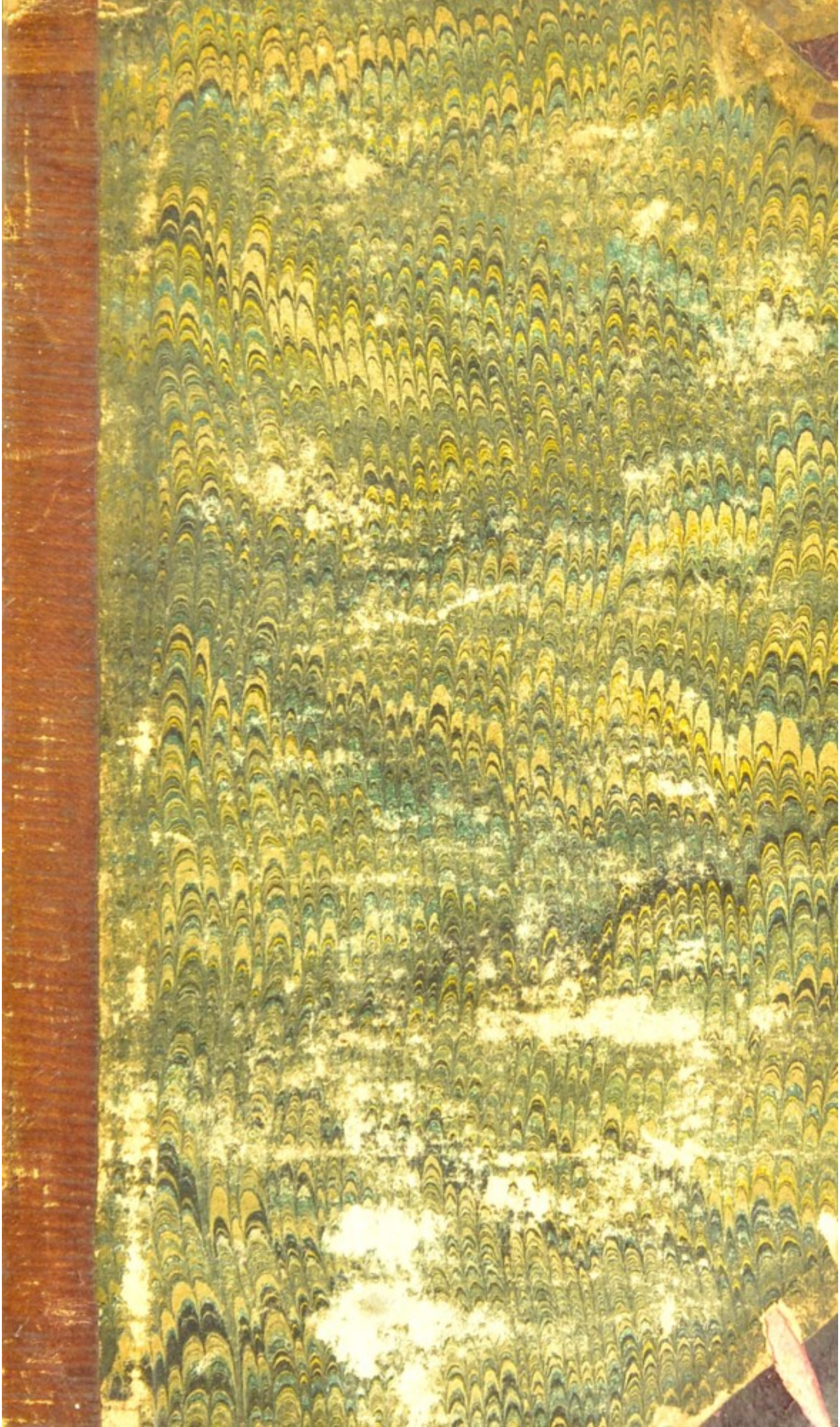
The progress of man and society from the cradle to the grave and from the infancy of things to their present state / By the Rev. Dr. Trusler. For the use of schools.



THE

PROGRESS

OF

MAN AND SOCIETY;

From the Cradle to the Grave and from the Infancy of Things to their present State.

BY THE REV. DR. TRUSLER.

——— To know
That which before us lies in daily Life
Is the prime Wisdom. MILTON.

FOR THE USE OF SCHOOLS.

[1816?]

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PREFACE.

THE idea of this work, is taken from the Orbis Pictus *of Commenius, published in the year* 1657, *in folio, at Amsterdam. It was written by him in Latin, and High Dutch; but, this is all. The public who may have seen this work, will find, that the idea only is borrowed, that the subjects are very differently treated, and the whole very much improved. It is an epitome of all that is in the world, and shews, not only the formation of Man, but the Progress of Man in Society.*

With such a book, and in such a dress, may I hope to take the attention of young folks and draw them into knowledge? To address an infant mind, on such subjects as this book contains, would have been idle; as a number of things here set forth, are past their comprehension. But children have been

found much amused even by looking over the pictures and hearing them explained, even before they can read. In addressing those who can read, I have adapted my language to that age when the mind begins to expand itself; that is, to a boy or girl, nine years old; have not described the pictures too minutely, but left them to discover the resemblance themselves; convinced that such discovery will keep the impression stronger in the memory.

The book, though written for a child of nine, may be given to children of six years of age and will doubtless please, and make them familiar with the subjects; and if they are occasionally asked, what this or that thing is; in a little time, they will see nothing but what they will know how to name, and will name nothing which they cannot shew.

Let the child first look over the pictures: these as they follow, each other in gradation, will presently shew him the Progress of Man: and, if he pause, and ask any questions concerning them, lead him to the place where it is spoken of, and described, and make him read it, refering to the pic-

tures as he reads. Next, let him get the general subject of each picture by heart, so as to tell what it is, as soon as he casts his eye on it: this will keep the subject in his memory, will make him wish to be better acquainted with it, and lead him to study it in the description: and, having read the description more than once, he should be asked his idea of the picture at some future time. Thus will the knowledge of things they seem to represent, be painted in the infant mind, and dwell with him through life; he will, as he grows up, communicate his ideas to children of his own age, and they will thus teach and inform each other. Such subjects in this book, as are past the comprehension of certain ages, they should not be troubled with at first, but should be omitted, till they have learned the rest.

As knowledge conveyed by the eyes makes a greater impression on the mind, than such as is conveyed by words, pictures are the most intelligible books that children can have. The vignette in the title-page, representing an old man giving a boy a prospect of the world and bidding him see with

his own eyes, *is a just emblem of the utility of this work. A sight of things will teach him more in one hour, than a description would in a month.*

When children have a proper comprehension of the subjects here treated, I would recommend to their perusal my Compendium of Useful Knowledge, 5th edit. *pr.* 6s. 6d. bound, *where these, among many others, equally improving, are described more accurately, and more at large.*

To teach children morality and a knowledge of life, I have expatiated, or paraphrased, such of our English Proverbs, as tend to this purpose. They are illustrated by designs drawn from scenes in human life, and so well executed, as to bear the strictest examination; and, though cut in wood, the characters are no way lost. It is a very proper book to amuse and instruct youth, and the price viz. 4s. 6d. *bound, will hurt no one.*

I could have wished to have reduced the price of this volume, below what it is, but the numerous cuts so well executed, the designs made for them, and the fine paper on which it is printed, have together been so expensive, as to render it impossible. When its utility is considered, the expence can be no object.

PROGRESS

OF MAN AND SOCIETY.

PART I.

MAN, IN AN INFANT STATE.

AT the creation of the world, the first Man and Woman, as the first animals of every kind, male and female, were made, by God, in their full grown state. Man was endowed with the gift of understanding and memory, and the power of arti-

culation, or speaking distinctly. All that we conceive they were at a loss for, was to make themselves understood by each other; but a little time got rid of this difficulty.

The first child this man and woman had, was born in the common course of nature, as at present. Man comes into the world an infant, more helpless than many of the brute creation. A calf, a lamb, a colt, as soon as born, will get upon its legs, and find its way to the teats of its dam; but infant man would go out of the world, almost as soon as he came into it, that is to say, would die, almost as soon as born, if it was not for the humane assistance of others; not the assistance of its mother, for she, at this time, is as helpless as her child, but the friendly aid, perhaps of a stranger, who lends the labouring mother assistance, wraps up the infant in soft and warm clothing, and, by an industrious attention to the mother, enables her in a little time, to nurse her infant herself.

Here we see how much beholden we are to the fostering, tender hand of our fellow-creatures; standing in need of their humanity, to enable us even to enjoy our existence.

Providence has provided the same kind of nourishment for the infant, as for the young of animals, that is, the milk of the mother; a sort of liquid food that nature strains from the blood, and is well adapted to the tender age of a child.

The mother now takes the charge of nursing her infant, upon herself; she carries it in her arms, suckles it, feeds it, cherishes it, and instructs it; whilst the father, anxious for both mother and child, is procuring a maintenance for them abroad. He not only toils and works, to maintain them, whilst he lives, but is doubly industrious, to save money, and lay by a provision for them, should it please God to shorten his life, and remove him from them.

It is twelve months before the child begins to speak, and then it speaks but little, and imperfectly; and two or three years, before it walks alone, and then it totters. All this time it is protected by its father, and nursed in the bosom of its mother. Many are the anxious cares of the parents for the health of their little-one, and many a sleepless night do they pass in studying its good and its happiness.

Surely children should have a proper sense of gratitude for this care, and should never forget the obligations they are under.

Before they are twelve months old, they try to get upon their feet. Some are able to do this sooner than others, but most are able to stand firm at eighteen months old, and to totter about by the time they are two years old. At this age they are all attention, take notice of every thing, and observe with their eyes, though they cannot make remarks with their tongue.

At two years of age, or earlier, they begin to imitate their mother or their nurse's voice; and will articulate or speak some short words. All language or speech is learnt by imitation, and what a child often hears it will presently repeat. This makes it learn the language of its nurse. If the mother, and those about it, speak English, the child will speak English also; if they speak French, the child will do so too. This is the reason that children bred up in a country, speak the language of that country. They should hear, therefore, nothing they ought not to learn.

A child would walk sooner than it generally does, if it knew the art of standing upright and firm upon its feet: but after it acquires strength to stand, it has to learn how to balance itself, and avoid falling. Many contrivances there are, to support an infant on its legs, and to enable it to put one foot before

another; and as, in acquiring this knowledge, it has frequent falls, soft bandages are bound round its head, to protect it from bruises; for a child will be three or four years old, before it knows how, in falling, to save its head by its hands.

All this care is the province of the nurse. When it has been suckled for some months, and its appetite strengthens, it is taught to eat.

The animal creation, that is, brute beasts, are able to protect themselves at two years of age, and at four, are generally full grown: man alone is helpless at ten, needs protection, and is not full grown till twenty.

Could young folks be made sensible of the great anxiety parents feel for the preservation and happiness of their children, that no accidents happen to them in their early age; they would not require to be taught gratitude: but such is the misfortune, that they do not acquire this sensibility, till they become parents themselves. By this time, probably, they have lost their own parents, and have only to lament, for the remainder of their lives, that they have not fathers and mothers to protect and to cherish.

CHILDREN OFTEN IN DANGER

WAS it not for the continual attention of those who have the care of children, they would not only be ever in mischief, but, injure their constitutions, break their limbs, and endanger their lives; they would eat all sorts of trash, play with hurtful weapons, and climb at the risk of their necks; and all this, not from a mischievious disposition, but from ignorance, and a playful turn. There is a perverseness in infant minds, that makes them long for such things, as are kept from them; and, like monkeys, they will do, what they ought not to do. Many a child, through want of care in its parents, has eaten food, that has injured its health, brought on sickness and interrupted its growth; many a one, in the absence of its nurse, has fallen into the fire, and scorched itself so, as to destroy the features of its face; many a one, by climbing, has broke its arms and its legs, and, been ever after a cripple; and,

many have lost their eyes, and many more, their lives.

Some of these deformities of nature, which I shall by and by speak of, have been the consequence of the want of such care; crooked limbs, broken backs, and distorted features.

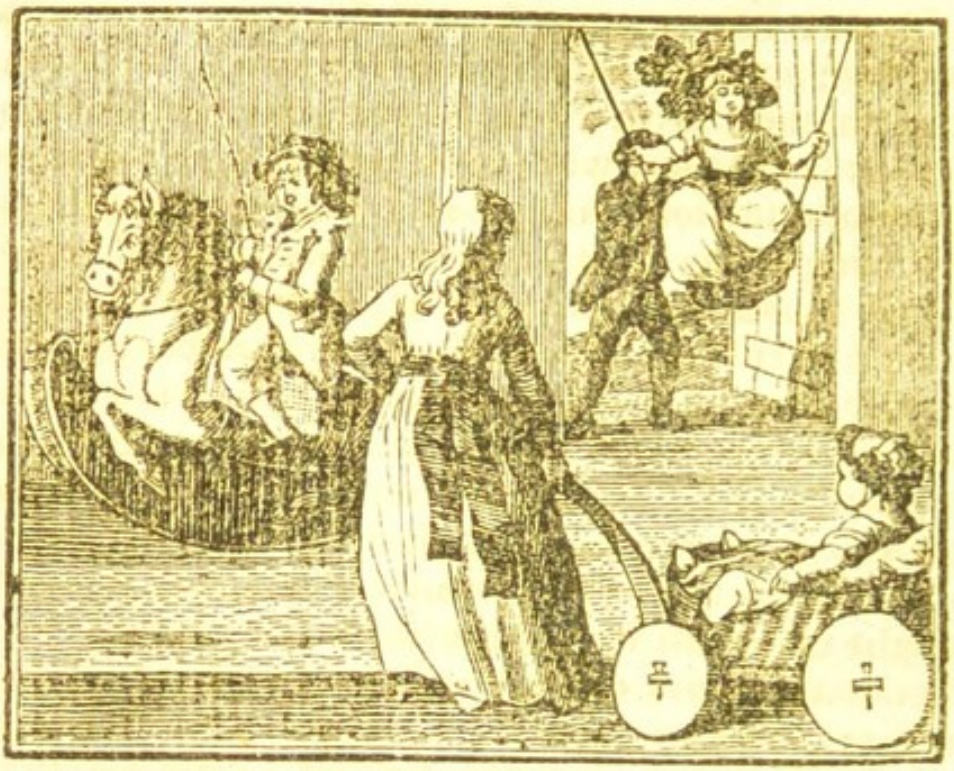
We have here a proof of what has been advanced. One is catching hold of the hot tea-pot; another, of the boiling kettle; and a third, is pulling down a loaded gun. Such things should not be put in the way of children; but, if they are, children should never be left alone. As their reason is not sufficiently strong to guide and protect them, they should never be out of the sight of some careful person, lest they should fall into the fire, or tumble out of a window.

Such, then, being the necessary care of nurses and parents, if young folks find themselves well grown, and enjoying their health, and the proper use of their limbs, they cannot be too thankful to those who brought them up. Even the poor, are attentive to the health of their children; but, the more opulent, are as careful of their beauty.

As a handsome youth, whether male or female, naturally attracts the notice of every one, and a fine person, is a strong prepossession in favour of a man, at first sight; parents sensible of this, will give their children every advantage which nature has bestowed upon them. They will add to the beauty of their teeth, by taking out such as are shapeless; to the beauty of their faces, by inoculating them, and thus guarding them against the ravages of the small pox; and, to that of their complexions, by keeping them to regular hours, and wholesome diet. And shall not a child be thankful, for all this care; shall he when he arrives at manhood, and enjoys these blessings, forget to whom he is obliged for them, and neglect that hand, that so tenderly fostered him?

Let him look into the world, and he will learn, from the misfortunes of others, to set a proper value on his own enjoyments; he will there see, one without a leg; another, without an arm; one, with bowed legs; another, with a hump-back; one, without an eye; and, another, with a disfigured face: and all these imperfections, in general, with many others, are owing to accident, arising from want of care, in their nurses and parents. If, as I have observed, we be free from these blemishes; if we be proportionably formed, and enjoy the full use of our limbs and bodies, it is incumbent on us, not only to be thankful to God, who has preserved us, through life, from those misfortunes, which others labour under; but to be grateful to those, under whose eyes we were brought up; that is, be dutiful to our parents, and affectionate to our nurses. There is a natural link, that ties us to our parents; and, the bond of gratitude should attach us to our nurses. We see this, in opulent families; men, when grown up, be they ever so rich, never forget or desert their old nurses; but, kindly protect them, do them all the good offices they can, and make them all the grateful returns in their power.

CHILDISH SPORTS.



THERE is nothing so trivial in life, but has been studied, and made to answer particular designs. Even in the sports of children, there are good ends in view.

The infant mind is too tender to be always bent to application: it requires relief. For, as a bow, kept bent, would lose its spring, and not be able to cast the arrow; so the mind, always kept to one thing, would grow weary, and tired of its study, lose an inclination for that thing, and, with difficulty, be brought to it again. Parents and teachers, therefore, in their wisdom and knowledge of the human mind, suffer the attention of children, to be diverted at times, and give them sundry things, to amuse them: but, even in such diversions, confine them to sports, that tend to their health, and teach them lessons in future life.

Most of these sports are calculated to answer good ends: to exercise the body, strengthen the limbs, raise the spirits, give activity, and contribute to health.

Whilst unable to stand or walk, nurses carry infants in their arms, and carts have been invented, to draw them about; which not only exercise the infant, but the child who draws such cart. Hobby-horses have been thought of for boys, at a more advanced age: and swings, for girls. The one, leads on to horsemanship; and the other teaches us to preserve a balance, and keep our feet, upon all occasions. These are amusing exercises, adapted to either boys or girls, at a very young age. But,

There are others peculiar to sex and age, that require the attention of the mind. These are nine-pins, battledore and shuttlecock, trundling of hoops, marbles, &c. among boys; dolls, and visiting, among girls. Some of these I shall speak of hereafter.

As boys grow up, it is necessary that they should be inured to difficulties; taught to avoid danger, and become useful in society. To this end, they learn to jump, run, ride, swim, and defend themselves. Hence the introduction of leap-frog, cricket, dancing, fencing, &c.

Use is second nature: what we are accustomed to do, in youth, we generally execute well, in manhood. It is for this reason, that boys are put out to learn trades and professions, at fourteen years of age. They are bound, for seven years, to such trades; and, from this long continuance in the practice of them, at the age of twenty-one, that is, when they come to be men, they are able, from use and habit, to carry on such trades, themselves; for the benefit of their families, if they have any; and, to make themselves useful in society, that every individual

may earn his living, each for himself; and not owe his support, to the labour of another.

Indeed, such is the nature of the human mind, that, provided it be not over strained, it always gains strength, by exercise and habit. From the same principle, the legs of a dancer, are stronger, in proportion, than his arms; because his legs have been most exercised, or used; and the arms of a waterman, that are always pulling at the oar, are stronger, in proportion, than his legs; because, they are more exercised. Gentlemen, bred up in indolence, are not able to work, and the least fatigue is a pain to them; but, working-men, accustomed to labour, from their youth, find rather a pleasure in it, than a pain, and are never more unhappy, than when having nothing to do.

Children, then, even in their amusements, when left to themselves, should be governed by their parents and teachers; and, not think it a hardship to be directed by those, who know best what sports are most adapted to their constitutions and minds; what will be of most use to them, in life; and what attended, with most good, and least danger.

BOYISH SPORTS.

IN the invention of sports and amusements for boys, parents not only consider, what will exercise the body, but employ and exercise, the mind.

So natural is it to man, to wish well to himself, and provide for his own wants, that, we say, Self-preservation, is the first law of nature. This care for oneself, leads men to encroach on the property of each other, and, to covet such things, as another enjoys. Instead of working for themselves, they want others to work for them, and are apt to snatch, or take, all within their reach. Men, therefore, have entered into, and formed, societies among themselves, in order to protect the fruits of their own labour and contrivance, from being taken away from them. Such societies, when extended over a kingdom, are called States; and, that one state may not plunder, and rob another, each has found it necessary to

keep an army of soldiers, to defend themselves; men bred up to arms, and, of course, such as know how to use them.

But, of what service is the knowledge of arms, if a man be frightened at a little danger; if he be a coward, and afraid to use them? To inure, therefore, or accustom the infant mind, to brave, or oppose, danger, if he should be called on, in life, so to do; (for when an enemy is expected, every man is called to arms; and, a man of courage and natural bravery, will overcome, and conquer, a dozen cowards) I say, then, to accustom boys to the use of arms, and give them a taste for warlike enterprizes, Parents will suffer and encourage them, to amuse themselves in this way; for, though they may never, in life, be called together by the sound of the fife, or drum, or, may never be expected to carry a firelock; yet, the very associating with boys of such a cast, the very idea of war, often in the mind of youth, will inspire resolution, and lead them to be brave, when they become men. It will teach them to encounter the dangers of life, be they of what kind they may, with resolution and fortitude, and enable them to protect themselves, in any case whatever. The drum, and the fife, will keep up their little spirits; the regularity of marching, will teach them order; and, the power of a regiment of soldiers, acting as one body, will shew them the advantages arising from the union of a well-regulated society.

To the same end, also, has the play of skittles, and nine-pins been invented; which represents a body of soldiers, to be overcome, or thrown down, by the dexterity, or contrivance, of him who attacks them. This diversion requires thought, ingenuity, and study. By bowling the ball, or throwing it, at one particular pin, or striking it, in a certain direction, and with a certain degree of force, that pin will fall against

the one next it, and thus tumble down the whole; whereas, without such attention, it would, perhaps, overturn but one, or two; and he, that beats down the most, at one throw, is the cleverest at the game.

So, a general, in the field of battle; if he watch his opportunity, attack the enemy, in a particular quarter, and, with a certain degree of skill and force, he will be more likely to overthrow him; though the enemy's army shall be more numerous than his own; than if he were to attack him, with a greater body of men, at random, without any skill, or war-like contrivance.

Besides, nine-pins, as marbles, will shew boys that, one body, striking another in certain parts, will be reflected, or sent off, in particular directions, so as to answer a purpose. This kind of knowledge is further increased, by an improvement on such amusements, in advanced life, by bowls, and by billiards; which, as I observed, whilst they exercise the body, no less occupy, and improve, the mind.

Dancing, tennis, cricket, bowls, billiards, and nine-pins, are such amusements as, even men are not ashamed of. The mind of man requires relaxation, at times; should not, always, be kept to business; and, though such amusements may be esteemed, by some, boyish; experience, and a knowledge of the human frame, teach us that they are requisite and necessary.

CHILDISH AMUSEMENTS.

EACH sex, by the wise direction of parents, have a species, or a particular kind, of amusements, adapted to them. We have seen those invented for boys; let us next see, what have been contrived for girls.

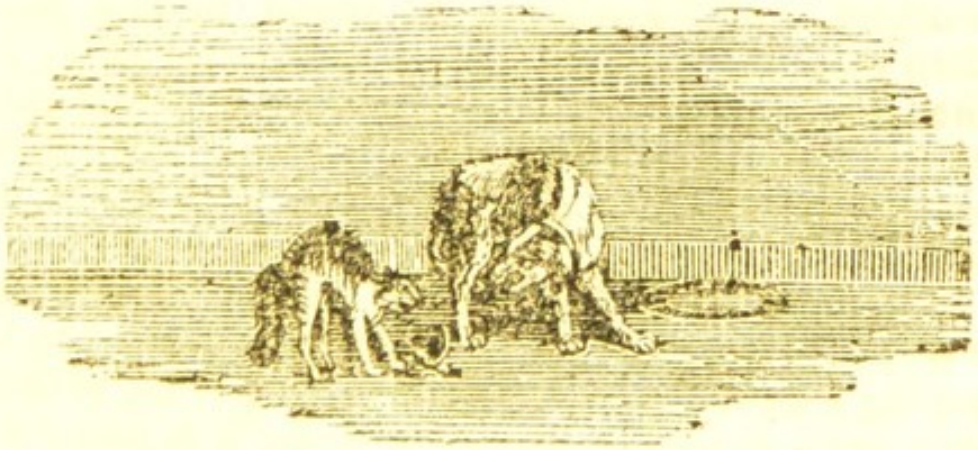
Amusements, calculated for children, I have observed, tend to instruct them in more advanced life. The female sex is to be occupied, or employed, chiefly, in domestic concerns; in the care of families, nursing and bringing up their children; whilst the men, fathers of those children, are abroad, seeking provision for them, and protecting them.

It is natural, then, for mothers to teach their girls, how to dress, nurse, and take care of an infant. For this purpose, dolls are made, to resemble children; and girls are taught, to make clothes for these dolls, dress and undress them, handle them, nurse them and take care of them; and children will enter so far into

this pleasing employ, as to imitate their mothers and nurses, in every thing, and practise all they see practised by them.

Surely, there cannot be a more useful or innocent amusement for girls; and parents will encourage it, until their daughters are almost marriageable; that, when they become mothers themselves, they may know how to act by their own children.

Girls, then, I trust, will see the propriety of this sort of amusement, and the indelicacy of entering, with boys, into masculine, or boyish diversions. How does it look, to see a girl playing at marbles, climbing up trees, bandying of balls, riding on hob-by-horses, romping, and jumping with boys, in all their rude, and rough amusements? It is a disgrace to the sex, and tends to destroy that delicate softness, which constitutes female beauty.



GIRLISH AMUSEMENTS.

AS girls advance in life, and their persons are polished by those graces, which a dancing-master teaches, they are instructed, or, should beinstructed, in the mode of paying, and receiving, visits. Were mothers, and governesses, to attend to this more than they do, it would have a wonderful effect on the manners of the female mind. It would soon enable them to step forward in society, teach them sociability, and, to bear their part, with credit, in polite companies.

Impressed with this idea, the painter has given us a scene, where two young ladies are supposed to be paying a morning visit, to some young folks, of their own age; denoting, that early rising is as necessary to health, as education; giving a long day, for the various occasions of it. They are here imitating those graceful introductions in fashionable life, that

mark the gentlewoman, and give those first impressions, that ingratiate them with their acquaintance.

I would recommend to all governesses of schools, to introduce little conversations between young ladies nearly of the same age, which will remove that *mauvaise honte*, or bashfulness, that takes too great hold of young people unused to company. If, at these times, the mistress, or some sensible person for her, would sit down, with three or four of them together, give them a subject, within their knowledge, and lead them on to converse on that subject; setting them right, when they are wrong: it would do them more essential service, render them more sociable in life, and open their ideas more, than all their reading, or getting by heart, would effect.

Till such time as thoughts naturally offer themselves, and they can dress their thoughts in easy language, such conversations should be written for them, and each girl should learn her respective part, by heart, and repeat, or exhibit it, on certain days, as performers, on a stage, exhibit a play. By thus learning a variety of conversation-parts, on different subjects, and delivering them, with ease and grace, girls would, in time, be able to offer their own sentiments, without any help; and, a young lady, at all times, instead of being able to talk of nothing but her doll, or the affairs of the nursery; would, like a sensible and rational woman, bear her part in conversation, and attract the attention of her rational acquaintance.

Young ladies could not amuse themselves better, or more profitably, on a visit, than by looking over together, the prints in this work, making remarks on what they see, communicating their ideas to each other, and thus improving, and informing themselves.

BOYS UNDER INSTRUCTION.

THE mind of man, is that power, or faculty, which distinguishes him from brute beasts, which have no understanding: it is a gift of God, to enable him to enjoy himself and society, and make himself useful to his fellow-creatures. God has given him the use of speech, to communicate his ideas, and his wants, to mankind; to learn, from others, what he is at a loss for himself; and teach that, in return, which he happens to be best acquainted with.

Speech is acquired, by imitation; the memory stores up what it hears, and the tongue delivers, or repeats it, as we find occasion. Some men have naturally, more knowledge than others; turn their thoughts to particular branches, or, parts of science; and by continual study, make themselves masters of them. Hence are they enabled to teach others. Some are capable of explaining the appearance of the sun, moon, and heavenly bodies; others, can give a very good account of the earth we live on; can de-

scribe the different countries of the earth, and its natural productions; and so on. But, from the difficulty of access to, or getting at, such learned men, the art of writing was invented, to communicate our thoughts, on paper; and this introduced the art of reading; for, of what use would writing be, if men were unable to read?

Writing enables men to convey their thoughts, and wishes, to each other, though they are many miles apart; and the post, established in every country to carry letters, from place to place, at a small expence, is one of the greatest conveniencies in life. It will carry our good wishes to friends, at times, when we cannot go to them; and, since the extension of trade and the introduction of land, and sea-carriage, will procure us, from those friends, in any part of the world. such useful things as we could not otherwise obtain.

Men of learning, wishing to teach mankind, what they themselves know, and which otherwise, might not be generally known, wrote down their knowledge on paper; but, as writing many copies of the same thing, takes up more time and labour, than one man can spare, from his necessary occasions, it gave rise to the invention of printing: which is a very expeditious, quick, and cheap method of writing. This has introduced books; and, from a number of books that have been printed, in all languages, and. on all subjects; he that can read, and understand what he reads. may learn every science, in his closet; and have the opinions of learned men, in all sciences, brought home to his own door; and, at an expence that he may command.

But, to reap these advantages, he must be able to write and read. For this, boys are put under the instruction of masters, who make it their business to

teach. Hence, then, the usefulness of going to school, and the necessity of learning what we are there taught, if we wish to have more undertsanding, than those, whose parents cannot afford to pay for their learning.

Education makes man respectable in life, opens his ideas, and extends his prospects, beyond the reach of his eyes; and, there is no having the benefits of education, but, by an early application, going to school, when young; studying, when at school; and storing up, in our memories, what we there learn.

The boys before us, with their books in their hands, are entering their master's chamber; and, by their respectful bows, and honest countenances shew us their humility, before a man of superior knowledge to themselves; and tell us, that their manners, as well as their minds, are under instruction. For parents, in improving the mind of youth, do not omit to fashion the body; and, endeavour to give it that elegance and manner, that distinguish a well-bred man, from one that is low-bred. This is the employ of a dancing-master, whose study is, to give grace and ease to the person.

I shall have occasion, hereafter, to enter into all these branches of education: of course will only observe, at present, that, though children think it cruel, to be deprived of amusements; and to be sent to school, and, against their inclinations, be made to learn, and whipped into knowledge; there will be a time, when they will bless their parents, for the attention and expence, thus bestowed upon them, and wonder at their own unwillingness then to learn.

ORATORY.

THE powers of speech are also improved by education. Every human faculty gains strength, by exercise. As the legs of a dancer will grow stronger than his arms, by the greater use he makes of them; and as the arms of a waterman, by constant using, will grow stronger than his legs, which he does not so often exercise; so will the mind of man, by repeated exertions, and by a habit in speaking, be able to express itself, with more readiness, and fluency, than such who do not accustom themselves in this way.

As fine paintings will captivate the eye, so will fine oratory fascinate and charm the ear. God having endowed man with the gift of reason, to check, and keep his unruly will in subjection; if we are desirous of having people act, agreeable to our own wishes, we should, first bring them over to our own way of thinking; and this is best done, by convincing their minds, with arguments, and persuasions.

Such then is the art of oratory. A man whose mind is well informed, by study; and whom education has taught, to speak with elegance and propriety; if blessed, by nature, with a good memory, and an harmonious voice, may work wonders with it. His hearers will listen to him, with attention; will hang on his words, and be carried away, as it were, by his breath.

We see, and feel, the effects of good oratory, in a fine preacher, an able senator, and a good tragedian; but, it is not on these formal occasions only, that the tongue shall captivate. The charms of good language, elegant phrases, and happy thoughts, are seen as well in common conversation; and we are in raptures with those, who speak gracefully, and deliver their sentiments with propriety.

Young people therefore, will find it their interest, in life, to avoid all those imperfections in speech, which disgust, and tire, their hearers. The stammerers, the lispers, the quick speakers, the drawlers, the hemmers, the spitters, the hawkers, are as tiresome, and disgustful, as those who use affected words, and phrases; words unknown in any language; vulgar and ingrammatical expression.

And, if they study to speak with elegance, they should be equally studious, to write with it; for, he who speaks and writes with vulgarity, is always supposed to keep low company. A gentleman may be discovered, not only by his manners, but, by his speech, and by his diction; that is to say, by his writing; and, he who would be well received, in life, should accustom himself to such things as please, and give general satisfaction.

I cannot, under the head of Oratory, take a more favourable opportunity of speaking of the stage; which is a pleasing amusement, and tends to soften the manners of the people. That no improper play

shall be exhibited at the theatres; such as would corrupt the morals of mankind; it is wisely ordained by government, that every piece shall first undergo an examination; and nothing be performed but what is approved and licensed.

STAGE-PLAYING.

PLAYS generally performed, are such as tend to ridicule the follies, and expose the vices, of the age. Comedies, are lively pieces, that cause laughter; and tragedies, serious stories, that excite tears, and compassion; and the subject matter is, generally some piece of history, or some scenes in real life, displaying the manners and the customs of the people. Farces are, generally, ludicrous scenes in life, heightened in the representation.

There are so few good players, so few, close imitors of nature, that where a player has uncommon talents, or a singer, an uncommon fine voice, they are paid, from 500 to a 1000 pounds, a year, or more.

The scenery, by mechanism, and fine painting, is now brought to such a degree of perfection, that a spectator may readily conceive himself, at the foot of large mountains, and on the banks of spacious rivers; all within the small compass of a few square yards: and the mind shall thus be carried to the remotests parts of the world, by the shifting of a scene, or the dropping of a curtain.

DANCING.

WHOEVER has taken notice of the difference; between the aukward gait of the country clown, and the elegant manners of the man of fashion, will be thoroughly sensible of the advantages acquired by learning to dance. As the mind of young folks is like blank paper, on which we may write any character we chuse; so is their frame and bodies susceptible of almost any impression, we please to make on them.

A certain motion of the body, a particular step, a turn of the wrist, or bend of the head, shall give an almost inconceivable elegance to the form, and distinguish those who have received this education, from those who are unfashioned and untaught.

We may see this, visibly, in disciplined soldiers; take a clod-hopper, from the plough, who stumbles, as he walks, and, whose limbs seem so unhinged, as scarcely to belong to him: make a soldier of him; put him under discipline, or instruction, for three months, and you will not know him again. He will lose all his rustic aukwardness, hold himself up, walk firm on his feet, and, be twice the man he was. From being accustomed to stoop, he will stand erect; and be, in his appearance, two inches taller, than he was, three months before. Take notice, of a mob of undisciplined men, and compare them with a regiment of soldiers, and there will be no occasion to point out the difference. See also the manifold difference, between the children of the wealthy, and, those of the poor.

So it is with people in common; the pride, of some young folks will induce them to imitate the manners of those, who have been well taught, and, make it unnecessary for them, to learn. But, in general, boys and girls are so careless of themselves, and, so indifferent about the appearance they make, that, learning to dance, is a necessary part of their education. See how graceful the young lady, dancing, in the plate before us, appears, to what the others do. She moves, with ease, and elegance; whilst the others, turn in their toes. An aukward stiffness is visible in the man; and, the handsome girl behind, is disfigured, by a poke of her head, and, an uncouth carriage of her person.

It is a pity, but that young people were more sensible of this; for, if they omit to learn this fashionable

accomplishment, whilst young, they will repent, when grown up: it will, then, be too late to learn; the body and limbs, will then have acquired a habit, they cannot alter; and, they will never go into good company, but their own unfashionable manner will put them to the blush. Unhappy at not appearing, as others do, they will labour to imitate them; and the pains they take, in so doing, serve only to make them more ridiculous, as is evident in the man here dancing.

All persons are ambitious of being thought to keep good company. They should, as early as possible, then, strive to get rid of aukward habits, and imitate the manners of the better class of people. When we see a man well bred, and polite, we know he has been well educated, suppose him to keep the best company, and, are ambitious of his acquaintance: but if, on the contrary, we find him ill-bred, and clownish, we know, he has been ill brought up, and suppose him to herd with the lower class of people: and, as we naturally judge of a man, by the company he keeps, we are afraid, and ashamed to be seen with him, lest we should be thought, as vulgar as him.

As there is nothing takes with mankind, more than elegance of figure, and softness of manners, dancing is one of the first accomplishments we should acquire. It will give us courage, through life, and relieve us from that bashfulness, that is too often the bane of our good fortune.

