subsequently retrogression seems to have set in, but human culture was destined to

[1] Studies on the Old Testament: "The Book of Job," by F. Godet, D.D. (Hodder and Stoughton).

culminate upward to the remarkably enlightened era of the greater Solomon. That there is nothing forced in this supposition is shown by the fact that, following Solomon's age, such retrogression became general until the days of Socrates and Plato in Greece.

The Hebrew Prophets date much more recently, but their writings do not in the least resemble in style either those of Solomon or the Sanscrit documents, which somewhat resemble each other. Here is a specimen of the poetry of Isaiah, who flourished B.C. 760, and was thus nearly contemporary with Homer:—

"It is he that sitteth upon the circle of the earth, and the inhabitants thereof are as grasshoppers; that stretcheth out the heavens as a curtain, and spreadeth them out as a tent to dwell in. . . . Lift up your eyes on high, and behold who hath created these things, that bringeth out their host by number: he calleth them all by names. . . . Hast thou not known? hast thou not heard that the everlasting God, the Lord, the Creator of the ends of the earth, fainteth not, neither is weary? there is no searching out of his understanding. . . . They that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; they shall walk and not faint." Again—"He that walketh righteously and speaketh uprightly, he that despiseth the gain of oppressions, that shaketh his hands from holding of bribes, that stoppeth his ears from hearing of blood, and shutteth his eyes from seeing evil. He shall dwell on high; his place of defence shall be the munitions of rocks, bread shall be given him, his waters shall be sure."

Here undoubtedly we have poetry of the highest class. The language is singularly terse, clear, and forcible, while the thoughts are elevated and sublime. Dr. James Martineau writes: "The acuteness of Athenian intellect has left us no account of any law of Nature which the greatest masters of ancient knowledge deciphered as we do now; but the strains of Job and the rapt song of Isaiah will never be worn out while a human soul is on earth, and a divine heaven above it." No doubt the Veda writings may indicate a people of ethically moral

character and religious life generally, but curiously *inconsistent* and difficult to understand. While their literature sometimes shows refinement and occasionally poetic beauty, it is *largely* mixed up with what appear to us childish puerilities. Their religion and many sacrifices and prayers seem not so much worship and adoration of the gods as an anxious effort to obtain their own personal protection, and bespeak benefits and favours for themselves.

No doubt much larger allowance should be made not only for literal mistranslation of words, but also for misconception of their meaning than is generally done. To illustrate this we quote two examples:—Thus, in relation to Buddhism, Dr. Beal says, "With respect to Tathâgata-Râja, *e.g.*, the phrase used in the original does not mean "*his son*," but "*his direct descendant.*" Again this sentence: "Yearly during three or seven days (or *perhaps* during three-seven days, *i.e.*, three weeks), he provided food for the whole body of priests."[1] Difficulties of a similar kind seem to meet the translators of the Hebrew writings, and especially of Genesis and Job.

Although Buddhism largely superseded Hinduism, the latter yet retains its worship in some parts. Mr. Ross, who some time resided in the Land of the Five Rivers, thus writes: "There is at Multan in the Pungab the ruins of a Hindu temple known as Prahludpuri of great antiquity and mentioned in the Vedas. The Hindu tradition is that a giant named Hurnakus once ruled the kingdom. . . . The temple having been the scene of his supposed incarnation is held in the highest veneration by the followers of Vishnu, who is locally worshipped."[2]

One other point of comparison remains to be considered between the Hebrews and the other ancient nations—that is, the question of human sacrifices. The sacrifice of the first-born son appears to have been regarded by sundry ancient nations as an acceptable offering to their respective national gods; but *from*

[1] "The Life of Hiuen-Tsiang," by Samuel Beal, B.A., D.C.L., Professor of Chinese, London, pp. x and 83 (Trübner, 1888).

[2] "Land of the Five Rivers," p. 99, by David Ross, F.R.G.S. (Chapman and Hall, 1883).

the first, the Hebrews, whether as a nomad tribe or subsequently as a nation, condemned this abominable rite with abhorrence, and any apparent exceptions were in defiant opposition to all their constitutional Laws. The case of Isaac seems no real exception.

Job makes no reference whatever to such Sacrifices, nor any allusion to the religion of Egypt. There is no evidence of Job's being a Hebrew. More probably he was an Arabian; and it is possible the history may not have been *written* till many centuries after his time—a faithful compilation of ancient manuscripts or legends. It gives evidence of an altogether unique state of Learning of the highest class, Cosmical and Psychological. Is there any ancient writing to be compared with this Book, either in style or in its enlightened morals, and in the profound nature of its philosophy? To us now, it presents a singular resemblance to our best modern writings, both in train of thought and in the high themes which it discusses. It is evidently greatly superior to any subsequent writings up till the period of Solomon.

The Egyptian slavery demoralized the Hebrews. This is only what slavery inevitably accomplishes, and it took long centuries of discipline to recover the people from their debasement and hankering after Idolatry, which all their Laws forbade under the most dreadful penalties. It seems evident that the ever-recurring falling away to the sensuous idolatry of their neighbour nations was an open rebellion by both king and people, an illegal act against their own national institutions, which their Prophets denounced under the name of Adultery, with singular unanimity and vehemence. M. Renan says: "Egypt, far from having perfected the Israelitish religion, in my opinion altered it in many respects for the worse." But on the subject of the era of Job, of which nothing whatever is accurately known, he says with characteristic assurance: "The Book of Job was not written for another thousand years, but even at the early age of which we are speaking *it must have been thought!*"[1] Even in view of what we have seen of the advanced state of Learning in the *most* ancient eras of which we have otherwise had glimpses, we cannot

[1] "History of the People of Israel," p. 111.

fail to be surprised by the Culture and Philosophy of Job and his friends.

It is very obvious that nearly all the important events recorded in the Hebrew Scriptures, which have been handed down to us by the Jews in a less or more clear and succinct form, are to be found in and amongst the ancient records of almost every other Nationality. The language is different, the names are different, and the events themselves curiously different; but, notwithstanding, nothing is more obvious than that they all refer to one and the same series of historical events.

It has been suggested, as already stated, that the Jewish records have been copied from the others by collating, amending, and condensing them into a more intelligible continuous narrative—terse in style, and adapted to a more modern taste. By omitting most of the obvious errors, contradictions, and incredible stories of countless gods, these different and various records may have been made more acceptable to the impartial reader. While this suggestion seems not impossible, there is no proof of its being a fact. Another party affirm that this is a reversal of the fact, and as an example they point out that the Babylonian account of Creation gives the creation of the Moon before the Sun, in the reverse order to that of Genesis, which declares the Sun the "greater light," and shows itself in this and other respects the more reliable history. Yet another party say that neither on one side nor the other have events been recorded at all, but that they have been handed down in the separate Nationalities, each by its own traditions and legendary fragments and myths. Tradition soon became corrupted, ending in new Myths and Legends still more so, and by the time the facts became formally recorded, or written, they would naturally have grown extremely diverse from each other, and probably all diverse from the truth. Nor does the difficulty end with their being recorded. Each recopying presents a new risk of farther corruption, either intentional or accidental, but generally mixed up with the national religion and prejudices, and tending to the aggrandisement of the government and gods of the copyist.

In speaking of the antiquity of writings of all kinds one very

important point is apt to be lost sight of. As regards Manuscripts, neither the material on which it is written, nor its author, nor the events it relates, afford positive evidence of the actual date of the writing before us. It may be, and in almost all cases is, a copy, very probably a copy of a copy. If it records the history of a people subsequently conquered, it very probably has been tampered with to flatter the pride of the conqueror, and more especially is it likely *to detract from those facts which would reveal the superior education or refinement* of the conquered race. Nor does this apply to Manuscripts only, but also to Monuments, Cylinders, and Bricks, as well as to Legends and Myths.

For example, when the Assyrians conquered their neighbours the Babylonians, confessedly a more highly educated people than themselves, and then the great predominating power in the East, they, it is said, carried off their Libraries to that of Nineveh. This Library consequently contained not only Babylonian, but probably the learning of the still more learned and ancient nationalities formerly conquered by them, to wit, the Chaldeans, and the peoples even still more ancient whom the latter superseded. No doubt the Assyrians saved many of the older Bricks in establishing a Library anew, but it is not probable that all, or even the, *to us*, most valuable part, was retained. Unfortunately fire and time have destroyed very much of those which were retained.

The numerous Veda writings and most ancient Hymns of the East contain so much of inconsistent details and repetitions, and so obvious a mixture of high truth with fable, that it is difficult to believe their illogical contents can be altogether original. The same remark applies to some parts of the old Hebrew Manuscripts, which are apparently not only inconsistent, but also unintelligible, and must be left to Hebrew scholars to unravel, if this be possible.

Mr. Crozier says that a glance over the history of the world will discover to us that Religions differ from each other in the *Number* and in the *Character* of "the gods, as seen in the passage of religion through the successive stages of Animism, Fetishism, Polytheism, and Monotheism." He tries to show

that the number and character of the gods depend on the law "that men construct their idea of the cause of things in terms of their existing knowledge, culture, and habit of thought."[1] In this general law he includes the Hebrews. But he fails to note that from the first Abraham was a Monotheist, and it cannot be said that the Hebrew people were from first to last more advanced in knowledge, culture, and habits of thought than the cultured Egyptians, Chaldeans, and wise men of the East generally. For some thousands of years all other nationalities seem to have been polytheistic, while the Constitutional Law of the Hebrews was uniformly and absolutely intolerant of Idolatry in every shape and form. This is a point of great importance in the world's history, which no candid philosopher can safely ignore.