I will take this opportunity, to mention the tricks, and habits, which young people are apt to learn; and which, when once learned, they seldom get rid of, through life. It is rather foreign to the subject of dancing; but, tending to render us inelegant, deserves our notice, under this head. By tricks and habits, I mean, biting the nails, pulling the lips, grinding the teeth, screwing up the mouth, lolling out the

tongue, waddling, hawking, and spitting, and a thousand others. These are, all, such abominable practices, as not only make a man ridiculous, but contemptible; and, if he value himself, he will be thankful, to any friend, that will remind him, and aid his endeavours, to get the better of them.

RIDING AND DRIVING.

THERE is not, in nature, a more useful, or more beautiful, animal, than a horse, well trained and well broke in; nor, a more unruly animal, where we have not the command of him; and, horsemanship is now reduced to an art, that requires teaching and practice, to be perfect in.

Riding is an exercise very pleasant, and very conducive to health; and, there is as much grace, and elegance in riding; as in walking, and dancing. A gentleman is as much known, by his accomplishments in the one, as in the other. A fine horse, well taught, is all life, elegance, and activity; and he, who learns to ride, knows how to sit safe on his back, put

him in all his motions; and keep him perfectly under command. It does not require so much strength, in a rider, as confidence: and a horse, not knowing his own strength, if he fears his rider, is, generally, gentle; but it is necessary that he *should* fear him, and know, that his rider is capable of managing him.

A good rider then mounts and dismounts, walks, trots, and gallops, with safety; and avoids all accidents an unskilful rider is liable to.

Whilst one, unaccustomed to riding, is thrown from an unruly horse; dragged, in the stirrup; and his brains dashed out against the stones; or, in passing a gate-way, has his legs jammed against the wall; the skilful rider keeps his seat, without either fear or danger; and enjoys the use of a beast, whose services he would otherwise be deprived of.

UNSKILFUL RIDERS.

Horses are designed, for draught, as well as the saddle; that is to say, they are broke in, to draw a

carriage, as well as, to carry a rider; and, such countries as are not blessed with horses, are obliged to have recourse to other animals, for the same purpose. The Tartars ride upon oxen; and, the Laplanders are drawn by rein-deer. In many parts of England; farmers draw their ploughs and waggons with oxen; but, these are not near so tractable, and expeditious, as horses.

Travellers, on horseback, will go a journey of one hundred miles a day; and, hunting, in pursuit of their game, will gallop, at the rate of fifteen miles in an hour, and this, with great safety: they will, on horseback, swim across a river, scramble over a bank, or leap over a gate; and that, without the least injury to themselves. provided they have a knowledge in horsemanship: but, without such knowledge, they always ride, at the risk of their necks. Horsemanship, then, is a branch of education.

And, as in riding, so in driving: a skilful driver, will manage four horses, in a carriage, with reins, with as much ease, and safety, as one horse; whilst one that is unskilful, will run over a post, overturn the carriage, and destroy, both it and himself; for, horses are not endowed with understanding sufficient, to be left to themselves.

UNSKILFUL DRIVING, &c.

In short, knowledge, and care, is necessary in every thing we undertake: with it, we are likely to act, with safety, and advantage; without it, we are exposed to danger, and disadvantage. As a good rider, or driver, preserves his horses, keeps them in due order, and makes them serviceable in life; so, a wise man, bridles his temper, governs his passions, and keeps them, in proper subjection. If they are sluggish, and inactive, he spurs, and whips them on; if, too vehement and wild, he checks them, curbs them, and holds them in. Thus does he gain, the mastery of himself; and is not liable to those accidents in life, that arise from ungovernable passions; which, if left to themselves, or indulged to excess, will, like unruly horses, become headstrong, run away with their owner, and do him, irreparable mischief.

MUSIC.

AS painting was invented to captivate, and charm the eye, so, music was contrived to please, and ravish the ear; for, as the eye is delighted with a beautiful arrangement of colours, so, the ear is enchanted with a combination of harmonious sounds. The unison of different instruments, of various tones, and the several notes of music, harmonized, and united, in a concert; produce the same effect on the ear, as the harmonious blendings of different colours, in light and shade, do upon the eye. They excite ideas in the mind, and represent absent objects, to the imagination, as present. As a certain disposition of light and shade, will, through the medium, or interference, of the eye, give us an idea of human passions, and extensive prospects; so will a judicious combination of sounds, by the channel of the ear, fill the mind with refined ideas, tender feelings, and, exalted notions of warlike enterprises, triumphal entries, and celestial bliss. In a word, as painting operates on the eye; so does music, on the ear.

Concerts are made up of a variety of instruments; some are sounded by the breath, as wind-instruments: and others, by striking them, as strung-instruments; and these being all tuned alike, will, when performed on, produce very harmonious and enchanting sounds. By a certain method of writing, good musical composers, who are well acquainted with the effect of each instrument, will readily mark down a piece, that being performed by certain instruments, in parts; shall, altogether, form delightful harmony.

The performers before us, are playing, one, on a harpsichord; one, on the violin; another on the violencello; a fourth, on the German flute; a fifth, on the hautboy; and a sixth, on the French-horn. The last three, are sounded by the breath; and a lady is singing. There are a variety of other instruments, not here introduced; such as organs, bass-viols, clarionets, trumpets, bassoons and kettle-drums. Some calculated to play soft music; and others, martial tunes. Violins, flutes, piano-fortes, and the like, are, generally, made to produce soft sounds; hautboys, French-horns, fifes, drums, and trumpets, martial sounds. These last, are in use in armies; and are played on to inspirit the soldiers, and give them courage.

The effect of sounds, upon the ear, is wonderful: there are some that will draw tears; and others, that will almost madden; and the effect of sound, upon the human frame, cannot be more notorious, than, that certain disagreeable noises, will set the teeth on edge; such as, the filing of iron, and the grating of two harsh substances, one, against another. On the other hand,

"Music hath charms, to sooth the savage breast."

It will still a raving mind; lull even anger to rest; and, compose the heart, for solemn exercises; hence,

the introduction of organs, into churches. If such be its effects, no wonder it is so much encouraged in polished countries, where this science has been brought, to the highest perfection.

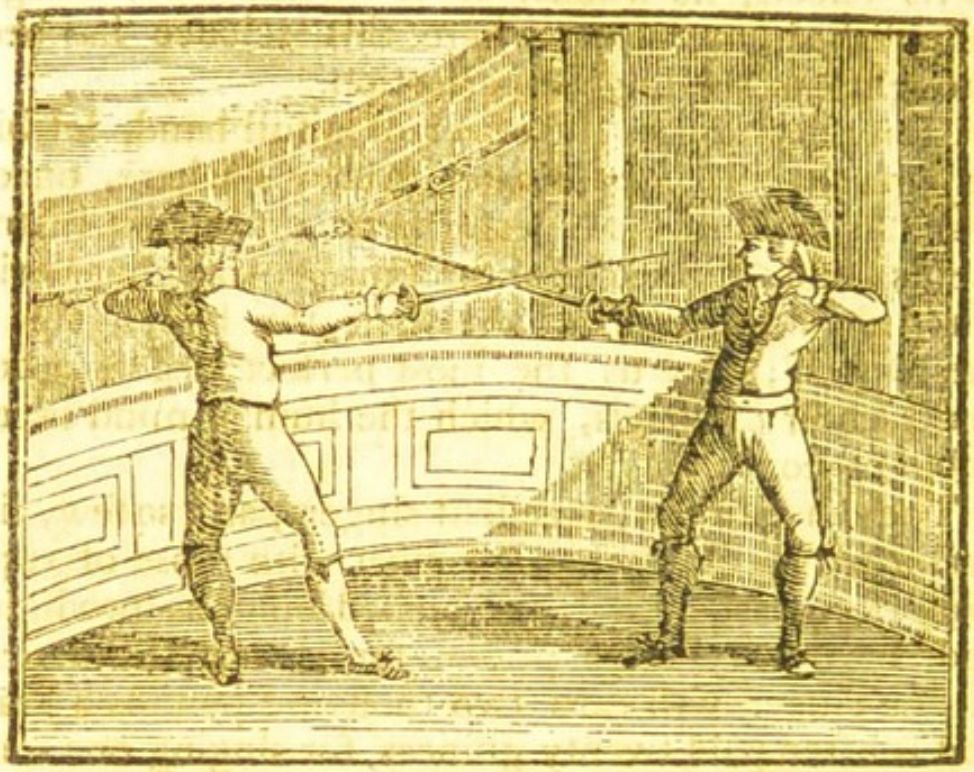
If any one doubts the effect of a full band, let him be present in Westminster Abbey; where, once a year, several hundred performers, on various instruments, and, three times the number of chorus singers, chaunting forth, together, the hallelujahs of the blessed; give us the most perfect idea of a heavenly choir of angels, which the human mind is capable of conceiving.*

There are so few, excellent singers, and so few, fine performers; that, when we meet with those of superior excellence, they are looked upon as prodigies, and, have very large prices, for their performances. A fine singer will earn two thousand pounds a year; and is often paid twenty guineas, for singing one song. And a fine performer, on almost any instrument, meets with such encouragement, as enables him, in a few years, to lay by an handsome independence.

Those who perform on any instrument, for hire, are called Musicians; those, who compose music, for such men to play, are called Composers, and, from their thorough knowledge of music, are considered as men of science, and gentlemen.

* *NOW DISCONTINUED.*

FENCING.



AMONG other branches of education, that of fencing, to a gentleman, is not the least necessary. It gives him grace and manliness, and enables him to defend himself, when attacked. Such is the malevolence and revenge of some men, that they will pursue the person that affronts or injures them, with the utmost virulence; and such the wickedness of others, that, from envy and avarice, they will attack the wealthy, and rob them of their property. By learning to fence, which is the science of the small-sword, a man may defend himself against such attacks, and stand the chance, not only of saving his life, but his property. For, he that is master of this art, and can handle a sword, is able to ward off any blow that can be made at him.

The custom of countries has made duelling fashionable, though it is sinful, and contrary to the principles of our religion; for no christian should be bloodthirsty, and meditate the death of another; but the

pride of being thought courageous, and the fear of being branded with the name of coward, has occasioned many gentlemen to go out and fight in defence of their honour; when one or other of them has met his death, on the spot. To be enabled to defend themselves on such occasions, gentlemen who wear swords, learn how to use them, and he who is best acquainted with the science of defence, stands the best chance of killing his antagonist.

But, independent of this use in fencing, many learn to fence, to acquire grace and elegance of person. It teaches a man to hold his head up, and carry himself well; it sets him firm upon his feet, gives him strength of arm, opens his chest, is good exercise, and tends greatly to his health. For this purpose gentlemen practise fencing with foils or small swords with blunt points, that if they touch one another, it may not be attended with danger.

Cudgelling is the practice of the broad-sword, where instead of pushing and lunging at your enemy, so as to run him through the body; with the broad sword you strike, as with a stick. The cavalry, or horse-soldiers, use this weapon, and are taught to brandish it in the air, and strike the enemy over the head, or limbs. When this art is practised with sticks, it is called cudgelling, and at most country-fairs, the peasants are very expert at it. Its use is to guard off a blow given by a ruffian, with a stick, and such persons as know how to use a cudgel well, may defy the strongest arm, either with a bludgeon or a cutlass.

Such is its utility at times; and hence it becomes a necessary part of every gentleman's education.

Self-defence is the first law of nature, and though no man is justifiable in attacking, or seeking the life of another; yet the love of life induces us all to stand up in our own defence, and thus take away the life of him, who attacks the life of us

SWIMMING.

AS more than one half the globe, is covered with water, if man could not convert this, also, to his use, as well as other things; then, God, with respect to us, would have created the waters in vain. But, the understanding of man, has led him to search, even the bottom of the deep; to travel over its surface: and, make his way, through the water itself.

There are animals, to which, God has made the waters a proper element; that is, ordained them to live, in such water; as fish, and a certain kind of living creatures. Men, and the beasts of the field, were designed to live, on land; but, that they might escape the danger of the water, and not be drowned, in case they should, accidentally, fall therein; he has given them the gift of swimming, or supporting themselves in the water, for some time; that they may receive assistance, from others, time enough to save their lives.

Animals, if thrown into the water, will naturally swim, the first time; without any kind of teaching. A horse, a cow, a dog, and the like, will swim, sufficiently to save its life, if not too far from the shore. But man, whose fear, on such occasions, is his greatest obstacle, requires use, and practice, to teach him.

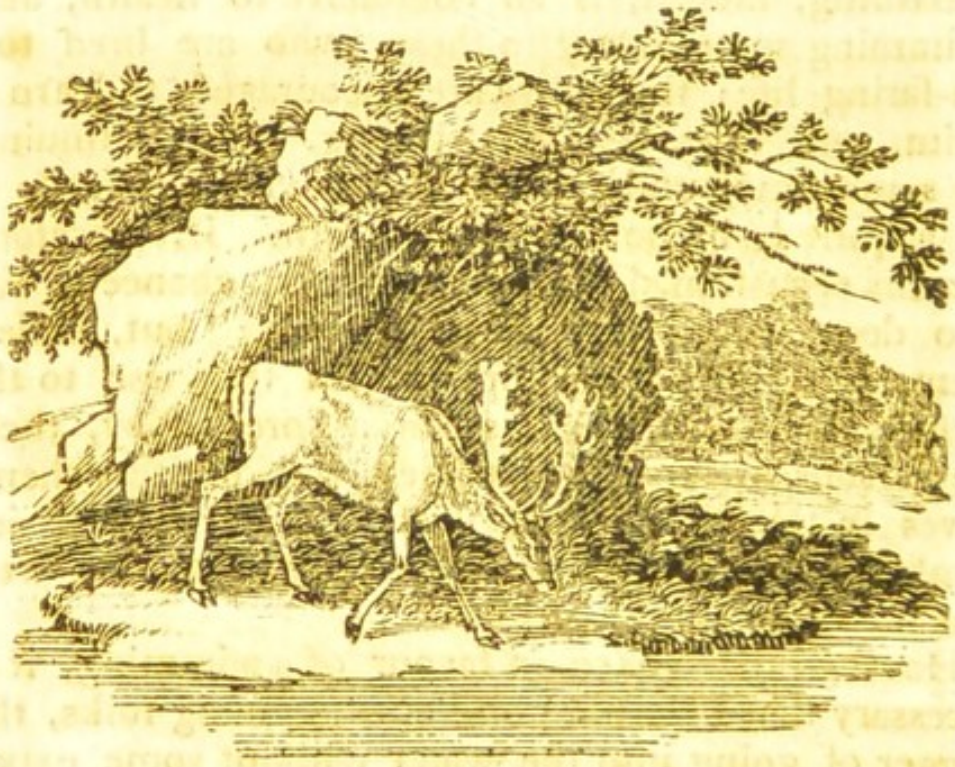
Boys, who live by the sea-side, from constant dabbling in the water, become accustomed to it, and will soon learn, to make their way through the waves, and, are thus seldom in danger of being drowned; but those who live at a distance from the sea, can only learn to swim, from bathing in rivers and ponds. Some learn, by lying down, in the water, on corks, that buoy them up; and others, by attempting to float, in shallow places.

Bathing, indeed, is so conducive to health, and, swimming so necessary to those, who are bred to a sea-faring life; that, boys are encouraged, to learn to swim, and dive, which is sinking, and continuing, for some time, under water; and which is easily to be acquired, by holding the breath. If, therefore, persons accustomed to such exercises, chance to fall into deep water, they are not afraid; but, collect themselves, hold their breath, till they rise to the surface, and will, then, swim ashore. Nay, there are persons so expert, that they will undress themselves in the water, and, thus get rid of those incumbrances, which, from becoming heavy, by wet, would tend to sink them.

Having now spoken in favour of swimming, it is necessary that I should point out, to young folks, the danger of going into the water without some experienced person with them, or some boat at hand, to take them in, if they need assistance Many an incautious lad has been drowned; but, if he have a careful person in his company, one who can swim well, and on whom he can rely, he may venture in, without being called rash. Nay, let him be ever so

good a swimmer, or diver, it would be imprudent to venture into deep water alone, for the coldness is apt to seize on persons in the water, and disable them from helping themselves; and many an expert swimmer has, under this calamity, lost his life.

There is still another danger in bathing incautiously, that of catching cold. Boys are apt to go into the water too warm, and stand about naked, after they come out. They are liable to take cold in so doing. If they will bathe, they should, as soon as out of the water, rub themselves well with a dry cloth, and dress themselves immediately. In this case, bathing will give them fresh spirits, and contribute much to their health.



PROGRESS

OF MAN AND SOCIETY.

PART II.

MAN, AS HE IS.

TO have a proper conception of man, let us pull off his clothes, and view him, as he came into the world; that is to say, naked. I do not mean as an infant, for, in that state, we have considered

him; but full grown, when he has reached the age of manhood. We see him here, with a woman by his side, beautifully formed, as from the hand of the Creator. He does not walk on four legs, or on his hands and feet, as do the brutes of the field; but is made to stand upright, or erect, with such an air of majesty, as becomes the Lord or King of the Creation.

By thus standing on his feet, which by custom he is enabled to do; for we have seen, it is some time before infants can effect it; I say, by thus standing upright on his feet, he is enabled to use his hands and arms, to defend himself, and procure food, and those things that are necessary to preserve his life, and make him comfortable.

The first man, Adam, whom we read of in the Bible, was not born, as an infant, as man is, at this day; but was created and formed by God, as we see him here, full-sized, and in a state of manhood, capable of providing for, and taking care of, himself.

God, having made the world, and determining to people it, for his own honour and glory, created and formed a woman, lovely, as we see her, and gave this woman to him for a wife.

From these our first parents—from this man, and this woman, the whole world has been peopled, and that within the space of six thousand years.

This man, and his wife, had a number of sons and daughters, born infants, as at present, whom they brought up; and when those children came to be men, and women, they married also, and had other children; and thus, in length of time, the world was stocked, as we see it is, with people.

God, in his great wisdom, gave man feet to walk on, and legs to run, that he might be able to move from place to place, enjoy himself, and make use of every thing within his reach. He also gave him hands to work, and fingers to those hands, that he

might take hold of the smallest thing. He enabled him to bend his body; to stoop; to lie down; and to rise up again. He gave him ears, to hear; eyes, to see; a voice, to speak; a nose, to smell; and a tongue, to taste. Without these gifts, it would have been useless to have placed him in the midst of such a variety of good things, which he could not have enjoyed.

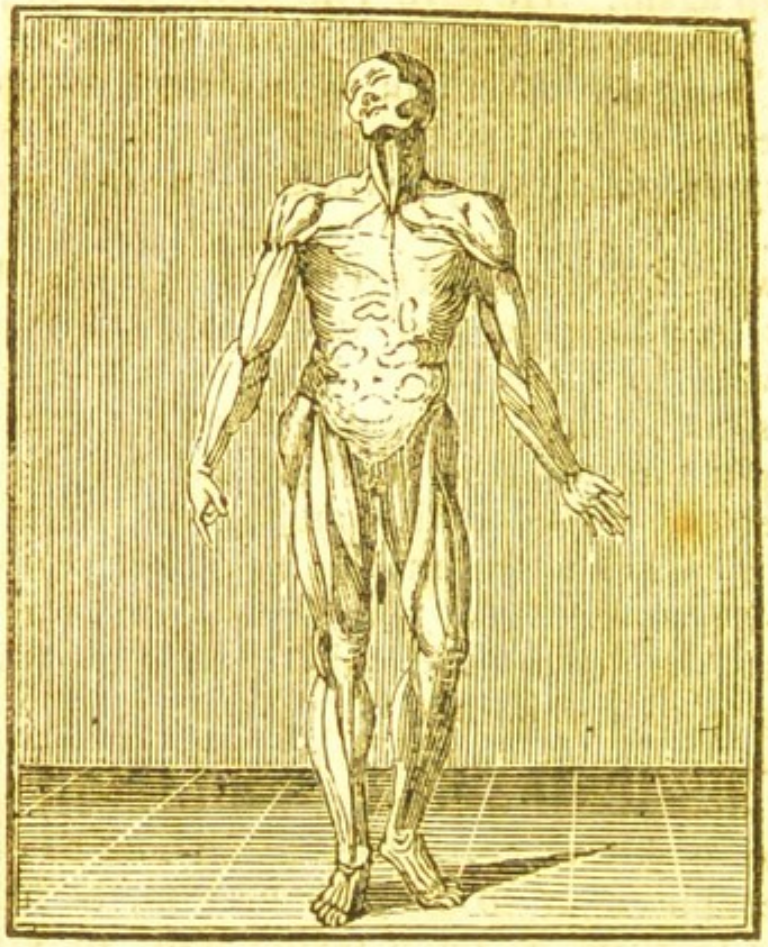
But what are ears, and eyes, and smell, and taste, without a power to use these gifts? — Nothing. To crown therefore, the whole, he placed a head upon his body, and gave that head an understanding, that taught him to make the best use of the gifts he had received. This understanding is called Sense, and has a power to command every other part of the body.—No sooner does the sense direct the feet to move, the hands to take hold, the eye to turn, or the tongue to speak, but they instantly obey. The understanding says to the hand, reach that, and it reaches it; to the feet, go there, and they go; to the eyes, look there, and they look; and so on.

To enable man to look round him, he has made the head to turn, as on a pivot; and, to give him grace and ease, in walking, he has made the foot and toes to bend. Without this last conveyance, he would stump along, as does a man on wooden legs.

This wonderful piece of art, or mechanism, then, is like the work of a watch. Man has, within him, a number of springs, and contrivances, to set all the parts of his body in motion, as you will presently see; and, though in the form before us, he is cased up, like a watch; yet we will take these cases off, and see him as he appears within. A watch, in a handsome case, is a beautiful thing; so is man, as we see him here; but take off these cases, and it will appear much more beautiful; so also will man.

The first case, then we will take off, shall be his skin.

MAN, IN HIS MUSCLES.



Here, then, we see him with his first case, or skin taken off, that is, in his muscles; for these cords of flesh, which we see lie over, and between each other, are called muscles, and tendons. Where the muscles would be too bulky to lie, for the use of the limbs, they are rolled up into tendons, or strings, and are tied down with ligaments, as in the hands and feet. The contracting, or shortening of these muscles, pull and move the limbs, in obedience to the will, or understanding; just in the same manner as the bridles, fixed in the mouths of horses, pull their heads on this side, or on that, as the coachman shall require.

Let us, then, suppose the head of man to be the coachman, and to direct the motion of the limbs, as a coachman governs his horses. If he wants a leg to

move—the head, or understanding, in that head, directs the muscles that move the leg, to contract or shorten; this pulls it forward, like a bridle, or a rein, and it *moves* forward; if it want the hand, or arm to move, it acts in the same way upon the muscles, that move the hand, or arm, and *they* move; and so on with other parts of the body.

We don't see *how* the understanding gives these directions, but so it does; the manner *how*, is one of those wonderful works of God, with which we are not acquainted. But so far we know, that a number of leaders, or fine cords, called nerves, branch from the head, all through the muscles, in the same manner, as we see the blood vessels do in the next figure. These begin in the head, and spread, branching out, like a tree, through all parts of the body, and so thick, that you cannot prick any part, from the head to the foot, with the point of a needle, but you touch and wound some of them. These nerves are so very sensible, that the least wound gives pain; and it is, by these cords, or nerves, that the head communicates its will to the limbs, and directs them how to act.

If any of these muscles, or moving parts, be cut through, or diseased, all the limb belonging to them loses its power of motion; and the understanding has no further command of it, than the coachman would have of his horses, if the bridles, or reins were broken, or out of order.

If these muscles be bruised, they swell, and are full of pain; if they be cut, they bleed, being full of vessels, or pipes, that contain blood, as we shall presently see.

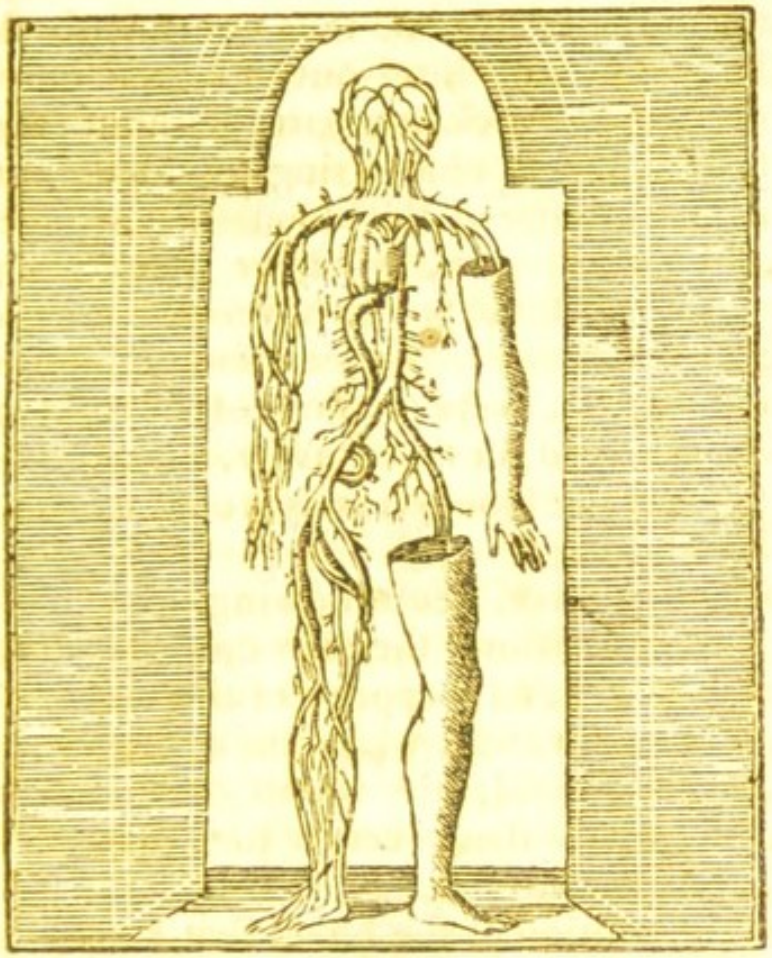
Whilst the man is in health, these moving parts, these muscles, act with full power, and strength; and whilst his understanding and senses, are perfect,

and as they should be, the limbs perform their office properly But, no sooner is the understanding impaired, no sooner does man lose the right use of his senses, but all these moving parts refuse to act, as they should. We shall see the hand instead of being employed to blow the nose, taking another man by the nose; and the leg and foot, instead of moving forward, to walk, kicking another man on the shins. In short, we shall observe the same disorder in the human frame, as we shall see in ungovernable families, where the master of the family is sick, or absent. Every thing goes wrong, and the house is full of confusion. Just so in the human body; let the head, that governs it, be disordered, and the limbs will be disordered also.

This is the case with madmen; as soon as the understanding is lost, the limbs, not knowing how to act, are as unruly, as the horses in a carriage, that have lost their driver.

How necessary, therefore, is it, not only to preserve the understanding, but improve it by education; that it may govern, not only properly, but wisely; and agreeable to the design of God, who gave it; which was to make man happy in himself, and useful to society!

MAN, IN HIS BLOOD-VESSELS.



Having removed the fleshy muscles, that is, having taken off the second case of this watch, we see further into the wonderful formation of man.

The human body is nourished, and kept alive by the blood, that red liquor, which oozes out, when we prick our fingers, or wound any part of the body. This blood flows constantly, as water runs in a channel, round all parts of the body, several times in a day. The heart, which lies within the breast, is hollow, like a pair of bellows, and contains a great deal of blood; and by a natural pressure, like a pair of bellows, drives the blood into the several pipes or vessels; as the bellows does the air, through its nozel: and these carry it all over the body. From

the heart it runs to the head, the hands, and the feet; and then returns from the head, the hands, and the feet, to the heart: and thus continually flows all over the body, branching out, like the nerves; so that you cannot prick any part, without wounding one of these pipes, and letting the blood out.

It is this running of the blood, that we feel beating against our fingers, when we touch the pulse.

Great part of these pipes, or vessels, are shewn in the figure before us. We see them dipping into the hand and leg; for, were the flesh of the right arm and right leg removed, or taken away, as in the left arm and left leg; the blood-vessels would appear, as in that arm and leg.

Whilst this blood keeps flowing, the man lives; when it ceases to flow, the man dies; for death is no more than a general stoppage of the blood. In the same manner, a watch, whilst the springs and wheels move as they should, the watch goes, and tells the hour; but when these cease to move, the watch stops, and is of no use.

It is the motion of the blood that keeps the body warm; for, when it stops, as in death, all the parts are cold. How motion occasions heat, is beyond a child's comprehension; but, that it does, is well known; for you may rub a piece of wood, till it be warm; and when the blood runs too fast, it occasions greater heat in the body, and brings on fever.

Now God, to renew this blood occasionally, and make good any accidental loss of it, has so ordained, that the best part of the food we eat, turns to blood, and the dregs, or worst part of that food, is carried off, by stool; the watery part is carried off, by urine.

How careful then ought we to be, to eat no food, or drink any liquors, that will not make good blood; do any one thing, that shall wound, or injure our frame?

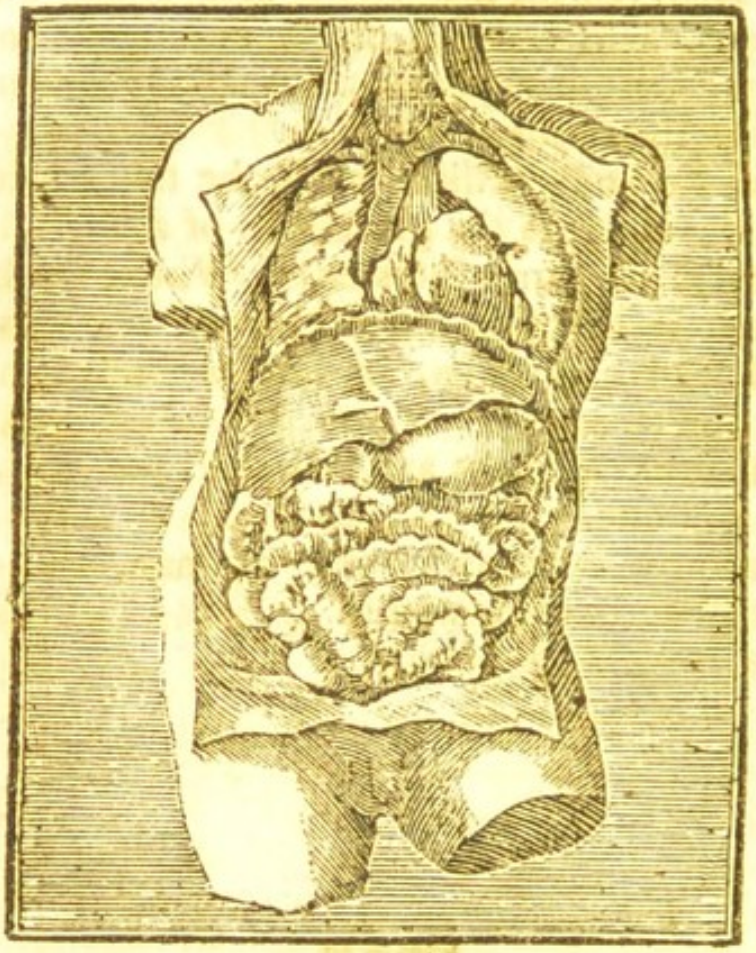
When the spirits of man are exhausted, and his body fatigued with labour, Providence has ordained, that he shall recruit his spirits, and refresh his body, by sleep. This he does daily, and in the morning wakes with fresh vigour, and is able to undergo the labour of the ensuing day.

When his body is disordered, he takes medicines to cure it; and it is the profession of a physician and apothecary, to cure the sick. When the body is wounded, it likewise requires care; and this is the profession of a surgeon, to heal wounds, and cure broken limbs.

What broken limbs are, we shall see in the next figure, but one.

Let us now open the body of man, and see his wonderful formation within.

MAN, SEEN WITHIN.



Here then, the body is laid open, from the throat to the hips; and we behold how man is made within. We now view the movement of the watch, the springs, and wheels that set it in motion; that is to say, the inward parts of man, which God has formed, to give motion to the blood and spirits, and preserve life.

We here see, on the right above, the heart that drives the blood through the veins. This, with the lungs, surrounding the heart on one side, and the liver, spreading across the body below it, lies in the hollow of the breast; and the bag, called the stomach, and entrails fill the cavity of the belly, under the liver.

What the lungs are, we shall now see. From the mouth, through the throat, there are two passages;

one to the lungs, through which we breathe; and the other, to the stomach, through which the food passes: and that the food may not get into the wind-pipe, through which we breathe, and interrupt the air, nature has contrived a valve or cover, to the wind-pipe that opens, to let the air pass in breathing; but shuts close, at the time of swallowing, that the food may not get into it, to choak it up.

We live only by breathing the air, which, when we draw breath, is sucked down by the wind-pipe into the lungs, as the air is drawn into a pair of bellows, by lifting the handles. These are hollow bags, and contain air; and when we breathe, the lungs naturally contract, or squeeze themselves together, and thus drive out the air, as does the bellows when we press the handles down. While man thus breathes, he lives; but, stop his air-passage, and he dies. Such is the case, when a man is smothered, or strangled. Put him between two feather beds, or into a place where there is no air, and it will smother him: hang him up by the neck, and thus squeeze his wind-pipe together, and you will strangle him.

Air then is so necessary to life, that, if a man breathe bad air; if he go into infected places; breathing such infected or unwholesome air will disorder him and bring on sickness.

The other passage, from the mouth through the throat, leads to the stomach; thence the food passes to the guts or entrails. In its passage, the nourishing parts of the food are taken up by the blood-vessels, and carried all over the body, to feed and preserve it; the watry parts of the food are strained by the liver and kidneys, conveyed to the bladder, and thence carried out of the body, by urine. The grosser or thicker parts of the food, having performed their offices, are also carried off from the body, by stool.

All this is rather beyond a child's understanding; but it will teach him, with what wisdom and contrivance God has framed us, and what an astonishing workman he is.

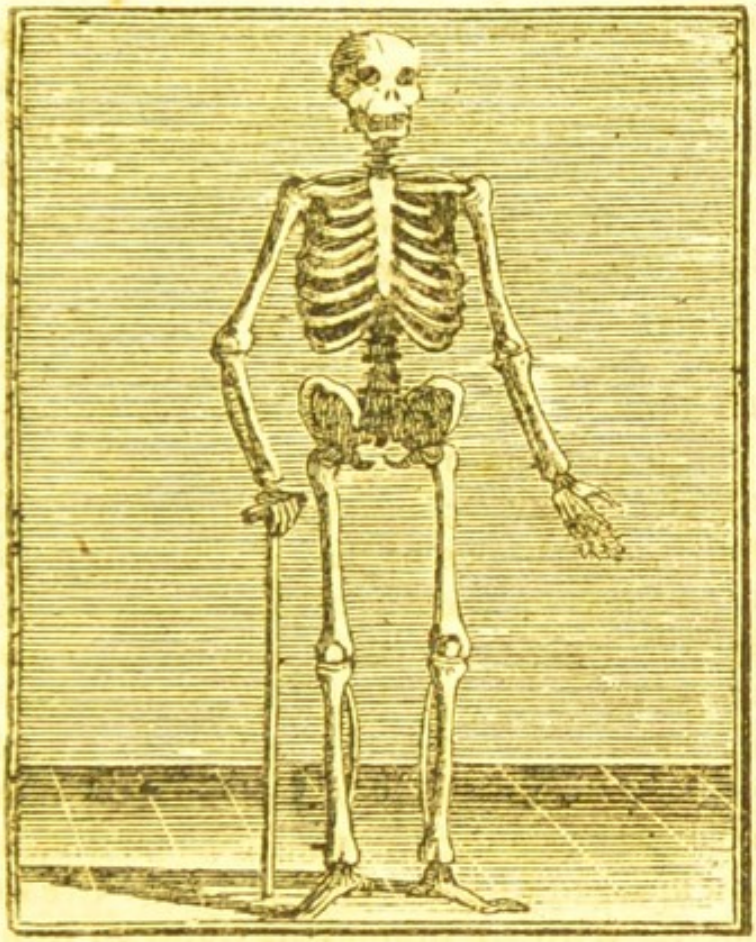
In the same manner, as a watchmaker is acquainted with the inside of a watch; so is the physician and the surgeon, with the inside of man: and, as it is the profession of the first, to repair any injury the former sustains: so it is the profession or business of the latter, to remedy the defects of man's constitution, as far as it is possible.

If any part of this wonderful mechanism be out of order, the man is sick; if any part cease to act, the man dies.

Now all living creatures are made, in some manner, like man, both within and without; though not exactly the same, even from the gnat, to the elephant, from the worm, to the whale. The animal machine goes regularly on for years; and, if no accident happen to shorten it, it will wear out, in course of time, and die of old age.

Let a man's fortune then be what it will, let him have physicians and attendants at hand, let him have every remedy which nature provides, he must die at last; and this hour, though at its greatest distance, is so near, that it behoves us to prepare for its arrival, and not trifle away those precious hours, that are in fact so valuable.

MAN, IN HIS BONES.



Having removed the flesh, the nerves, and the blood, we come to the bones; which are hard substances, contrived by our Creator, to preserve the form of man, and enable him to stand upright. These bones, when man is an infant, are soft, like gristle, and easily bent: but, as he grows up, they become stiff and hard. This is the reason that children's bones are not so liable to break, as the bones of grown-up persons; for, when we say, the arm or the leg is broke, it is the bone of the arm or leg.

From the neck, to the hip, we observe a great, hollow part; this is surrounded by the ribs or bones of the sides; and within them, lie the contents, of the breast and the belly.

The back-bone, we see, is full of joints, to enable us to stoop; and, using ourselves to stoop forward, before these bones get stiff, we are able to do so, all our life. But as we have no occasion to bend, or stoop, backwards; as we grow up, the back bone, not being used to this, grows stiff, and we cannot do it. But tumblers, that get their bread by shewing us unnatural postures and attitudes, can, and do stoop backwards, as easily as we can forwards. And why? Because, when they were infants, and their back-bone would give way, their parents, designing that they should get their bread by tumbling, accustomed them to bend back, till their heads and feet touched the ground; and practising this through their youth, the bones of the back never grew so stiff, as to prevent their stooping or bending back, as well as forward; as may be seen in the next print but one.

Now, having viewed the internal part of man, and seen his formation; how wonderfully every part of him is contrived for the purposes of life, may we not stand amazed at the wisdom of our Creator who has made us with so much care, and so much contrivance!

The beasts of the field are framed in a similar way. They have bones, blood-vessels, nerves, and muscles, as we have; and these are given for the same purposes. Their bones are as liable to break, their blood to be spilt, their muscles to be wounded; and having nerves, they are as sensible of pain, as man; and, of course, putting a poor dumb creature to torture, who cannot speak, to utter his complaints; and perhaps being tied, is not able to defend itself; is cruel to the greatest degree, and at the same time, unnatural and unfeeling.

Though brute beasts have the same sense of pain with us, not having the same understanding, nor the

same fear of death : killing an animal, is not such a punishment to that animal, as putting a man to death, would be to *him ;* and, as all animals were given, by God, for the use of man, we are at liberty to kill them, for food. But, let us not torture them, or, in killing them, put them to more pain than is absolutely necessary ; and, whilst we are tormenting them, let us consider, how we should like the same treatment ourselves A merciful man will be merciful to his beast ; and, he who cannot feel for brutes, is a disgrace to humanity.

But, to return to man Considering how wonderfully we are made, with what a number of fine parts and vessels, the bursting or entangling of which, will cause sudden death ; it is astonishing, that we do not see people drop down dead, every day ; and, nothing but the watchful care of Providence, saves and protects us. How much then, are we indebted to that God, to whom we owe our being and preservation ! How thankful ought we to be, for his continual care of us ; and, how kind and tender-hearted should we be to our fellow creatures, who are made, and suffer, like ourselves !

Again. Of what has man to be proud ? A lord is no better formed, than his servant ; nor, can he boast of better materials. His frame is equally liable to be disordered, and he will, in the end, die, like his servant, and be laid in the grave ; when all his fine workmanship will decay, become food for worms, and moulder into dust. If the great man have any thing to boast of, it can be only a better understanding, improved by education.

ROPE-DANCING.

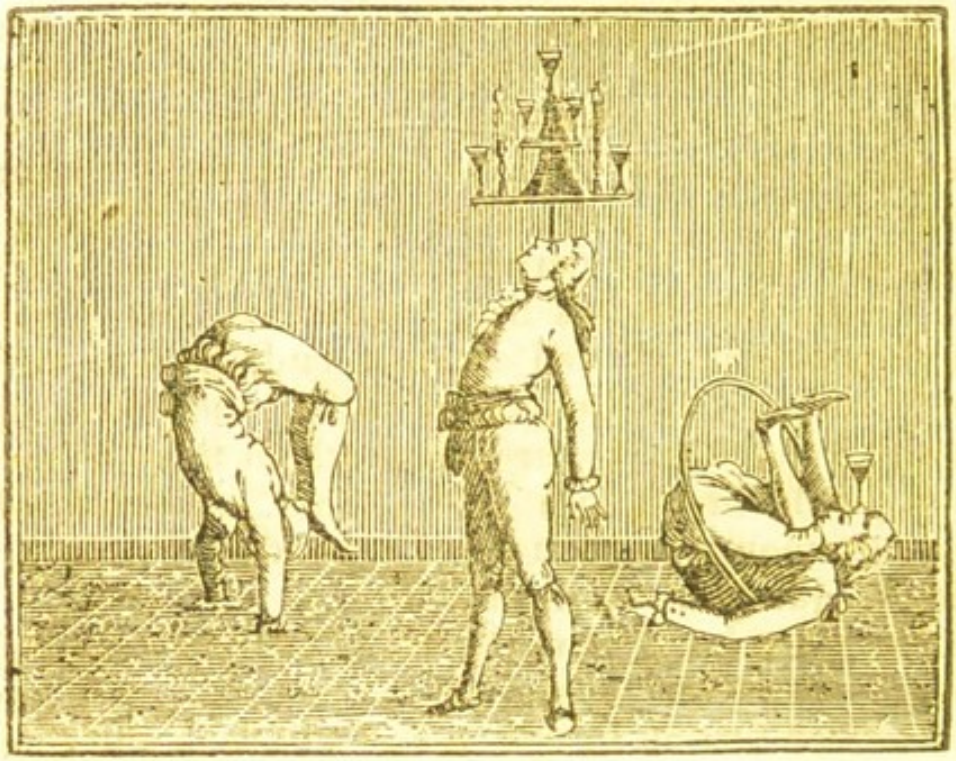
I HAVE shewn why God has thought proper to set man upright on his feet, in preference to the brute creation; that he might be able to use his hands and arms, not only for defence, but, for the purposes of society This position is acquired by habit; for, infants are some time before they are able to hold themselves upright, because they know not how, at first, to preserve a balance, and support what is called an *equilibrium*. This knowledge depends as much upon the understanding, as on the exertion of the limbs; for we see, that when a man loses the use of his reason by intoxication, that is, gets drunk; he cannot poise himself, or preserve that equilibrium, that is necessary to make him walk steady, or keep upon his legs. If he be not quite drunk, his head will enable him to stand upon his legs, but not steadily; he will totter and reel about; but, the more strong liquor he drinks, the less com-

mand he will have of himself; and, so little able will he be to stand, that he will fall to the ground, and wallow there like a beast.

This balance preserved, in a greater degree, enables rope-dancers to perform those tricks and feats, that are thought wonderful. By practice, men will acquire a habit of walking along a tight-strained rope; and, by jumping on this rope, the spring it has, will throw the person on it up in the air; and, by the balance in his hand, which is a long pole, with a weight of lead at each end, he will so far preserve an equilibrium, as to fall upon that rope with his feet; and, the spring which this fall gives him, will throw him still higher. Thus will he bound upon this tight rope, up and down, several times, quick, one after another.

From the habit of walking and dancing on a tight rope, by the assistance of a balancing pole, men have proceeded further in agility, and will walk and swing upon a slack wire, balancing themselves with their arms, as is here shewn; and will, at times, be also, in full swing, able to use their arms, and play upon a violin. The practice of such feats are, however, so uncommon, that men, clever at them, will earn a great deal of money; as much as a good player, in exhibiting their performances, in order to amuse, and divert, the public.

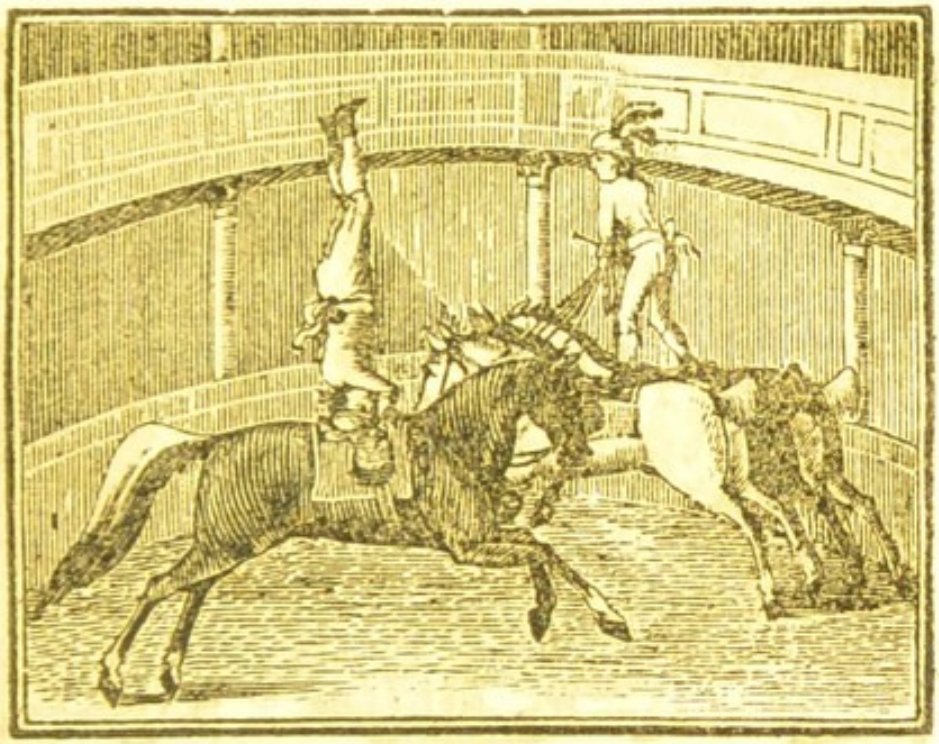
TUMBLING.



IT is the preservation of this balance also, that enables tumblers, and others, to carry a stand of wine glasses on their chins and foreheads, without holding them; nay, will enable them to creep through a hoop, and yet not throw down the glasses, nor spill the wine. All that is necessary is, to hold the stand upright; which they do, by keeping that part of their face on which it rests, directly under it.

Here also we see, as I have before observed, the effect of being early inured, in the habit of bending backwards as well as forwards; a man so accustomed, will bend himself backward, till his hands touch the ground; and then raise up his legs, till he can stand upright upon his hands, turning himself completely over.

FEATS OF HORSEMANSHIP.



Others will perform feats of horsemanship; will stand upon their heads on the saddle, and suffer the horse to gallop, whilst they are in this position: others, will stand, upright, on the back of two or three galloping horses, and jump, from one to the other, whilst they are in full speed. Those horses are certainly taught to keep an equal, steady pace, and not to gallop too fast; but the business is performed by the rider's preserving an equilibrium.

THE FIVE SENSES OF MAN.

THE senses which God has given to man, are five; namely, seeing, hearing, smelling, tasting, and feeling.

The gift of Sight, or the power of seeing, is the property of the eye. This is placed in the head, which is the upper part of the body, to command a greater view, and be most out of the reach of danger. Sight is such a blessing, that the poor wretch who wants it, is buried in continual darkness. We may, now and then, behold objects that create disgust and distress; but such as are easily reconciled. But what would be our inconvenience, if we could not see our way before us; and what would be our loss, if we could not enjoy the brightness of the sun, the richness of a prospect, and the beauties of a fine day?

God, in forming the eye, has covered it with an eyelid, to shield it from outward accidents: has given it a lash, so sensible, that if a mote, or the smallest insect, touch it, the eye instantly closes, and secures itself from harm; a brow, to shade it from too much light: and has furnished it with tears, to wash away any dust that may lodge on the surface, and obscure the sight. These tears are constantly running over, and washing, the ball of the eye; and when they have performed their office, are carried off by a concealed passage into the nose. How admirable the contrivance, and worthy of an all-wise Creator!

Hearing is the next sense, and its organ is the ear. This, by the sound it communicates to the brain, gives the alarm of noise, when any such danger is at hand, as the eye, or other senses, could not be acquainted with. But, independent of the security it bestows, how charming to the ear is the sound of music, the melody or singing of birds, the language of the brute creation, and the falling of waters! If the whistling of a storm, or the howling of a tempest, alarm the traveller; the crowing of the cock, and the sound of the village-bell, tell him he has not much to fear; for, though danger is at hand, protection is not far off.

But of all uses of the ear, that of listening to the voice of others is the greatest. Without it, man could not communicate his ideas, enter into the concerns of others, or enjoy the comforts of society.

Smelling is a third sense, and this is the property of the nose. This serves also to alarm us, in case of danger. The approach of fire can be discovered, by the smell, the nearness of infection and disease, and the unwholesomeness of food. But, independent of the use it is thus to man, how delightful is the

smell of perfumes, and how regaling the fragrancy of herbs, and sweet smelling flowers!

The fourth sense is Tasting, which is the property of the tongue and the palate. Eating would be tiresome, three times a day, and a labour, if God did not temper and sweeten this task, with delicious foods; foods that give a relish, and suit the taste of different palates.—hot, bitter, sour, and sweet.

Variety of foods have such a variety of flavours, that eating is more a pleasure than a pain. Nay, it is reckoned so great a luxury, that foods are brought from the farthest corners of the earth, to gratify, and please the taste.

The last sense is that of Touching or feeling, and is the property of the fingers; the ends of which are so very sensible, that a blind man has been thought capable of knowing one colour from another, by the touch.

The goodness and quality of many things are discovered by these senses. Silks, stuffs, velvets, and furs, are known by the touch; foods by the taste; perfumes, by the smell; musical instruments, by the ear; and a thousand things, by the eye.

Now, as these senses are valuable to man, he will do well to preserve them, and avoid such things as will injure them. Too great a light, will wound the eye; too great a noise, the ear; sharp and acrid things will wound the smell, and the taste; burning, will wound the touch; and sickness will destroy them all. Each of these senses are so useful in their turn, that, was man obliged to part with one, and asked which he could best spare, he would not be able to determine.

Know, then, the worth of these blessings, and act accordingly.

MAN, ENDOWED WITH REASON.

THE greatest gift of God to man, is that reason, or understanding, which distinguishes him from, or raises him above, the level of the brute creation. But for this, many of the brutes would be happier than men. They have no foresight, or dread of what shall happen to them in future; nor any unpleasing retrospect, or looking back, to former actions. If they can supply their hunger, it is all they want, and all they care for. They have, at the same time, many faculties superior to man. The hare, for example, has a quicker ear; the cat, a better sight; the dog, a better smell; and many animals have more strength, and swiftness of foot.

But man has an understanding above them all. By study and reflection, he can enjoy every thing he sees; he can account for all that meets his eyes, and enter into the wonderful works of God. In the painting before us, the gentlemen are noticing an appearance in the heavens, and setting down the instant of time it happened, meaning to inquire into its cause,

at some future time. Great things are generally the object of men's study; lesser things, the study of women; God having given to man a more extensive understanding, and stronger powers of mind, than he has given to women: but woman, nevertheless, is endowed with reason, and has sufficient understanding to make her happy in herself, and pleasing to all about her. We see here a lady, teaching her daughter to read, which is the foundation of all knowledge. Books, on all subjects, are written by sensible men; and if we can read and comprehend such books, we may, from them, learn every thing we have occasion to know.

How necessary a thing, then, is education! without it, man is little better than a wild colt: but education forms him, and fashions him. It is on this account, that children are sent to school, to receive instruction; and are led on from one thing to another, till they have a sufficient stock of knowledge, to enable them to make their way through life, and render themselves useful to society.

Knowledge is so necessary to our well-being and happiness, that parents who love their children, give them always the best education they can afford: and, as a good education is a proof of the ability of the parents, it generally stamps the gentleman, and distinguishes him from the lower class of men; who have had little or no education, and are low, and underbred.

But, as study and education open the mind, if good principles are not instilled at the same time, the knowledge the boy acquires, must make him wicked. By an insight into religion, he is taught to look forward to a future state; that other world, in which he is to enter, after death, and where he will be rewarded and punished, according to his conduct and behaviour in this. If he behave well here,

he will be rewarded hereafter; if he behave ill here, he will be punished hereafter.

Brute beasts having no understanding to guide them, are not answerable for their conduct; and, as they will never enter into another world, after this, they have nothing either to dread, or to hope for: of coure, they are far happier than man, unless man, by a good life, set his mind at ease, and leave himself nothing to fear hereafter. Whatever he studies, then, his first care should be, to learn to act his part well, to reverence and worship God, to love and obey his parents, respect his friends, and do good to every one; never to tell a lie, do no harm, but act, in all things, like one governed by reason, and influenced by religion.

MAN, VOID OF REASON.

WE have just seen the blessings and advantages of reason; let us now see, the wretchedness and disadvantages of the want of it.

Reason is seated in the brain; and, when the brain is diseased, reason forsakes us. We then say, the brain is turned. It is a most dreadful calamity to man, when it shall please God to deprive him of his understanding, and take away from him that command of his senses, which reason gives him.

God, in depriving man of reason, does not take from him his senses. He can still see, hear, smell, taste, and touch; but, of what use are these senses to him, if he have not the command of them? If he cannot direct them, to act as he pleases, they are like unruly horses, that, having no bridles, nor driver to direct them, will run away with the carriage, overturn it, and destroy it.

The painter, struck with the melancholy idea of this calamity, has given us a view of a mad-house, where such unfortunate men are kept, as in a kind of prison, to wear away their lives, without doing mischief. It sometimes happens, that disease shall disorder the mind, and deprive a man of his understanding, for a length of time; but, by medecines, and proper attention, this man shall afterwards recover: but, where the disorder is iucurable, or cannot be cured, it were better that such a man were dead, than that he should live, under so great a calamity. But, as no one is authorised to take away the life of another, there are places charitably built, to shelter, and take care of, such people. These are called mad-houses; keepers are appointed, to look after them, and take care they do no mischief, and physicians, if porsible, to cure them.

The madness of the men before us, is visible in their conduct. Some are raving at the windows, one, has stripped himself almost naked, and is grovelling in the dirt; another, is pleasing himself with having robbed a kind friend, that came to see him, of his wig; and another, in spite of his keeper, is

jumping into the water: all acts of ungovernable madness.

There are but few men so totally deprived of reason, as to need shutting up in a mad-house; but, there are many men, who have so small a share of reason, as to commit acts of very egregious folly. This is the case with children, before their reason is sufficiently strong and framed: they will do mischief, as we have seen in a former print; they will act foolishly, and was it not for the care of parents and governors, they would often act like madmen.

As we reach the years of manhood, and grow to the size and stature of men, our understanding grows with us, and becomes sufficiently strong, to guide and govern us; but, as I have observed, some men have less understanding than others, and very often need advice; the great study of man should be, first, to know himself; to consider the strength of his own abilities; how far he dare trust to his own knowledge, and depend on his own understanding; and, should he, in this self enquiry, find himself deficient; if he be wise, he will acknowledge that deficiency, and ask the advice of those friends, who are able and willing to advise him. He will not run headlong like a madman to his own destruction, but will submit to the guidance of others, especially in matters, that are essential to his own happiness.

DEFORMITIES.

MAN, when he first came from the hands of his Maker, was as we have seen, a beautiful and perfect creature, modelled with the greatest judgment, and every part of him calculated to answer particular purposes. But man, now brought into the world, by the course of nature, is not always so perfect as he might be. Accidents in childhood and youth, will sometimes injure the limbs, and distort the body; and ill-health, in a person whilst he is growing, without proper care, will bring on deformities. As a tender tree, unless propped, and trained up by the gardener, will grow knotted and crooked in his growth; so a weak and sickly child, if not properly attended to, will grow up crooked and unsightly. Some children are naturally stronger than others, and will not in their youth require so much care; but if those who are tender and weak, are not well nursed, they will carry about them such marks of carelessness, as shall give them cause to condemn

their parents and nurses, as long as they live. Some, shall be hump-backed; others, knock-knee'd; others, lame; and others, again, bow-legged. Some shall want an eye; and others, a hand.

These imperfections in men, are too often owing to want of care in their nurses; and therefore, when we find ourselves perfect in all our limbs, we cannot sufficiently, as I have observed before, thank those that bred us up. As a young man has reason to bless his parents, for the good education they have given him; so ought he to be thankful to his nurse, and those that had the care of him in his childhood, for the attention they bestowed upon him: for I must repeat here, were an infant unattended to, he would die, almost as soon as born.

To remedy defects of nature, the ingenuity of man has contrived bandages, to make the limbs grow strait; and, where a leg has been broken, and been obliged to be cut off, has contrived to supply the loss of such leg, with a wooden one. These are but make-shifts, to be sure; but, where we cannot do better, we must do as well as we can.

But, there are still other defects in the growth of man. As one tree shall grow to an uncommon bulk and heighth, and another shall be stinted, and not reach its natural height; so it is in the human species: one man shall grow so fast, and so much, as to become a giant; whilst another shall grow so slow, and so little, as to become a dwarf.

The common height of man in this country, is between five and six feet; and his general weight, when full grown, is about 150 pounds: but, we have seen some that have been eight feet high, and have been so bulky, as to weigh near 300lb. weight; and others, so short, as to be under three feet high, and not weigh more than 70 pounds.

In hot countries, all the productions of the earth, both trees and plants, grow up quicker, more slender, and to a greater heighth; and, in cold countries, they are all stinted in their growth. So it is in man. In warm climates, as in South America, men grow to seven feet high; and in cold climates, as in Lapland, they seldom exceed four feet and a half.

So again in warm countries, as in Spain and Italy, men are full grown, and reach the years of manhood, at 16; and women are marriageable at twelve. But in such cases, the mind does not grow with the body; for, whilst a man shall be full grown in his person, he shall be a boy in his understandiug.

Such are the defects and imperfections of nature; but, they are, in some measure, remedied by the care and attention of mankind.

MARRIED LIFE.

WHEN man has past the years of infancy and childhood and has completed his education, he is fit to be turned into the world, and to be left to

provide for himself. Whilst under the care of parents and teachers, his thoughts are centered in momentary pleasures; he looks no farther forward, than to gratify his little wishes, and please those who have the guidance of them. But, no soooner is he arrived at manhood, than other thoughts and cares break in upon him. God, the wise disposer of events, has placed within his breast, an ardent desire for social life; and to increase his species, has made him pant for a partner in his cares, and seek his comfort in domestic bliss.

Able, by his industry, to maintain a family, he covets one to maintain. Here then we see him in married life, united to the object of his affections, and become the father of many children.

Marriage is a natural institution, ordained by Providence, to people the earth, and continue its stock of inhabitants; and all countries, to regulate these marriages, and create ties of kindred and relationship, have made laws, to prevent near relations from marrying with one another: for, were persons to marry always into the same family, the affections of men would be confined to a few; but, marrying into other families, spreads that affection, and ties strangers to each other.

It is natural to suppose, that the children of our first parents, Adam and Eve, who were all brothers and sisters, must have married one another; for, there were then no other people in the world. For three or four generations, then, all persons living must have been very nearly related, having sprung from the same parents; and marriages among these relations could not be displeasing to God, because necessity has no law, and there were no other persons to marry: but, now that the world is sufficiently stocked with people, it is enjoined by the laws, both

of God and man, that, in order to keep up harmony and brotherly love among mankind, no man shall marry a sister, neice, or any near relation; but, shall ally himself to some woman of another family; which makes matrimonial alliance nearly equal to that of relationship.

When a man is married, and has children, he begins to feel, and for the first time, his want of gratitude and attention to his own parents; ond experiences, in the love he bears to his own offspring, the affection his parents had for him; and has now only to lament, that he has not a father or a mother living, to succour and to comfort. I must observe here once again, that we are never truly sensible of a parent's love, till we become parents ourselves; and then it is, if we have ever been ungrateful or undutiful to those who brought us into life. that our own hearts smite us, and make us feel our want of nature.

This is the period of life, when we should make the most of our time. The age of man is said to be, threescore years and ten. The first twenty of these years are consumed, in teaching us how to conduct ourselves in the remaining ones; and, when we consider, that the hours of sleep take from us one full third of our days more, it reduces our life to little more than twenty years; and, if we deduct from this, ten years for old age, which yields us but little enjoyment, our life may be considered as short indeed;—scarce more than 12 or 15 years of time almost, to be really useful to ourselves and others: and, where one enjoys this period, many are cut off in their prime. How much then does it concern us, to apply ourselves to wisdom early; to make the most of the present moment, and not to put that off till to-morrow, which may be done to day! Delays are very dangerous: this to-morrow may never arrive:

we may leave the world before night, and that which we proposed to do, in such a case, would be left undone.

Let us embrace then the first opportunity of doing what we have to do; and not put that off till to-morrow, which we can do to-day. When we have executed our designs, and fulfilled our engagements, our minds will be at liberty, to pursue fresh objects, and our schemes will not be frustrated, or broken through, by unforeseen accidents.

Good wives, and good children, are the greatest comforts in life; and a married state, so circumstanced, is the happiest on earth: but, where we see confusion, disorder, and quarrels in a family, it is complete wretchedness.

The father of a family, is he who governs and provides for it. I say, governs it; for, without some regulations, things cannot go on well; any more than can the government of a country, without a wise conductor. A father is supposed to have the welfare of his family at heart: it is the study of his life, and his constant labour, to provide for, and support it; and, of course, it is the duty of that family, to respect and obey him. Children and servants are not only bound to obey him, but the mother also, if that mother be his wife: and, should it so happen, that fathers and mothers disagree among themselves, and that the father should give one direction, and the mother a contrary one; it is the duty of a child, always to obey the father in preference to the mother; because the mother is equally bound to obey the directions of her husband.

Where there is such disagreements between parents, it must disturb the peace of a whole family: but, I thought it necessary to mention this case, as it will sometimes occur in life, and children may not

know how to act; and, as this work is designed for young folks, such an observation should not be omitted.

DISEASE AND DEATH.

WE have seen the nature of the human frame, consisting of bones. nerves, blood-vessels, and muscles, as so many springs and wheels of a watch; contrived by that great artificer, God, to work his machine, man, and keep him alive and well. But, like the mechanism of a watch, accident will put the human machine out of order; and, if not remedied, the man will die. Whatever this disorder is, we call it Disease. However active, and in good spirits, a man may be to day; by a little change of air, by too much heat or cold, by too much labour and fatigue, by eating and drinking too much, or eating improper food; by falls and bruises, and a number of other accidents, he may be ill to-morrow. His blood may flow too fast, and occasion fever; it may flow

too slow, and occasion languor; his stomach may be disordered; in short, a number of little circumstances may, in a day or two, bring down his health, and lay him on the bed of sickness.

But, Providence, who has ordained sickness, has likewise given remedies for sickness. There is scarce a disorder in life, but nature has provided a remedy for, in the roots and herbs of the field and garden; and physicians, who have made these remedies their study, and, from a knowledge of the human frame, are acquainted with the causes of disorders, are called in, and advised with, in hopes of obtaining a cure: the price is generally one guinea for each visit. This may be prudent, for every one is justifiable in seeking for a cure, where such is to be found. But, the great Physician of all, they little think of; I mean, the God who gave them being, and in whose hands are all the issues of life.

Our first application should be to Him: we may send for a physician; but, we should pray to God to bestow a blessing on his endeavours, and to recover us from sickness, if he shall think proper; if not, and he should please to end our life, and call us to himself, we should reconcile our minds to the awful period of quitting the world, and resigning our breath cheerfully into the hands of him from whom we received it.

Whether the first disease we labour under, or the second, may end our days, is uncertain; but, this we all know, that man has but a few years to live in this world, and that, sooner or later, death will reach him, and take him from it. It is not wealth or honors that can save us; nor the help of drugs, the knowledge of the physician, or the tears of friends. When God calls, the king must die, as well as the beggar, or the slave. The time of our death is in his hands, he may call us, in our infancy, our youth, or in

manhood; but, should he be pleased to let us live through these, old age will come at last, and then we die, of course. Seventy years is generally the longest life of man; and, though some few shall reach the age of 80, and, now and then, one, 90; yet, the greater part of mankind dies before the age of forty.

But, supposing eighty to be the period of his life, these eighty years are soon run out. Let us look back but a few years, and the shortness of that time will shew us, how soon the same number of years to come, will pass.

It is but a few pages back, that we saw, and contemplated, man in his infancy;—a puling, helpless child, who came forth like a flower; which, as he grew up in youth, by the care of parents and friends, reached a hopeful bloom, and, in a few years more, reached the age of manhood. Now we see him, in the decline of life, verging to the grave at a good old age; for, should no disease or accidents shorten his life, he will, in the course of nature, grow old, and die; and go out, as does a candle, when all its wax or tallow, is burnt and gone.

OLD AGE.

AS a flower rises from its seed in spring, blooms in summer, and withers and dies in autumn; so man springs forward, till he is twenty years of age; blooms till forty, and withers, and dies, at eighty. His blood lessens in quantity, his bones shrink, his muscles wither, and his constitution decays.

What should this lesson teach us? What should we learn from this scene of sickness? We should consider, that our stay in this life, is very short; that we are sent here to prepare ourselves for another world; that we are like travellers, going on, as fast as we can, to another country; and that, though we are at liberty to provide for this journey, as well as in our power, and make our passage through life comfortable; yet, our great care should be, to secure a good reception at our journey's end.

Happiness or misery is before us. If we act our part well, on this side the grave, we shall be re-

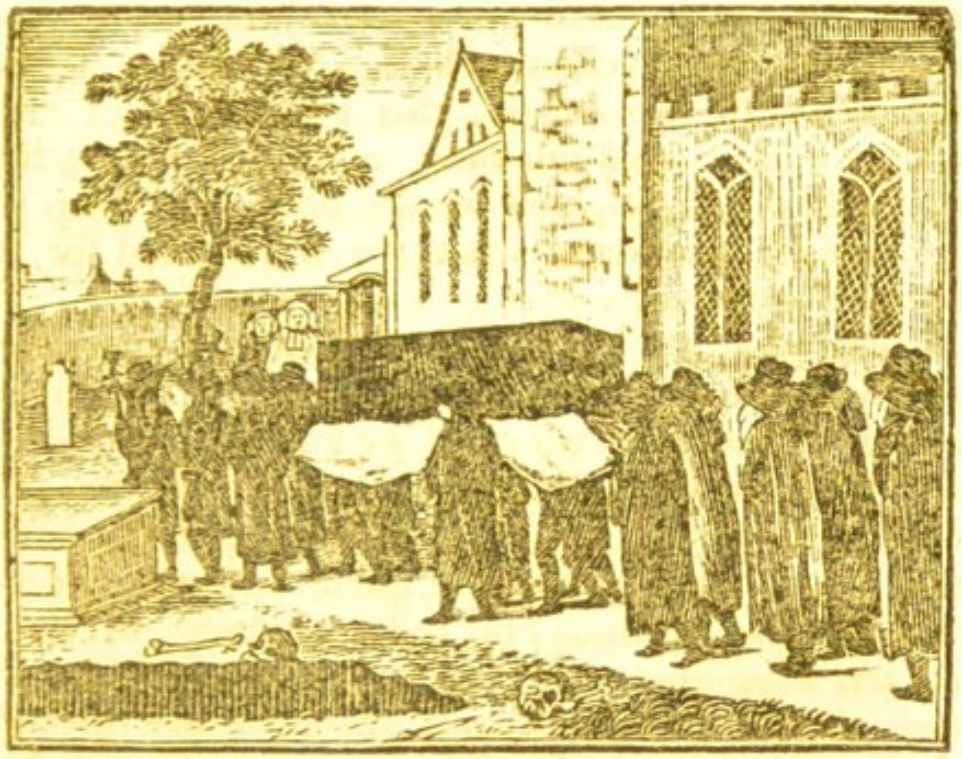
warded on the other; if we act our part ill, we shall be punished on the other.

Young folks, unacquainted with their duty, should learn it from their parents or their teachers, and try their utmost to put it in practice. Part of their duty, is to say their prayers daily to God, be dutiful to their parents, affectionate to their relations, respectful to their superiors, kind to their equals, do all the good they can, and no harm to any one.

If they pursue this conduct, they need never fear, either sickness or death. They may be assured, God will bless them, prolong their days, and, when they die, take them into the regions of future happiness.

This scene should also teach us, how dependent we are on the good services of others, and how much we are obliged to them for their care, their attention, and concern. Conscious that sickness gives trouble to all about us, we should bear, if we chance to be ill, that sickness with as much patience as possible, and not give more trouble than we can help. Resignation is a duty which we owe to God; patience, a duty which we owe to man; and calmness, a duty which we owe to ourselves.

A FUNERAL.



MUCH as we rejoice when a child is born; much as we study to bring it up; careful as we may be to preserve its life, and establish it in the world; the time will come, when it shall leave the world, and all the joy we experienced at its birth, shall be turned into sorrow, at its death. There is a time to be born, and a time to die: man cometh forth like a flower, blooms and withers, and is seen no more: and all our care and anxiety for a child's welfare, ends in a little funeral respect, and attendance to its grave. So man comes into the world, and so he leaves it. It is but a few years, and his beautiful form sickens and decays; he is screwed up in a coffin, and buried in the earth.

What then is there in this life so charming, that men should be in love with it? We bring trouble into the world with us; are beholden to our friends for our preservation in it; our whole study is to

feed and clothe ourselves, and to supply the cravings of nature. It is a continual bustle, to procure the necessaries and comforts we want; to secure those necessaries to ourselves, when we have got them: and, after all this bustle, this anxiety, and care, when we have lived our time, and run our length of life, death calls us, and we are obliged to drop the enjoyment, and leave what we have toiled for, to thankless survivors.

From what we have seen, as I have observed before, life is no more than a journey. We are all travelling to another world; and we are taught, in scripture, that the world to which we are travelling, will never have an end; that there, our life will never cease; but that when we have lived millions of years, we shall have millions and millions more to live; that our happiness or misery in that world, depends upon our conduct here; that if, in our passage through this short life, in which, eighty years, in the sight of God, is but as one day, we behave ourselves well, are good, and religious, we shall be happy in the next world; but that, if we are wicked and irreligious, we shall be there miserable. This considered, it is surely our interest, in this journey we are taking, to adjust and settle matters so, that we may have nothing to fear, when we reach the end of it.

What is a little momentary pleasure, in comparison of what we have at stake? As a man will cheerfully swallow a bitter draught of physic, in hopes to relieve himself from pain, and restore himself to health; so should he willingly sacrifice a little pleasure in this life, with the hopes of enjoying happiness in the next.

But, there is no need of sacrifice. There is far more pleasure in a good life, than a wicked one; for, independent of the comfort the good man has within himself, in looking back upon his conduct; he travels on quietly, without noise or disturbance; and, for every little inconvenience he may feel, has the

enjoyment of a good conscience; is exempt from that fear, that harrasses the wicked man; quits the world with composure; is followed to the grave, by those who sincerely mourn his death; lives in the memory of all his friends, and is sure of a joyful resurrection.

We may learn also, from this scene, how idle and childish it is, to pride ourselves in being richer, or more exalted in life, than our fellow-creatures. The only distinction of a rich man, is a little more respect whilst he lives; and, when he dies, a little more attendance at his funeral. The rich shall possibly be put into a leaden coffin, and buried in a vault, which is a cellar underneath the church; that his ashes, if required, may be collected at some future time; whilst the poor man must be contented, to have his body put into a wooden coffin, and be buried in the earth. The one shall have a monument placed over his tomb, whereas the grave of the other shall be distinguished only by a grassy hillock. The one shall be carried to his last home with a little more pomp than the other; but here his greatness ends. When buried, the rich and the poor are left to rot together: worms devour them both. But, at the resurrection of the dead, the poor man, if he have lived a better life in this world, than the rich man, shall be exalted above the rich; and, whilst the king, perhaps, for his vices here, shall be consigned to everlasting punishment; the beggar, for his virtues in this life, shall be crowned with endless happiness.