"For the mass of Bible readers detailed analysis will always be too difficult. What every one can understand and ought to try to master is the broad historical aspect of the matter."[2] "The starting-point of the history of Israel was remarkable, not for its novelty, but for its normal character. In all ancient primitive peoples the relation in which God is conceived to stand to the circumstances of the nation—in other words, religion—furnishes a motive for law and morals: in the case of none did it become so with such purity and power as in that of the Israelites."[3]

[1] "Civilization and Progress," p. 240 (Longmans, 1888).

[2] Prof. Robertson Smith.

[3] "Prolegomena to the History of Israel," by Prof. Wellhausen, p. 437 (Black, Edinburgh, 1885).

LECTURE XXXIV.

CONTRADICTORY THEORIES OF ANCIENT RECORDS—THE VIEWS OF MR. GEORGE SMITH—MR. MOBERLY BELL—EGYPT, PREHISTORIC AND HISTORIC—THE SPHINX—NO NATION WITHOUT A RELIGION—THE HEBREW ACCOUNT OF RELIGION.

IN speaking of the ancient records generally we have tried to give all varieties of opinion. There is certainty in none of them, and we fear some readers may be more confused than enlightened by their contradictoriness. So far as appears, the views of the late Mr. George Smith, of the British Museum, have received pretty general acceptance, because he had given the subject of the Ancient Tablets much study, and besides had personally explored the Mounds in the Euphrates Valley. Our space forbids our quoting here, but we will try to give his opinions in brief.

We cannot fix the dates of any Monuments before the time of Urukh, king of Ur, B.C. 2000, "but it is quite certain that there were buildings and inscriptions before then, *and two literary works.*" The Isdubar legends, containing the story of the Flood, were written at least as early at B.C. 2000. These legends were, however, traditions before being committed to writing. It seems that there had been in the interval between B.C. 2000 and B.C. 1850 a general collating and development of the various traditions of the Creation, Flood, Tower of Babel, and other similar legends. About B.C. 1600 a new set of Astrological tablets were written, belonging to the kingdom and period of Accad. The principal inscriptions of this period consist of texts in bricks, and on signet cylinders. Some of the latter may be of much greater antiquity. These literary tablets consist of Mythological tablets, Lists of gods, Grammatical works, Mathematical works, Calculation tables, Cube and Square roots, Measures, Astronomical and

Historical cylinders, Geographical tablets, Law and Law cases, Sale and barter, Wills, Loans, &c., besides other items of much interest and importance.[1]

All these circumstances seem to confirm our opinion that the very oldest records and legends, Sanscrit and Hebrew alike, give evidence not only of an advanced Civilization, but of Learning and Art *much beyond those of more recent eras* of the world's history, of which similar glimpses have been obtained. In the words of Professor Robertson, of Glasgow, "a standard of life and worship of a much more extensive nature than modern critical historians admit was known at the *earliest* times of which we have evide nce.

Assuming the estimate of the most remote of the many dates given for the first Egyptian King Mena, a recent traveller[2] gives a clever *résumé* of the history of the Egyptian dynasties in accordance therewith. Mena he sets down as the "first earthly King of Egypt," 5004 years B.C. There seems to have been a previous dynasty of gods. This date, which can only have been arrived at by mere calculation backwards, is made upon imagined numbers and length of the kings' reigns; for the hieroglyphics bear no dates. Mr. Bell gives Memphis as the capital, with the Pyramids of Ghizeh and Sakkarah, &c., as its cemeteries. Egypt was at different periods divided into two or more separate and contemporaneous reigning governors. In such circumstances serious errors may occur in chronological calculations. The first four dynasties ruled for some thousand years of apparently profound peace. During this period "attention was given to the cultivation of flowers. . . . Medicine, Anatomy, and Astronomy were known. . . . The year of 365 days was introduced. . . . The dionite statue of Khafra, the wooden statues of Rahoteb and Nefert bear witness to an artistic development *which no later period rivalled.*" Whether this chronology is reliable or not, it is evident that we have here a high civilization in an antiquity the *most extreme*, for no glimpse of any prior period is obtainable.

[1] "The Chaldean Account of Genesis," by George Smith, chap. ii. (Sampson Low, 1876).

[2] "From Pharaoh to Fellah," by C. F. Moberly Bell (Wells, Gardner, and Co., London.)

The next six dynasties are supposed to extend from 3951 B.C. to 3064 B.C., but of their history nothing is really known. "The Sculpture, *though still fine, shows some falling off from that of the earlier period.* . . . To this period belong the Statues of Tih and Nefer Kha-ra at Sakkarah, as well as the oldest known mummy, that of Sokar Em Saf. . . . The middle Empire commences with the eleventh dynasty, which established itself at Thebes, destined to become the capital of a great empire;" supposed period 3064 to 2851 B.C.

In the fourteenth dynasty the country was invaded by the Hittites and the Hyksos, or Shepherd Kings, who ruled Egypt during the 15th, 16th, and 17th dynasties, 2851 B.C. to 1703 B.C. For this period of "nearly 1200 years the history becomes a mysterious and impenetrable blank." Before its close, however, a civil war arose, in which the native Egyptians drove the Hyksos back into Syria. The eighteenth dynastry was native Egyptian, established under Aahmes I. Thebes rose to unrivalled splendour under these Pharaohs—Thotmes I., Queen Hatasou, and Thotmes III. and IV. They overran Syria, Judæa, Arabia, and Mesopotamia. There were erected towns, temples, obelisks; and Karnac was enlarged. Upon its walls we find a list of 115 cities subdued. Amongst those of the "Promised Land" are Kadesh, Megiddo, Damascus, Beyrout, Acre, Jaffa, Migdol, and Rehoboth.

About 1706 B.C. Jacob seems to have settled in Goshen, and the Israelites continued there till the Exodus under Moses, 1491 B.C. The 19th dynasty was established by Ramses, whose son was Seti, who was the father of the great Ramses II. (the Sesostris of the Greeks). At this period the Hebrew chronology may assist us, but hitherto there exists *great contradiction of dates*, without any appeal to other reliable sources. To reconcile Archbishop Ussher's Chronology with the various dates before given, or them with his, seems hopeless.

Seti I. carried his army into Syria against the Armenians, Hittites, and Assyrians, and he conceived the idea of connecting the Red Sea and the Mediterranean. His sister may have been the princess who saved Moses. Ramses II. reigned sixty-seven years, during which Egypt reached her highest military renown and extension. "The walls of Karnac and the Rameseum are

covered with the records of his exploits," and are reproduced upon the second pylon, and at Luxor and Ipsamboul.

Ramses II. was succeeded by his son Seti II., who, according to some authorities, was the Pharaoh of the Exodus. The history is obscure until 1288 B.C., when the twentieth dynasty opens with Ramses III., who endeavoured to excel in the magnificence of his buildings and the decoration of his capital. This last of the warlike kings records his victories over the Lybians, Pelasgians, and others. Returning with his prisoners in chains, he offered them to the gods of Thebes. These Eastern monarchs did not entrust their historic fame either to their courtiers or their successors. They built their own tombs and recorded their own valour in terms of extravagant boastfulness. They ignored failures; battles were won by their own personal prowess, and their armies obtained no share of the glory. Not only so, but sometimes the name of a "Pharaoh was erased from the Temple he had at immense cost erected to commemorate his fame, by one of his successors, who engraved his own name in its place. This was frequently done by Ramses II., at Bubastis, at the expense of a predecessor. Nor was this the only fraud, for by this means he tried to impose on us moderns by making some fine work of Art appear much *less* Ancient than it really was, and thus misled the historians of later ages.

During the long line of Ramses who composed the twentieth dynasty, Egyptian glory declined; their military prowess was replaced by the priestly class of the Tanis hierarchy. Sheshonk, said to be the Shishak of Scripture, founded the twenty-second or Bubastite dynasty, who built the outer court of Karnac. "The gods bring him the towns which he has conquered."

"During the twenty-third and twenty-fourth dynasties Egypt was hard pressed by the Assyrians from the north, and the Ethiopians from the south." The latter, 715 B.C., under Piankhi, effected the conquest of Egypt, and established the twenty-fifth dynasty. Some fifty years later, the Pharaoh Shubataka, marching to the aid of Hezekiah, was defeated by Sennacherib, king of Assyria. "A few years later his successor, Tirhakah, was defeated by King Esarhaddon, also of Assyria. An unsuccessful revolt was followed by the complete annexation of Egypt to Assyria, and Thebes,

the glory of Egypt, was pillaged." Under the Saite dynasty, B.C. 665, the star of Egypt seemed for a moment to rise from obscurity. Psammetik attacked the wealthy seaports, and Necho, his successor, attacked Assyria, defeated Josiah, king of Judah, the ally of Assyria, at Megiddo, but was himself defeated by Nebuchadnezzar, king of Babylon. Necho is said to have attempted to join the Red Sea, not with the Mediterranean, but the Nile. Warned by an oracle that it would only benefit strangers, he desisted. This dynasty we need not follow farther. It ended in defeat, and finally placed Egypt under the domination of Persia, B.C. 527–406. Under Cambyses, Darius, Xerxes, and his successor, it was known as the twenty-seventh dynasty; then followed a revolt, and a rapid succession of conquerors and pretenders. In B.C. 340 the Persians recovered their authority, but eight years afterwards Egypt fell with the rest of the Persian Empire under the great Macedonian. The Greek occupation was on the death of Alexander, who founded Alexandria, succeeded by the Ptolemies, and eventually like the rest of the world fell under the Romans, who governed it as a province. Some centuries followed of feuds, political and religious, and in A.D. 640, it was overrun by the Mahomedan-Arabs under Omar I., and finally belongs to the Turks under "protection of the European Powers."