The expence of a funeral is from 10l. to 500l. according to the state with which it is conducted. State funerals have cost many thousand pounds. Monuments raised to the dead, have cost many thousand pounds, according to their magnificence: others are merely a grave-stone, worth five pounds.

THE PROGRESS OF MAN AND SOCIETY.

PART III.

MAN, IN A STATE OF NATURE.

GOD, having formed the earth, and all living creatures upon it, thought proper to create man, as the governor of the whole; and gave this

man a wife, that, from these our first parents, the world, in course of time, might be stocked with the human race, as it would be with the brute creation; for, having created man and woman for this purpose, so he created male and female of every animal, that they might equally breed, and fill the earth.

Adam and Eve, then, our first parents, formed full-grown, were placed, as I have already noticed, in a delightful spot in Paradise; surrounded with the birds and beasts of the field, who were equally as harmless and innocent as themselves. They were naked; but, there not being sin in the world, they had no sense of shame, and therefore, nakedness was no trouble to them. Unused to clothes, they wanted none: the sun shone warm upon them; and when they layed down to sleep, being acccustomed to cold, they required no covering.

Every animal about them, was tame and gentle; the tiger, one of the fiercest of beasts, was then as harmless as the kid; the serpent had no venom, and the lion would lie down with the lamb. Man lived, as did the flocks about him; ate, as they did, of the herbs of the field, and partook of their society. But, no sooner did sin enter into the world, that is to say, no sooner did our first parents offend their Maker, by acting contrary to his commands, than all their innocence left them; and, by way of punishment, God told them, that the fruits of the earth, which, before they offended, sprung up naturally under their eyes and offered them food, unasked and unsought for, should do this do longer; that they should have nothing to eat, but what they worked for; that man, should, in future, live by the sweat of his brow; that the beasts of the field should fly from his society, and become his enemies; that storms and tempests should annoy him; that his wife, who was a partner in his

offence, should be also a partner in his trouble; that she should bring forth children with pain; and that they should be wanderers on the face of the earth.

From this disaster, man became acquainted with trouble. Both he and his wife, ashamed of their nakedness, sought for something to cover them; and, sensible of the cold at night, and the blasts of cutting winds, roved about in search of caves and dens for shelter. The animals that used to flock round them, ran from them, through fear; and such as were most furious and savage, laid wait to destroy them. All living creatures changed, as it were, their nature: from being tame and harmless, they grew wild and fierce; enemies to each other, and more so to man.

Adam and Eve thus exposed to the severity of unkind weather, and the savageness of wild beasts, fled, like hunted deer, from their pursuers, and were obliged to have recourse to their invention; to secure themselves from harm, and procure themselves comforts.

But God, who always tempers his severity with mercy, and who, in his greatest anger, is considerate, did not abandon them for this one fault; but, having made the earth, and every thing therein, for the use of man, still continued them for his use; gave him invention and abilities to convert them to the purposes he wished; ordained, indeed, they should no longer offer their services unsought for, as they did before he and his wife had offended; but, that our first parents should still enjoy them, on condition they took pains so to do; and these pains were their punishment.

This unhappy couple, obliged to abide by their lot, endeavoured to make the best of it. Observing that plants sprung up in the spring, bore fruit in summer, produced their seed in autumn, dropped it in winter; and that, from their seed, new plants

sprung up the spring following; they gathered this seed, preserved it, loosened the ground in spring, sowed the seed in such loose ground, and thus produced crops to supply them with food. This was the beginning of husbandry, and the origin of farming.

MAN, IN A SAVAGE STATE.

WE have seen man in a state of nature; let us next consider him as a little removed from this first state, but still, wild and uncivilized, that is, untaught, unlearned, and uninformed; almost as ignorant as the beasts of the field.

In some countries, the arts and sciences have made greater progress than in others, and, where learning has been introduced, and books have been general, the minds of men have been opened; they have become more sensible of their wants, and that sensibility has made them look out for comforts and indulgencies.

But, in other countries, the people have made much less progress; they have continued, since the creation, in a state of barbarism; that is, uninformed, and as it were, uncivilized, and are, at present, little better than in a state of nature; with little or no covering, living in tents, and hunting wild beasts, for their daily food; and having no bread, but the fruit which a tree, called the bread-tree, affords.

We see man, in this savage state, in the wilds of Africa, Asia, and America. About one hundred years back, the whole continent of America, a tract of 4000 miles in length, and 2000 in breadth, was inhabited only by such savages; but civilized states have sent numbers of families into that country, furnished them with necessaries; and these families having increased, have stocked it with people.

But the hotter country of Africa, being unhealthy, and disagreeable to live in, has been neglected; and the people there continue almost as wild and savage, as they have done from the infancy of the world.

Africa is the country of the negroes, where the nations are all black, as we see them here represented; which is, in a great measure, owing to the heat of the climate, for the sun shines hotter there than in other parts. These people, instead of hair upon their heads, have black wool.

But, in the East-Indies, where the sun is not quite so powerful, the inhabitants have long black hair; their complexions are not so dark, being often olive, or dark brown colour; and their features are better formed. The African blacks have large, white eyes, blubber lips, and squat noses; but the natives of India are beautifully formed, like ourselves.

In one part of the world, there is a tribe of men, whose complexions are much whiter than our own; who have red eyes, and whose heads, instead of hair, are covered with a white wool, or cotton; so great a diversity is there, in the make and features of man!

It is the misfortune of these black countries, that the people are considered there as little better than the brute creation, and are bought and sold at market, like a horse, or an ox. They are purchased as slaves, to work, for those who buy them; and continue so, to the end of their lives. How far this is right, we will not here pretend to say; but it shows the advantage of learning to mankind; how much superior those who have received an education, are to those who have had none; and, how happy those children ought to be, who are born and bred up, in an enlightened country: and who are blessed with parents, able and willing to afford them instruction, and supply them with those conveniencies and comforts, which thousands of poor wretches want!

MAN, IN A CIVILIZED STATE.

WE have seen man, at his first creation, and afterwards, in a savage state, ranging the fo-

rests, like a beast of prey, in search of food; without clothes to cover his nakedness, or a house to shelter him; before he became acquainted with those comforts and conveniencies of life, that Providence threw in his way, and ordained for his use. How comfortless was such a state: and how ill suited to a being endowed with rational faculties, and destined for society!

Let us now view him, in a state of civilization and luxury: blessed with every indulgence his heart can wish, and possessed of every convenience that nature affords. Instead of being obliged to hunt the fields for meat, husbandy has opened the ground, to yield him food for himself, and the animals about him; and the most delicious dainties are brought to his door, from the most distant parts of the world. Instead of sheltering himself in dens and caves: sumptuous houses are built for his accommodation, and furnished with every convenience his invention can contrive. Instead of covering his naked shoulders with the skins of animals, a variety of trades combine to dress him; woolcombers, weavers, dyers, sempstresses, taylors, milliners, hosiers, hatters, shoemakers, and a number of others. All nature is attendant on his will. Ships and boats are built, to convey him upon the waters; and bridges are thrown over rivers, that he may pass them on foot.

That he may travel with ease on dry land, carriages are constructed, to transport him; horses broke in, to draw him: and the roads and ways made good for his ease.

So much for his accommodation. Next, as to his pleasures. Music has been invented, to please his ear; paintings, to captivate his eye; and perfumes, to regale his nose. Taste and refinement have united, to ornament the country round him; and, by new created pleasures, prevent his repining at the

loss of Paradise. What would he more? If he have any troubles, they must be those of his own mind, arising from discontent and dissatisfaction.

Indeed, man is naturally ungrateful; he is too apt to forget these favors of Providence, and to be insensible of the bounty of Heaven. To God we owe all these things originally; and, though they are the fruit of our invention, he it is, that has given us abilities, to convert and apply them to the several purposes of life: and he it is, that can take them from us.

Of these worldly blessings, he has given some men more than others; not because they are more deserving, or more entitled to them; but, as having more understanding, more abilities, and greater opportunities of doing good with them. He has implanted in our natures, a love for each other; and, has thus enabled one man to assist another. If, therefore, we see men in want of those comforts, which we possess in abundance, and are enabled to bestow upon them, and do not do it; we counteract the will of Heaven, oppose the intention of our Creator, and our God; and run the risk of his taking from us, those blessings he has enriched us with.

We are not to live for ourselves alone. A selfish man is little better than a brute beast, that has no understanding. It should be man's greatest pride, to assist his fellow-creatures, and do good offices, where he can. There is scarce a man so poor, but he has it in his power, at times, to be of use to us; and, if we serve him, in one instance, we may reasonably expect his good services in return; but, if we be selfish and churlish, instead of making friends, we shall create enemies; and, in the end, punish ourselves, for our own misconduct.

HUSBANDRY.

AS men grew weary of a hunter's life, and families increased so fast, that it required large districts to furnish them with food, procured by the chace; necessity obliged them to turn husbandmen, to raise corn, for the purpose of making bread; and to breed and bring up cattle; not only for the use of man, but for their food.

Having caught the male and female young of animals alive, such as colts, calves, sheep, &c. they secured them about their habitations, fed them by the hand, and thus tamed them, and brought them up; and such animals, being of a domestic nature, found a pleasure in continuing with their benefactors, and never after left them; but bred, and produced their young: so that, in length of time, each family had numerous herds and flocks. Possessed then of so much living proporty, they found it necessary to raise herbage and grain to feed their cat-

tle, as well as themselves. They trained up oxen, to the plough; horses, to the cart; and cows, for the use of milk, butter, and cheese.

BREEDING OF CATTLE.

Though many animals are so accustomed and inured to the cold and weather, as to require little shelter, even in the winter; yet, such as are hard worked, require care and attention. When their day's work is done, they are put into a stall, cleaned, fed with oats and hay, and a bed of straw put under them, to lie and sleep upon.

The print before us is a farm yard, with a brood-mare, and a foal by her side. The breed of horses, in this country, is much attended to: strong horses are bred up for the plough, coach, and cart: lighter horses, for the saddle; and some are bred for running. These last are called race-horses, and are trained up to run for wagers, one against another.

Such horses have been sold for 3000l. each, when a cart-horse shall not be worth 20l.

The foal generally runs with the mare, and sucks her milk for the first year; when three years old, it has its full growth, is broke in, and taught for the work it is designed for: and the horse is considered in its prime, from four years old, to eight. After this age, they are reckoned old; and are generally past their labour at fourteen or fifteen.

By the assistance of these animals, men ploughed the ground with ease, sowed it with grain; and, in harvest when it was ripe, and fit to cut, they cut it down, and their horses drew it home. This was the origin of farming.

The farmer has ever been considered as a most respectable, and most useful, member of society. The pleasures arising from the constant attention to his business are innumerable. He awakes early, and sees that his workmen are industrious; and, as the produce of his ground depends much on its being carefully sown, he takes that part upon himself, whilst his men harrows in the seed, as he scatters it on the surface of the earth. Wheat, barley, and oats, are sown in the manner the print describes. The diligent farmer soon perceives his labours have not been in vain: the seed quickly grows; and, when ripe, it is cut down, and carried home. He now threshes out the wheat-seed, and sells it to the baker, to make bread. Barley he sells to the maltster, to make malt; which is sold to the brewer, to make beer, and to the distiller, who distills gin. Oats, when cleared from the straw, are given to horses: and beans are the food of pigs and poultry, with which the farm-yard is always plentifully stocked. The straw is made use of, for the roofs of cottages and barns, and is given for beds for the horses; and being mixed with marle, and different sorts of earth, serves

to improve the ground, and render the soil more fruitful; for, the ground, that is in a constant state of bearing corn, requires dressing.

The advantages of his farm-yard are many; he lives at small expence; for he is well supplied with eggs, butter, cheese, bacon, and pork, on which his family chiefly subsists. The profits arising from his corn, enable him to secure for himself, all the comforts and luxuries of life; and he is generally esteemed by men of superior rank, and beloved by those around him; he is the protector of the poor, whose wants he supplies, and renders their lives happy, by keeping them in constant employ.

Men, having thus found out a readier method to procure provision, than by the uncertain and laborious custom of hunting for it, in wilds and forests; dropped the chace, as a branch of business, and never took it up again, but for exercise or pleasure. Men hunt, now and then, the wild boar, deer, hares, and foxes, as I shall shew, but never have recourse to such means for subsistence.

In the early days of society, all men were husbandmen, it being the only means of procuring food; but, as one man can raise more corn in one year, than he can eat in twenty; and, as different men are blessed with different talents: they agreed among themselves, in small societies, that one man should plough and sow the land, and raise sufficient grain and cattle for the whole; another should make clothes for the community; another, build houses, and another, make furniture, and so on. Hence were introduced the several trades of farmer, taylor, builder, carpenter, &c. and, in course of time, men were furnished with all the necessaries and luxuries of life, as we see, in the present day. And herein, one tradesman is as useful as another: if the taylor make clothes for the baker, the baker makes bread

for the taylor; if the hatter make hats for the shoe-maker, the shoe-maker, in return, makes shoes for the hatter. Each works for the other in his way, and different men thus applying themselves to certain branches of trade, each branch is better executed and finished; than if, as in Lapland, every family made their own conveniences. The more practice a man has in any profession, the better workman he is; and certainly, he who makes any one article for a thousand people, has more practice in that article, than he who makes it only for half a dozen.

Thus it was, that trade commenced. When a farmer had more corn than he could dispense with, himself: he bartered, or changed it with the taylor, for clothes; the shoe-maker, for shoes; or the hatter, for hats. The tailor, shoe-maker, and hatter, did the same; changed, with each other, things they did not want, for those they did.

And in this mode is trade carried on in countries where there is no money; but more civilized states, finding exchange or barter very inconvenient, invented the use of money, by which every article of trade is valued. A farmer sells his corn for money, and with money buys clothes; the shoe-maker sells his shoes for money, and with this money pays the baker for his bread; and the baker, in return, gives this same money for any other article he wants. Thus may a man, with sufficient money in his pocket, purchase all the necessaries, comforts, and indulgencies of life.

There is nothing we possess, but what grows, and is the produce of the earth. Iron, that makes a thousand useful things, grows in the earth; so does stone that builds his houses. Wood is produced from trees; linen, from flax and hemp, which grow like corn. Silk is the produce of the silk-worm; wax and honey, of the bee. Glass is made from flint-stones. Lead, copper, silver, gold, and diamonds,

grow in the earth; as do coals and metals. Bricks are made of clay; and clay is stiff earth. Woollen cloth is made of wool; and wool is the fleece of sheep. Leather is made by the tanner, of the hides or skins of animals. Paper is made of linen rags. Cheese and butter is made from the milk, and tallow from the fat, of animals.

Bountiful, then, has God been to man, in providing him with every material necessary to make his life happy, and giving him talents to convert these materials to his own use; and grateful should he be, in return to that God who gave them!

THE FLAX-DRESSER.

I have just now observed, that every thing we have, is the produce of the land, which the fertile invention of man, has converted to his use and to his comfort. Even the dress made by the taylor and the milliner, rises originally from the earth. Woollen

cloth is made of wool; wool grows on the back of the sheep; and the sheep, as well as man, was created, by God, from the dust of the earth. Linen is made of flax, which is a plant, sowed in the fields like other grain; and, when ripe, and fit to cut, is converted into thread in the following manner.

After the plants are pulled up, they are laid, in small heaps, in the field to dry; and, when the seed is beat out, and the leaves combed off by a ripple, the stems are soaked five or six days in water, to rot them; and, when this is done, they are dried in a kiln. After this, the stalk is peeled, and the woolly part of the stem is bruised, or beaten with beaters. It is next swingled, or beat again, with a piece of wood, edged for the purpose: then beaten, on a block, with hammers er beetles, till it separate into threads. After this, it is steeped, washed, and dried again, and dyed of various colours. This is also the manner of preparing hemp; which grows also like flax; and of which a coarse thread is formed, with which they make sack-cloth, and other linens.

Whether it be hemp or flax, in this state, before it is dressed, it is called tow. To prepare it for the spinner, it is heckled, that is, passed or pulled through, various toothed instruments, not unlike the wool-dressers combs; which are square pieces of boards, with handles, full of teeth, between which they tear the tow, backwards and forwards, till it be very soft and fine.

The man in the middle of the preceding cut, is heckling of flax; that is, drawing it frequently through an instrument, with long wire teeth, standing upright.

The old woman, in the following cut, is carding, or combing it on her knee, between two cards.

SPINNING AND CARDING.

When so done, a bundle of this tow being fixed on the top of the distaff belonging to the spinning-wheel, is pulled off gradually with the left hand, and with the right, led round the spindle; and, as the spinner turns the wheel with her foot, she twists the tow or wool, and converts it into threads or worsted. After this, it is wound round some pegs on a stand, as on the right of the cut, and then tied up into skeins for sale. When wool is spun, they draw the wool with one hand, and turn the wheel with the other.

In the state of thread, or worsted, it is sold to the weaver, and the sempstress. The former converts it into cloth; the latter forms that cloth into various forms for dress.

Linen and woollen cloth, are both woven the same way; the first from thread, the second from worsted. So also is silk; which, when taken from the silk-

worm, and wound, is called floss-silk, and afterwards spun into sewing-silk. The weaver, in the following cut, is weaving cloth. Stockings are woven from silk, thread, or worsted, by a machine, different from this of a cloth-weaver, and called a stocking-frame.

THE WEAVER.

TO describe the manner of weaving, would be useless to a young mind. It is sufficient to say that by means of a weaving machine, called a loom, the thread is converted into linen-cloth, and the woollen into woollen-cloth; which last is sent to a fulling-mill, to wash, and cleanse from the oil with which the wool is preserved; and the linen to the bleaching-ground to whiten; for, when it is first made, it is brown, and of the colour of the thread of which it is formed.

Woollen cloth undergoes a number of operations before it is fit for sale; but linen is nearly finished, when bleached and pressed.

BLEACHING.

THE method of bleaching, or whitening linen, is as follows. After it is taken from the weaving-loom, it is soaked in water, mixed with wood-ashes; then spread upon the grass, in a meadow, and watered, from time to time, as it dries, with clear water from little ditches cut in the meadow, and thrown over it with a scoop, or hollow peel of wood. Being thus exposed, for a month or six weeks, night and day, to the sun and air, it grows gradually white.

Linen, thus sold, is converted into sheets, shirts, beds, and a variety of other things, for the use of men. Being cut into form, the seams are sewed to-

gether with a needle and thread. This is the business of the sempstress. Caps, ruffles, and such ornaments of a lady's dress, are made by the milliner; but family-linen of most houses is made up by the mothers, daughters, and women-servants, of each family. It is an employment for girls and women, without which, with all the amusements life affords, time would hang heavy on their hands, and be a burden to them.

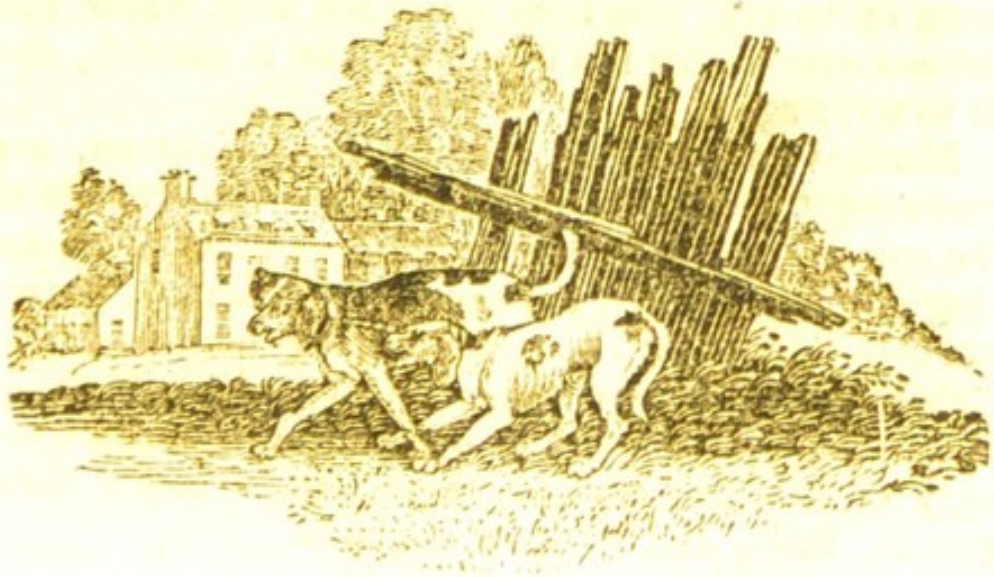
SEMPSTRESS AND LACE-MAKER.

IN the present scene, are three maidens usefelly employed. One is sewing, with a needle and thread; the second is knitting stockings, with worsted, and two iron knitting needles; a method pursued formerly, before they found out the art of weaving them, and indeed is now in use among the poor in many parts of England; and the third is making lace, such as women ornament their caps and ruffles with. This is made upon a cushion, with

a great number of threads wound upon bobbins, or little pieces of wood, and which the lace-maker twists round a number of pins stuck into the cushion, so as to form a pattern, and thus make that beautiful and fine open work, which is called lace.

Lace is sold by the yard, according to its breadth and fineness, from 6d. a yard, to 20s. and more; and, being made by women, it employs many thousand poor families, that must otherwise get a living by hard labour. There are some places in England, where every house is full of lace-makers. These sell it to people who travel round among them, and buy it cheap, and who find a livelihood in selling it again to shopkeepers, in different parts of the country.

Linen, we all know, becomes dirty with the wear of a day or two; but, it is of a texture, that with soap and water, will wash clean again. This business is also done in families. But there are persons who make it their business to wash linen for families that are otherwise employed, and these are called laundresses.



THE LAUNDRESS.

Such linen is rubbed with soap, soaked in water; then rubbed with the hands; and, when thus cleaned from the dirt, is rinsed in clean water, coloured with a little blue, stiffened with starch made from flour, hung up to dry, and then sprinkled with water, and rubbed over with a hot iron, to make it smooth, and fit to wear again.

Muslins and calicoes, that are made of cotton, are prepared the same way. These are the produce of the cotton-tree, that bears a kind of flower, producing cotton, When made up into linen, it is frequently figured and ornamented, by men who call themselves calicoe-printers; and who have an expeditious and cheap method of painting them in a variety of colours; and of these, ladies make their gowns, beds, and window-curtains.

DRESS.

IN the infancy of the world, men went naked as we have seen in page 87, and, as they knew no sin, were not ashamed; shame being a consciousness of something wrong: but, no sooner did sin make its inroads on mankind, but they were ashamed of being naked. To hide therefore, or cover their nakedness, they made themselves aprons of the broad leaves of the fig-tree, sewing them together probably with a thorn and a piece of rush, for they had then neither needles nor thread. Having worn these for some time, they could not do without them; for, what we are accustomed to, we want; and he that is used to wear clothes, cannot go naked; he, would not only be ashamed, but would catch cold. Having found the comfort of an apron, they coveted other kinds of clothes; and having killed a sheep, and eaten the flesh of it, they threw the skin round their shoulders, and wore it as a cloak. Thus did mankind, in the early ages of the world, cloath themselves in the skins of animals. This led the way, to make clothes in other forms: jackets, or waistcoats, to put the arms through, which prevents their falling off, and leaves their arms at liberty: and trowsers or loose breeches, to cover their lower parts, and leave their limbs unconfined. This is the dress of near half the people in the world, where their manners are not so polished as they are in England, France and other neighbouring states. They cover their heads also with a cap, made likewise with skins, and their feet with shoes made of leather, which is the thick skin of animals, made strong and stout by art.

Simple and plain then were the clothes of the first men. They had no pride; one wished not to dress better than the other; they knew not what envy was, but, in clothing themselves, studied only to defend

their bodies from the scorching heat of the sun, from the rain, and from the pinching cold. There are many savage nations to this day, that wear no other covering than a piece of linen round their waists; namely, the natives of Guinea (of whom I have spoken, page 90) the old inhabitants of America, and others.

This was the state of our ancestors in this country, before the arrival of the Romans; they painted their bodies with figures of birds, and other animals, by way of ornament; but they wore no clothes: however, afterwards being accustomed to clothe themselves, as I have observed, in skins; and finding such clothes either too warm, too loose, too heavy, or too awkward, to work in, they contrived to remedy the inconvenience; and, finding out the art of spinning the hair and wool of animals into thread, which is the profession of the wool-comber and spinner, they next discovered the method of weaving such thread into cloth; and those who employ themselves in this business, are called Weavers and Clothiers.

Linen and woollen clothes then being manufactured or made; the next contrivance was, to make it up into articles of dress. Linen is chiefly made into shirts, shifts, gowns, sheets, table-cloths, and such like; and, persons so employed, are called sempstresses and mantua-makers. Woollen cloths consist chiefly of broad cloth, flannels, baize, druggets, and other kinds, according to their fineness and texture; and those who make these up into articles of dress, are called Taylors.

Now all these tradesmen have been, or will be spoken of in their turns. They are equally useful in their way, with husbandmen who cultivate the land; for, whilst one is tilling the earth, and growing of corn to feed his neighbours: they, in their turn, are breeding of sheep for their wool; raising of flax, to

make thread ; spinning such thread or wool, to make cloth ; weaving of cloth, and making such cloth into useful garments.

That man may be able to work, when dressed, it is proper that his clothes should be so made, as to fit his body, and leave him at liberty to use his legs and his arms. This is the art and trade of a Taylor ; who measures the person he is to dress, cuts out the clothes accordingly, and employs others to sew the seams together, and make the materials into coats, waistcoats and breeches.

THE TAYLOR.

Taylors use a variety of tools for this purpose ; such as irons, scissars, sheers, needles and thimbles ; which being implements that semptresses and mantuamakers (who are generally women) use, in making women's clothes, the business of a taylor has been rather looked on as contemptible, as an unmanly

profession; and for no other reason, than because it partakes of the employment of women; for, were the trade properly considered, it may be called a profession of science; when, by the becomingness of the dress, and the elegance of the make, a suit of clothes will give fashion, grace, and elegance to the wearer.

There are many professions engaged in the dress of man. The Taylor makes only the coat, waistcoat, and breeches. The hat is made by the Hatter, from the fur of the rabbit and the beaver; the Stocking-maker weaves the stockings, from spun-silk, worsted, or thread; the Shoe-maker makes the shoes and boots, from leather, prepared by the Tanner; the Peruke-maker makes the wig; and the Buckle-maker, the buckles. The Farmer grows the flax for linen, or breeds the sheep, from whose back the wool is shorn or cut; the Flax-dresser prepares the first, the Wool-comber, the second. It then goes into the hands of the spinner, to make into thread or worsted; thence to the Weaver, to make that thread or worsted into cloth. Linen is next whitened by the Bleacher, as we have seen; and figured by the Calicoe printers; and woolen cloths are variously coloured by dyers.

When clothes are made up, they are ornamented by buttons, lace, spangles, embroidery, fringes, and decorations, invented to make them fine and shewy; and these ornaments employ a further number of people: and the several fashions which fancy introduces, still serve to advance trade, and give a livelihood to a number of industrious and ingenious persons.

Such has, from time to time, been the progress of dress; which, from a sheep-skin thrown over the shoulders of our fore-fathers, is now brought to a rich suit of clothes, ornamented and embellished at a very great expence, and which expence is regulated by the fortune and wealth of the wearer.

Men's clothes (the suit) are worth from four guineas to fifty, or more, according to their richness, and the value of the materials with which they are made; stockings, from two shillings a pair, to eighteen shillings; shoes, from six shillings a pair, to twelve shillings and sixpence; hats, from one shilling and six-pence each, to one guinea each: shirts, from four shillings each, to one guinea each; and buckles from one shilling, to five guineas a pair.

TANNER AND CURRIER.

THE feet, by nature, were certainly never designed to be covered; for, by constant walking, the flesh becomes callous and hard; and thus a person is proof against little injuries the feet would otherwise receive from sharp stones, thorns, or any such things they may tread on. Not to speak of whole tribes of savage nations, that go bare-footed,

we see children of the poor, even at the present day, without shoes or stockings, till they are eight or nine years old; and in Scotland, and some other countries, where men are accustomed to clothes, they seldom clothe the feet.

Man, however, in the habit of dressing his body, forgot no part of it; and, attentive to his own ease and comfort, dressed his legs equally with his arms. Having first invented wooden clogs, or sandals, to save his feet from the ground, and enable him to travel on foot, without fatigue or injury; he next invented stockings, to cover the leg. Decency indeed requires, that the feet should be covered; that, as they are more liable to dirt, than any other part of the body, they may not offend the eye.

The covering of the foot being much subject to wear, it was requisite to contrive something durable, light, and pliant; that we might walk with ease and grace, not stump along, like those who wear wooden shoes. To this end, shoes were first made of the thick skins of animals, as is the case now with many savage people: but the invention of man, which is ever at work, has found out, that, by the soaking of those skins in water, in which the bark of the oak-tree has been steeped; it hardens the skin, enables it to keep out the wet, and renders it far more durable than it otherwise would be. To prepare these skins or hides, is the business of the Tanner and the Currier. These two trades are generally united in one. The business of the Tanner, which is shewn behind in the print, is to prepare the skins or hides for the Currier. For this purpose, they are laid to the number of 18 or 20, in a heap for a few days; after which, they are hung up in a close brick-building, heated with stoves. This is to warm the skins. Each hide is then laid on a beam, and the hair is scraped off with a crooked knife. This done, the hide is soaked in water

for two or three days. It is then laid on the beam, and the loose flesh, fat, and grease scrubbed and worked out, with a fleshing knife. After this, it is taken to a pit or vat, in which a liquor is prepared, by steeping the bark of the oak-tree, ground to powder, in water; and in this vat, the hide is soaked for some months; which fills the pores of the skin with the bark; and, when sufficiently done, it is hung up to dry. It is now called leather; and in this state it goes to the Currier or leather-dresser; whose business is, to dress the hide, and make it soft, pliant, and fit for use.

The skin being first soaked in water, is rubbed, or scoured all over with a pummice-stone, to make it smooth; and to force out of the leather, a white sort of substance, called the *bloom*, produced by the oak-bark, in tanning. The hide, or skin, is then hung up in the shade to dry, where it is oiled on both sides, with oil produced by boiling sheep-skins in oil, extracted from the cod-fish. This is called *stuffing* or *dubbing* the leather.

When the skin is thoroughly dry, it is rubbed with an instrument, to soften it; then pared to a certain thickness, and afterwards coloured.

A great variety of skins are thus made into leather, for particular uses. Ox-hides are used for shoe-soles; bull and cow hides for sadlers and collar-makers, and the roofs of coaches; buck-skins for breeches; lamb-skins and kid-skins, for gloves; calf's-skin for the upper parts of shoes, binding of books, and so on.

If the hair be preserved on the skin, as it often is, for several purposes, namely, to line muffs, robes, cloaks, &c. the person who dresses the hair, cleanses it, and uses it, is called a Furrier; those who convert leather into shoes, are called Shoe-makers.

THE SHOE-MAKER.

THE shoe-maker, having measured the foot, gets a last, or foot, cut out in wood, of the same size; on this, having cut out the several pieces of leather, the soles, the upper-leathers, and the quarters, he joins the whole together, by sewing, in the following manner. Having prepared his thread, by waxing it, and pointing that thread, by fixing a hog's bristle, or stiff hair, at the end of it; he makes a hole through the different parts of the leather with an awl, pushes the bristle through the hole, draws it out on the opposite side, and pulls the thread tight. The tools he uses are a stone, which he lays on his lap, called a lap-stone; on which he beats out the thick sole, having first wetted it in water; a pair of pinchers to stretch it to his mind; a leather strop, to hold the shoe firm on his lap, by his feet; hammers, to beat the leather; knives, to cut it; and awls, to pierce it. The heel is fastened on with pegs.

Women's shoes are made of leather, stuffs, satins, &c. and the heels of wood, covered. Boots are also the manufacture of the shoe-maker. The price of boots are, from one guinea, to two guineas and a half a pair; men's shoes, from six shillings, to twelve shillings and sixpence a pair, according to their strength, and goodness: and women's shoes, from five shillings, to fifteen shillings, according to their beauty, and the value of the materials with which they are made.

THE SHOPKEEPER.

WHEN men found abundant employ in manufacturing, and making goods for others, as well as for themselves and their families; and that they were daily and hourly called upon for such articles as they had to spare, it was more than the business of one person, to attend upon their customers, receive orders from them, and provide them with such things in their way, as these customers or buyers

wanted. This introduced shop-keeping; which is that of a man's purchasing a variety of articles wholesale, or in large quantities from the manufacturer or maker; stocking a shop with such goods, and selling them out retail, or in small quantities, adapted to the wants and circumstances of buyers. A maker of goods, by selling them in large quantities, can afford to, and does, sell them cheaper, or for less money, than were he to sell them in smaller quantities. The Shop-keeper then purchases them of the maker, wholesale, at one price, and sells them again retail, at a larger price; and the advanced price he so gets, that is, the profit, or gain, upon what he sells, enables him to live well, and do nothing else than trade between the maker and the consumer. For example, the Woollen-draper, before us, deals largely with a Clothier, buys great quantities of cloth of different sorts and colours, to serve and please a variety of customers; shews the patterns of the cloth he has to sell, to the Taylor, or any other person; and, when such taylor has fixed upon the colour and quality, and agreed upon the price, he cuts him off as much as has occasion for, to make one suit of lothes, or more. Thus he accommodates his goods to every one's taste, and to every one's pocket.

And he gains by every customer. The more customers he has, the more he sells, and, of course, the more he profits. To extend, therefore, his trade, he is not contented with waiting, till people come to his shop to buy; but he applies to his friends, solicits them to lay out money with him, and employs men to ride through the country, many miles distant from his shop; to shew patterns of the cloth he sells, to little shop-keepers, in the several country-towns he travels through, and prevail on them to deal with his employer. If the articles offered for sale be good, and at a reasonable price, such riders,

or travelling servants, will procure a great number of customers, that perhaps would find it difficult to furnish themselves with such particular goods, as are through this channel, offered them.

The Shop-keeper, in the print before us, is displaying his patterns of cloth, and supposed to be giving his rider orders where to go, and whom to apply to.

Thus the Clothier sells to the Woollen draper; the Woollen-draper to the Country-shop-keeper; the Country-shop-keeper to the Taylor, and the Taylor to him that wears the cloth. Of course, between the maker and the wearer or consumer, there are four different tradesmen whose families are supported and maintained.

There are shop-keepers of various kinds, who deal in, and sell, articles they do not, and cannot make. The Hosier sells stockings he does not make; the Linen-draper sells linen he does not make; the Silk-mercer sells silk he does not make; the Ironmonger, a variety of iron goods, as locks, grates, nails, and a hundred other things, none of which he makes. There are shop-keepers also, that sell a variety of things, which they purchase of different manufacturers. A Grocer, for example, sells sugar, which he buys of the Sugar-baker; soap, of the Soap-boiler; and so on; and the Haberdasher deals in threads, tapes, needles, pins, ribbons, and a hundred other articles, all of which are made by different manufacturers; and such shop-keepers are very convenient to the public, who can, at that shop, meet with many things they want; without the trouble of running half the country over, in search of the makers; who chiefly reside at a distance from great towns, in places where provisions and houses are cheap, and where they can, by living on a little money, sell their goods they make, at a little price;

whereas, if such artieles were made in cities and great towns, where house-rent and provisions are dear, makers would be obliged to raise the price of the goods they make, to enable them to live: but, by manufacturing them in cheap countries, and sending them up to shop-keepers in cities and populous towns, by water-carriage, which is not expensive; the inhabitants of such cities and towns are able to purchase them almost as cheap, as if they bought them in the country where they were made, and without the trouble of going or sending for them.

It requires time and application, as well to learn to be a good shop-keeper, as to be a manufacturer. To know the good and bad qualities of goods, their respective value, where to procure them of the best makers, and at the lowest prices, and how and where to sell them, is not learned in a month Shops, in great towns, are sometimes so noted, for selling articles in great variety, good of their kind, and reasonable in price, as to have a great run of trade, from father to son, and son to grandson; so that the good-will, or customers of a shop, shall often sell for many hundred pounds, when a shop-keeper leaves off business, independent of the rent of his house, and his stock in trade; as, when a shop is once in reputation, buyers flock to that shop from all quarters, and the shop keeper soon gets a fortune.

When trade is carried on in a more extensive way, and persons of one country, trade with those of another, such persons are called Merchants, and their trade Commerce.

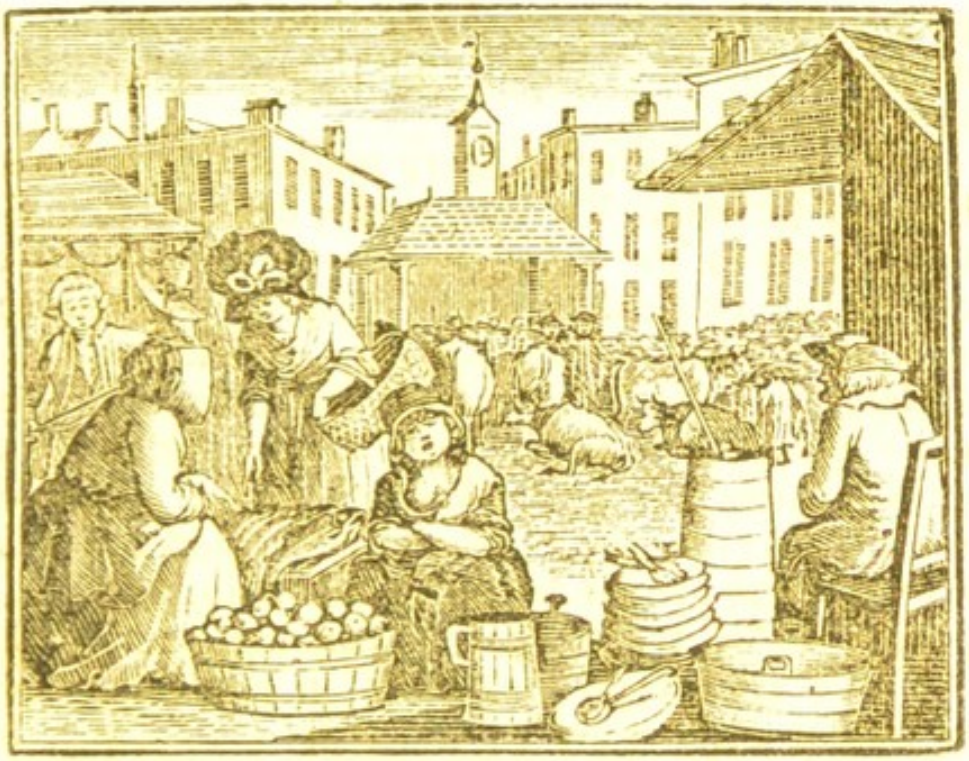
Commerce then is carried on by shipping; that is to say, goods are transported from one part of the world to another, by means of trading vessels, or ships; the property of merchants, as I shall have occasion to shew, when speaking of travelling by sea.

In large cities, these kind of wholesale traders, these merchants, meet daily, on a particular spot, called an Exchange, as the Royal Exchange at London; and there transact a great deal of business, and sell a great quantity of goods, without ever having such goods in their possession. One man, for example, wants fifty hogsheads of sugar, not for himself, but for a customer in another country, perhaps 500 miles distant from him. He applies to a sugar-merchant on the Exchange, who engages to procure it from the maker, in a still more distant part of the world, and to deliver it at a time and place agreed on; all which he transacts by letters. He writes to the sugar-maker, to send fifty hogsheads to such a person, in such a place, and at such a time. The sugar is sent in a ship; and when the person has received it, he writes to him whom he employed to buy it, desiring him to pay for it, which is done upon the same Exchange as where it was first applied for: and so on in a hundred other things, as well as in sugar.

But there are other merchants that send to all parts of the world for goods, put them into warehouses, and sell them from home, to occasional customers; and, in countries where there is no money to trade with, things are sold by barter, that is, exchanging one kind of goods for another, according to weight, measure, and value.

MERCHANDISE.

Before us are assembled on a quay, or bank of a river, a number of traders from every country, bartering or exchanging one kind of goods, by weight, for another. Here is an Englishman, a Chinese, a Turk, a Jew, and others; and the ship behind, tells us that the goods thus sold are brought by sea, from a distant part of the world: for, since the invention of writing, and introduction of the post, which is, conveying of letters from place to place, a correspondence is kept up between merchants and traders in different countries; and the produce of one country may always be procured, either by money or barter, for the produce of another; and the wants and indulgencies of men are thus readily gratified.



But in the interior or inland parts of a country, nay almost in every market town, markets are established for the convenience of the people; and such towns are called market-towns. At these places, on one or two particular days of each week, all sorts of provisions, and useful utensils, are brought from neighbouring places and manufactories, for the accommodation of those who want such things, without giving them the trouble of travelling far, to find them; and for the further convenience of farmers, and others, disposing readily of what they have to sell.

In the print before us, we see, brought into one place, and exposed to sale, cattle, meat, fish, poultry, fruit, corn, wooden and earthen-ware, linen, drapery, and a variety of articles which people living in retired parts of the country, where there are no capital shopkeepers, are constantly in want of, and which, by coming to such towns on market-days, they are sure to meet with. A man, having a cow to sell, drives it to market; and he who wants to buy,

goes to market likewise. Here then they meet; the one sells, the other buys, and thus the purposes of both are answered.

It is not, however, in every market that cattle are brought for sale. To remedy this deficiency, in different parts of the country, fairs are established on one or two particular days of the year. These are a kind of general markets, where a great number of dealers, for many miles round, assemble to buy and sell. Such fairs or markets are supplied with all sorts of cattle, horses, cows, sheep, hogs; and, in order to divert the people, when the business of the day is over, there are sundry amusements introduced, as puppet-shews, tumbling, rope-dancing, and the like.

There are several great fairs in England, where particular articles are sold in great abundance, besides such as I have mentioned; for example, cheese, at Wey-hill-fair; hops, at Stourbridge-fair; and linen at Chester-fair. To these places tradesmen will travel from the remotest parts of the country, to purchase what they want for the year following; and here they will meet with a variety of goods, in the greatest quantity and perfection.

It is by such contrivances that the several wants of mankind are supplied. What would the inhabitants of great towns do, were it not for their markets? For instance, London, that contains a million of people, how are they fed? By their markets; to which persons are constantly bringing cattle and provisions from very distant parts of the country round. Smithfield is a beast-market, where many thousand heads of cattle are every week sold; Covent-garden is the great market for fruit and vegetables; Mark-lane, for corn; and Billingsgate, for fish: and there are sundry other markets, for meat, poultry, butter, cheese, &c. In country-towns, one market furnishes the whole; but, in more retired places, where

no markets are held, the people are under the necessity of buying of their neighbours, or travelling a few miles, to the next market-town.

GARDENING.

WHEN men found, that one part of their food was to be herbs and the produce of the field, they selected such plants as were wholesome, and fit to be eaten; planted them in a spot by themselves, fenced that spot in, from the ravage of animals, and called it a Garden. They planted also such trees in this garden, as bore fruit pleasant to the taste; and whilst they studied to gratify the palate, they took some pains to please the eye, and regale the nose. They planted it with shrubs and flowers, laid it out in walks and lawns; and as water was necessary to refresh these plants in dry weather, they took care to dig ponds, and make canals, where water was easily to be had; and, where it was not so, to sink wells.

Gardening then was the origin of agriculture or farming. Fruits and flowers were at first wild: they grew without the least culture, as we see many do, in the fields, at present. Crabs are wild apples; sloes, wild plumbs; and, in woods, there are wild strawberries, rasberries, nuts, and other fruits. There are also wild roses, wild honey-suckles, wild poppies, and so on; but the skill of man has, by care and cultivation, improved them considerably.

Taking a tree from a poor soil, and planting it in a good one, improves the fruit, and, thus improved, it may be continued in its improved state, by what gardeners call *grafting*; that is, by cutting off the head of a wild tree, splitting the stem, and putting into the slit, a twig or shoot, of an improved tree of the same kind. The shoot so put in, will grow, become a tree, and bear the same sort of fruit, as the tree does, from which the shoot is taken.

In all trees, the sap or juice circulates throughout all its branches, as we have seen the blood does, in the human body. This sap rises from the root, to the twig, or graft, that is put into the stem of the tree, and causes it to grow.

Wild herbs are too rank for men to eat, till they have been corrected and improved in gardens; but by undergoing a better cultivation, they are rendered palatable and wholesome.

It is the province or business then of a gardener, to dress the ground, that is, enrich it. This he does, by mixing it with horse-dung, the litter of stables or farm-yards, chalk, ashes, or any kind of manure, that will give fresh strength to the land. He then digs the ground, with a spade, to lighten it; sows it with seed, rakes it even, with a rake, and, in dry weather, sprinkles it with water. As the plant grows, he draws the earth about it, supports it with a stake, if not able to support itself; and lets it grow, till it is fit for the table.

Every plant and flower, like men and beasts, produces its like. The seed of the plant being sown in the ground in spring, rises in a stem, flourishes, flowers, produces its seed, in summer; withers, in autumn, and dies in winter: and that seed, being sown again in the spring following grows as did the parent-plant, the year before. So man, and animals, breed; that is, produce their like, and, in length of time die: and their young, or offspring, do the same, one generation after another.

The several plants of the kitchen, are cabbages, coleworts, cauliflowers, brocoli, spinach, asparagus, endive, lettuce, mustard, cresses, celery, sage, mint, balm, thyme, parsley. Of these we eat the plant itself. Of peas, beans, and French-beans, we eat the seed only, when young; of cucumbers, the fruit; and of the following, the roots; carrots, turneps, parsneps, potatoes, onions, radishes, beets. All these plants and roots are the produce of a kitchen-garden, and are called culinary herbs and vegetables.

Fruit is also the produce of a kitchen-garden, and grows on trees and bushes. The several sorts of fruit-trees, are apples, pears, cherries, plumbs, mulberries, peaches, apricots, nectarines, figs, walnuts, grapes. Those which grow on bushes, are currants, gooseberries, rasberries, barberies, and filberts. Strawberries, and melons, grow low on the ground. Apples, pears, and cherries, are often planted in grass-grounds, and such places are called Orchards.

In warm climates or countries, fruit grows to greater perfection, and is much sweeter, and larger, than in cold ones. Indeed there are some sorts of fruit, that will not grow in the open air of this country, it being too cold for them. These fruits are pine-apples and melons. To produce then such fruits, gardeners plant them under cover, in frames, or in hot-houses; which are buildings erected on purpose,

heated with fires, and covered with glass-windows, so as to let in the sun. There are plants that will thrive here in summer-time, but cannot endure our winter's cold These are called exotics, or green-house plants; such are lemons, oranges, and the like; and are preserved in green houses during the winter; which are large rooms, full of windows in front, to let in the light and sun: for it is the sun that causes all plants to grow: without its light and heat, they would wither and die.

Such is the art and contrivance of man, that they will change the very climate in order to gratify the palates of those who can afford to pay for it; and such is the luxury and folly of the world, that they will please their taste at any expence.

As, by education, masters form and fashion youth well; so gardeners, by cultivation and by pruning, that is, by cutting off useless shoots, irregular and weak branches, give strength to a tree, beauty to its form, and flavour to its fruit.

A pleasu-regarden is an improvementupon nature. We find trees, shrubs, water, and walks, hill and valley, naturally formed in many places; but seldom find the whole, within the limits of such a spot of ground, as men can walk over. To ornament their country-dwellings, therefore, men of taste and opulence have endeavoured to collect these beauties in one place. A few acres of irregular ground, happily formed, by nature, into hill and dale; with water running through them, may, by art, be made beautifully picturesque, or pleasing as a picture. By cutting through a wood of trees, we make avenues and vistos; which are rendered more pleasing, if the opening be a long one, and there is some object to be seen at the further end. Flat ground is generally laid out in lawns; which is, grass kept constantly cut short, with scythes, and then resembling a

green carpet. This is decorated, according to the fancy of the gardener, with clumps of trees, or spots of flowering shrubs. Round these lawns are serpentine, or winding walks, laid with gravel, bordered with beds of flowers, and leading to some pleasurable building, or summer-house, towers, aviaries, or standing cages, in which birds breed and sing; to canals, with bridges over them; or to pieces of water, resembling rivers, with cascades or water-falls, Great is the fancy and taste of some men; and, where they have a good fortune, their country-residence is a little paradise.

Flowers are too numerous to mention. Some creep on the ground, others climb, by winding round an adjoining tree; and others stand upright of themselves: Most of them yield a fragrant smell, and all enchant the eye, by their beautiful and varied colours. So wonderful and rich are the bouuties of Providence!

SNARING WILD ANIMALS.

MAN, being pleased with the taste of animal food, and accustomed to the use of it, became a constant enemy to all such animals as were fit to eat; that is, he hunted after such beasts, birds, &c. and these were only caught by pursuing them: but, they being swifter of foot than himself, it became, in a little time, impossible to take them in this way; for, when such animals found that man was their pursuer, they fled from him; as they did from the ravenous beasts of the forest, and put him to the necessity of inventing traps to catch them.

Traps are of various kinds. Some are made to take animals alive; some, to catch them by the leg, or neck. Those of the former kind are pits, covered over slightly, which they fall into as they pass; hatches or boxes, into which they run for food, there placed; and nets spread in their way. Of the first, are falling traps, made with wood, which fall on them as they pass, and hold them tight; such as that represented in the corner; or gins, or spring-traps, which fly up, and seize the animal by the ear

neck, or leg; sueh as is here described, having caught a fox. When nets are spread, the animal is entangled in them. There are a great number of ingenious traps, to catch animals; some, peculiar to one country; some, to another; but the principal of all, is decoying the animal into them, by placing food within them, and laying them in the tracks which such animals pass. When the trap is set, it is left for some hours; the persons who set it, lurking at some distance, or they are left to the next day, when the hunters visit it, and hope to find it charged with some game or spoil. The larger animals, as buffaloes, elephants, tygers, and the like, are canght in pits; the smaller ones, as foxes, weasels, and the like, in traps.

It is owing to these traps, that so great a number of animals are continually caught, in desart countries, where the natives carry on an extensive trade in skins and furs. It being the fur of such animals that line and ornament our cloaks, muffs, &c. and the manufacturer who dresses and prepares such furs, is called a Furrier.

In the civilized state of man, hunting is taken up and followed more as an amusement, than as an occupation or employment.

Hunting the wild boar in Lapland, is an occupation; but, in the wilds of Germany, and Tartary, and other countries, it is little more than a diversion.

BEAR HUNTING.

The print before us exhibits a Tartar bear-hunt; on which occasion, the Tartars in Siberia ride very spirited horses, one of which, in the present drawing, which was taken from an actual hunt, struck at the boar with as much fierceness as can be conceived: and, having overthrown him, he was killed by a lance.

BUCK-HUNTING.

In England, the people are contented with hunting foxes, deer, and hares. The picture here given, is that of buck, or deer-hunting, in the neighbourhood of some gentleman's seat, in a forest. The wild deer of this country, inhabit forests and wild places; and the dogs bred up to this exercise, pursue them, not by the sight, but by the scent or smell. A buck-hound has so delicate a nose, that when once he smells the foot of the deer on the ground, where he trod, he will pursue that scent, from tread to tread, a whole day; and, though the deer or stag, shall not be seen by him at all, he will, by the scent of his foot, follow him, tire him out, run him down, and kill him.

In the next print we have a distant view of the diversion of coursing, or catching a hare with grey-hounds. These are swift-running dogs, that will outrun the swiftest hare; and, not having the gift of smelling, as hounds have, can only follow it by the

sight. This sport is generally pursued on foot ; for a hare, if seen by a couple of greyhounds, will be caught, before it can run three or four hundred yards; whereas if a hare is hunted by beagles or hare-hounds, who hunt by the smell, they will be many hours before they tire her, and catch her ; and to prevent fatigue, the sportsmen generally ride on horseback.

SHOOTING AND COURSING.

SHOOTING is another sport of the field, and is chiefly confined to birds. Though sometimes sportsmen will shoot at hares, and sometimes at fish, which they see basking in the sun, on the surface of the water. The dogs bred up to the gun are called Spaniels and Pointers. Those before us are spaniels, who scent a partridge long before they see it, or come up to it. With two or three such dogs, the sportsman hunts the corn fields, where these birds breed, as do chicken in a farm-yard. These dogs are taught to hunt a lar field in a very little time,

by running over every part of it, across and across, whilst the gunner stands at the gate, looking on. As soon as these dogs smell a covey or flock of partridges, they will stand still, like statues, pointing with their noses, to the place where they lie: and so well trained are they to be cautious of disturbing them, that, if one dog smell, and point them, the other will stand stock-still, as is shewn here, though he does not smell them. When the gunner sees that the dog points, he goes up to the spot where the birds lie, disturbs them, puts them to flight, and then shoots at them. If he kill or wound a bird, the dog will immediately run after it, and bring it to him.

Sometimes such birds are taken, by drawing a net over the whole covey, dog and all. Dogs have been known to stand motionless for many hours, pointing to the birds, whilst sportsmen have gone several miles to fetch a net. A good dog will never move, whilst the bird will lie. Such dogs as are used to the net, are called *setters*, because they are taught to sit, squat, or crouch down close to the ground, that the net may be drawn easily over them; instead of standing up, and pointing at them, as pointers do.

Those who shoot ducks and water-fowl, have water-spaniels, who will go into the water, and hunt amongst the weeds, where the sportsman will not like to follow them, and thus put the birds up; that is, make them fly, that he may have an opportunity to shoot at them.

THE FISHERMAN.

ANOTHER kind of country sport is fish-hunting, commonly called fishing. This is an occupation or profession. Numbers of men get their bread by fishing in the sea; but this is done with nets. They go out to particular spots, at some distance from the shore; drop a very long net, called a drag-net, from their boats; and two boats, with some men in each, taking hold of the ends of the net, will drag this net a mile or two; and the net, being so formed as to entangle the fish that swims against it; when they draw the net out of the water into their boats, they will often find it full of fish.

Those who fish in large rivers do the same. We see such a drag-net before us. The men here, being on shore, drag the net on both sides the river; and, after a certain time, draw it on shore. These men frequently go up to their knees in water; but wear such boots as the water will not penetrate, or soak into; of course, their legs and feet are kept dry.

The man who fishes for amusement, is called an Angler. His weapon is a long, slender fishing-rod ; to which he fastens a long hair line ; at the end of which is a steel hook, that carries a bait ; such as a worm, a small fish, or a piece of paste, as food for the fish he wishes to catch. This hook, with the bait, is let down into the water, to a certain depth ; and if the fish see it, and bite at it, the angler, who keeps his eye on the line, jerks, and hooks the fish ; that is, catches the fish on the hook, and draws him out.

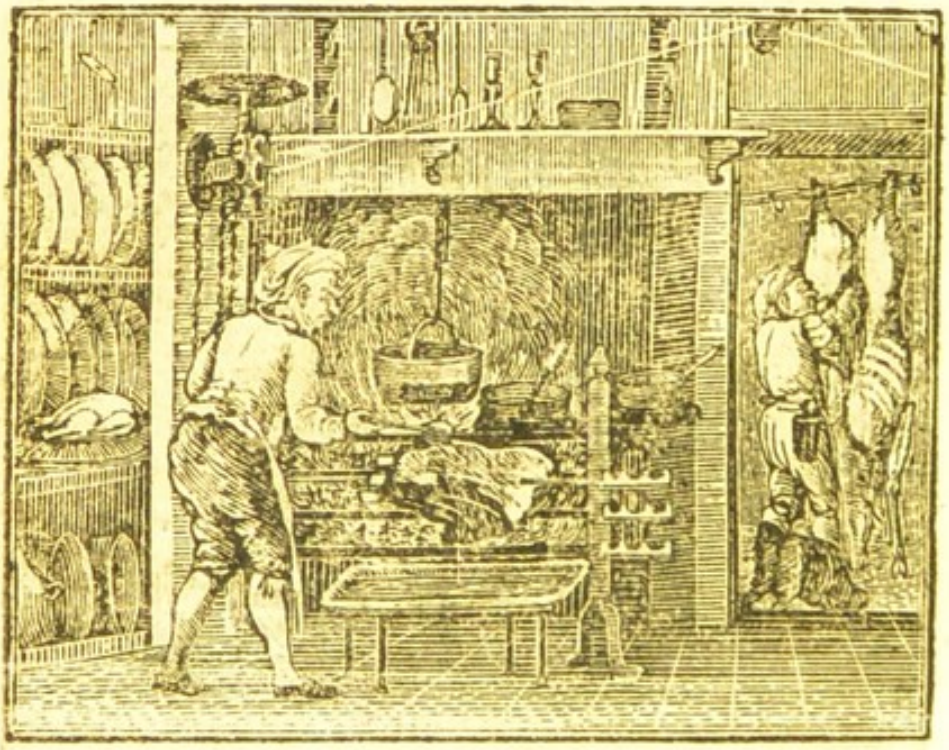
ANGLING.

BUT the most ingenious kind of angling, is what is called fly-fishing. At certain times of the year, particular sorts of flies swim about on the top of the water, and become food for the fish beneath. The angler knowing this, and what kind of fly certain fishes like best, makes such flies, to imitate real ones, places them upon his hook, and throws his line, so as to keep the fly upon the surface of the water, and

make it appear as swimming. He watches his fly, and when any fish bites at it, jerks his line, hooks the fish by the mouth, and draws it out. The man in the back part of the picture, is angling, or bottom-fishing, by letting his bait down into the water: the one in the front of it, is fly-fishing, for trout, upon the surface of the water.

So various are the inventions of men, for catching animals destined for their food.

THE BUTCHER AND COOK.



GOD, having given man the power of reasoning, and a distinguishing taste, and having placed him in the world, with every thing before him for his use, left him to himself. Nature taught him to eat, when he was hungry, and to sleep, when he wanted rest: and as to knowledge, he acquired it by observation. He saw the beasts of the field eat grass and the herbs of the field, and *he* did the same: convinced, if such things did not hurt those

animals they would not hurt *him*. Finding them pleasant to the taste, he tried almost all things that grew, not only herbs, but fruits, and found them palatable and wholesome.

As men increased in the world, observation increased with them; and, seeing that one animal fed upon, and devoured, another, without any injury to itself, they did the same. Man indeed did not slay his fellow-creature for this purpose. To an animal, who has no apprehension of death, that is, no fear of dying, having no foresight, nor any dread of futurity, death has no terror; but man, who has a soul within him, and who is taught to believe, that he shall live again in another world, and be there punished or rewarded, as he has behaved himself well or ill, in this:—man, I say, under such ideas, always finds himself unfit, of course, is unwilling, to die. Death, then, to him is a punishment; and men, who have naturally a feeling and compassion for each other, are not ready to take away a human life, except in revenge. This has led some savages to broil, and eat those fellow-creatures whom they have taken prisoners in war. Such inhuman, unenlightened beings are indeed few; but some few still there are, in America, and other remote parts of the world, who are called Cannibals, or man-eaters.

Though men observed beasts to prey upon, and devour, each other, they did not then prey upon themselves, or kill each other for food; but they killed such animals as fell in their way; and liking the taste of meat, and finding it gave them spirits, and greater strength than whilst they lived wholly upon herbs, they thenceforth made it part of their food; but killed only such animals as were naturally tame, and they were able to catch. Wild beasts were beyond their pursuit; and well that they were so; as, were they able to catch them, they would not

be fit to eat. Animals that devour, and live upon the flesh of other animals, are naturally wild, difficult to be caught, and not wholesome to be eaten by man; but sheep and oxen, and such animals as live upon grass, are naturally tame, and very easily taken.

Cattle then, or beasts of the field, such as oxen, cows, calves, sheep, lambs, deer, goats, pigs, hares, and rabbits, are eaten as food; but the beasts of the forest are not eoten by men. These are lions, tygers, wolves, foxes, and such like. Horses are beasts of the field, and are eaten in some countries; but, being too useful to man to be slaughtered, and killed for food, the people in general have refrained from eating them.

Cattle then, for food, are bred and fattened by farmers, and driven by them to markets and fairs, where they are sold to butchers; whose profession is to kill, cut them up, and sell them out, to private families. in joints and pieces. The places where they are killed, are called slaughter-houses; and the shops in markets, where they are sold, are called shambles.

The flesh of the ox is called beef; that of the sheep, mutton; that of the deer, venison; that of the calf, veal; and that of the hog, pork. All meat is sold by the pound weight, and is worth from 4d. to 8d. a pound, according to the particular joints or parts of the meat sold.

Fish and fowl is not considered as butcher's meat. Fish is sold by a fish-monger, and fowls by the poulterer. A great variety of fish is brought to table; but the chief distinction is that of sea-fish and river-fish. The principal sea-fish eaten, is cod, turbot, scate, plaice, mackrell, hollibut, whitings, herrings, soals, lobsters, oysters, crabs, shrimps, prawns, sprats, &c. The principal river-fish, salmon, smelts, carp, tench, trout, gudgeon, roach, flounders, graylings, and eels.

Fowls, which are sold by poulterers, are distinguished into wild-fowl and tame fowl. The first are, pheasant,, partridges, quails, growse, and guinea-hens; wild-ducks, widgeons, teal, snipes, woodcocks, and small birds. Tame fowls, are chickens, turkeys, pidgeons, geese, and tame ducks. Rabbits are also sold by poulterers; but pheasants, partridges, growse, and hares are considered as game, preserved by gentlemen, to amuse themselves in hunting and shooting, and not suffered to be sold. When we see them at table, they are either killed on a gentleman's own estate, or made a present to him by his friends.

When meat, fish, or fowl, is prepared by the butcher, fishmonger, and poulterer, for the kitchen, it is dressed for the table by the Cook, who has a variety of ways of rendering it agreeable to the palate. Some is boiled, some stewed, some fried, some broiled, and some roasted; and the several dishes are seasoned with spices, to correct their ill effects, and render them wholesome, and fit to be eaten.

Cookery is, in this age, not only a profession, but a science; for men will study as much to gratify their palates, as to please their eyes or their ears; and a good cook shall be as much thought of, as an eminent painter or musician. Indeed, cookery, in large towns, is become a trade; and all kinds of meat are dressed and sold out, hot, to private families; pies, puddings, and tarts, are furnished by another set of men, called pastry-cooks; and the desert, which comes the last, is prepared and served up by the confectioner, whose art consists in preserving fruits in sugar, and making all kinds of sweetmeats.

THE BAKER.

IN a very little time, men found, that, though it was necessary to health, that they should eat vegetable food as well as animal, that is, the herbs of the garden as well as the flesh of beasts; yet, the produce of the garden was not sufficient to correct the ill effects of meat; and therefore they began to eat ground corn, such as wheat, barley, and oats. Of these they found wheat the most nutritive; and therefore, to render it more solid, palatable, and fit for general diet, made it into a kind of paste, and baked it; in which state it is called Bread.

In farm-houses, and country-places, families make their own bread; but in populous towns, where people are employed in trade and manufactures, there are persons who make baking a profession, bake bread daily for sale, and supply families with it. These are called Bakers.

The method of making bread is as follows. Having bought the flour of the miller, whose business it is

to grind the wheat; the baker takes a certain quantity, mixes it with water, and a little yeast, which is the froth of new-made beer, as will be shewn by and by, and then make it into a paste, by kneading it in a trough; that is, by working it up with his hands. The bread in this state, before it is baked, is called Dough. A proportionate quantity of the yeast they mix with it, has a property of lightening the dough, and rendering is palatable, and fit to eat; but too great a quantity makes it bitter and unpleasant.

When the dough is made, it is cut into square pieces, the size of a loaf; and each piece is placed on a peel, or shovel, and put singly into an oven, made hot with fire; and, when the oven is filled, it is shut up close, and in an hour or two, the bread is sufficiently dried, or baked, and fit for use.

Loaves are made of various sizes; peck-loaves, half-pecks, and quarterns; so called, from the quantity of flour used in making such a loaf. As this is an article which the poor are obliged to buy; that bakers may not rob and cheat the poor, government fixes the price of bread, and directs the weight of flour each loaf shall contain. A quartern loaf is usually sold for ninepence, and larger loaves in proportion.

The different kind of rolls are made of flour, like bread; but mixed up differently.

In some countries, the poor people eat barley-bread, oat-bread, and rye-bread, all these being cheaper than wheaten-bread: but, as wheaten-bread is most wholesome, little else is made in London.

Bakers usually make their bread in the night-time, that they may be able to serve their customers with new bread in the morning, at breakfast.

VINTAGE.

NEXT to eatables, men found it requisite be provide liquors to drink. Though water is the natural drink of man, as well as of other animals; the constant use of water, to those who are obliged to work hard, is too weak and too poor, to support their strength, and recruit their spirits.

It was soon discovered, that sweet fruits and vegetables being mixed with water, and suffered some time to lie in that state, fermented, and became strong and spirituous; and, when drank prudently, not only raised the spirits, but strengthened the drinker. This introduced the making of wine.

Wine is the juice of grapes, squeezed out, strained, and suffered to get strong by fermentation. Wine is not made in this country, because the climate is too cold to ripen the fruit properly; but it is made almost every where in warmer climates, as in France, Spain, Italy, &c.

The vine is a tree that requires support. In England, it is nailed up against a wall: but, in wine-countries, vine-trees are planted in the common fields, are supported by stakes as hops are here, and not suffered to run higher than four feet above the ground. At vintage, that is, at harvest, in the month of September or October, the grapes are gathered, and put into large tubs or vessels, where they are trodden by men's feet, till the juice is sufficiently pressed out, and which is drawn off into other vessels. After standing some time to ferment, it is barrelled up, and stowed away for some months. In these hogsheads or barrels it ferments a second time. It is then fined down, or cleared, with isinglass, or some other ingredient, and then drawn off into fresh casks, where it is kept for sale.

In such casks, it is exported orconveyed to different countries. The exporter is called a Merchant; the importer, or the buyer, a Wine-Merchant: he who bottles it off, for use, is called a Wine-cooper.

The wines of different countries bear different names and prices, according to their qualities. Burgundy, champaigne, and claret, are the produce of France. Burgundy is sold here for twelve shillings a bottle, or quart; champaigne, for eight shillings a bottle; and claret, for eight shillings. Old hock is made in Germany, and sold for eight shillings a bottle. Sherry, mountain, and malaga, are white wines, and the produce of Spain; and are sold for about four shillings a bottle. Madeira is made at the island of Madeira, and is worth seven shillings and sixpence a bottle. Port wine is brought from Oporto, in Portugal, and sold for five shillings a bottle; and Tokay is made in Hungary, and sold for one guinea a bottle. There are other kinds of wine, the produce of other countries; and all wines differ in taste and flavour, according to the nature of the soil or

ground, in which the vines grow; in the same manner, as the beers of England differ in taste and flavour, according to the soil of the countries where the malt is grown. Men of opulence pride themselves on the goodness of their wines, will keep them many years to mellow them; and, a bottle of wine, that when new, shall be worth only five shillings, when ten or twelve years old, will fetch near double the money.

In wine-countries, the common people drink small wines at their meals, as we do small beer; but, no wines being made in this country, we are contented to drink beer, which is a liquor brewed from malt; and he who makes brewing a profession is called a Brewer.

THE BREWER.

IT is not necessary to give a receipt for making beer, but I will, for the information of my young readers, give them some little insight into the art of Brewing.

Malt, from which beer is made, is barley, suffered to lie in a heap, and wetted, till it shoot; that is, till it begin to spear, or grow. In this state, it is put into a kiln, or hot place, to dry. After this, it is ground and sold to the Brewer.

A certain quantity of malt being put into a mesh-tub, boiling water is thrown in upon it; where it lies covered for some time, that the water may draw, or extract, the spirit or strength from the malt. When it has stood long enough for this purpose, the wort, that is the water so steeped, is drawn off, put into a copper, and boiled, with the addition of a small quantity of hops; a plant that gives the wort an agreeable bitter, and enables it to be kept for some months, without turning sour.

When the wort has been boiled an hour or two with the hops, it is taken out, strained, and put into shallow, wooden vessels, called Coolers, to cool; and, when cold, it is barreled up. In these barrels it ferments, throws off a froth, called Yeast, becomes fine, and is fit to drink in a few months.

The first quantity of water that is thrown on the malt, draws the greatest part of the spirit or strength from that malt, and is generally Strong beer. When this water, or wort, is drawn off, a second quantity of water is thrown on; and this second brewing, having less strength than the first, is called Small beer; but small beer undergoes the same process, or manner of making, as does the strong.

When all the strength is drawn from the malt, the malt is called Grains, and is sold for the feed of horses, cows, and hogs.

Beer, brewed in London, is called Porter; that in the country, Strong-beer or Ale; and, there are counties in England, famous for their ales, as Dorsetshire, Yorkshire, Wiltshire, Nottinghamshire, &c.

A gallon, that is, four quarts, of ale, is worth one shilling and sixpence.

In many parts of England, particularly in the West, great quantities of cyder are made; that is, a wine made of the juice of apples, pressed out, like the juice of grapes; and perry, which is a liquor, made in the same manner, with the juice of pears. Cyder or perry are worth one shilling and four pence a gallon.

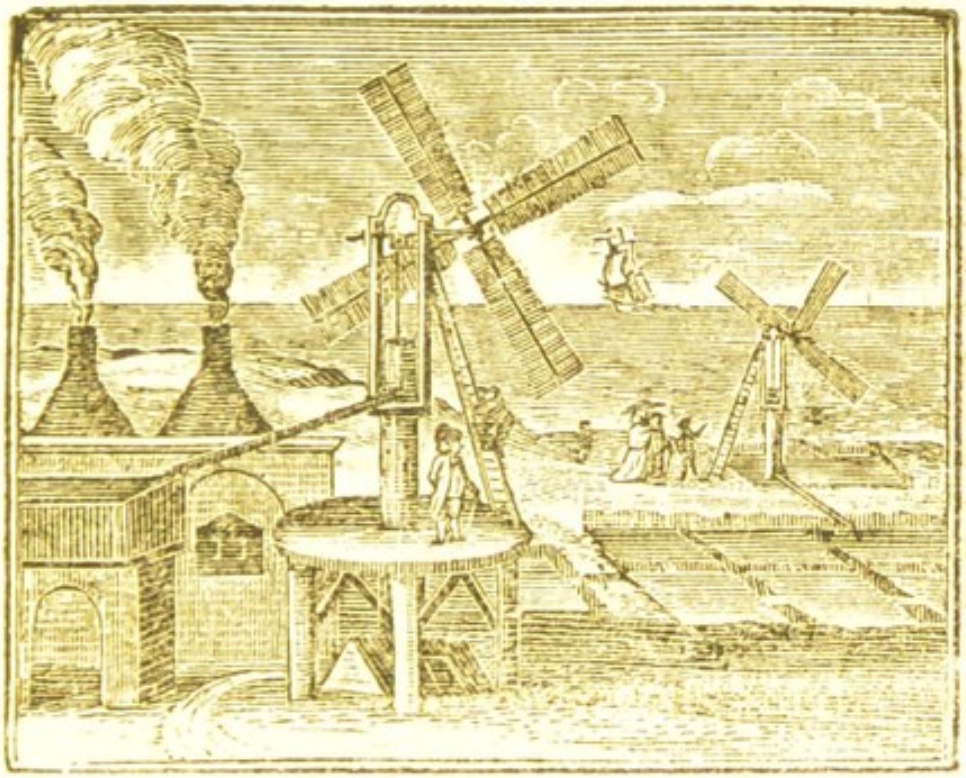
There is still another method of making strong liquors, which is called Distilling; and the person employed in this business, is called a Distiller.

This is by drawing off the steam of the dregs of wine, malt, or other grain, by means of fire, and certain chemical vessels; but, as the mode of doing it is beyond the comprehension of young minds, it will be useless to describe it. It is sufficient to say, that Rum, Brandy, Geneva, and malt-spirits, are distilled liquors. Rum is distilled from the sugar-cane, and made in the West-Indies; brandy is distilled from wine, and made in France; Geneva is distilled from wine and juniper berries, and made in Holland; malt-spirits are distilled from malt, and made in England.