The history of Egypt has been a most eventful one. Commencing in a prehistoric era, it attained to greatness under Thotmes III. and Ramses II., and ever since has passed through a series of reverses and invasions, gradually becoming more and more humiliating. One peculiarity is observable in almost all of them. The Egyptian people were by no means heroic; they accepted each conqueror in turn as their sovereign, but instead of their adopting his national habits he generally ended in accepting theirs, the consequence being a remarkable oneness of personal features, with a great variety of gods, up till the Mahomedan conquest, when toleration was checked.

We have in the preceding pages followed Mr. Bell's history for the most part, and frequently used his own words, which are both interesting and amusing. His description of the Boolak Museum is especially so, and is, we think, notably correct.

In it are seen material evidences of our world's history for an almost fabulous period, reaching from prehistoric times and the second dynasty down to the Ptolemies. There is an excellent statue of Khafra, the builder of the Second Pyramid of Ghizeh. Near this stands the life-like figure of "the wooden man," of unknown origin. The mummies in cases around are singularly realistic, as Sekenen, Seti I. and Ramses II. "Their blood may not run in our veins, but their brains have helped to form ours. We are never tired of owning our debt to Athens and Rome, but we forget that Athens herself was what she was only thanks to Egypt, and that the intellectual ancestors of Phidias and Homer are around us."

These mummies are now upwards of 3,000 years old, but in an adjoining room are two statues of Rahoteb and Nefert, looking as if carved and plastered yesterday. Yet we are told that they belonged to one of the earliest dynasties, more than two thousand years prior, so that, if we trust this chronology, to the Ramses they were already objects of great antiquity.

But older than all stands that wonder of the world, the Sphinx, older than the Pyramids, older even than Mena by Mr. Bell's theory. All description fails to give a true idea of this inimitable statue. It has withstood the assaults of time and of violence. Time has spared it, but its grand face has been disfigured by the savagery of man, the men of later generations, quite incapable of appreciating its refinement. Seen in the dim twilight the mind can, in some degree, rehabilitate the beauty and grandeur of that face, and somewhat enter into the conception of its great Architect. Its majesty, its protective air, its power (without force), its silent repose, its peculiar poise and afar-off gaze, all commingle to produce a marvellous effect which the glare of day dispels. To describe it in one word seems impossible. "It stands the Monument of the world, one, and unapproachable." It is the ideal of WISDOM AND PHILOSOPHIC THOUGHT. If Mind could be conceivably represented in stone, it is so in this, the oldest of statues.

We have traced so-called history thus fully because it serves to illustrate and support our arguments generally. These are that, instead of a condition of savagism in the farthest-back ages

ot which we have glimpses, we find a state of extreme refinement. 2nd. Instead of a gradual progress in improvement, we find quite as often evidence of gradual retrogression in art, religion, and civilization. 3rd. At no period have we found a condition of barbarism nearly so gross as exists in our own day, in newly discovered detached islands and isolated communities in all quarters of the globe. 4th. As we reach backwards we find a decrease in the number of the gods, and a very near approach to Monotheism, with an increasing spiritual and a decreasing materialistic worship.

Thus the old theory that Civilization has progressed from savagism to refinement may *with as much probability* be reversed in the case of these detached countries and islands. We can suppose that their *original* refinement may have degenerated to the grossly savage state in which we now find them in course of thousands of years of separation from large communities and all the centres of civilization. We do not suggest this as probable, but simply as not more improbable than the reverse theory appears to us. The subject must remain as an open question.

Nothing more clearly confirms the idea of a high standard of worship in remote antiquity than the very general belief in Immortality. All such glimpses of the past, whether obtained in the most or the less ancient records, and whether relating to the most refined or the most barbarous peoples, reveal the fact that no nation or tribe has existed without some kind of Religion.[1] A Belief in Immortality and a Religion (even the most debased) seem to naturally infer each other. Madame Z. A. Ragozin says, "There is no race of men, however primitive, however untutored, in which this belief in Immortality is not found deeply-rooted, positive, unquestioning. . . . It answers one of the most imperative, unsilenceable longings of human nature."[2]

If we refer to the Genesis account of the "*Beginning*" of things (and we have no other *less* unintelligible), we find that the "Great First Cause" *created* (*i.e.*, made) the Heavens and the Earth. Here we have a *complete* statement. The second verse,

[1] "Lectures on Hebrew Historians," &c., 1889.

[2] "Chaldea," by Z. A. Ragozin, p. 336 (Fisher Unwin, 1887).

we presume, begins to describe the work of the First Day, but we have no indication of the period of Time between Creation and the first day's *work*. It was *possibly* sufficiently vast to satisfy the Geologists' requirements for the formation of the *primitive* rocks! In estimating this period, however, they seem to forget that the Condition of the Earth must have then been essentially different from what it is now. It was probably intensely hot and plastic, or otherwise not necessitating so many million of years as their calculation simply.

Verse 2:—"And God moved upon the face of the Waters; and God *said*, *Let there be Light*, and there was Light." This was the first day's work. It was a period of vast extension, perhaps beyond our conception, for there was as yet no measurement of Time whatever. Now, if we examine the constituents of our Earth, we find they are all resolvable into mere *Dust*, so that out of dust everything was *afterwards* made. That is to say, Dust contained the germ of all mundane *visible* and *ponderable* existences. For the elements of which the Waters and the Firmament are formed, Mechanics and Chemistry show to be but dust. Out of this elemental Chaos of dust He by a word separated first the Firmament. This was the second day's work. And then by a word He separated the Dry Land from the Waters. Out of the Dry Land by a word *arose* the Vegetable Kingdom. This formed the work of the third day. Then He said, "Let there be Lights in the Frmament," and the Sun, Moon, and Stars were *made* on the fourth day. Then out of the Waters by His word *arose* the Fishes, and every winged Fowl; this was on the fifth day. Lastly, out of the Earth (the Dry Land) by His word *arose* Cattle and Creeping Things, and Beasts of the Earth. Earth was now ready for its master. Except the creation of the Heavens and the Earth, *all this was done by "the mere Word of His mouth."* Then the Creator said, "*Let us make Man.*" And He "*formed Man of the Dust* of the ground, and *breathed into his nostrils the breath of Life, and Man became a living Soul.*"

It thus appears that the Creator *created or brought into existence* only *one material thing*, DUST, and endowed with life that one thing Dust, which was itself the element of every material thing which the World contains. This is the most emphatic testimony we have

of the Husbandry of Heaven! He *created* nothing else, but at HIS WORD Dust brought forth the whole Vegetable and the organic Animal Kingdoms, each individual thereof endowed with the Germ of *its own* exclusive existence, for reproduction in continuation. Man was the *only direct workmanship of His hands*. And Man He MADE of the Dust also. There is a remarkable difference here. Every other creature He created by a word. So Shakespeare reminds us—

> "What a *piece of work* is a Man!
> How noble in Reason!
> . . . The paragon of animals!
> . . . this quintessence of *Dust*." [1]

Again, Animal Life was called out of Dust, and Instinct is an endowment of Life, both being *Natural* facts; but the Mind of Man was not so, but was a *direct emanation* from his Maker, and so a spiritual or *Universal* fact. Hence the distinction we have so much insisted upon: Instinct and Mind are *incommensurable*.

It thus appears that physically Animals and Man are alike composed of Dust, and although not of the same creation, yet of the same Creator, and formed after the same typical plan—the same typically, and yet how essentially different! As we have already said, *His* plan is *typically* perfect, and further illustrates the Husbandry in Heaven. For it seems clear that God only made Two CREATIONS in the strict sense of that word: 1st, Dust; 2nd, Man—physically and mentally ONE, and the only one Rational Creation.

This consideration largely explains the misconception which the great similarity in the frames of some Mammals and that of Man has given rise to, and more especially in their state of embryo. Nor does it contradict the truths of Evolution in the Animal World, limited within fixed boundaries.

We may not think this history *probably* true. It certainly could not have been written till long after the event, and, when so written, must have been obtained from an old legend. But it

[1] "Hamlet," act ii. sc. 2.

differs from almost every other legend, so far as we know, in being neither logically nor scientifically *impossible* (at least to those who believe in a Beginning at all), as all other theories seem to be. It is undoubtedly a fact that, whether true or not, this first chapter of Genesis contains within a space of two or three square inches of print more important history, and embraces therein a vaster period, than all the books in the world otherwise contain.

Before leaving this Genesis history, let us consider it in relation to the Evolution theory, by applying our TEST to it. We find recorded first a Primary CREATION of Dust; and next, various secondary (so-called) creations, or Evolutions out of the same. These include Animal Life with its Instincts; but all of them belong to the NATURAL sphere only.

Succeeding this, we have in the latter portion of the Sixth Day the *Creation* of Man out of Earth (Dust). So far as physical, Man is of the same raw Material, but not "*made*" in the same way as the irrational Animals. Not indeed of the same Creation, not by *Evolution* like them, but formed directly by the hand of the Great Creator, and after the same original general *Type* as they. So that Man is really an Animal, with Instincts similar to those of the Animals, and, although of a higher class, he is mortal, and physically belongs to the NATURAL sphere. Here, however, an entirely new Entity is CREATED and introduced—Mind, a direct emanation of the Divine—a Spiritual Life, and therefore Immortal, and belonging to the UNIVERSAL sphere.

Thus Man is a duplex being: (1) A Body: made of Dust, but *not Evolved* from it, as the Animal world was. And (2) a soul, or reasoning Mind. Not one of "the Animals" by any blood relationship, nor indeed by any kind of relationship whatever. Mortal, and yet Immortal—bound down to the Earth, although its Lord and Governor, and with a Mind that wanders through Eternity, and is a Creature, so far as we know, unparalleled in the Universe.

Looking at the Creation history in its more minute details, it is evident that the frequent and emphatic use of the words, "*After its kind*," and "Seed after its kind," must have a special meaning. The seed of the Oak did not produce the Vine, and

the Animals were only empowered to produce animals after their kind. The meaning of "kind" is not exactly definite, but it evidently had a meaning of a restrictive character. We see that Evolution (Limited) began almost as soon as Creation, but extreme Evolution receives no support whatever here. The Creator evolved Vegetation from the Earth by a word, but Vegetation did not evolve Animal life. By a Word He evolved swarms of living creatures from the Waters, and again by a Word did He evolve Cattle and creeping things from the Earth. But in each case no kind of living creature evolved any other or higher Creature, but each was authorized to produce and multiply its own kind only.

Of course we have here *assumed* the authenticity of this history. If we cannot do so these arguments, which we think logical, are of no value. But, on the other hand, to those who accept the Genesis history, it throws light upon some of the points in dispute, and this must be our apology for recurring to its exact terms so fully as we have done.

LECTURE XXXV.

THE LESSONS OF GEOLOGY — THE DEVELOPMENT OF THE SCIENCES—WIDE ACCEPTANCE OF THE EVOLUTION THEORY — LIMITED AND UNLIMITED EVOLUTION — DR. A. R. WALLACE AND DR. DARWIN — THE GENERAL ARGUMENT RESUMED AND SUMMARIZED.

THE popular idea of "Science" pictures it as the *definite* knowledge of Natural Truths. Such it was once held to be, but in recent years the revolutions of opinion have proved that the definition must be greatly modified. No science better illustrates this than that of Geology, which has undergone more than one reconstruction during the present generation. The old ideas as to the formation and position of the rocks, and their upturning solely by upheavals or eruptions from internal pressure, as well as the theory of the formation of valleys by enormous floating icebergs, are largely superseded by the new theory.

"The size of our globe upon the first solidification of the crust must have been much larger than at present, the consolidation and cooling by radiation of heat being necessarily accompanied by the *contraction of the crust* upon the viscous or fluid interior. . . . To this cause we may attribute the elevation of our mountain chains, the depression of our oceans, and the contorted and fractured condition of all Geologic periods."[1] In a limited extent now, such upheavals still appear to occur, not altogether by natural internal pressure, but by contraction of the solid crust as the cooling continuously goes on, perhaps creating occasional eruptions such as the recent one in the East Indian Islands.

"That the globe consists of a solid crust enclosing a viscous and liquid mass at a very high temperature enables us to explain

[1] "Geological History," by Prof. Hull (Deacon and Co., London, 1887).

the phenomena of the flexuring and faulting of the strata and their local metamorphism more satisfactorily than by any other hypothesis." As to the inequalities on the surface of our globe, they are "less in proportion to its size than the roughness of the peel of an orange to that of the orange itself."

The first appearance of living forms is an event far transcending in interest any subsequent changes of their form and structure. As regards the great question of the Origin of Life on our globe, "*Science has failed to offer any satisfactory explanation;*" therefore, in a question of this kind, as Dr. Hull says: "When the lamp of Science fails to point a path, we must have recourse to the light of Reason."

It is generally allowed that upon the earth's surface there have been great variations of climate, notably those of the Glacial and Inter-Glacial periods, during which intense cold prevailed far exceeding that of any historical period, the cause of which has not been explained upon any mundane basis, and which possibly indicates some Astronomical influence.

The Epoch of Man is said to have followed when "a gradual amelioration of climate took place, notably in the Northern Hemisphere, while at the same time the relations of land and sea approximated generally to those now established." At this epoch Man was an inhabitant of our continent. At what exact period he made his appearance in Europe is not fully determined, but, as Dr. Hull states, there is no unquestionable evidence of the presence of Man till the close of the Glacial period itself.

In the present day Geologists seem to study their science not so much by travelling with their hammer as by the examination of the constituents of their specimens of rocks and fossils in the laboratory. The Microscope has become to them the great secret-revealer, as the Spectroscope has to the Chemist, and the Telescope to the Astronomer.

But other Sciences have been and are being reformed also, and revolutionized almost as much as Geology — such, for example, as Chemistry and Electricity. Electro-Magnetism, indeed, has made immense progress, as we have already shown, and we are probably on the eve of yet greater discoveries. Even History and Geography are being greatly modified. John Fulford

Vicary relates that America was discovered, and New Jersey, Delaware, and Maryland visited, A.D. 1003–4, by an expedition of Northmen from Iceland and Greenland. They found grapes abundant, and named the new country Vineland. Mr. Vicary views the narrative with some doubt, and if it is not more correct than the curious old Map which it accompanies, it has somewhat the appearance of a Saga Myth.[1] Meantime Christopher Columbus (1492) must retain the honour of the discovery—and Shakespeare, not Bacon, the glory of his Dramas.

Even in our own national History many curious instances of metamorphoses made during recent years, both in facts and in opinions, will occur to our readers. Perhaps the quaint remark of Novalis, that "History is a huge Anecdote," is not very wide of the truth. Of the other Natural Sciences many are comparatively modern and secondary, but no Science has been so little affected by change as the old and fundamental one of Mechanics, which may be called the Mother of Natural Sciences. This arises from the fact that its propositions are more clear and definite than those of any other science, and hence its study is the best education for the Mind. Embracing in its laws Astronomy, which is in one sense a branch of pure Mechanics rather than a separate science, its visible operations in the heavens are daily and nightly brought before our Mind, and greatly interest the ardent student by a grandeur and sublimity altogether unparalleled. In its essence it more nearly resembles Geometry (the Spiritual Science) than any other of the Sciences do. It is the most ancient of them all; it had no author, but was the Science of Archimedes, Galileo, and Lagrange. In this field Kepler and Newton and Watt made their grand discoveries. Yet even in the face of the great advance of education generally, the ignorance of the Laws and even the common facts of Mechanics and Astronomy in society at large is remarkable.

We have seen that the Evolution theory is not without numerous arguments in its favour. It has also numerous advocates in almost every field of erudition, and no seeker after truth can set it aside or evade its consideration. The result has

[1] "Saga Time," p. 197 (London, 1887).

been a widespread belief in it on the part of scientists, but still more wide in the general field of Literature. There is something simply beautiful and easy of belief in the idea that all visible things have grown out of a single Monad, or an invisible Gas, and that the process of improvement is still going onward towards an indefinite perfection. Such belief may not be very logically defined, but has great attraction for the young.

But those who search deeper into its merits soon discover that the theory is illogical, and that there are two or rather three different classes of Evolutionists. First, those who believe in unlimited Evolution. We have alluded to Prof. Haeckel, who belongs to this class, and the numerous body of pure Materialists may also be included under it. Speaking of these last, Prof. Huxley once wrote that "the Materialistic position, that there is nothing in the world but matter, force, and necessity, is as utterly devoid of justification as the most baseless of theological dogmas."

The second class, of those who accept Evolution in a limited sense, is much less distinctly defined, because, of its members, scarcely two of eminent attainment agree as to a common Evolution platform. It is, we submit, a mistake to refuse a place in this class even to Dr. Darwin, and still more so to Mr. Wallace. Of living men probably the most eminent Evolutionists are Huxley, Tyndall, Herbert Spencer, and Thomson, whom we have already mentioned. They all seem to differ considerably from each other, and sometimes apparently from themselves. A still more numerous body are distinguished from those previously described in being Evolutionists in the *material* sphere, while not admitting the evolution of Mind from Matter, nor of Man from the Ape. The Evolution theory as held by this last party is, we think, making great progress of late years.

An important addition to the literature of Evolution, and its present position in the scientific world, which has recently appeared from the pen of one of its original discoverers and leading advocates, will repay study.[1] Dr. Wallace, than who, perhaps, no man has a better claim to be heard, has given us an elaborate exposition of Darwinism from a Naturalist's point

[1] "Darwinism," by Alfred Russel Wallace (Macmillan and Co., 1889).

of view. He treats at length the subject of *Variation* and the effects of *Selection*, both Natural and Artificial, generally supporting Dr. Darwin's theories. He says, "Although I maintain and enforce my differences from some of Darwin's views, my whole work tends forcibly to illustrate the overwhelming importance of Natural Selection over all other agencies in the production of new Species."

To us the great interest in this volume lies in its last chapter, and especially the paragraphs entitled, "*The Origin of the Moral and Intellectual Nature of Man*," and "*The Argument from Continuity.*" It seems to have been *assumed* "that man's entire nature and all his faculties, whether moral, intellectual, or spiritual, have been derived *from their rudiments* in the lower animals! "This conclusion," says Dr. Wallace, "appears to me not to be supported by adequate evidence, and to be opposed to well-ascertained facts."