These spirits are of such strength, that they will burn when set fire to, like oil. They are always better, in proportion to the time they are kept. If mixed with three-fourth parts of water, they are about as strong as wine: but if drank alone, are very hot and fiery.

Good rum is worth here about fifteen shillings a gallon; brandy and Geneva, about eighteen shillings; and malt-spirits, about seven shillings.

SALT-PANS.



NATURE has furnished mankind with salt; though its particular use, in the nourishment of the body has not yet been ascertained. We know that salt is coveted with our food, and that our meals are insipid or unsavory without it; but we know not of what utility it is to the human constitution.

Salt will keep meat from putrefying. By salting meat, fish, &c. we can keep it a long time; but it must have some wholesome properties past our finding out, or we should not wish for it as we do.

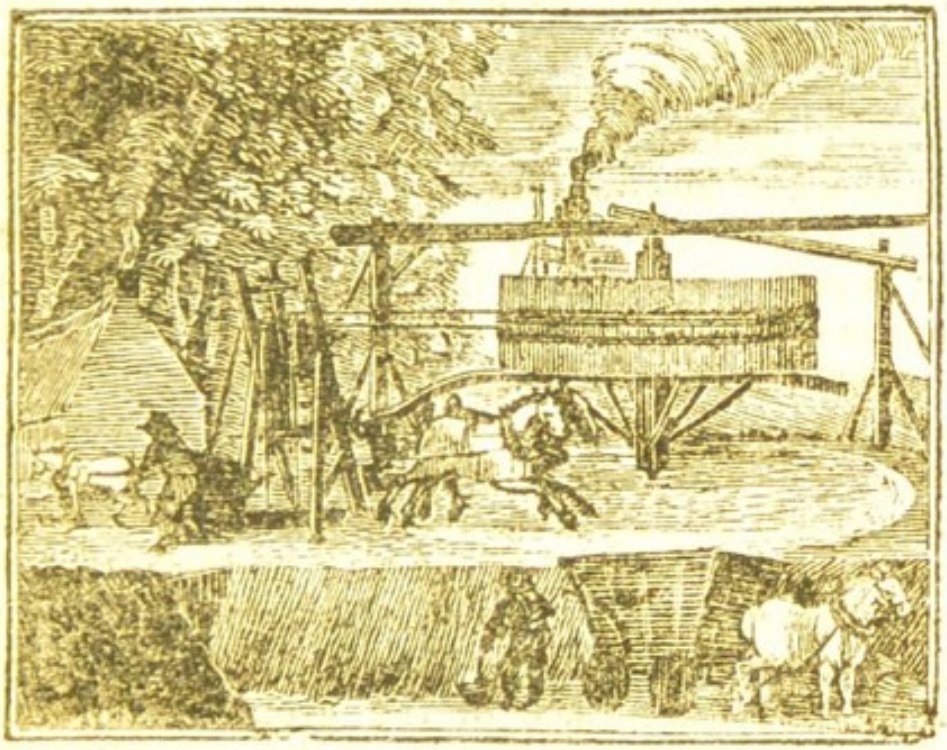
Now nature has several methods of providing us with salt. In some countries, it is thrown up upon the surface of the land, and then collected for our use. In other countries, it is dug out of the earth, from salt-pits: in others again, it is found in rocks; this is called Rock-salt. But the general way of procuring it, is from sea-water, which is fully impregnated with salt.

The method of doing this is as follows. The salt-pans are generally near the sea-side; the water from which is pumped up by a wind-pump, that is, a pump that acts by the wind; and is conveyed, by spouts, into a number of shallow basons, or reservoirs, on the ground, formed with clay, about three or four inches deep, and from twenty to forty, or more, feet square. Here the water lies some days, to evaporate, which it does by the heat of the sun. The watery parts fly off, and the salt remains: of course, after a few days, this sea-water is thick with salt. From these pans it is conveyed into a boiling-house, by a similar pump; where it is boiled in coppers, till all the water is boiled away, and the salt left at the bottom, in a hard crust or rock, perfectly dry. From these coppers it is dug out with spades; and then put up into casks, to convey it to different parts.

Salt will naturally grow damp, in wet, moist places and weather; but, if kept dry, may be preserved as long as is required.

A bushel of salt, that is, eight gallons, or thirty-two quarts, is sold for about twelve shillings; and, as there is no family but what uses it, it is a very considerable trade.

A COAL-MINE.



IN the bowels of the earth are concealed invaluable treasures, which it was the happiness of man to discover, and convert to his use. A mine is a hollow place, dug out, that contains a vast quantity of minerals or metals, there lodged from the formation of the world, and there growing, for the use of man. The metals I mean, are gold, silver, iron, copper, tin, and lead. There are no gold or silver mines in this country: of course, our money is made of that gold and silver we purchase from abroad; but we have iron, copper, tin, and lead mines in England.

There are also salt-mines and coal-mines. A description of one will serve for the whole: for they resemble one another. The one before us is a coal-mine. All the coals burnt in London are brought, by ships, from the coal-mines at Newcastle.

When a coal-mine is discovered, it is the property of the person on whose land it lies; and he employs

persons to dig the coals, and sell them. Coals lie deep under ground; as do lead, tin, &c. and to dig into this mine, they open a place like a well; and, having got down to the coals, dig away before them with a pick-axe, and shovel up what they dig with a spade; then carry it, in tubs, baskets, or wheel-barrows, and throw it into a large bucket, which is drawn up above ground, by horses turning a wheel, like a mill-wheel, as is here represented. These engines are very ingeniously contrived; for, as the water will collect in the earth where it is hollowed out, as we see in wells: that the men may work dry below, it is generally pumped up: but there are engines, that, as they let down the coal-bucket, will draw up a bucket full of water; and, as they let down the water-bucket, will draw up a bucket full of coals. These coal-pits are sometimes a hundred yards below the surface of the ground; and men will dig the coals, undermining the ground a great many hundred yards every way, and there shall be no opening to enter the mine, but by this well or shaft, as it is called; of course they have no light below, and work by the light of lamps; and lest the earth above, as they dig it away below, should fall in upon the workmen, they prop it up with posts. The workmen are let down into these pits, by the bucket that brings up the coals.

INSIDE OF A MINE.

In the salt and lead-mines abroad, whole families of miners have houses, and dwell in those mines, their whole lives, without ever coming up, or seeing the day. They let horses also down into them, for their use: but these mines will run a mile or two under ground, and are arched very high above the men's heads, the earth above being supported by posts.

Where mines are so extensive, there are generally more shafts than one, and more ways of entering; and a variety of engines are used to draw off the water, and bring the metal dug, above ground.

A stone-mine is called a quarry; but, as the stone generally lies near the surface of the earth, the land that covers it is always first removed; and, when the stone is so cleared, the workmen see their way before them, and have no occasion for lamps; for a road, gradually descending, is made into the quarry, and a cart and horses go down into it.

SMITHERY.

HAVING discovered iron, the next step was to convert it to the several purposes of life; and to make such instruments of it, as before were made wholly of wood or bone; wood not being sufficiently lasting, and bone not being capable of carrying a sharp, cutting edge.

It was soon found out, that iron, hard as it is, might be softened, and even melted, by fire; and that, when red-hot, it might be hammered into any form, which, when cold again, it would preserve. This introduced the trade and profession of a Smith; whose business it is to convert iron into a variety of useful things; nails, to pin, or fasten, one piece of wood to another; hammers, to drive these nails; hinges and locks for doors; grates, to hold fire; spades, to dig; ploughs, to cultivate land; points to arrows and spears; guns; shoes for horses, to save their feet; and a thousand other things. Iron, being first

made into bars, is afterwards formed into a variety of tools and instruments. The bar being made red-hot in a forge (where fire is burnt, and where the fire is made as fierce as possible, by blowing it with a pair of forge-bellows,) is laid upon an iron anvil, and beat with sledge-hammers, and small hammers till it be shaped to the workman's mind. The roughness is taken off, and it is polished and made bright, by files. For this purpose, it is screwed into a vice, and is there held firm, so that the smith can file it with ease: To make holes in flat pieces of iron, such as the shoe of a horse, that it may be nailed on upon his hoof; when the shoe is red-hot, they take hold of it with a pair of tongs or pincers, and, holding a sharp, iron pin, on the place they mean to make the hole, beat that pin through it with a hammer, and then dip the shoe in water, to cool it. If they wish to cut a piece of iron into two, they do it in the way they would make a hole in it; only, instead of a pin, they strike a piece of sharp iron through it.

There are several kinds of smiths, Those who forge anchors, for ships, are called Anchor-smiths, those who form and fashion rough iron, as bars, nails, horse-shoes, and such thing, are called Blacksmiths, and those who polish, and make bright iron-work, as jacks, stove grates, fire-irons, and such things, are called Whitesmiths Those who make cutting instruments, as swords, knives, scissars, and the like, are called Cutlers; and indeed, as there are men who confine themselves to particular branches of the iron-trade, and make only particular articles, these trades have names according to the things they make, as Lock-smiths, who make locks only: Snuffer-makers, who make snuffers only; Surgeon's instrument-makers, and the like.

Iron is capable also of being melted in furnaces; and persons who are employed in this work, are called

Founders. These men cast gun-barrels, cannon-balls, and many other things. The iron, when melted, is poured into a mould, made in the shape of the thing we want, and then left to get cold; and such things, so made, are called Cast-iron, and are much more liable to break, than hammered iron. Hammered iron will bend, but cast iron will not.

Iron made red hot, and so plunged into cold water becomes very hard and brittle, and is called Steel. It is of this hard iron, that blades, and all cutting instruments are made, and it is this steel, that being struck with a flint-stone, will give fire. It is thus, that a gun is fired; the gun-lock has a flint and steel; and by pulling a spring with the finger, the flint strikes the steel, causes fire, which falls into a pan of gunpowder, that goes off, and discharges the gun.

Iron is so exceedingly useful to man, that, without it, they scarcely could do any thing. Formerly, spears and arrows were pointed with sharp bones, now, they are pointed with iron. Without iron shoes, horses could not do much work; without iron to the plough and harrow, farmers could not plough their land; without nails, the carpenter could not build houses; without guns and cannons, nations could not go to war; without iron spades and pick-axes, the earth could not be opened, nor any of the valuable things that are there found, be got at.

It is more valuable than gold or diamonds; and an Indian, who has no occasion for money or jewels, prefers a bit of iron to point his lance, to all the gold you can give him; for, in his country, gold will buy nothing. Therefore, as the cock in the fable, that, scratching in a dunghill found a diamond, said, he would rather it had been a grain of corn, because that he could have eaten; so the poor Indian, finding more use in a piece of iron than a bit of gold, prefers the iron, though to us it would not be of one hun-

dredth part the value. It is by the use of an iron spade and a pick-axe, that miners dig for silver and gold; and it is also by the use of a plough, shod with iron, that the fields are ploughed, and produce the corn and grain, that feed mankind. Iron, then, is a greater blessing to man, than silver and gold; and a black-smith is a more useful member of society, than either a silversmith, or a goldsmith.

THE BRICK-MAKER.

THE comfort of shelter in cold and stormy weather, induced men, in the first ages of the world, to fly to dens and caves; and such are the places of residence in some savage nations at the present day. But in civilized countries, as men studied their wants and necessaries in other respects, so did they in their houses. The first contrivance to build, was with stakes, fixed up in the ground, and covered with grass and weeds. Of these, are the huts

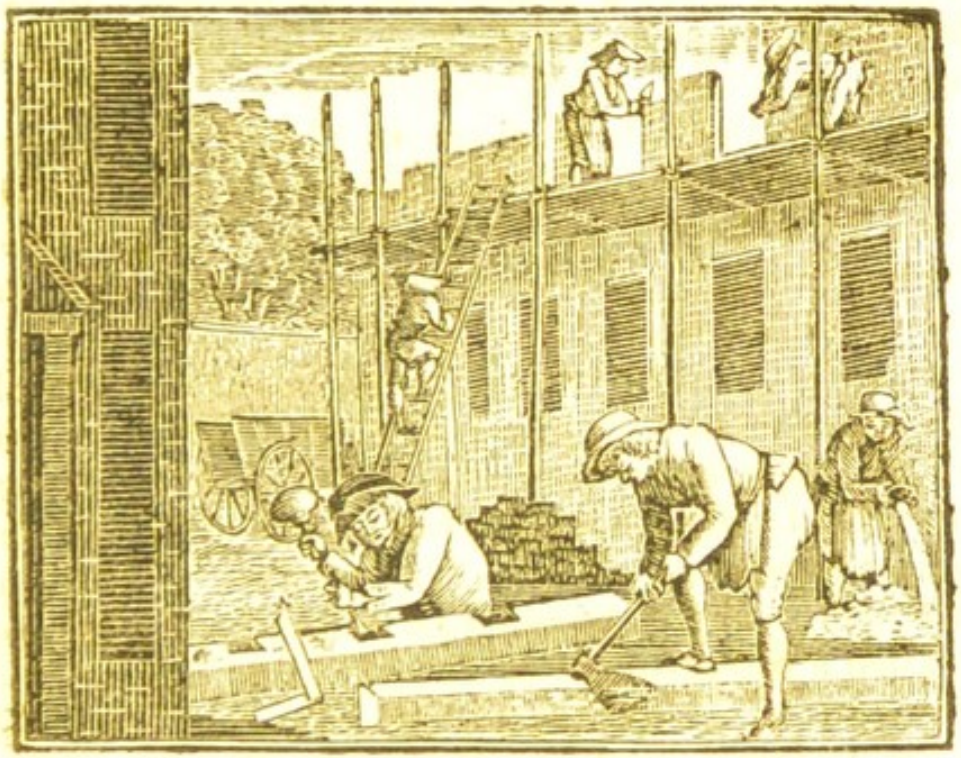
and hovels of the Indians : but those who wished to have warmer and more durable houses, contrived to build them with brick, which is burnt clay. The brick-maker, then, is the first person employed in building; and his method of making bricks is as follows.

Having dug the clay out of the earth, and softened and tempered it with water, so as to mould it into any form he pleases; this clay is squeezed into a wooden mould, the size and form of a brick; and then taken out; and the bricks so formed, are piled up in an open place; and surrounded with straw, so as to dry gradually in the warm air, without being too much exposed to the sun, which would crack them. When sufficiently dried, they are again removed, and piled in a larger heap, with fire placed under it, so as to bake and harden them. This large pile is called a Brick-kiln; and the bricks, so hardened and burnt, will continue firm for many hundred years. Bricks are all made of one particular size, so as to fit conveniently with each other, and form walls of any thickness. The use of these bricks, is the business of a Bricklayer; so called, from laying bricks, to form any building he requires.

The mortar, or cement, in which he lays the bricks, or which joins them together, is a mixture of lime, sand, and water; and mortar, so made, and put between each brick, will make a wall, as hard and durable, as if it were built with stone.

Lime is nothing but chalk, burnt in a kiln; and chalk is dug from the earth. When chalk is converted into lime, by burning, it has the power of becoming hot, when mixed with cold water; and, the sand being added, the whole mass or composition, when dry, becomes as hard as the brick itself.

THE BUILDER.



NOW the Bricklayer spreads this mortar on the bricks, with an iron spreader, called a trowel; and builds his wall with regularity, by the use of a line and a rule, that direct his eye, and keep his work in proportion. When the bricklayer has raised the walls of a house, the Carpenter is called to assist. It is his buisness to cut the timbers, and join them, so as to form the roofs and the floors.

A tree, being cut down, is hewn into form by an axe, cut into pieces by a saw; and one piece is joined to another, by boring holes in them, and driving large nails through them. When the roof is made, with timber, by the carpenter, the bricklayer is employed, to cover it with thin bricks, called Tiles. The carpenter, having made the windows, the Glazier is employed to glaze them, or put glass into them, by which the light passes into the house; and the Painter is next employed, to paint the wood-work,

in order to preserve and ornament it. Bricklayers, as the walls of a house, in building, are soon out of their reach, erect a scaffold on the outside, to raise themselves higher and higher, till they get to the top.

In countries where there is plenty of quarries; that is, places were stone grows in the earth; this stone is dug out, and, by cutting it into square blocks, fit for building; houses are built with stone, instead of brick.

Stone is allowed to last much longer than brick; and houses built with it, are much handsomer. Thus bridges, palaces, castles and other great buildings, are erected with stone. This builder is called a Mason; and the person who directs the building, is called an Architect. If the building be of brick, the director is called a Surveyor.

Stone is of so hard a nature, that the same tools which fashion, or form timber, will not cut, or fashion blocks. A block of stone may be sawn through, by slow degrees, by keeping the place where the saw goes, wet; for this purpose, water is constantly dripping on it. When sawn into proper pieces, it is fashioned by a mallet, and an iron chisel; and when fashioned, it is polished smoth, by rubbing. Large blocks of stone are too heavy to be moved, but by placing rollers under them; and they are drawn up to the places where they are to be fixed, by pullies; that is, by ropes running in small wheels.

When a stone-building is erected, it is generally embellished with architecture, that is, with pillars, and a variety of stone ornaments; for stone is of that nature, that it may with chissels, be cut into any form or shape, as will be shewn when we come to speak of sculpture.

Houses cost from 100l. to 10,000l. and more, according to their size and magnificence; and houses,

when built, are let to tenants, at a price according to what they cost building, and the situation of the ground on which they stand, from 10l. a year to 500l. The same house that lets, in a bad street, for 50l. a year, if it stood in a good one, would let for 100l.

THE CABINET-MAKER.

MEN having built houses, found it necessary to furnish them with such conveniences as they wanted; such as drawers to hold their clothes; chairs, to sit on; tables, to eat on; and beds to lie on. Those persons, whose profession it is to make these and sundry other conveniences, for family uses, are called Cabinet-makers. The cabinet-maker is a better kind of carpenter, works neater, and is employed on more elegant furniture. The carpenter will make a common table of deal, but a cabinet-maker will make a handsome one of mahogany.

The chief employment of a carpenter is to work in wood, prepare all the timbers and wainscoats of a house, make outside pales and fences, and all such kinds of out-door work: whereas, the cabinet-maker is employed in making the furniture within, as I have mentioned above. They both work with the same tools, such as saws, axes, planes, chissels, files, gimblets, turn-screws, hammers, glue-pot, rule, &c. but those of the cabinet-maker are smaller tools of the same kind. He cuts his wood to the shape he wants with a saw, smooths it with a plane, joins one piece to another with glue (a sticky substance, boiled out of the feet of oxen), and irons nails; first boring the hole with a gimblet. The invention of man has contrived a variety of things both for use and ornament; and they are often embellished by the Carver and Gilder.

The necessary and useful furniture of a house, will cost from fifty pounds to five thousand, according to the size of the house, the quantity of furniture it contains, its goodness, and its richness.

Tables, chairs, drawers, chests, bureaus, bed-steads, and all plain articles in wood, are made by the Cabinet-maker; carpets, by a Carpet-weaver; window-curtains, bed-furniture, &c, by an Upholsterer; looking-glasses, by a Glass blower; and the frames, by a Carver and Gilder; stoves, grates, shovel, tongs, poker, and fender, and all iron goods, by a Smith. Of the furniture of the kitchen, the dressers, shelves, &c. are made by a Carpenter; the bowls, and sundry little, useful, wooden articles, by a Turner; the iron-work, by a Blacksmith; the tin-ware, by a Tin-man; the copper and brass-work, by a Brazier; the earthen ware, by a Potter; and the bellows, by a Bellows-maker. Each of these professions contributes its labour to the usefulness of the kitchen; and men of all these professions, not only thus find

employ, but a livelihood for themselves and their families.

The goodness of furniture depends on the fineness of the wood, and other materials of which it is made, the neatness of the workmanship, and the labour bestowed on it. There is a fashion in this, as well as in dress; and, as a taylor and milliner will invent new patterns of clothes, to attract the notice of their customers, and induce them to lay by their old clothes, and purchase new; so will a cabinet-maker and upholsterer, who generally make and sell all kinds of furniture, invent new patterns, to put people out of conceit with what they have, and promote trade; and such is the folly and extravagance of men, that they will often change their old furniture, though far from being worn out, for such as is more modern, that they may not be out of the fashion.

In cottages and houses of the poor, we see little furniture, but what is plain, necessary, and useful; but, in the mansions of the rich, a great deal is sacrificed to taste and magnificence. Sumptuous beds, inlaid tables, silk-damask chairs and curtains, sofas, very expensive carpets, large looking-glasses, worth five hundred pounds a glass; lustres, and a profusion of carved work, and gilding.

In short, as we are too apt to esteem men in proportion to the appearance they make; the wealthy strive to outvie each other, not only in the decorations of their persons, but also of their houses, their gardens, and their lands.

THE TURNER.

THE Turner is the next artist or mechanic that works in wood. This man makes round wooden vessels and ornaments, consisting of one piece of wood; such as bowls, dishes, cups, balls, screws, &c.

The principal machine with which he works is a lathe. Having fixed a solid piece of wood between two spindles, as an axis, that run or turn in grooves, by means of a string and treader, he is able, by his foot, to turn this piece of wood round quick, like a wheel, before him; then leaning a chissel on a bar, and applying the cutting edge of this chissel, steady to the piece of wood, as it turns, it hollows it out, or shapes it to his wishes, equally all the way round it; and thus forms a ball, hollows out a bowl, or turns a screw.

He measures the size of the thing he makes, by a pair of compasses; and smooths off the rough edge with a file.

A wooden bowl, thus made, will hold liquids, as well as basons or bowls, made with earth; are much lighter and cheaper, and not so liable to break. If an earthen or china bowl fall, it breaks; if a wooden bowl fall, it does not break. On these accounts, wooden ware is much used by the poor; and never exceeds a few shillings in price.

If larger vessels be wanted, they are made of several pieces of wood, so contrived, as to fit each other at the edge; and these pieces, being a little hollowed, when put together, form a tub, or barrel; which, being bound round, tight, with wooden or iron hoops, will contain water, beer, or wine. The workman who employs himself in this branch of business, is called a Cooper, and his workshop a Cooperage.

THE COOPER.

COOPERAGES employ a great number of men; all kinds of liquids, such as wine, brandy, rum, and

other spirituous liquors, if in large quantities, being conveyed, from place to place, in barrels or casks. Ships that go to sea, carry water, for the men, in casks. Butter, sugar, tobacco, rice, and many other sorts of dry goods, are brought from abroad in them. The tubs that hold butter, are called Butter-firkins; those that hold water, Water-casks; those that hold wines, Pipes, Hogsheads, Barrels, &c.; those that are used for Beer, are called Butts, &c. those that convey rum, brandy, and the like, Puncheons. But these tubs bear different names, according to their sizes; and their prices are, from three shillings or four shillings, to twenty or thirty shillings.

Coopers that have much employ, acquire great fortunes; for most articles, in which foreign trade consists, are conveyed from country to country, in such kind of wooden vessels. They keep their contents dry, and safe, are not heavy in themselves, not liable to break, or be damaged, are not very expensive; one of the largest iron-bound tubs, not costing more than forty shillings; whereas, an earthen jar that will hold as much, would cost four or five times the sum, would weigh more than the article it contains, take up more room in a ship, and be very liable to break. Should a hogshead burst, it may easily be repaired; not so with a jar.

Tools made use of by the cooper, are an adze, with which he hollows out the staves; axes and saws, with which he shapes them to his mind. He then smooths and finishes them, and binds them together with hoops of wood or iron, which he beats firmly on with a hammer. Having first heated the wood, by burning chips in the inside, it gives way to the hoops, and the edges of the staves fit and join so closely together, as to hold water. If such tubs or barrels, be afterwards to stand out in the weather, that the sun may not, by drying the wood, split them,

or open the seams, they are painted on the outside, or rubbed over with tar.

Wooden hoops are made, for the cooper's use, by Hoop-benders; and iron-hoops, at the flatting-mills.

Tubs, however, for common use, and for small quantities of liquor, are clumsy, and not so convenient, this induced men to invent vessels of earth, which they are able to make into a variety of forms, for almost all uses, and to ornament them very prettily.

THE POTTER.

THIS is the trade of the Potter, who forms his vessels of earth, whether they be of China, or what is called Earthen-ware. Coarse or fine, they are all made of a kind of clay, or stiff earth; which, after they are formed into the shape required, are dried, or baked hard, in a furnace or oven. The

white stone-ware, is made of clay, and ground flint-stones; the brown-ware, is made of coarser clay; and china, so called from being the invention of the Chinese, and first made in China, is formed of a fine, white clay.

It will be needless to be very particular on this head; it is sufficient to say, that the clay is first tempered or softened by water, and beating; it is then wheeled to the Potters, where it is fashioned, in various forms, by a piece of this clay being placed on the top of a lathe, as a kind of table, which the Potter can turn round, like a wheel, very fast, with his feet; and is thus able to hollow out, or form, the vessel with his hands, wetting them, from time to time, that the clay may not stick to them.

When the vessel is too thick, he pares it thinner with a flat piece of iron. If there are handles to be set on, it is done by the hand; and if to be embossed, the clay is pressed into hollow moulds, made agreeably to the figures to be impressed on it.

The vessel, so formed, is baked; then glazed, or varnished; painted, and then baked again.

Thus it is the profession of a Potter, to make plates, dishes, bowls, tea-pots, jars, and sundry other things, which we see in common use. Common earthen ware, is cheap, but china is expensive, and rises in price, according as it is painted and ornamented. Earthen plates may be bought for two-pence. Some china plates will sell for a guinea each.

THE GLASS-BLOWER.

GLASS is one of the prettiest inventions of man. It is a clear, transparent ware, and, though apt to break, is made and sold at so small a price, that its being liable to break, is of little consequence, especially as the broken glass can be converted again into other forms.

Glass is made from flint-stones, which, with the addition of sand, pebbles, and other ingredients, pounded, or ground fine together, will melt in a strong fire, or furnace. The glass-blower dips the end of an iron tube, or pipe, into the melted glass, which thus gathers round the end of it; then takes it from the furance, and, blowing hard at the other end, the mass of hot glass swells, and becomes a hollow globe, as a bladder does, when we blow into it. By continual blowing, he will swell this globe to such a size, that the glass shall be thick or as thin, as he wishes it; and he shapes it, by rolling it on

a stone. In this hot state, he lays it on a table, draws the globe out into the form of a roller, then opens it, by cutting it through the middle with shears. This done, being too thin, and not sufficiently cold to support itself, the sides of the roller will fall open, like a sheet of paper, flat on the table; and thus it becomes flat, and fit to cut out into panes, to glaze windows. When cold. it is put again into a warm oven, or furnace, to anneal, that is, to harden.

Looking-glasses are made in the same manner, but much thicker, or of a greater substance. It is then ground and polished, and one side of it covered with quicksilver, and then framed.

Drinking-glasses are formed at the end of the blower, with iron plyers, or pincers, by which the workman can handle and manage the soft glass, as with his fingers, and mould or fashion it to any form he pleases.

In every glass-house there are a number of these furnaces; and the place is rendered so hot by the fire in summer-time, that the men work without their shirts, clothed only in their breeches and shoes.

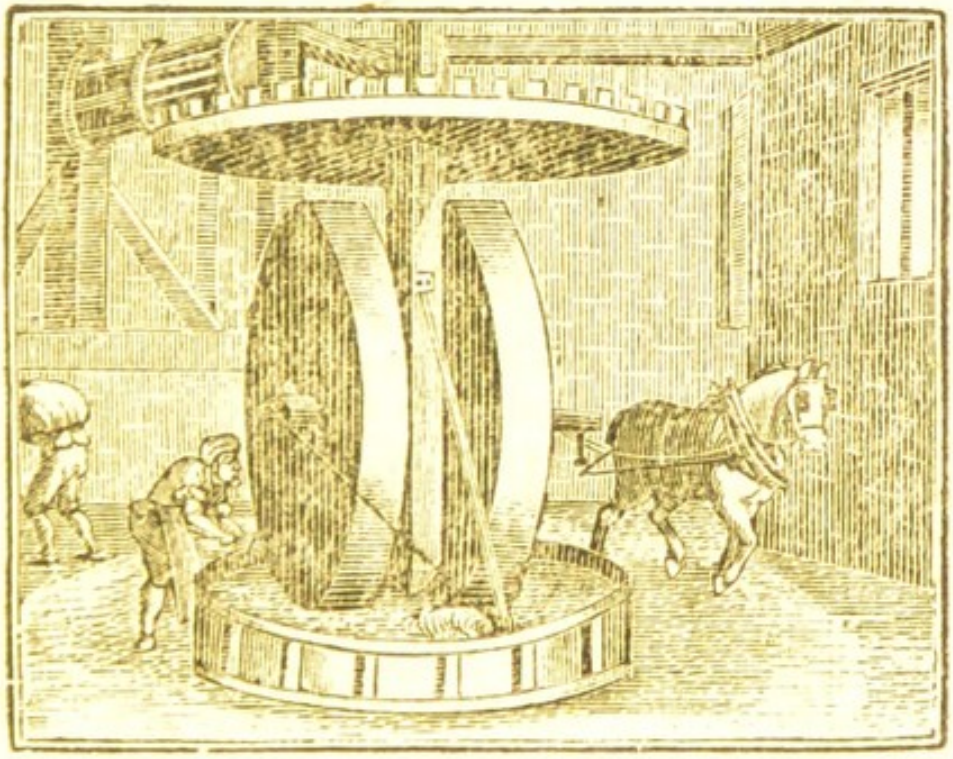
Looking-glasses rise in value, according to their size and clearness; for the glass itself is of no great value. The many that are broke and injured in making, and the difficulty of making them clear, and free from blemishes, is so great, that when one of large dimensions, and perfect, is completed, it shall be very valuable. A looking-glass, seven feet long, and four feet wide, is worth 200 guineas.

There is a method of ornamenting glass, by cutting, or engraving, figures on it. This is done by grinding; turning it on a lathe, against the grinders as we have seen turners turn their wood against the cutting-tool.

By this cutting of solid glass, they can ornament it, and make it very beautiful; as we see in cut glass

chandeliers, which will sell from 5 guineas, to 500 guineas each.

A HORSE-MILL.



TO reduce the necessaries of life as low in value as possible, that they might be within the reach of the poor, as well as the rich, it was requisite to save time and labour in preparing them. To make corn or wheat into bread, it is first to be made into flour; and this is done, by grinding the grain into powder, and sifting it clean from the husks This is the profession of a Miller, who grinds flour for the Baker. Till the invention of mills, wheat was pounded and bruised into flour, by beating; and it required a length of time, and a great deal of labour, to effect this.

But, the ingenuity of man, by application and study, invented a Mill, or a method of grinding corn, with less labour; and, instead of setting this mill to

work, by the labour of men, they contrived to work it by horses, by water, or by wind. The first is called a Horse-mill; the second, a Water-mill; and the third, a Wind-mill.

Grain is ground in mills, by heavy stone-wheels, called Mill stones, that roll round on a place, on which the grain is laid; and being bruised by the weight of these stones, it runs through a hole, into a trough, or box, beneath. Where there is no convenience of erecting a wind-mill, or a water-mill, they turn these mill-stones by a horse; which, being fastened in a pair of shafts, walks round in a ring, and thus turns the wheels, as he goes. Constantly going one uniform round, in a small circle, makes the head giddy. To prevent this, as the giddiness arises from the effect this circular motion has upon the sight, they blind-fold the horse, and he thus does his daily work in the dark: but, being fixed in a pair of shafts, he cannot go out of his way, and, of course, will work as well blind-folded, as if he could see.

But, when there is convenience to erect either a wind-mill or a water-mill, even the labour of this horse is saved.

WATER AND WIND-MILL.

Water-mills are built over streams; and the water behind the mill being pent, or damned up, to a certain height, is made, in running over this dam, to fall down upon boards, placed on the edge of a large wheel, and turn it; and this water-wheel, on the outside of a mill, by a communication it has with the mill-stones within, turns these stones, and grinds the corn, in the same manner as it does, when turned by a horse. The horse-mill, before shewn, represents the inside of such a snuff-mill; but, in a corn-mill, the two mill-stones, which here stand upright, are placed flat-ways, one over another, very near each other, but not to touch. The lower stone is fixed, and the upper one turns round on a spindle, and thus grinds the corn that falls in, between the two, from a hopper, or box, above.

The larger the water-wheel, the less is the stream required to turn it: but, where the wheel is a large

one, the fall of water behind that wheel must be a deep one. Water-mills have great power, and will do much more laborious work, than either horse-mills or wind-mills. Where, therefore, there is a good stream of water, mills are constructed for a variety of purposes; not only to turn wheels, to grind; but to raise enormous beaters, and hammers, to beat; as is seen in the Paper-mill, in the next cut.

Water-mills are used to raise hammers of several tons weight, under which red-hot iron is placed, and beat out into bars; Fulling-mills, to raise beaters, to scour and clean woollen-loth, after it is made, by continually beating it, in a running stream of water; and paper-mills, to raise beaters, to pound linen rags into pulp, to form paper.

The rent of a corn-mill, to grind corn; a snuff-mill to grind snuff; an iron-mill, to beat out bars, or plates of iron; a fulling-mill, to cleanse and scour cloths; an oil mill, to extract oil from seeds; or a paper-mill, to make paper, is a valuable thing upon a gentleman's estate. Whilst a farm, consisting of ten large fields, shall not bring in more rent than 50l. a year, such a mill, that takes up little more room than a house, shall be worth three times the sum.

Wind-mills are worked with very little wind, by means of sails, or cloths, spread upon the vanes, or wings, of the mill, on the outside. These vanes are capable of being turned to the wind, which, blowing on the sails, turns the vane; and that, communicating with the wheels and mill-stones within, works the mill, in the same manner as a water-mill.

Windmills are seldom used but for grinding; but they have been made lately to saw timber into planks; and one mill will do more work in a day, than forty men.

Windmills stand high above the ground, for the sake of the wind; but, by their internal mechanism,

that is, by the addition of certain wheels and pullies, within, they will draw up a sack of wheat out of a cart below, and let down a sack of flour in its room.

Mills are also used to raise coals, water, and metals, out of mines and pits; to wind silk, &c. as may be seen above. In short, the contrivance is so curious, as to do honour to the invention of man, whose head is fertile in expedients.

THE PAPER-MAKER.

MEN having found out a method of writing, it was necessary to contrive something to write upon. Various modes of making paper, from the bark of trees, and other materials, were contrived: but none so complete as that now in use, of making it from white linen rags.

Great quantities of such rags are collected in all parts of the world; and such collectors are called rag-merchants. Ship-loads are imported here from Holland.

These rags, being purchased by the paper-maker, are sorted by him for different uses: fine rags, for fine writing-paper; and coarser rags, for more ordinary paper. When sorted, they are laid to soak in water, to rot, and then under a beater, worked by a mill-wheel and water, beaten to a fine pulp. After this, they undergo several washings; and, being thrown, at last, into a large vat, in a fluid state, about the consistency of thin pap; the paper-mould which is a square wire sieve, is dipped into the vat, and, being taken out, the water runs from the sieve through the wires, and leaves a thin surface of pulp upon them; which is then turned out upon a blanket, and the sieve is dipped again for a fresh sheet; so that each dipping produces a sheet of paper; and every sheet, being put between blankets, as soon as there is a heap of them so formed, the heap is drawn away, and put under a press, and squeezed very hard. After this, it is taken out, sheet by sheet, and hung up to dry. When dry, it is sorted, the good from the bad, the broken from the unbroken; and being made up into certain quantities, it is pressed again.

I do not pretend to enter into a minute description of the several trades, I think it necessary to speak of. All I aim at is, as I have frequently noticed, to give such a general idea of each trade, as that children may form some notion of it. When their ideas unfold, and their understanding ripens, it will be time enough to require more information respecting them.

Paper-mills are erected always on a stream of water; not only for the convenience of water, but for working beaters, &c.