Darwin's mode of argument consists in showing that the rudiments of the mental and moral faculties of Man can be detected in some animals. "The manifestations of intelligence, amounting in some cases to distinct acts of reasoning, are adduced as exhibiting in a much less degree the intelligence and reason of Man."[1] "Instances of curiosity, imitation, attention, wonder, memory are given."[2]

Setting aside the objection to this theory that it is purely materialistic, and as such condemned by so high an authority as Professor Huxley, readers who have followed us in these pages will have no difficulty in seeing the fallacy in the preceding assumptions. But we will try to recapitulate them very briefly in detail.

The Brain, although material, is not one of the organs of sense, but is the seat or centre of Life which receives all its instinct, sensations, motives, and knowledge through these Senses, and through them holds its instinct communications with the outer world. This is true both of the lower Animals and of Man, whose actions are ruled by the Life, or its factor the brain, through a network of nerves of marvellous fineness and com-

[1] "Darwinism," p. 461, by Alfred Russel Wallace.
[2] "Descent of Man," chap. iii.

plexity, and whose Instinct-Life is ruled by Motives. For Man, although not one of "the Animals," *is an animal*, not by descent from the lower Mammals, but somewhat resembling them, being physically created upon the same perfect type or design. As we have already said, he *is not of the same creation* as they, although having the same Creator, and possessing certain additions and alterations and endowments not needed by them; for great is "the Husbandry in Heaven." Each has a frame, *the very best possible*, for its or his uses specially.

But, to say that Man's entire nature, "Moral, intellectual, or spiritual," has been derived from rudiments in the lower animals, is an unwarranted assumption, entirely contrary to fact. This fallacy is completely destroyed by the *Test-fact*, as we have already shown, which proves that morals and intellect (Reason) are not *Natural*, but *Universal* or spiritual truths, and that mere animals possess no rudiments thereof whatever, Instinct and Mind being absolutely incommensurable.

Man's brain, besides having its mere Life (Instinct) *attributes*, is the seat of purely mental (Mind) *faculties*, and is, or its *higher* portion is, the mysterious centre of thought (Reason), and whatever ennobles Man, and crowns him master of all other living creatures on the earth. Men have sunk into Savages in many cases, no doubt, but even Savages possess some germs of reason, and all possess its infallible index—Language. Man's brain (even in the oldest fossil) we have found to be *very much higher and loftier* than those of the mere Mammals, whether in relation to form, to size, or to physical power. Neither Variation, nor Natural Selection, nor any periods of Time however vast, can be shown to explain these facts, for neither of them is indefinite. They are all circumscribed within fixed and narrow limits.

Dr. Wallace concludes with a remarkable passage, from which we can only extract a few sentences: "The three distinct stages of progress from the inorganic world of matter and motion up to Man point clearly to an unseen universe—to a world of Spirit, to which the world of matter is altogether subordinate. To this spiritual world we may refer the marvellously complex forces which we know as gravitation, cohesion, chemical force, radiant force, and electricity, without which the material universe could not

exist in its present form."[1] While we entirely differ with the learned writer who believes that "Man's body may have been developed from that of a lower animal form, under the law of Natural Selection," we can concur with his closing words: "We possess intellectual and moral qualities which could not have been so developed, but must have had another origin, and for this origin we can only find an adequate cause in the unseen universe of Spirit."

This question of "a world of Spirit" is one outside the sphere of logical treatment, belonging to the occult and mysterious, and so entirely beyond the scope of our Argument. "It certainly is with his Intellect as well as with his Emotion that Man has touch with the Divine." Coleridge truly said:—

> "He prayeth well who loveth well
> Both man and bird and beast."[2]

And again:—

> "Greatness and Goodness are not means but ends;
> Hath he not always treasures, always friends,
> The good great Man?—three treasures, *Love* and Light
> And calm Thoughts, regular as infants' breaths."[3]

The three Graces are Faith, Hope, and Charity (Love); but *Love* is supreme, and is held to be our best definition of God. Plato said, "God is Truth, and Light is His shadow." Hence we may say that "*Love is Truth.*" If so, then in this constructive sense Pilate's question is answered.

Charles Swain wrote:—

> "I cannot go
> Where universal Love smiles not around,
> Sustaining all yon orbs and all their Suns.
> . . . . The Spirit-bond
> That links the Angel to humanity."

A recent writer says: "Natural Religion, based on observation of natural phenomena, refers to more or less probable relations between the visible and invisible world. . . . The observed

[1] "Darwinism," p. 476. [2] "The Ancient Mariner." [3] "Reproof."

harmony of Nature seemed to point to one force above all others —to an aboriginal force. Incapable to define the essence and origin of the same, some Orientals assumed the eternal existence of an invisible, and apparently non-material, world-pervading natural force, of an ether, breath, or spirit." Already in the times before Abraham, "the 'holy spirit,' was somehow mysteriously connected with 'the all-knowing Spirit,' or Ahura-Mazda, the Ormuzd of later times. . . . Whether God or not, a Spirit was conceived as the highest personal representative of the eternal Spirit-power in the Universe. . . . In its origin Buddhism, like its source Zoroastrianism, was decidedly spiritual. . . . The earliest . . . tradition in the Zendavesta, which had been verbally transmitted during many centuries, indicates that . . . the all-knowing Spirit reveals his mysteries to such men as are led by the good Spirit." [1]

But we must draw our arguments to a close. They have been extremely diffuse, and we can only touch upon a few more points, leaving them in a somewhat disconnected position. For, as the intelligent reader will have realized, our Arguments have chiefly been undertaken to *examine* and expose the weak points in several popular Fallacies, and not so much to advocate new theories—other, indeed, than the main ones of this work.

The leading Fallacy is that the Original Man was a Savage, and that the present state of Civilization is the result of a gradual and progressive Improvement. We have shown that this is a mere *assumption*, and that, from numerous glimpses which we have obtained quite incidentally, an *assumption* quite the reverse might be offered. We have not treated any Revelation as authoritative, but all of them as we treat Herodotus—that is, as Histories, whose truthfulness is to be examined by surrounding facts, observations, and results.

To those who believe in an Original Creation *at all*, we have shown the Fallacy of supposing that it was *necessarily* in any sense Imperfect. This inasmuch as ONE so infinitely powerful as to create our Solar System was not likely to do His work in any

[1] "Islam or True Christianity," by Ernest De Bunsen, pp. viii and ix (Trübner and Co., 1889).

sense defectively, by creating dumb animals only. These were created certainly, but as servants and subjects of Man. And if He created Man—assuredly a perfect MAN in every respect.

Another of the Fallacies we have examined is that Logic is unreliable. Nothing is more untrue; for pure Logic is directly allied to Geometry, and therefore a *Universal* Truth. A theory may be probably true, or it may be possibly true, or it may be doubtfully true; but if it can be *proved* to be illogical, it is simply false.

The question of Doubt is one deserving of the greatest consideration. Many men of the highest quality of Mind have been affected by it, and their very doubts are evidence of conscientiousness.

"He fought his doubts and gathered strength,"

writes Tennyson. A recent writer has said: "The power to obey or to resist is the first gift of God to a free being. . . . It is in this that progress in good or evil consists, to which the perilous prerogative of Free Will forces us." Again, "In Man Instinct is his first master, but not his eternal tyrant. Man can, with the help of Conscience and reflection, overcome his lusts. . . . From this faculty of self-government springs the power of progress in mankind." [1]

The Fallacy that Instinct is Mind in the germ, is one of the most prevalent and difficult we have had to deal with. We can only refer to the Lectures in which we have treated it at considerable length, and, we think, logically. But it is evident that this fallacy is deeply imbedded in the public mind. The importance of a true exposition of this point is very great, because if we succeed in exposing its falsity, we *thereby* overturn the extreme Evolution Theory of the Ape and Man. In Evolution Limited we have expressed our entire belief.

We have thus, in the discursive manner prescribed for ourselves at the beginning, though at greater length than intended, pursued our inquiries into the domain of Truth. In bringing

[1] Professor Godet's "Studies" (Hodder and Stoughton, 1886).

them to a close it seems necessary to give a short summary of the principal points in the Argument, which we have attempted to set each upon its proper pedestal of reason and deduction.

I. TRUTH IS OF TWO KINDS—*Natural* and *Universal*. This distinction affords a TEST or Touchstone applicable to all Theories.

II. Instinct is a *Natural* fact, mortal, and distinct in kind from Reason; whilst Mind is a *Universal* fact, and immortal. Consequently, Instinct and Mind are absolutely Incommensurable, and Matter itself is not eternal.

III. The Forces of Nature are not indefinitely continuous, and, if they were so, they would each ultimately prove self-destructive. Whilst the Evolution of Species may possibly be found to be true, the Evolution of Mind from Instinct, that is, of Man from the Ape, is impossible—as shown by our TEST.

IV. The prevalent opinion that primeval Man was a Savage is simply an assumption; and whilst our several chronologies are contradictory and untrustworthy, the glimpses which we get of the most remote antiquity generally indicate that Civilization has been alternately retrograde and progressive.

"It is an extraordinary thing that Man, with a Mind so wonderful that there is nothing to compare with it elsewhere in the known Creation, should leave it to run wild in respect of its highest elements and qualities." Such are the words of Michael Faraday, one of the most thoughtful and cautious Philosophers of our century. If our discussions have been fairly carried out, we and our readers are free of his censure, for they have been intimately connected with these highest elements and qualities of Human Knowledge, certainly the best training for the Mind.

And Pilate's question yet remains unanswered. In a recent volume the Duke of Argyll again comes to the front in the inquiry.[1] All previous definitions, such as that of Mr. G. H. Lewes, are perhaps true as far as they go, but they are more like axioms than definitions. The Duke says that Truth is both defensible and accessible. We believe this is true, but it has not yet been shown to be so, even by the pens of our most

[1] "What is Truth?" by the Duke of Argyll, K.T., 1889.

eminent writers, of which he must be reckoned one. We repeat our opinion that the task is *impossible* until we find the necessity of *first* seeing that Truth is of Two Kinds.

But before we regard our task as accomplished, let us consider how the great Poets, of our own country at any rate, have discerned and interpreted for us the higher symbolism of the grand domains of Truth; for they are also Philosophers and Seers.

LECTURE XXXVI.

THE POETS AS PHILOSOPHERS AND SEERS—INTUITIVE RATHER THAN LOGICAL—DANTE'S ALLEGORY OF HUMAN DEVELOPMENT—SHAKESPEARE'S INTUITION.

IT is to the great Poets that a man may naturally look for the highest expression of the sublime conceptions of the human Mind. Bacon writes that "Poesy was ever thought to have some participation of divineness, because it doth raise and erect the Mind." Novalis, who has been described as "the Ideal of Idealism," said: "The spirit of Poesy is the morning light which makes the Statue of Memnon sound—the division of Philosopher and Poet is only apparent. The true Poet is all-knowing; he is an actual world in miniature."[1] Here are other of his profound, semi-mystical thoughts: "Love is the Amen of the Universe." "Every Science becomes Poetry after it has been Philosophy." "Philosophy is only higher Mathematics." "Philosophy is the *Poem* of the Understanding." "The poet understands Nature better than the man of Science."

Our inquiries have led us to conclude that the Poets are Philosophers in a high degree, and although intuitively so, still not illogically; and certainly their thoughts are more consensual.

Thus Wordsworth speaks of—

> "The Poets who on earth have made us heirs
> Of truth and pure delight by heavenly lays,
> And Wisdom married to immortal verse."

And again he points us to—

> "The light that never was on sea and land,
> The consecration and the Poet's dream."

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[1] See Carlyle's "Miscellaneous Essays," vol. ii. p. 87 (Chapman and Hall).

And Longfellow :—

"O Life and Love! O happy throng
Of thoughts, whose only speech is song!
O heart of Man! canst thou not be
Blythe as the air is, and as free?" [1]

And Tennyson :—

"Yet I doubt not through the ages one increasing *Purpose* runs,
And the thoughts of men are widened with the process of the Suns.

. . . . . .

Knowledge comes, but Wisdom lingers, and he bears a laden breast
Full of sad experience moving towards the stillness of his rest." [2]

And Coleridge, translating Schiller, wrote :—

"Oh! never rudely will I blame his faith
In the might of stars and angels! . . .
Since likewise for the stricken heart of Love
This visible nature, and this common world,
Is all too narrow. . . . For fable is Love's world . . . believes
Divinities, being himself divine,
The intelligible forms of ancient Poets . . .
And to yon starry world they now are gone. . . ." [3]

In our modern era Dante and Shakespeare divide the honour of precedence. The "Divina Commedia" is a subtle and beautiful Allegory of threefold wonderfully-mingled character—Personal, Political, and Philosophical. Man is represented as lost and entangled in a wood (Human Passions). He is found by Virgil, who, as a seer and guide, conducts him through the Inferno, and thence leads him ever upwards through Purgatory (the Natural Sciences and Ethics). But his guide Virgil (Moral Philosophy) can ascend no higher, and leaves him at the frontier of Paradise. Here he is found by his long-lost love Beatrice on the banks of the river Lethe, and by her is aided in crossing into the Paradise of Adam. Beatrice—allegorically the Scienza Divina (Theological Science of Truth and Love)—now becomes

[1] "Birds of Passage." [2] "Locksley Hall." [3] Schiller's "Wallenstein."

his guide, introducing him to the glories of Paradise, and he ascends upward through the spheres towards the Throne of the Eternal. Besides being his guide, she instructs him in Knowledge and Wisdom,

> "And all
> Are blessed, even as their sight descends
> *Deeper into the Truth—wherein Rest is*
> For every mind." [1]

Of course, Dante's Astronomy was only that of Ptolemy, in which the Earth was understood to be the *centre* of the planetary motion. Standing, therefore, as he supposed in the centre of the system, he beheld the seven great planets all apparently revolving in circles around him—the Moon, Venus, Mercury, Sun, Mars, Jupiter, and Saturn each rising higher and higher, and with wider and wider circuits; then, eighth, the Starry Sphere (Fixed Stars); and ninth, the Crystalline Sphere (the Ether void of Space). Finally, the Sphere of Light Immutable in the presence of the Great Supreme (*Cielo quieto*), where no shadow is—Rest at last!

Thus building his beautiful theory upon a false foundation, he *appeared* to have discovered a "Central Unit" of all Science—the grand desideratum of all Philosophers, but which even yet remains unattained. Amongst the Learned there has always been high appreciation of Dante. Shelley evidently refers to him in these lines:—

> "Behold a wonder worthy of the rhyme
> Of him whom from the very depth of hell,
> Through every paradise and through all glory,
> Love led serene, and who returned to tell
> . . . the wondrous story
> How all things are transfigured except Love." [2]

Shakespeare was altogether different; his Philosophy was quite unconventional, and of no school. Dryden describes him as "the man who of all modern and perhaps ancient Poets had the largest soul"; and it is generally admitted, much more fully now

[1] "Paradiso" (Cary's trans.), canto xxviii.
[2] "The Triumph of Life."

than ever before, that his works are "a treasury of Wisdom such as no other writer has bequeathed to the world." Philosophy was not his special study, nor did he profess to teach it, but his profound thought-gems burst forth amidst the wonderful creations of his genius in flashes of exquisite beauty and power, often when and where least looked for. The World's Literature is enriched with these gems—an unconscious wealth of Wisdom remarkable alike by spontaneity and *Conciseness*. Novalis wrote: "Shakespeare was no calculator, no learned thinker; he was a mighty, many-gifted soul, whose feelings and works, like products of Nature, bear the stamp of the same spirit, and in which the last and deepest of observers will still find new harmonies with the infinite structure of the Universe; concurrences with later ideas; affinities with the higher powers and senses of Man."[1]

The wonderful compass of Shakespeare's intellect is shown in countless passages familiar to his readers. It reached the highest pinnacle of grandeur, and condescended to the most simple and lowly. He explored the human Mind to its very depths, and painted its ever-varying moods, not with malignant, but with friendly and reverent touch. Thus, to describe the intense hate begotten by the "War of the Roses," can anything match this exhibition of vengeful rage and fiendish exultation? The gentle and timid King Henry the Sixth is of the Lancaster line, and Richard Duke of Gloster is a Yorkist—

"*Glo.* I'll hear no more:—Die, prophet, in thy speech.
[*Stabs him.*
For this amongst the rest was I ordained.
King Henry. Ay, and for much more slaughter after this.
O God! forgive my sins, and pardon thee! [*Dies.*
Glo. What, will the aspiring blood of Lancaster
Sink in the ground? I thought it would have mounted.
See how my sword weeps for the poor king's death!
O may such purple tears be always shed
From those that wish the downfall of our house!
If any spark of life be yet remaining,
Down, down to hell; and say I sent thee thither:
[*Stabs him again.*
I, that have neither pity, love, nor fear."[2]

[1] Carlyle's "Miscellaneous Essays," vol. ii. p. 87.
[2] "King Henry the Sixth," Part iii. act v. sc. 6.

This surely is the *sublime* of cruelty—merciless and sarcastic without the least shade of magnanimity to a fallen foe.

Let us now see a reverse picture. Instead of such brute force, look at this exquisitely delicate description of the sleeping Imogen :—

"'Tis her breathing that
Perfumes the chamber thus ; the flame o' the taper
Bows towards her, and would under-peep her lids,
To see the enclosed lights, now canopied
Under these windows, white and azure laced
With blue of heaven's own tinct." [1]

Or let us see the simple beauty of his famous eulogy of Mercy :—

"*Portia.* The quality of Mercy is not strained ;
It droppeth as the gentle rain from heaven
Upon the place beneath. It is twice blessed ;
It blesseth him that gives, and him that takes ;
'Tis mightiest in the mightiest ; it becomes
The thronèd monarch better than his crown." [2]

Astronomy seems to have been Shakespeare's favourite science, and his references to the Spheres and "the *Centre*" (of the planetary system) are numerous and very incidental, showing how familiar astronomical facts, as then popularly understood, were to his thoughts. Thus he makes Ulysses say :—

"Your speeches . . .
Should with a bond of Air (*strong as the axletree*
On which heaven rides) knit all the Greekish ears, &c. . . .
The heavens themselves, the planets, and this *Centre*
Observe degree, priority, and place.
. . . . in all line of order :
And therefore is the glorious planet Sol
In noble eminence enthroned and sphered, . . .
. . . but when the planets,
In evil mixture, to disorder wander. . . .
What raging of the sea ! &c. . . .

[1] "Cymbeline," act ii. sc. 2.
[2] "Merchant of Venice," act iv. sc. 1.