Paper is made of many qualities and sizes; from coarse brown, to the finest writing paper; and such paper as is made to write on, is always sized, or stiffened so as to bear the ink without sinking. It

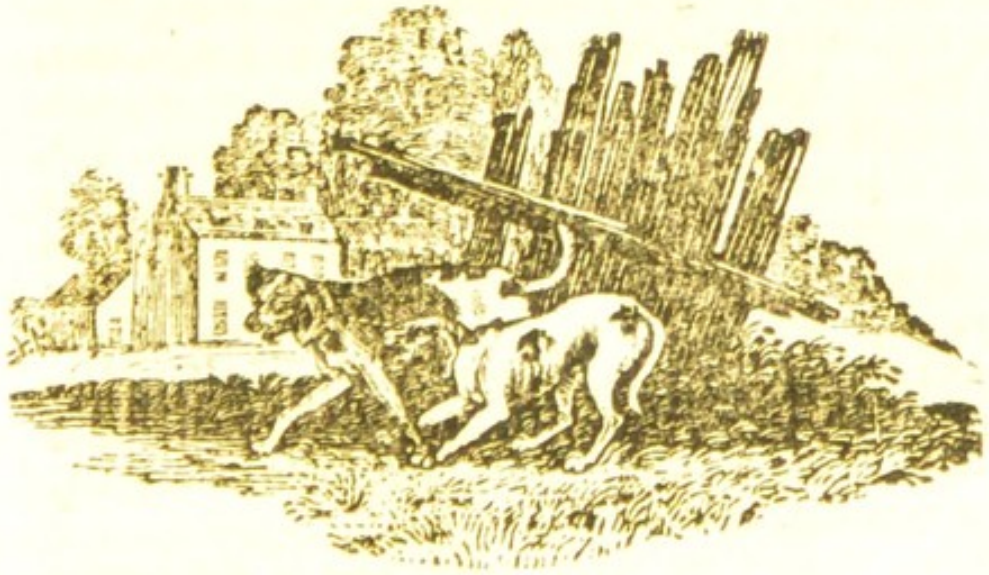
ia occasionally coloured with blue or yellow paint, to give it a fair complexion

Paper is sold by the ream; twenty quires in one ream, and twenty-four sheets in one quire. From the Paper-maker it is sold to the wholesale Stationer; and from him, to the retail Stationer. It is worth from six-pence a quire to three shillings, according to its fineness, largeness, and thickness, and is known by various names; as Pot, Foolscap, Crown, Post, Demy, Medium, Royal, &c. terms by which Stationers denote its size.

It is needless, I presume, to repeat, that linen, which is the basis of paper, is made from flax; and flax grows in the earth, like wheat, or other grain.

Very thick Paper is called Cartridge-paper; and many sheets of paper pasted together, is called Pasteboard.

Cards are made of card-paper, printed and glazed. The price of a pack of cards is three shillings and six-pence.



THE PRINTER.

HAVING made paper, men next invented the art of Printing, or a more expeditious way of multiplying copies, than by writing them. Before the invention of printing, all books were written with the pen, and the time this took up, made them very expensive. The consequence of which was, that, not having books to read, few men learned to read, and people were very ignorant and uninformed; but, since this useful invention took place, books have been written and printed on all subjects; they are sold at a price, which most people can afford to pay: every one learns to read, to enjoy the advantage of books; and knowledge, thus generally communicated, has opened the minds of men, instructed them in the several sciences, made them more sensible, more rational, and more civilized.

Now, to give my reader some idea of the nature of printing, I must first tell him, that every letter is

cast in a mould, so as to be all uniformly of the same size. A number of each of these letters is put into a cell, or partition in a board, placed on a frame, before the Compositor, or man who composes the pages from them. From practice, he knows every cell in which such letters are placed, and can pick up, quickly, any letter he has occasion for. His manuscript copy being placed before him, he reads the words, then picks up the several letters that form the words, places them in a small iron frame, which he holds in his left hand, and thus proceeds, till he has composed a page. He then composes another, the same way. When he has composed as many pages as will fill a sheet of paper, he arranges and fixes them in an iron frame. This sheet, so composed, is then carried to the press, and laid down on a kind of stone table, which moves, and is rolled under a block; which, by pulling the handle of the press, is squeezed down upon the metal pages.

Before, however, this is done, 500 or a 1000 sheets of paper, more or less, are wetted; and, being at hand, one man blacks the metal pages with ink, mixed with stiff oil, by beating them with balls of wool, covered with leather, and inked; and another, at the same time, lays the sheets on a frame, with hinges, which he turns down over the inked metal; then rolls it under the press, pulls down the block upon it, and thus takes off the impression. This done, the table is rolled out again, the frame lifted up, and the printed sheet taken off, and another plain sheet put in its place; and the same as before is done with every sheet. Long as this business may appear, the work, by practice, is so expeditious, that two men will print off 500 impressions of a sheet, in less than four hours.

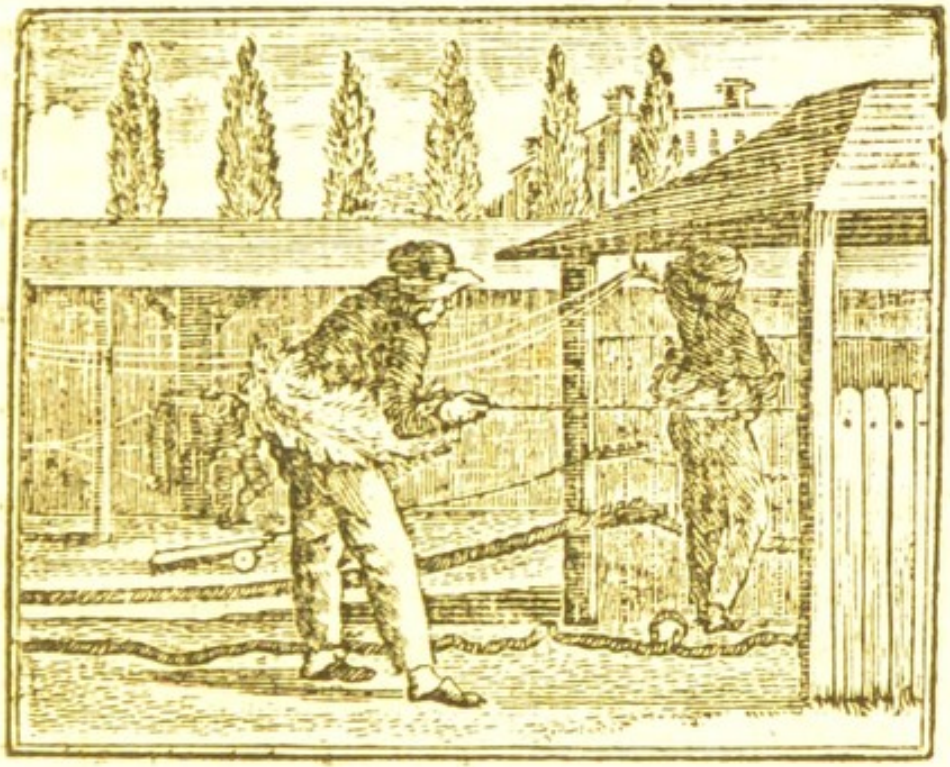
These sheets, when printed, are hung up on poles, or frames, to dry; and, when dry, are made smooth in a press, and put away.

Now a book contains a certain number of such sheets, which are properly gathered, and ranged, and afterwards go under the hands of the Binder; who first folds the sheets, then sews them together; and, when all the sheets of a book are so sewed, it is bound, or covered with leather, and ornamented, as we see them.

I must observe once more, that it is owing to the invention of this art, that one man has a power of communicating his thoughts to the public at large, and teaching what he knows himself; and that, if a man has leisure and inclination to study, he may profit by the knowledge of others; and thus, from books, if he have a memory to retain what he reads, be master of every science. When it is considered, what advantage men can derive from learning, how much they are respected, and what a wonderful light it pours in upon the mind, it is astonishing it should be so much neglected.

Printing 500 copies of the same book, will cost from about twenty shillings, to forty shillings, a sheet, more or less, according to the size of the type or letter; the smaller it is, the more words a page holds, and the more expensive is the printing. So that, if a book contains twenty sheets, at twenty shillings a sheet, the price of printing 500 copies will be twenty pounds; and the paper will cost nearly the same money.

THE ROPE-MAKER.



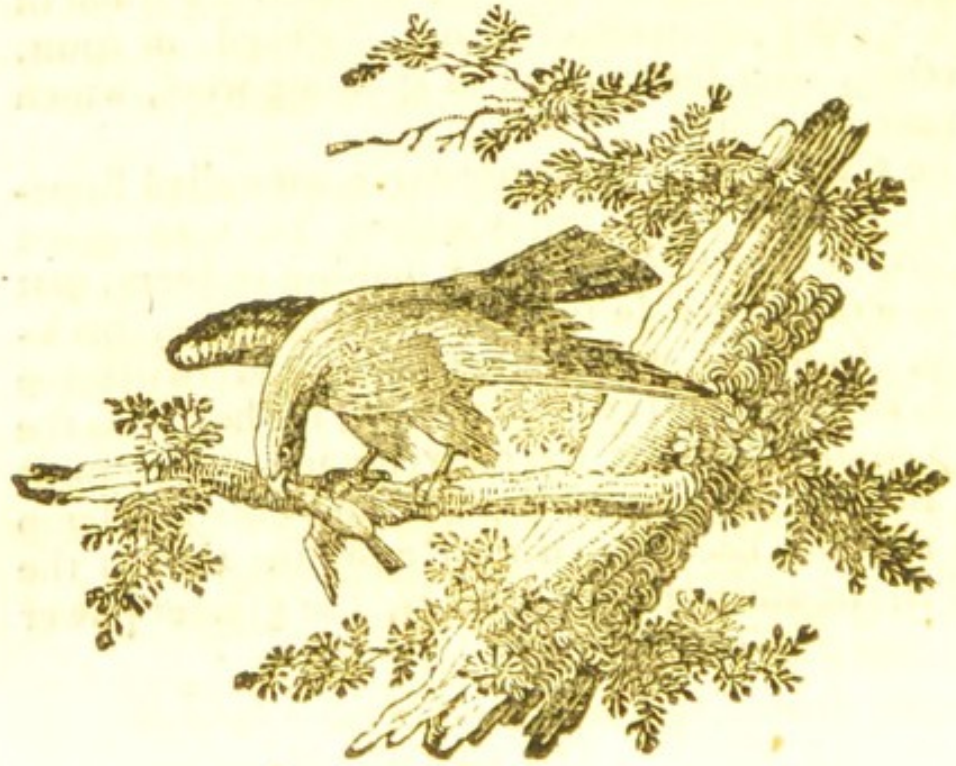
ROPES, or Cords, are so useful for a variety of purposes, that the making of them is a trade of itself. They are made of hemp, twisted, or spun, something after the manner of spinning wool, which we have described.

The places where ropes are made, are called Rope-walks; for, as ropes are required of very great lengths, it is necessary, in the making of them, that a man should be able to go a great distance, backwards, from his wheel, that turns and twists the hemp, as he draws it from his waist; for he winds the hemp round him, for the convenience of pulling it out, and lengthening the rope, as he wants it. Hemp thus twisted, becomes strong; and, the thicker the cord is, the stronger it is; that is, the greater power

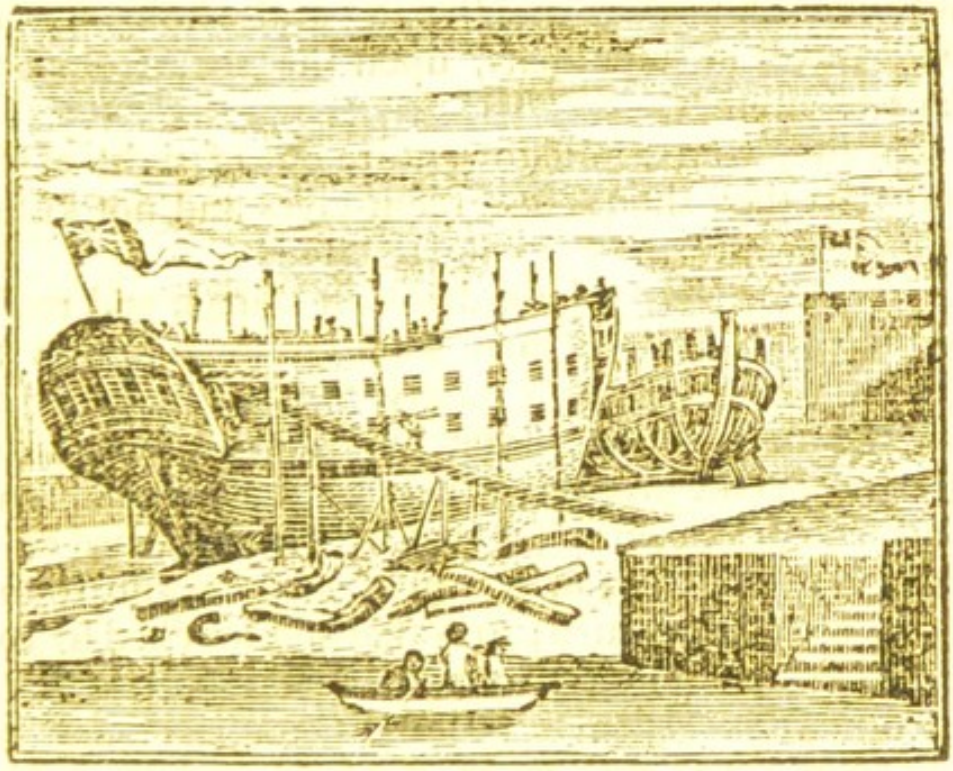
or force it requires to break it. A man, turning the wheel, is seen under the shed behind,

Cord being made for a number of purposes, all sizes of cord are required, even from a packthread, to a cable of a ship. Packthread is that small twine, a little stronger than a thread, that ties up small parcels; and a cable is that large rope, greased with tar, to preserve it from the water, that fastens ships to their moorings, that is, to the land, that they may not be carried away by the wind, and the waters.

Nets are made with small cords, and larger ones are used for tying up of packages; and ropes, of all sizes and dimensions, are used for shipping. A ship's cable, which is a rope of some hundred yards in length, is sold by the pound weight, and shall be worth several hundred pounds in money. A cable of any great size, is made by twisting several smaller ropes together, tarring, or greasing it over, with a kind of grease, called Tar.



SHIP-BUILDING.



AMONG all the inventions of man, the greatest and most stupendous, is that of a ship, that travels on the water. Man having found out the way of travelling from one place to another, upon land, his restless mind would not leave him quiet, till he could reach the utmost boundaries of the earth, and see what was to be met with beyond the watery ocean. Finding that timber would float, he first hollowed out a tree, put it into the water, and, with a stick, or pole, in each hand, paddled about the shore; and found that he could, in this boat, go many miles in one day; and, discovering that the wind considerably increased the motion of his vessel, he invented a sail; that is, he fixed a stick upright in his boat, spread a cloth upon this stick, on which the wind blowing had more power, and drove him on at a greater rate, than he could go before. This was the origin of a ship. When men perceived that they could direct a boat,

driven on by the wind, and could go great distances in a very short space of time, they built larger boats, large enough to sleep and live in; and whole families could travel in such boats, upon the sea, from one place to another.

But they were afraid to venture out of sight of the land, lest they should lose themselves and not know whither to return.

God, however, who ordains all things, and made the sea for the use of man, soon taught him how to traverse the ocean with safety. He discovered to him, the use of the loadstone, which is a stone that has this wonderful property, that, by touching the end of an iron needle with it; that needle, if placed on a pivot, like the hand of a watch, so as to run round easily, will always turn; so as that end touched by the loadstone, shall constantly point to the North. This instrument is called, a Seaman's compass; and taking such a dial with them, if a boat sail from the North, ever so far out to sea, this needle always pointing to the North, though the person in the boat should lose sight of the land, by sailing the way to which the needle points, they will be sure to go back to the place from whence they set out.

On the discovery of this instrument, men were not afraid to venture out of the sight of land; and accordingly began to build larger vessels, to contain a great number of people, and sufficient provision to support them for several months; if the voyage or journey they intend to make by sea, would take up so much time.

The art of conducting a ship, is called Navigation; and men have brought this art to such perfection, that they will now go voyages, and traverse the globe from one part to another, without seeing land for many months. By this compass they know which way to go; and, by the sun and stars, they can always tell where they are.

Shipbuilding is now a very considerable profession. Ships are made of all sizes, from one that will carry ten men, and their provision; to one that will carry 100 men, besides a vast quantity of merchandise, which merchants transport for sale, from one part of the world to another. For the world, as will be shown by and by, consists of earth and sea. The sea divides the earth in many parts; and, were it not for the use of ships, one part of the world would have no communication with another, and we should be deprived of many of the indulgencies that are brought us, by sea, from distant countries.

A ship is a floating house, built so strong and firm, as to resist the power of the waves, and make head against storms and tempests. It is made sharp at bottom, to cut its way through the water; and has a number of poles, or masts, fixed up in it, on which the sails are spread, by which the wind drives it along.

The ship here represented is a ship of war; and the holes in the sides are made for the convenience of putting out the mouths of cannon, in order to fire at any enemy's ships, that shall presume to attack it. For war is carried on by ships at sea, as well as by forces on land, as will be shewn.

This huge vessel, larger than a house, is built with wood, and the joints are so well closed, that no water can enter; unless it should run aground, or strike against a rock under water, which accident may make a hole in its bottom, and sink it. In this case, the persons on board are generally drowned.

In order to build this ship, the sharp bottom is first laid on a groove, by a river side, slanting to the water; and, as the sides are boarded up, to prevent its falling down on either side, it is propped up by long posts. Thus it is kept upright, till it is completely

finished; and, then the props being beaten away, the ship slides gradually into the water. This a ship-builder calls Launching a vessel; and it is so curious a sight, that great numbers of people go to see it.

SCULPTURE.

THE mind of man is ever at work, always contriving, always thoughtful. When he had made every thing that was useful and convenient, and improved these things to the utmost, he next exercised his fancy, and gratified his taste, at leisure times and hours, when he was not more necessarily employed.

Ambitious to copy after the Deity, whose imperfect image he is, he took up his creative power, and made an attempt to form his own likeness. This introduced Sculpture. With the assistance of chissels, hammers, and compasses, he carved out the figure of a man, from a block of wood; and from fine ideas of proportion, fashioned him in the utmost elegance and

perfection, giving this block every degree of animation, but life. This he cannot create. Life is the gift of God alone. He it is that gives it, and he it is that takes it away. If then there be any pleasure in life, how grateful ought we to be, to him from whom we received it !

From the figure of a man, the Sculptor proceeds to that of other creatures ; and, with his compasses, chissel, and mallet, is able to imitate the beasts of the field, or other forms his fancy may suggest. Wood is perishable ; but, finding stone of a more durable nature, the sculptor, who wishes to transmit his works to future ages, carves out his images in stone. This is a more difficult labour, but is performed in the same way, by similar tools. Great blocks of stone may be sawn in two, and the chissel will give it any form the sculptor pleases.

The Grecians, who lived many hundred years ago, and of whom there are little remains, but their works, were the finest scuptors in the world. We have arrived to great perfection in this art, but have never equalled them: Were it not for the numberless statues which have been found buried in the earth, in their cities, which have been, ages back, swallowed up by earthquakes, and which have been dug up in great perfection ; and were it not for many of such statues that were erected in their time, and are standing at present, we should have but an obscure idea of their skill ; but their works proclaim their excellence, and teach us, that though men shall not outlive a hundred years themselves, their works shall live many centuries after them ; and the great grandsons and descendants of such men, shall view and contemplate their ancestors, in what they have left behind them.

The city of Herculaneum, in Italy, was overwhelmed, or buried, by an earthquake, seventeen hundred years ago. The ground has been opened in the course

of the last century; and many beautiful stone statues, and pieces of antiquity, have been found, and are now preserved in different parts of the world.

The sculptors of the present time are chiefly employed in perpetuating the memory of the dead, erecting monuments in churches, at the desire of their friends; and equestrian, or other statues, in public places. Many such monuments may he seen in Westminster-Abbey; and such statues, in great cities. But, at times, they engage in other works; as ornamenting chimney-pieces, architecture, which is embellishing the fronts of buildings; and these artists are called Statuaries. Monuments cost from 20l. to 2000l. according to their size, and the number of figures.

Carvers are those who cut ornaments in wood, who carve picture-frames, chimney-pieces, mouldings of rooms and such like. These men work with iron tools, such as chissels, hammers, &c. Picture-frames, and carved mouldings, are sold by the foot, from 3s. to 10s. or more, according to the richness of the work; but ornaments to looking-glasses are sold by the piece, and are often very expensive. When carved, they are either painted or gilt, by Painters or Gilders. The gold they put on is solid gold, beat out between pieces of bladder, till it is so thin, that it will fly before the breath. The carved work is first covered with a size, which, before it is quite dry, is sticky; the gold-leaf is then laid on, and, when it is quite dry, it is polished with an iron instrument.

PAINTING.

FROM cutting out a figure in wood or stone, man proceeded to give the same resemblance upon canvas, and this is called Painting. Painting, Sculpture, and Engraving, are called the Fine Arts. By means of various coloured paints, and the assistance of a brush, called a Pencil, the painter is enabled to copy, or imitate, any thing he sees, and represent in a picture, a landscape, men, and the likeness of any individual. By tints, by certain lights and shades, he can represent any thing his fancy shall suggest; and, if that fancy be a sublime one; that is to say, if his ideas and thoughts be grand, he can, from his own mind, knowing how to form things, represent a scene of horror, or a picture of delight. He can, by his pencil, communicate those ideas to the eye, which a good Orator, by words, can convey to the ear.

The Portrait-painter paints likenesses of certain persons, and thus, by pictures, keeps up the memory of them in their descendants. The effect of pictures is seen in this work Distant scenes and objects are brought home to the eye, and we are taught a variety of things, of which, otherwise, we should have had but an obscure notion.

Pictures in oil, that is, when colours are mixed with oil, will stand for years, and bear cleaning : but pictures in water-colours will rub out, and require covering with a glass.

Painting, like sculpture, was performed in greater perfection formerly, which is the reason that fine old pictures, the painters of which are dead, are in high value, and will sell for a deal of money.

Pictures might be multiplied by painting, but that would be very troublesome and expensive. There are two methods, however, of producing cheap copies of pictures ; one, by engraving them on copper ; the other, by cutting them on wood, as the cuts are, in this work.

The engraver, having copied the picture, or drawn it upon a copper-plate, traces the lines, and hollows them out with a sharp iron tool, called a Graver ; and, when the plate is completed, the hollow lines are filled with ink, the plate is put into a press, a paper is placed over it, and, being tight squeezed, the impression is taken off on the paper. This mode of engraving is more expensive than that of cutting upon wood ; which is done by fine iron tools, like chissels. The picture being thus copied, the prominent parts of the wood being blacked with ink, the impression is taken off by pressure, in a printing-press, to which I must refer.

The art of painting is so general, and brought to such perfection, that even the passions of men may be represented on paper ; and all the ideas which

these passions raise, will be communicated to the eye of the spectator. This is visible in many of the prints in this work; as in tbe print of Men, void of Reason, (Page 69) and many others.

TRAVELLING on SNOW, or ICE.

IN some countries of the world, which are so cold, as to be continually covered with ice and snow, as in Lapland, and some other places, there is no possibility either of travelling in carriages, or in vessels. The snow lies very thick upon the ground, all the year through; and, though it will, when frozen, bear the weight of a man, it will not bear the weight of a heavy carriage, on wheels: and, as to the rivers, they are always so frozen over, that no vessels can pas on them; and further, as no corn or grass will grow in such a cold place, no horses will live there.

These are great disadvantages to the country, and the inhabitants there lead a wretched and uncomfort-

able life: but God, who has ordained this, has given them some advantages, in lieu of those he has deprived them of. The ingenuity of man has still contrived means to travel, in this country, from one place to another.

The Laplanders have invented a pair of snow shoes or scates. These are pieces of board which they fasten to their feet, and on which, by help of a long pole, with a wheel at the end, they are able to push themselves along, at a very great rate.

A Laplander, in these snow-shoes, will overtake a wild boar, let him run ever so fast; and travel faster than a horse, in this country, can gallop.

The rein-deer, in Lapland, is an animal much like our deer, hut, used to a cold country, will live in the snow, seek its food by smelling it, and scraping away the snow from the ground where it grows. These animals the Laplanders have trained up to draw, like a horse; and, instead of a carriage on wheels, they have contrived a sledge, like a boat, which glides upon the ice, into which they get, and can thus travel very quick; for a rein-deer will draw such a sledge on the ice, with a man in it, twelve or fourteen miles an hour.

Laplanders will sometimes remove their whole families in such sledges; and will hunt animals in their snow-shoes, in which they travel so swift, that nothing can escape them.

SCATING.

IN other countries, when rivers and canals are frozen over, in the winter season only, the inhabitants of one town will, by means of a pair of scates or thin iron bars fastened to their shoes, travel to another, with great ease and expedition. In Holland, a poor woman will take her basket of eggs, and scate away in a morning to market, to sell them, at the distance of twenty or thirty miles, and return home before dark Nay, so fast will a person, used to scating, get on, that they will thus travel twenty miles in an hour.

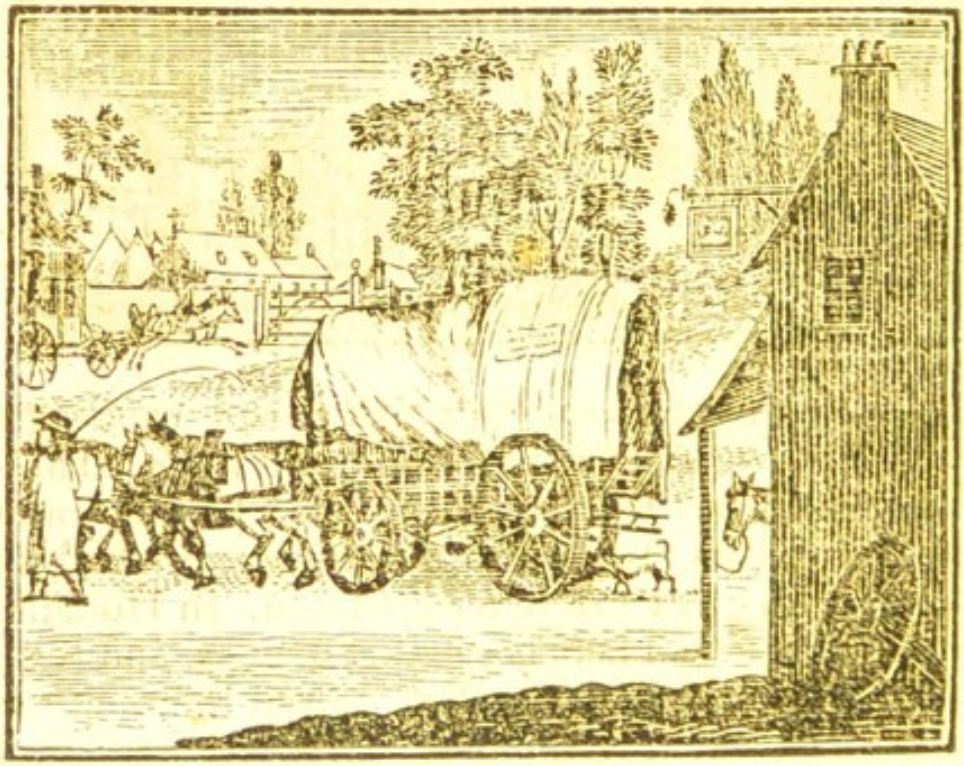
Goods are likewise, in such places, conveyed, from town to town, on sledges, drawn by men, and sometimes by horses.

But, in warmer countries, places where rivers are not so often frozen, and where travelling on the ice is not so general, scating is made an exercise or diversion, often attended with danger : for the ice will

sometimes give way, and break, and the scater shall be drowned.

It is a difficult thing to scate well; and a learner, like an infant trying to walk, will be some time before he can balance himself, and stand firm on the ice: but, when he has once accomplished it, he has little to fear from falls; and an expert scater will glide over the ice with great ease and elegance.

TRAVELLING BY LAND.

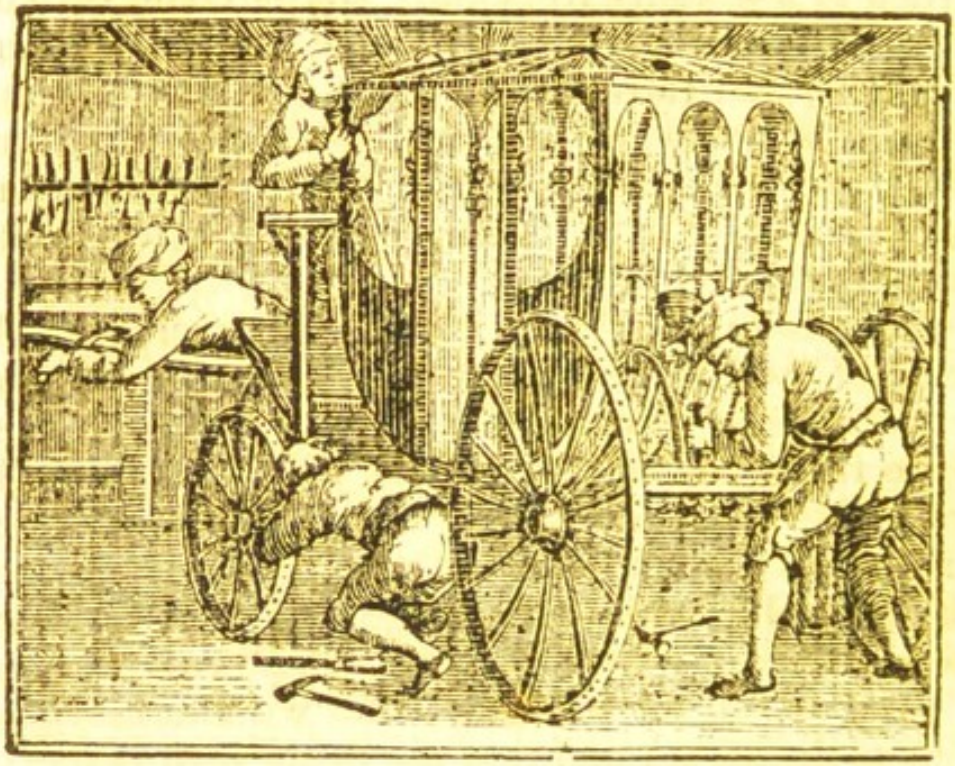


MAN, at his first creation, was, by necessity, confined to such a spot of earth, as he could travel over, in one day, on foot. Having built him a house, and established a home in a particular place; not being able to carry his conveniences with him, he could not well travel further, than to a distance from which he could return to his home at night. But, as mankind increased, as his family grew numerous, and the spot where he resided was barely suffi-

cient to support a few, certain parts of his family settled at a distance from him; and he could then be absent for some days, as he could find that entertainment, and those conveniences, at the dwelling of his relations which his own home afforded him. Thus could he travel to a little greater distance than before; but still, no further than his feet could carry him.

As families, however, spread and covered whole tracts of country, if a communication were wanted between them, it was necessary to contrive carriages to go from one place to another; and the strength, greatness, and tractableness of the horse, pointed him out as the animal best adapted to draw such carriage. One improvement upon another, invented the carriages of the present day. They are fixed upon wheels, to roll on with ease, and without much labour to the horse; and they are made with covers or without, according to what they are used for. Carriages to convey men, are made to shelter them from the cold; but carriages to convey goods, do not always require coverings.

THE COACH-MAKER.



THIS kind of luxury or indulgence introduced the trade of a Coach-maker, which, till within these 200 years, was not known. Before this time, men of the first rank travelled on horseback; and we are told, that queen Elizabeth, when she went to the parliament-house, rode behind her chancellor, on a pillion. Coaches, and a variety of four-wheeled carriages, are now the fashion of the times; and to so great an expence do men of fortune go in this particular, that they will change their carriages, before they are worn out, for more fashionable ones, as they will their furniture or their clothes; and will pride themselves as much in a gaudy coach, as in a stately mansion. A stage-coach is built, or made for about eighty pounds; though a plain gentleman's coach cannot be purchased new for 140l. Yet, for additional ornaments and painting, more than 1000l. have been given for such a coach.

The great art in forming a carriage, is to make it light and durable; that is, to make it last for some years. The wheels soon wear out; but new wheels are often put to old carriages. The coach-maker employs various workmen, of different kinds; and, as the watch-maker, or watch finisher, who, having got all the parts of a watch, made by different workmen, puts them together, and thus completes the watch; so the coach-maker, is, as it were, the finisher of the carriage, putting together the several parts made by different branches of business.

A carpenter first makes the skeleton of the body, with wood; which done, it is covered with leather, prepared by the Tanner; and lined with cloth, the manufacture of the Clothier. The windows are prepared by the Glazier; the iron-work, by the Smith; the brass-work by the Brazier; the wheels by the Wheeler; the harness, by the Sadler; and, when the whole is completed, it is ornamented by the Painter and the Gilder.

Thus we see, that even the extravagance of some men, tends to the support of others. Were men to content themselves with merely the necessaries of life, there would be no occasion for coach-makers, gilders, painters, and a hundred other professions, which now find sufficient employ.

There are various kinds of four-wheeled carriages, built for pleasure; coaches, landaus, vis-a-vis's, landaulets, chariots, post-chaises, phaetons, some open, some covered, some carrying two persons, and some four. Nay, there have been carriages contrived, to carry a bed, a table, and chairs, and other conveniencies; and are, in fact, like rooms drawn upon wheels. The empress of Russia travelled in such a machine. It does not roll, indeed, upon wheels, but slides upon the ice; and, as she was so drawn by twenty-four horses, she travelled with the greatest expedition.

When men found the pleasure of social intercourse, the delight of visiting their friends at a distance, and of enjoying the country round them; they next wished to benefit by trading with each other, to convey to their friends such things as they had, which the others were without; and to bring back from such friends, necessaries enjoyed by them, which they themselves wanted. This introduced trade and commerce; and, where the roads were passable, goods were carried to and fro, by land-carriage.

The carriages of this country, for goods, are waggons and carts, drawn generally by horses, and sometimes, by oxen. Horses travel swifter than oxen; but oxen are maintained at least expence; of course, are sometimes used by farmers; for, if any accident, such as breaking a leg, or the like, should happen to an ox, he can be killed, and sold to the butcher, as meat. Not so with a horse; when dead, no part of him is of any value but his skin.

Carriages for pleasure, and to convey passengers, are coaches and chaises. But, it is impossible to travel far in a day, or to travel at ones ease, unless the roads be good. This has introduced the making of good roads in every country; and public houses of accommodation, called Inns, all along such roads, are erected; where a traveller, if he have money in his pocket, can sleep, eat, and drink, have fresh horses and carriages, and every comfort; the same as at his own house. Inn-keepers live by accommodating travellers; and of course, study their convenience.

High-roads are made, between place and place, all over the kingdom, called Turnpikes; and, to keep them in repair, gates are erected at certain distances; in passing through which, travellers pay a small sum towards the expences of the same.

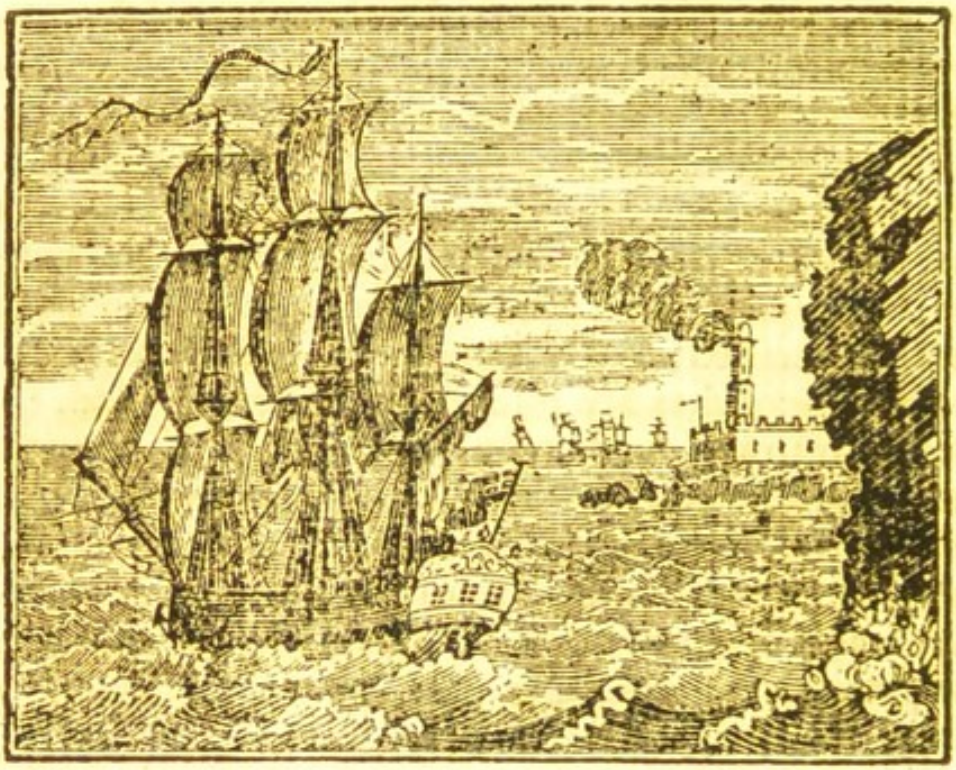
The horse is thus rendered one of the most useful animals in nature. He is governed by reins, made

obedient to the voice of the driver, and will draw, in a waggon, thirty miles a day; and, in a coach or chaise, fifty miles. But, by changing of horses at certain distances, a traveller may be carried one hundred miles a day with ease.