Take but degree away, untune that string,
And hark! what discord follows! . . . *The bounded waters*
Should lift their bosoms higher than the shores,
And make a sop of all this solid globe!" [1]

Again :—

"O 'tis the Sun that maketh all things shine." [2]

And :—

"The Sun's a thief, and with his *great attraction*
Robs the vast sea: the Moon's an arrant thief,
And her pale fire she snatches from the Sun." [3]

Here he seems to foreshadow Newton's great discovery. His philosophy was like his genius—all-embracing and untrammelled by system. Practically a great Philologist, he refounded our Language, which John Milton greatly enriched. Occasional exceptions are coarsenesses, evidently due to the fashion of the time, and most of them obviously corruptions of his text by the stage managers and actors "to split the ears of the groundlings." The gentle William uses Hamlet's speech to the Players as a mild rebuke and protest against this practice, which perhaps arose from the fact that the actors' wages were then only a share of the profits of the performance. It has been well said that "the finest things of other men might conceivably be the work of others. But the famous passages of Shakespeare, too numerous to quote, could be no one else's. As great as all others in their own points of greatness; holding points of greatness which no others even approach; such is Shakespeare." [4]

Unlike Dante, and even Milton, his great successor, Shakespeare never reveals his own personality in his works, nor do his religious or political opinions appear evident; but that they are distinguished by Independence and Reverence ("that Angel of the world" [5]) is very obvious. Here one possible exception just

[1] "Troilus and Cressida," act i. sc. 3.
[2] "Love's Labour's Lost," act iv. sc. 3.
[3] "Timon of Athens," act iv. sc. 3.
[4] "Elizabethan Literature," by George Saintsbury, p. 173 (Macmillan, 1887).
[5] "Cymbeline," act. iv. sc. 2.

suggests itself. If "The Tempest" was, as is supposed, his last great Drama, may not he be unconsciously pourtraying his own character in that of Prospero the Prince of Magicians, and like him be now laying down finally his magical staff :—

"But this rough magic
I here abjure ; and when I have required
Some heavenly music (which even now I do),
. . . I'll break my staff,
Bury it certain fathoms in the earth,
And deeper than did ever plummet sound,
I'll drown my book."

If this idea has ever suggested itself to any previous writer, we shall certainly be confirmed as to its probability. Perhaps the most eminently characteristic feature of the man was his unconscious modesty. It was he who wrote, and included himself in the charge :—

"Use every man after his desert, and who shall 'scape whipping?" [1]

We have already quoted from Wordsworth, Longfellow, Tennyson, and some others of our chief modern Poets. One does not look for scientific ideas to Byron, but apparently he has *unconsciously* suggested to us one of the finest and most beautiful figures of speech in our Literature, in reference to the absolute *Centre*. The word "Centre" gives the idea of a single point, but instead of Centre he gives us "OCEAN," which suggests *the whole* both in Time and Space, as surrounding the seat of the One Great Creator of all.

". . . His Life,
The *Ocean* to the river of his thoughts,
Which terminated all." [2]

Here we are reminded of Sir Isaac Newton's Ocean, on the shore of which he modestly gathered his few pebbles !

We need not pursue examples farther, but will add yet a few lines of Milton. He also was a Philosopher, and makes numerous

[1] "Hamlet," act ii. sc. 2. [2] "The Dream," canto ii. (John Murray,.

allusions to Science, Astronomy being evidently his favourite subject. The following lines are from his *first* poem (at the age of twenty-one). Although Scientists may be made, we are told that Poets must be born, and so also we think must great Philosophers :—

"Such music, as 'tis said
Before was never made,
But when of old the *sons of morning sung,*
While the Creator great
His constellations set,
And the *well-balanced world on hinges hung.*
And cast the dark foundations deep,
And *bid the weltering waves their oozy channels keep.*

Ring out, ye crystal spheres,
Once bless our human ears,
If ye have power to touch our senses so;
And let your silver chime
Move in melodious time ;
And let the base of Heaven's deep organ blow ;
And with your ninefold harmony,
Make up *full concert to the angelic symphony.*" [1]

Here we are reminded that Music is a Spiritual or *Universal* thing—being based on Numbers—*i.e.*, purely mathematical. Hence the Poets call it "Angelic"—"O Music—Sphere-descended"—"Heavenly." [2] There is, of course, Music of the voice, the harp, and the organ, but this is Material or *Natural.*

The whole current and compass of Belief seem to have been traversed, and opinions opposite as the poles have been asserted, contradicted, and defended by thinkers of endless variety, and with all degrees of genius and acumen. *Perhaps consequently*, the Philosophy of Mind has lost much of its old interest. Hamilton, quoting a satirical observation of Varro, writes that "there is nothing so absurd which has not been asserted by some Philosopher;" and the sect of ancient Sceptics held with Pyrrho that what was considered *most certain* was not free of objection or

[1] "Hymn on the Nativity." [2] William Collins, "The Passions" (1720).

counter arguments; or, to use Milton's words, he "doubted all things, though plain sense." Dr. Johnson said, "The human mind is so limited that it cannot take in all the parts of a subject, so that there may be objections raised against anything." Speaking of the wise man, Herbert Spencer said: "The highest Truth he sees he will fearlessly utter, knowing that if he can effect the change he aims at—well; if not—well also; though not so well."

In truth, this grand Philosophy has been buried under a mountain of *words*, but we believe that it will yet emerge in its greatness and simplicity. An ancient Philosopher said, "There is nothing great but Man; in Man there is nothing great but Mind;" and according to Sir William Hamilton, "No other study so fills and satisfies the Mind. No other Science is to be compared in dignity or value to that which human Consciousness (Mind) furnishes to its own contemplation"—that is, pure Philosophy.

There is still a subject we have hitherto avoided; but as it is one which comes within the sphere of our argument we must here refer to it, however briefly. The truth of Miracles is questioned by many thinkers, just as they question whatever they call the non-natural. The most eminent Darwinians, and many of the highest class of Philosophers, seem to admit their *possibility;* nor can we see upon what grounds this can be denied. Their most uncompromising opponent, other than one or two avowed infidel writers, is Matthew Arnold,[1] who objects to them upon religious grounds! He says the Masses throw aside the Bible on their account as incredible—which seems the reverse of general opinion. His main argument is founded on his general objection to Metaphysical Dogmas. Logic is illustrated by two kinds of facts: (1) those of Geometry, (2) those of Metaphysics. The first are *necessarily* true; the second depend upon collateral evidence. All Miracles being NATURAL are true or false according to the nature and degree of evidence by which they are supported. With our best consideration of Mr. Arnold's arguments we must say that they seem *Logically* weak, while enforced at great length and with great skill in a Literary point of view. It seems vain to

[1] "Literature and Dogma," chap. v. (Smith, Elder and Co., 1889).

controvert statements and assumptions which are not built up on a Logical basis. The Bible Miracles are considered doubtful, and some appear incredible, but can we *prove* that they are *impossible?* Each of them must be examined upon its own evidence. To mix them up with modern "miracles," as Mr. Arnold does, seems unnecessary, and confusing. Modern miracles, claiming to be such, may be tested and proved on the spot. Has any one been so tested?

The Latin aphorism, "Vox populi vox Dei" ("The voice of the people is the voice of God"), may be true, but *only* if the "Masses" have some reasonable grounds of knowledge. It may be little, but so far as it goes it must be based on some logical foundation.

We have in our search wandered over a great variety of subjects not very obviously connected with our main Argument, but have been led into them from believing that they are just such as *interest* and present difficulties to Inquirers after Truth. We mean those (other than the Schoolmen) who are now-a-days beginning to study such questions, but are repelled not a little by the voluminousness and contradictions of the great authorities. We have merely looked at these numerous subjects somewhat after the manner of bees in a flower garden, giving very numerous but brief quotations from Savants of the most opposite views—using our own words only so far as a logical examination of them required. We must urge the readers for whom we write to search authorities for more light and then judge for themselves.

It is difficult to overtake the almost marvellous strides of Science, but so far as Scientists establish new Facts (not speculations), the student may safely adopt them; for in this field they are supreme. However, Scientists as such are not authoritatively warranted to speak as experts in the Science of Mind; for, as we have seen, their habits of thought are different from those of the Philosopher, and every intelligent and fairly educated man of logically constituted mind ought to be as able as they are to act *as juryman* upon evidence in most matters of pure Philosophy, because less likely to be a theory-maker.

Our main object has been not to dwell upon the contradictions of many Philosophers, and the consequent confusion of thought

which exists, *but to draw attention to their chief causes.* These arise, we believe, from illogical treatment, and mainly from overlooking the *paramount* importance of keeping clear the distinction between the TWO KINDS OF TRUTH—the NATURAL and the UNIVERSAL. Even the old discoverers of the fact have failed to do so throughout their own writings. They appear not to have realized its necessity, nor to have seen the Completeness and the profound depth of the line of demarcation between the two. This again has partly arisen from treating Geometry as a NATURAL, instead of a spiritual or UNIVERSAL Science. Perhaps this is the first time that the distinction has been directly placed in the forefront of Psychological illustration and study; and we have insisted upon doing so as essentially *necessary*, perhaps as fully and as far as our readers' patience will tolerate.

About the Evolution Theory, in which (Limited) we believe, we have written quite as much as is warrantable without systematic arguments.

Thus writes the Laureate on "Old Age:"—

"If my body come from brutes, tho' somewhat finer than their own,
I am heir, and this my kingdom—shall the royal voice be mute?
No, but if the rebel subject seek to drag me from the throne,
Hold the sceptre, Human Soul, and rule thy Province of the brute.

I have climb'd to the Snows of Age, and I gaze at a field in the Past, . . .
But I hear no yelp of the beast, and the Man is quiet at last.
As he stands on the heights of his life with a glimpse of *a height that is higher.*"[1]

The claim made by some extreme Evolutionists, that Man is really descended from the monkey, is certainly one which, to use Hamlet's words—

"Must give us pause!"

---

[1] "Demeter and other Poems," by Lord Tennyson (Macmillan, 1889).

LECTURE XXXVII.

Conclusion.

In parting with our younger readers, who may have followed us thus far, and who will acknowledge that we have at least suggested abundant food for thought, we may be permitted a word of warning, as well as of encouragement. "Truth," we have been told, "lies in the bottom of a well," but he who tries to reach it by pumping out the water will find himself disappointed, for a true well never can be dried up. Truth itself, like the water-spring, is perennial. But every advance we make in true knowledge, although in itself a great delight, tends to humble our presumption by showing us "how ignorant we be." This, however, instead of discouraging, should stimulate us in the pursuit; for nothing in life is so elevating to the Mind, or so calculated to give stability and independence to the Character. In our anxiety to be clear, we hope our readers will not find that we incur Virgil's censure by "*Wrapping Truth in Obscurity.*"

We have throughout tried to encourage *independent thinking and logical examination of even the highest authorities.* It is possible to do so without detracting from our admiration of their great genius, or depreciating the vast benefits they have conferred upon mankind. The greatest men are the last to take exception to this freedom; for they are conscious that, even amongst themselves, uniformity of opinion is as yet unknown.

Truth is too sacred a thing to be trifled with; and a Universal Truth, clearly established, never dies. "The burning of a little straw," said Carlyle, "may hide the stars of the sky, but the stars are there and will reappear." While we cannot examine any question too logically, it is possible to err by being too critical, like Madame de Maistre, who, says her husband, "will take care that it is noon before allowing that the sun has risen, for fear of

committing herself."[1] There seem to be some eloquent writers —Naturalists and Philosophers—who approach the study of Nature and Mind, and especially any novel idea in either of them, in so critical a spirit, and with their opinions so positively fixed, as to prevent them even seeing the *possibility* of a different one. They would proceed to examine the masterpiece of the greatest Painter, or the statuary even of a Phidias, with a Microscope, and see nothing but minute specks of Dust upon their surfaces immensely magnified!

Nothing is farther from our intention than to encourage mere dilettanti speculations, or the loose holding of any *Truth*. No Truth once clearly attained can be too firmly maintained, but, as others may see it in a different light, we should not press our opinions upon them dogmatically. Above all, a young reader should beware of entering upon the investigation of any disputed subject with an already fixed opinion, such as will assuredly prejudice and forestall judgment thereon. The neglect of this explains the interminable nature of the Argument between the Theologians and the Evolutionists on the subject of the "Origin of Man." Neither will seriously look at the evidences and facts of the opposite side. We think it was a French writer of last century who said that some men looked down into the ocean in search of beauties under its waves, "but saw only their own faces."

Finally, the grand solvent of all controversial feeling is a respectful and charitable opinion of our opponent's qualifications and honesty, and a willingness on our own part to learn something from him, for of all the graces that of Toleration is the rarest. Even Abraham, wise as he was, had still to learn the necessity of Toleration; but as some of our younger readers may not have read Jeremy Taylor's beautiful Jewish Apologue (A.D. 1613), we copy it here:—

"When Abraham sat at his tent door, according to his custom, waiting to entertain strangers, he espied an old man stooping and leaning on his staff, weary with age and travel, coming towards him, who was a hundred years of age. He received him kindly, washed his feet, provided supper, and caused him to sit down;

[1] John Morley.

but, observing that the old man ate and prayed not, nor begged for a blessing on his meat, asked him why he did not worship the God of heaven. The old man told him that he worshipped the Fire only, and acknowledged no other God, at which Abraham grew so zealously angry that he thrust the old man out of his tent, and exposed him to all the evils of the night, and an unguarded condition. When the old man was gone, God called to Abraham, and asked him where the stranger was. He replied, 'I thrust him away because he did not worship Thee.' God answered him: 'I have suffered him these hundred years, although he dishonoured me; and could'st thou not endure him one night, when he gave thee no trouble?' Upon this, saith the story, Abraham fetched him back again, and gave him hospitable entertainment and wise instruction. Go thou and do likewise."

Readers, may each of us be able to say with the Laureate :—

"My own dim life should teach me this,
That life shall live for evermore,
Else earth is darkness to the core,
And *dust* and ashes all that is."[1]

A recent writer has said that "*Incompleteness* is the great characteristic of this world." Now in face of all these considerations, and especially in the *obvious incompleteness of human Life*, is Man not warranted in believing that he is intended for a destiny much higher than the present life affords? Even Shelley being witness :—

"We have passed Age's icy caves,
And Manhood's dark and tossing waves,
And Youth's smooth ocean, smiling to betray!
Beyond the glassy gulfs we flee
Of shadow-peopled Infancy,
Through Death and Birth, to a Diviner day."[2]

But we have almost forgotten that our *original* question—"What is Truth?"—remains only partially answered.

[1] "In Memoriam," xxxiv. [2] "Prometheus Unbound," act ii. sc. 5.

Truth may be considered as a vast ladder, consisting of four great steps. Invisible to all else, it invitingly stands at the feet of every true Inquirer, canopied indeed with clouds, but reaching up to the very throne of the Eternities.

"What is Truth?" is answered by the Senses, as the Child reaches the First easy step.

The Second becomes almost equally easy, as the Boy learns Truths from the mouth of his preceptor, his schoolfellows, and his books, in all of which he has implicit confidence.

By and by, he repeats the question, "What is Truth?" and the Sciences invite him to mount the Third step—somewhat more difficult. Here he sees a wonderful expanse of true Knowledge, apparently widening out into yet wider speculation. He feels his mind like a magical divining rod, seeming illimitable in its daring; like Milton's Belial, he is consciously proud of his "intellectual being—those thoughts that wander through eternity"[1]—soaring in imagination up even to the gates of heaven, and there demanding an answer to the—as yet to him—insoluble question, "What is Truth?" But there is no response, only silence, and darkness, and doubt. Even Science has failed him, and perchance he begins to question the solidity of his own standpoint and the reality of his flight.

That

> "Throne is darkness in th' abyss of light,
> A blaze of glory that forbids the sight."[2]

If endowed with unprejudiced clearness of vision, he will not rest here, but will seek out and climb up to its Fourth step by the aid of Mental Geometry—the Spiritual Science. Here he will find himself possessed of a new vision, and, whatever the proposition before him, he finds its truth has become self-radiant. Now he finds a calm atmosphere, where no mist is, and where doubt cannot find a place. If he can cast off preconceptions, he will discover that he is standing at the vestibule of Truth's palace—feel that he is not far from the Throne-room of the One Absolute, Uncreated Verity—the Author, and CENTRE from whom all Truth emanates. The light may become dazzling, and per-

[1] "Paradise Lost," book ii. [2] John Dryden (1631).

chance he will pause with awe. But his question is answered at last—*he knows* now "What is Truth." And so our Argument is ended. Even the Agnostic no longer can say, "I know nothing."

* * * * *

Is not our Inquirer after Truth conscious that he is now standing in view of the great Ocean of absolute Truth, and that he has just gathered one little gem upon its shore? His mind expands—perhaps with pride, or daring anticipations of future success, or perhaps he is too satisfied with his attainments, and wishes to *rest.* But Time is short, and *how very short and uncertain his own* threescore years and ten now appear! Can he stop here? He has found *one* Universal Truth logically perfect. It is clear as an icefield, but as cold, entirely devoid of all moral qualities and feelings, such as the Mind of Man can with satisfaction rest on. Will he not aspire to new truths of higher importance—truths regarding the great Author of them all—of the glorious Universe around—of the beauties of the World spread before him—*of his own relations thereto,* and to the joys and sorrows of his fellow-men, and to their and his own future destiny?

We have somewhere read an anecdote of Thomas Carlyle—where we cannot recall, but its tenour was this: Speaking of a lad who had mastered the 47th Proposition of Euclid unaided—had clearly thought it out, he said, "That boy had been inspired." This at the time seemed only one of that great thinker's figures of speech, but now we can see that it suggests a profound UNIVERSAL verity. That the square of the hypothenuse of any right-angled triangle is equal to the sum of the squares of its other two sides was known to Pythagoras 2,400 years ago. It is a truth now, ever was a truth, and ever will be, not only in our Solar System, but throughout the infinitude of Space and Time, and therefore is a UNIVERSAL Truth. Can even the Agnostic reader deny that this Truth really exists?

The Inquirer after Truth is now possessed of pure vision. And if so, is it possible to think that the great Ethical and Moral Truths can escape his mental recognition—truths of such personal importance that all Geometrical problems become insignificant in

comparison? And are not they waiting to answer his confused questionings. "Who am I; what is this Me?" "Sure enough, I am; and lately was not: but Whence? How? Whereto?" "The answer indeed lies around, written—uttered in all tones—in thousand-voiced harmonious Nature," veiled indeed, but *finally dumb only to the Insincere, the Intellectually-Proud, and the Self-righteous*.

The Mind, we have seen, is the Man, and TRUTH is the highest ideal of Mind. Its search is assuredly the most ennobling of studies. We are told that "Wisdom lingers;" but Time is rushing onward with unflagging and apparently ever-quickening wings.

William Shakespeare, a true Philosopher and Seer, has written that:

"Ignorance is the curse of God:
Knowledge the wing wherewith we fly to heaven."

THE END.

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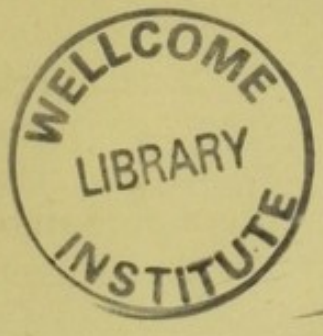

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