The great roads of this kingdom lead through all the principal towns; and, upon every turnpike-road are found, Blacksmiths, to shoe horses; Wheelers, to repair carriages; and Surgeons, ready to attend, on any accident that might happen to the traveller.

Stage-coaches are established on every road, from town to town, to convey passengers, in company, at a small price; and road-waggons, to carry goods and parcels: by which means, a communication is opened between all the towns in the kingdom; and the trade of one town is carried to the market of another; and carriages may be seen, passing on these roads all the day long.

TRAVELLING BY SEA.



HAVING found out a method of travelling on land, man wished to extend his journeys, and to visit distant parts of the world; but, when he had travelled to the land's end, and found himself hemmed in by the water, his next contrivance was, how to traverse that water, and reach any place that might be beyond it. Finding that wood would float, he hollowed out a tree, put it into the water, and got into it; invented an oar and a sail, and thus found he could make his way, either with the wind, blowing upon such sail, or by the help of an oar or two, paddling in the water. This simple invention he called a Boat: but, when he had proceeded thus far, his ambitious views urged him to go further. This led the way to navigation. He constructed a ship, something like a house, in which he could live upon the sea, for some time; and contrived various means of

carrying that ship safely, to great distances, over the roughest seas.

In consequence of the invention of the seaman's compass, which I have described, ships are built, that will carry a thousand men, and as much provisions as will support them for six months: and, thus equipped, they will travel, and carry goods to the farthest parts of the world, at the rate, sometimes, of nine miles in an hour. Methods have been contrived to steer, or guide these ships; and men can now travel as safely by sea, as by land; and, by looking at the sun, and other means, they can always tell, though out of sight of land, where they are, and how far they have travelled. A journey by sea, is called a Sea-voyage.

For the convenience and safety of ships, that are to be loaded and unloaded, there are certain secure places, on the borders of the sea, where the water is deep, and where these ships can come up close to the land. Such places are called sea-ports; and towns are built in such places, for the convenience and accommodation of those who are concerned in shipping. These parts are discoverable in the night, by light-houses, that are built on the shore; which is a kind of high tower, with fires burning on the top, which may be seen, by ships, a great distance at sea, and shews the persons in that ship, the way into the port.

Now, as merchandise, or goods, are conveyed over land in carts and waggons, so they are conveyed over sea in ships; and a trade and communication is carried on, with people living in the most distant parts of the world. The produce of one country is thus carried to another, and the people who have not conveniences in their own country, are thus enabled to procure them from other countries.

Ships, though well built, will sometimes, by accidents unavoidably break to pieces, or take fire, whilst at sea, and sink; in which case, the people in those ships are drowned and lost. But, such care is taken, and such provision made against these accidents, that we seldom hear of them.

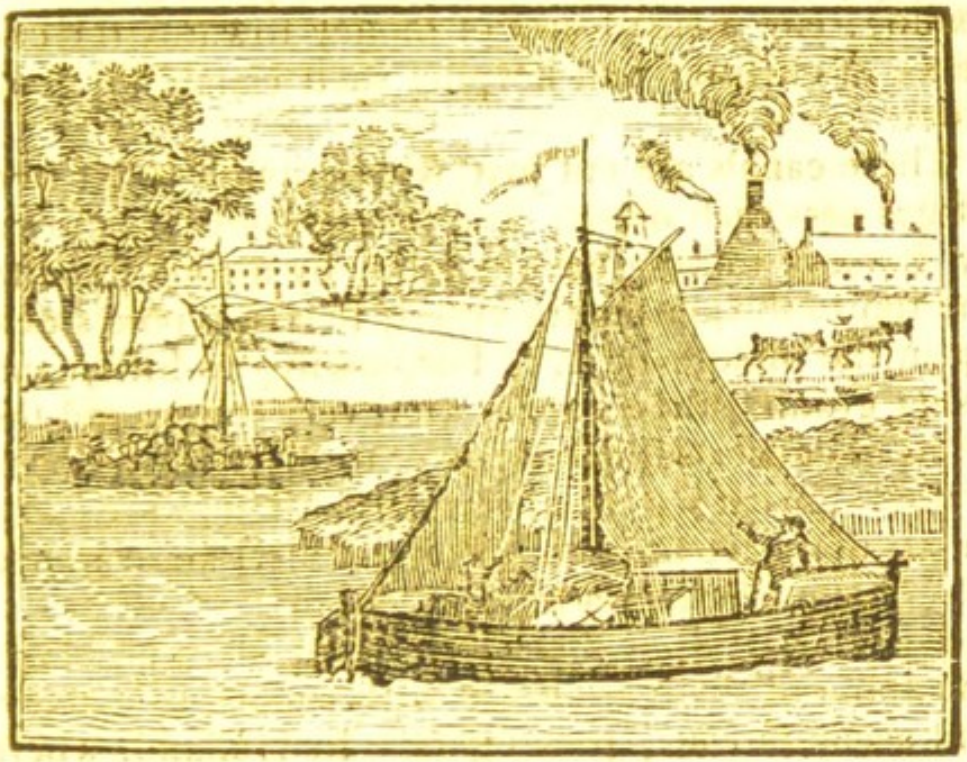
In such ships, though not larger than a small house, four or five hundred men will live comfortably for many months; for, as they take live cattle, provisions, and liquors of all kinds with them, and every conveniency they have occasion for, they know no want.

Seamen, having a compass to point out the way they are to go, hoist their sails, which are large cloths spread out to receive and hold the wind, that drives the ship; and direct it, by means of a rudder, or a long tail-board, behind, and at the bottom of the ship, under water, which they can turn as they please; and, by acting against the water in its motion, can steer, or turn the ship, at pleasure.

When ships are come to the end of their voyage, and have entered the port, the anchor, which is a large iron hook, with a cable, or strong rope, fixed to it from the ship, is thrown into the sea; and this, catching fast hold of the ground at the bottom, when the sails are taken down, prevents the ship from being carried away by the wind and waves; and here it lies, till it is brought up to the quay, or land adjoining, unloaded or filled again, for its next voyage.

A ship, fitted out for sea, will cost from 500l. to 100,000l. according to its size. Merchant-ships, in general, cost from 500l. to 2,000l. men of war, or fighting ships, from 20,000l. to 100,000l.

TRAVELLING BY CANALS.



HAVING found a method of conveying goods by land and by sea, the next contrivance of man, was to make an improvement on land-carriage.

It was found, that a certain weight was easier moved, when floating upon the water, than when on wheels on the land; that one horse could draw as much weight upon the water, as twenty horses upon land; and, of course, if goods could be conveyed from one town to another by water, it would be far cheaper than to send them by land.

Turnpike-roads, for the convenience of land-carriage, having been made from one place to another; it was next determined, where there was no river deep enough to let vessels pass, to cut canals, in all parts of the country, where the ground was sufficiently level for that purpose.

Such canals have been cut, in many countries, at private expence, in the same manner as turnpike-

roads were made; and at certain distances on such canals, gates are fixed, where vessels, passing and repassing, pay a small sum of money towards the expence of cutting, and keeping such canals in good order.

These canals are cut just wide enough to let two barges pass each other; and these vessels are drawn by horses walking on the land, by a rope fixed to the top of the mast of the vessel; that is, a pole stuck up in the middle of it. For, owing to hills, and rising ground, these canals wind very much, and the wind has never sufficient power to drive them on, as it does ships at sea, by their sails. There are some canals that have been cut through hills, like an arched way, for more than a mile in length.

Horses will draw these barges four miles an hour; and some of them are made with rooms, to convey, and accommodate, passengers. In Holland, where there are such canals all through the country, the people travel no other way; and the barges there are so convenient, as to dine fifty passengers. Cooks and provisions are kept on board for the purpose.

That these canals may not, however, intercept the roads through a country, bridges are thrown over them, as over rivers, that carriages may pass across. As to the conveyance of timber it is not necessary to put this into barges. Trees will float of themselves; and the logs, or trees, being fastened together by ropes, form what is is called a raft; the conductor of such a raft will erect a shed on it, take up his lodging there at night, and eat his dinner there in the day; so that he will live on such a raft for weeks together. His business is, to shove the raft from the bends of the canal, or river, in case it should there lodge, and conduct it safely to the place it is going to.

Where there are no bridges over a river, horses, men, and carriages, are carried over in ferry-boats, so constructed as to take in a loaded waggon or two, horses and all.

When barges arrive at their journey's end, they are drawn up to a landing place, formed on purpose, on the bank of the canal, called a wharf; in the same manner as ships are brought to a quay, in a sea-port.

The articles conveyed in barges, by rivers and canals, are corn, hay, lime, coals, iron, and other heavy goods, which would be very dear, at the place they were carried to; if conveyed, by land-carriage, in carts and waggons.

Barges will cost from 50l. to 200l. according to their sizes.

THE

PROGRESS OF MAN AND SOCIETY.

PART IV.

THE EARTH.

THERE are four elemental parts of the globe, that is, parts of which the earth consists, namely, Earth, Fire, Water, and Air. Of the earth we shall now speak. From this, every thing springs, and to this, every thing returns. Whatever is in being, has its origin, as we have seen, in the earth. Hence it is called, the Mother-Earth; and whatever exists, when it moulders into dust, becomes earth again. Man, when he dies, rots in the grave, and of course returns to the earth, from whence he sprung, God having formed our first parents of the dust of the earth.

There are not only animals living on the surface of the earth, but there are many that bury themselves within it, and live under ground, such as Worms, Maggots, Ants, Moles, Rabbits, Foxes, and others, for the three great elements of the world, earth, air, and water, are fully peopled; earth, with men and animals; air, with birds and insects; and water, with fish.

Now, earth is composed of a variety of matter, mould, clay, sand, marble, stone, chalk, coals, silver, gold, tin, iron, copper, precious stones, saltpetre,

brimstone, and other things. No wonder then, as fire always exists, that this fiery matter should sometimes blaze out, and convulse the world.

Whole towns have been thus over turned, and people buried in their ruins. Sometimes the earth will open, and all things that stand or grow upon it, sink down, and be swallowed up, whether trees, houses, or cities. Whenever such an accident happens, it is called an Earthquake. But even the shaking of the earth will tumble down, all the edifices erected upon it.

EARTHQUAKE,

AND CONFLAGRATION.

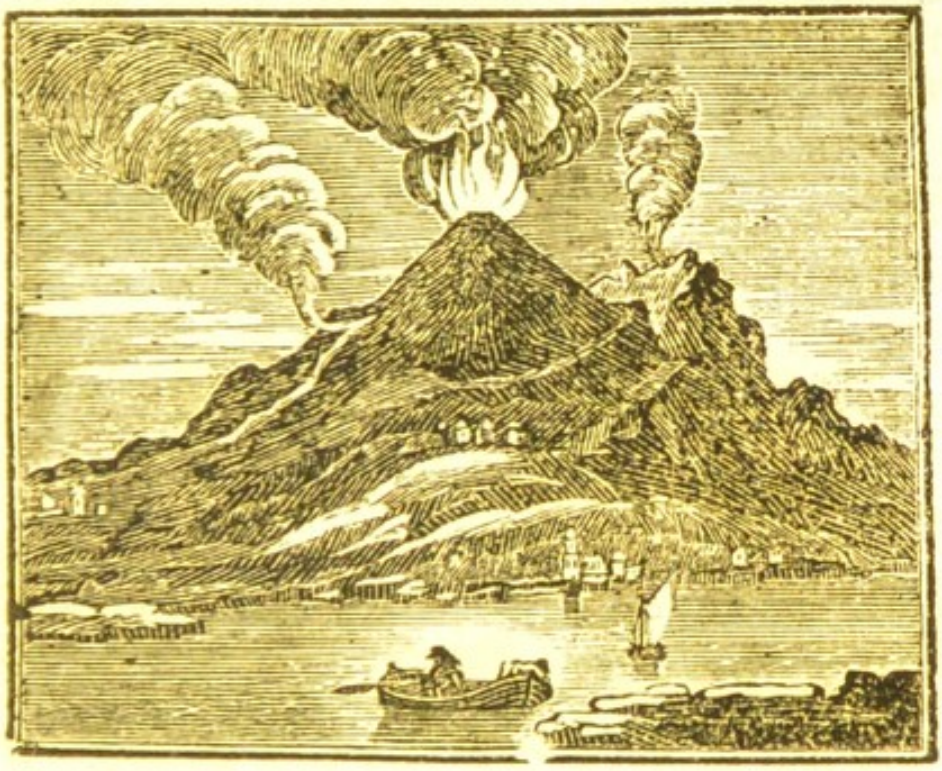
THE city of Lima, in Peru, and the city of Lisbon, in Portugal, were swallowed up, in very late years. Many of the buildings were entirely buried, and many, half buried. In some earthquakes, churches have sunk, so as only to leave their steeples above

ground ; and men have experienced the same misfortune ; the earth has opened, and fire has issued from its rifts. Some have sunk to their waists, and the earth closed in upon them ; some to their chins, and have been dug out alive ; and others, have been wholly covered and lost. Fire, thus issuing from the earth will sometimes consume what the Earthquake has not overthrown. Such consuming fire is called a Conflagration.

When the earth is so convulsed and torn, it is not very wonderful that, in course of time, it should undergo changes ; that new islands should appear in the ocean, and old ones sink and disappear. This has sometimes been the case, for islands are no other than the tops of hills or mountains, reaching above the surface of the water, whose foundations are at the bottom of the sea ; and, of course, if the mountain sinks, its top falls below the water, and the island disappears : and so, if a mountain, whose top is just below the water, should swell, by any inward convulsion, it would rise above the surface, and this would be a new island.

It is owing to earthquakes also, that many places which have been dry land, are now covered with the sea ; and many places where the sea was, are now dry land.

A VOLCANO.



FIRE is the second great elemental part of the globe, of which the world is made: and, in particular countries, where such a quantity of fiery matter is lodged in the bowels of the earth; if it were not for certain vents, the fiery parts within would tear the earth beyond conception. But it so happens, that it often bursts its way out at the tops of certain mountains, which are called Volcanos, or Burning-mountains. These are a kind of chimnies, that are hollow to a very great depth, and serve to give vent to the fire beneath. Were it not for these Volcanos, there would be continual earthquakes in such places.

There are three remarkable Volcanos in the world; Mount Vesuvius, at Naples; Mount Etna, in Sicily; and Mount Hecla, in Iceland; besides many others, not so well known. Their flames may be seen at night, at the distance of fifty miles; and

the light they give to all the surrounding country is astonishing.

Sometimes these Volcanos will throw out only smoke; at others, they will vomit out flames, cinders, and stones, to a great height, and do a great deal of mischief. They will also, at times, throw up a great deal of liquid fire; a kind of melted pitch and brimstone, that will burn for a length of time, and run down the sides of such mountains, like a flaming river.

In the neighbourhood of Mount Hecla is a boiling fountain; water heated in the bowels of the Volcano, and spouted up, at the bottom of the mountain, thirty feet high.

At Bath, in our own country, we have such a hot spring, where the sick bathe, and are often thus restored to health. The water there, in some places, is so hot, that we cannot bear the hand in it.

The usefulness of fire is very well known. It is the fire of the sun that gives light and heat; and it is fire that occasions wind, which is also of the highest use to man. In short, the uses of fire are so very necessary to the existence of every thing, that we can only pray to God to keep it within due bounds, and not suffer it to rage to the destruction of the world.

When God has been disposed to punish the sins of a nation, he has made earthquakes and fire the ministers of his vengeance; and has thus laid waste a whole country, as I shall have occasion hereafter, to mention more particularly, when I speak of the punishments of heaven.

Fire, like air, pervades and exists in every thing, the light of the sun may be collected into a point, by suffering it to shine through a glass; and that point will be fire, for it will burn what it touches. Strike a flint-stone against steel, and it will produce fire. Rub two dry sticks against each other, and it will do

the same. Phosphorus, which is made of burnt flour, will catch fire of itself, when exposed to the air; and, by pouring a certain cold, sour liquor, into cold water, that water will instantly boil; and, if man himself is electrified, which is a philosophical preparation which cannot here be explained, fire will come out of him; for, if he touch spirits of wine with his fingers, he will instantly set it in a blaze.

So wonderful are the works of nature, that man may well stand amazed at what he sees. They are so far beyond his comprehension, that he can only acknowledge his own littleness, and admire the greatness of the God above him!

AIR.

AIR is the third great element of which the world consists, and so necessary to the existence of men and animals, that they could not live without it. It is what they breathe, and, of course, is the very means of life. Put a mouse or a bird under a large glass, draw out the air from within that glass, which can be done, and the mouse or bird will instantly faint and die. Even fire will not burn without air.

Air is a fluctuating body, and undulates, or flows, like the waves of the sea. Now it is the property of fire, to expel, or drive away, air; so that, if a fire be made in any place, it heats that place, expels the air about it, and the adjoining air, rushing in to fill the place which the heated air had left, causes a draught of wind; and it is on this principle that wind is accounted for. In countries where the sun is very powerful, much more so than with us, and is very hot, it expels the air; and the air from other parts of the world rushing in, where the heated air is expelled, causes that draught, or flowing of the air.

which we call Wind. Make a fire in a room, and the air will rush from the windows, and the doors, and occasion a draught of air, which may be felt by a person sitting near the fire; and hence it is, that people so often catch cold; as between the windows, or the doors, and the fire, is, in fact, the coldest part of the room.

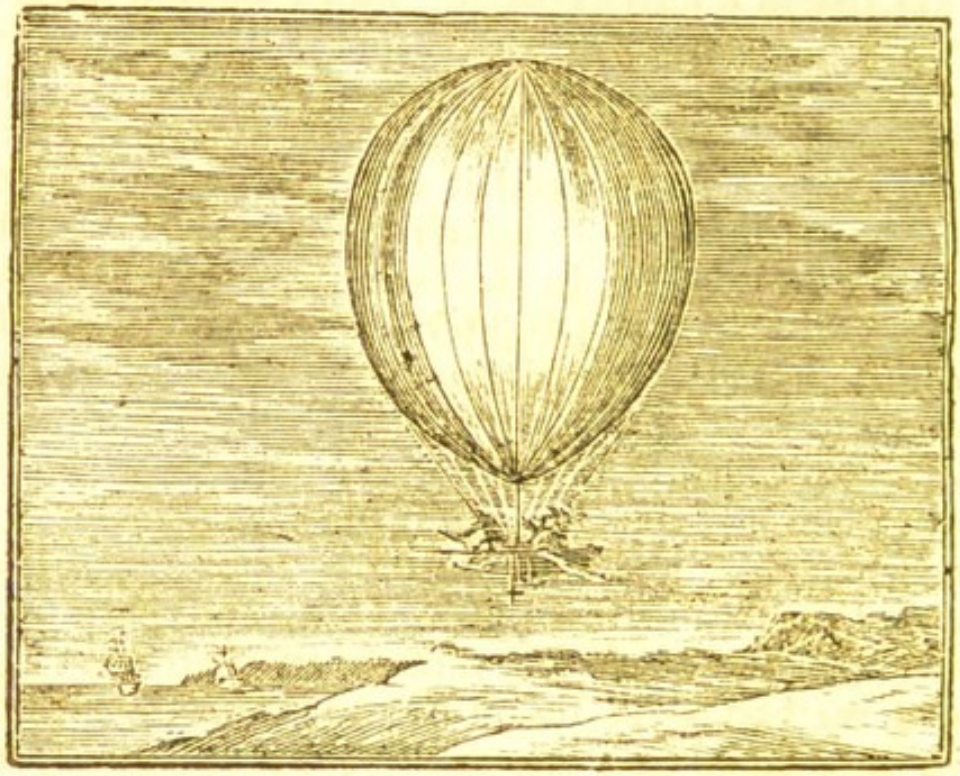
That the air is a floating body, may be known by looking at it through a magnifying-glass, by which instrument it may be seen; but, were it visible to the naked eye, it would intercept the sight of man; of course, Providence has ordained it otherwise: but, it is such a body, and so powerful a one, that it will drive ships before it, by blowing forcibly on the sails; tear up trees by the roots, and overset houses. When the air or wind is thus violent, it occasions Storms and Tempests; the first is a high wind, on land, that destroys every thing before it; and the second, a high wind at sea, that overturns, and sinks ships. At such times, the wind is dreadful.

At other times, it will occasion whirlwinds, which are, wind blowing round in a circle, so powerfully, as to carry very great bodies up in the air. These do not extend over very large Tracts of land; but yet, have been known, in hot countries, to tear up trees by their roots, carry them into the air; and take up ships near the coast, and hurl them upon the land. Such violent whirlwinds are called Tornadoes.

But, though winds, when boisterous, are such scourges to mankind, they are, when moderate, highly beneficial and useful. By them, Providence has enabled men to traverse the vast ocean, and keep up a communication with islands, and the most distant parts of the world. They turn windmills, to grind corn; they also carry the clouds, which, in hot countries, where the heat of the sun parches the land, refreshes it with seasonable rains.

TO comprehend this, it must be observed, that it is a law, or rule of nature, that a light body shall always rise in a heavier one. Thus, force a piece of wood, or cork, under water, quit it, and, as soon as it is at liberty, it will rise to the top or surface, because wood and cork are lighter bodies than water. Pour oil into water, and it will rise, and swim on the top, because oil is lighter than water. So smoke will rise in the air. In the same manner, a bladder, filled with air that is lighter than the common air, will rise in the common air. It is thus that Air-balloons, which are large bladders, filled with light air, are powerful enough to draw up a great weight with them into the air; and boats have been hung to such bladders, and men, in these boats, have been carried up two or three miles high, and have been blown, by the wind, fifty miles in an afternoon: but, as no method is yet found out to guide them in the air, they serve only to excite curiosity, and divert the people.

AN AIR-BALLOON.



IT is on this same principle that water, in very small quantities, is drawn up into the air, being lighter than the air, where it forms clouds.

It is air also that causes man to hear. Being put in motion by the voice, the air flows, like water, to the ear of those within a certain distance, strikes on the ears, and causes that sensation which we call Sound.

This element, like that of earth and water, is peopled with animals. I mean all the winged tribes, of various sizes, from the eagle to the gnat, and even to the insect that is invisible to the eye; for there are a number of insects flying about in the air, so small, that we cannot see them; so that we take down our throats, a number of creatures every time we breathe: and this should teach us, how little cause a proud, wealthy man, has to draw back from a poor one,

addressing him, lest his breath should offend him; when he is, every instant, breathing the foul air, and when, in every enclosed assembly of the people, at church, or at the play-house, this lordly creature is obliged to suck down, and breathe, that air that has already been down the throat, and in the lungs, of the poorest fellow-creature he withdraws from. At best, man breathes a tainted air, which the vilest animal breathes in common with him; and it is this breathing impure, infectious air, which sometimes causes sickness, and brings on disease.

WATER.

WATER is the fourth great element, or constituent part of which the earth consists, and without which, mankind could not exist. Neither men nor animals could live without drinking, nor would any tree, or plant grow without moisture.

Of water there are two kinds, salt and fresh. Sea-water is salt, and river water, fresh. The sea is that vast ocean, that divides countries, and on which ships sail from one part of the World to another.

This great water has many useful properties. It contains and affords innumerable quantities of fishes, of various kinds, for the food and use of men; and by its tides, it flows up the rivers regularly twice a day, into the land, thus conveying up vessels; and, by its ebb, or return, forms a stream as regularly twice a day, to bring them back again. Towns are built by the sides of rivers for the sake of this convenience. Sea water is loaded with salt, for various purposes in domestic life; but, the chief design of this salt, is to incrase the weight of the water, and

enable it to float heavy burdens, and prevent its stinking, which would infect the air, and render it unhealthy. But, as drinking salt water continually would he hurtful to man and beasts, it has pleased our all-wise Creator, to supply the earth with fresh water rivers; many of which run through a whole country, in deep channels, into the sea; and, by their streams, convey the produce and merchandize of one country to another.

In the ocean we may see the wonderful wisdom of God, who has confined the sea to certain bounds which it cannot pass; and though, in stormy weather, we shall behold it rushing mountains high, with the utmost violence on the shore, even where there are no banks, as if it would overwhelm the land; it shall no sooner reach it, than it loses at once, all its progressive or advancing power, suddenly dies away, and falls back into its channel. By certain currents or natural streams, in this great water, ships are conveyed from one place to another, along the coasts, even where there is no wind to blow them.

The use of rivers to mankind is various. They not only supply countries, at a distance from the sea, with fish, but the land with springs; for these fresh waters penetrate the earth, and the waters run through it in every part, as does the blood through the veins of the body of man; and we can scarce dig any where, but at a certain depth, we shall find fresh water, where, by leaving the hole open, it will collect, and form a well; the water from which is pumped up or drawn out, daily, for use. Brooks, or smaller rivers, flow into greater ones; and, in their passage, turns mills, constructed for various uses, as I have shewn, and thus save the labour of men.

In large cities, such a river is conducted, or turned through, an infinite number of channels un-

der ground, formed by trunks, or hollow bodies of trees, through the middle of every street in such city; and from such trunks is led, by leaden pipes, into every house. Without this convenience, what would the inhabitants of large cities do, for water, in case of fire? A whole neighbourhood would be burnt down; which now, owing to this supply of water, and engines, to throw it over the houses so burning, is presently quenched or put out. Country towns, which are not so blessed, suffer much more from fires than cities. Wells, indeed will supply families with water for some purposes; but this water is hard and not fit for washing linen; whereas rain-water is soft, and much more useful for many things Such persons as live not near a river, and have not the convenience of soft water, are obliged to contrive means to catch rain water, falling on the roofs of their houses; or make use of pond water, which, though dirty in its nature, is as soft as river-water.

Rain then, another wonderful provision of Providence, is formed by water taken up, by the air, from the sea, separating it from the salt; from rivers, and from vapors, or the dew of the earth, as I have pointed out. In the air it forms clouds, which are carried about, by the wind, to certain places, and there sprinkled over the land as wanted. Were the water of the clouds to be let down all at once, it would fall in torrents, and perhaps drown a country: but God has wisely ordained it otherwise; it is made to fall in soft, refreshing showers, and gives new life to every thing that grows: and this provision of nature is so regularly given, that all the world receives its benefit in due season. Without it, or with too much of it, the fruits of the earth would be destroyed, and a famine would be the consequence: a circumstance which does not happen in a thousand years, and never sent among a people, but, as a punishment from Heaven.

WHIRL-WIND AND WATER-SPOUT.

That clouds are formed as well from sea-water as river-water, is evident in Water-spouts, which are commonly seen at sea. This is a cloud, falling so low as to attract, or draw up the water into it; which it does in such quantities, that, were a ship to pass through one, it would break it, and the weight of the water falling on the ship, would probably sink it. Sailors, when they see one before them, generally fire a cannon at them, to disperse them, before the ship reach it. Such a water-spout has the appearance of a funnel, reaching into the cloud; the point touching the sea, which, under it, is generally agitated.

Whirlpools at sea, are certain circular streams, or currents, similar to whirwinds on land, that, if a ship, or boat go within it, it will whirl it round, and sink it. They are supposed to be owing to a

hole or opening, at the bottom of the sea, under, them, where the water has a passage into some other place; of course gives it an appearance at top like water, in the upper part of a funnel, when it is running out at bottom.

In hot countries, where rain does not regularly fall, Providence kindly interposes, and moistens the land with dew, which is a watry vapour, drawn, by the heat of the sun from the bowels of the earth; too heavy to be carried up into the air, and thus falling again on the surface of the land, and watering it. This vapour, if it rise three or four feet high, and is thicker than ordinary, is called a Fog, and may be plainly seen in a morning; and is easily distinguished from a mist, which is a thin moist cloud, that hangs so low, as to fall within two or three feet of the ground. In such a mist, by stooping down, we can see clearly under it; and, in a fog, we can often see over it.

Wells are generally lined with bricks, to prevent the earth falling into them; and, the water, from such wells, is often drawn out, by a windlass, a rope, and a bucket.

A PUMP AND FOUNTAIN.

But, the ingenuity of man has invented a pump, which draws the water up by suction, in the same manner as a syringe, or squirt, will draw water from a bason.

It is another principle, or property of water, to rise to its level; so that if we suppose a pond to be on the top of a hill, and a pipe or communication, to pass to the bottom of that hill, to cross a valley below, and be continued to the top of a neighbouring hill, equal in height, the water of this pond will, passing through this pipe, rise naturally to the top of the other hill. This is the method in which a Jet d'eau, or fountain is made. The reservoir, or water, that supplies it, is either naturally, or artificially, raised considerably above it; and a pipe, being laid from such reservoir, whose mouth, or end, opens in a plain below, the water will gush out, with force, from such mouth, and spout as high as

the reservoir that supplies it. Such fountains are now introduced as ornaments in the gardens of the rich; and it is thus that great cities, supplied with water, will often have it in the upper story of a house, without raising it by pumps.

River or spring water, though perfectly bright and transparent, so as to be seen through is full of living animals; and were a glass of clear water to be looked at through a magnifying glass, we should see thousands of fish swimming in it; so full is the whole creation of living animals.

WATERFALL, OR CASCADE.

If water fall from a higher ground to a lower, as it often does from rocks, and in places where the land is hilly, such fall of water is called a Cascade; and is often artificially formed in pleasure-grounds, as an object of curiosity. By damming, or penning up the water above, it may be made to fall over a pre-

cipice, in a large sheet, and not only please the eye by its falling, but the ear, by the noise, or roar of its tumbling. In natural streams, such water-falls are called Cataracts, and are sometimes very dreadful and stupendous; for, tumbling from precipices, a hundred feet high, where such cataracts are, the river is impassable by boats, and the foam and roar they occasion, alarm and terrify the traveller.

NATURAL LIGHT.

IT would have been of little use to have given man eyes, to see; if God had placed him in the dark. No: having made the world, he made the Sun to shine on it, to give it light and heat.

This sun is an immense globe of fire, that never burns out; and it is placed at a certain distance in the heavens, to warm the earth, and give light and heat to man.

The moon and stars also give some little light, but nothing equal to the light of the sun.

Without the heat which the sun affords, nothing would grow. Take a plant or flower, growing in a pot, put it in the dark, nay, place it only for some days in the shade, and it will fade and die. We see, in winter-time, when the weather is cold, and the sun does not give sufficient heat, that nothing grows; but, as soon as spring begins, and the sun-shine warms the earth, every plant and flower rises from the ground, and shoots up with vigour.

In this country, our nights and days are pretty nearly of a length; but, in some places, in the summer-time, the sun does not set for three or four months together, so that there is day-light for three months at a time, and no night. In the winter-time, the sun does not rise for three months: so that they have three months night; and the people there are obliged to go abroad, and work, by moon light, star light, or artificial light, that is, candle light, or fire-light.

In these uncomfortable regions, the whole country is covered with ice and snow; and, were it not for continual fires, and very warm clothes, the inhabitants would perish with cold.

There are other natural lights, but so faint, as to be of little use to man. These are bodies, not giving light by burning, but shining naturally of themselves.

Glow-worms may be seen, at night, in the summer. This is a small worm, with a bright shining tail. There is also an insect, called a lanthorn-fly, that gives as much light as a lamp, and people can read by it; and we are told, that travellers, where this fly is to be met with, will fasten one to each foot, and walk abroad by the light they give. Lobsters will also shine in the dark; and so will rotten wood, called touchwood.

There are likewise lights in the air to be seen at night. These are a kind of shining brightness in the heavens, that afford a little light.

But what are all these glimmerings of light, to the brightness and radiancy of the sun? They may please the eye, and excite curiosity, but the orb, which is the parent of day, is wonderful to behold. It rises, every morning in the East; and sets, every evening, in the West. And, that we may not lose the benefit of his light suddenly, and be in instant darkness, the Creator has so contrived it, that though the face of the sun is hid from our sight, yet it throws light upon the clouds and air above us; and these clouds and air cast down on us a glimmering light, which we call Twylight. So, at break of day, were it not for the air, as soon as the sun rises, we should have instant day, and the sudden glare would hurt our sight; but the Almighty has provided against this. The sun, before it rises, shines upon the clouds and air over our heads; which light is reflected, or cast down, from them to us, and forms what we call the Dawn, and introduces the day to us by degrees.

Thus the heat, or the light of the sun, is the very soul of nature. It gives life to every thing. Without this heat, the waters would freeze, the air would be cold and frosty, and every plant and herb would die.

To God, then, we are obliged for the sun, as for every other advantage in life. He rules the day, and governs the night, and orders the regularity of the seasons. Spring, Summer, Autumn, and Winter, form the whole life of a plant; as infancy, youth, manhood, and old age, do the life of man. In spring, and in infancy, plants, and men, receive their birth; in summer, and youth, they shoot forth, and bloom; in autumn, and manhood they begin to

fade; and in winter, and old age, they die and are seen no more. Since, then, our days are in the hands of Him, who is the Lord of life and death, how necessary is it that we should be circumspect in all our actions, make the best of those days he is pleased to allow us, and be thankful for the benefits he has bestowed upon us, that as he has given a time to be born, and a time to die, we should not murmur at his wise dispensations, but meet our fate with cheerfulness, whenever the hour of dissolution comes.

ARTIFICIAL LIGHT.

THIS is merely fire or flame, the flame of a lamp, or that of a candle, made by surrounding a few threads of cotton twisted together, with oil, wax, or tallow; which, by feeding this wick of cotton, will flame or shine, while there is any grease, or wax to burn.

Oil is a liquid fat pressed or squeezed out from various things, such as the body of a whale, the skins

of animals, olives, rape-seed, and other things. Tallow is the fat of animals, and wax is what the bees collect from flowers, and form their nests of. Oil is a grease that will not harden like wax or tallow, but continues liquid like water, and can be used only in lamps that are seldom carried about; but wax and tallow, though liquid, when hot and melted, will grow hard and firm again, when cold; and as these will cling round the cotton, they will form candles, that may be carried about without spilling. It is the profession or trade of a Tallow-chandler, to make tallow-candles; and, that of a Wax-chandler to make wax-candles.

People having found out the art of making candles, used them in their houses to give light at night, when they were deprived of the light of the sun; but how to carry them in the open air, where the wind would blow them out, they knew not. The ingenuity of man, however, soon found out an expedient for this. He contrived a box, to carry the lighted candle in, to shelter it from the wind; and, that the box might not obscure the light, he made holes or a window in it, and covered those windows with a substance through which the light would shine. There are three such substances made use of, which, the discerning power of man, has discovered and rendered fit for the purpose; one is the horns of an animal softened by boiling water, and spread out thin; the second is glass, made by melting down flint-stones; and the third, a substance called *talc*, which is dug out of the earth.

These same substances serve mankind also for windows to let in the light into their houses; and, at the same time, keep out the wind, and cold air. But those nations, which have not found out the use of these things, make their windows of the fine membranes or inner skins of animals.

The box thus made, is called a Lanthorn, and that it may not be liable to catch fire with the candle; iustead of wood, it is made with tin, which is iron covered with a white substance, dug out of the earth; and when so covered, it is not only handsome, but is preserved from rusting, which wet weather would otherwise occasion.

Accommodated then with a candle and lanthorn, men can travel in the dark, at night see their way before them, and be able to work. A great number of candles in a room, will almost give as much light as day.

In certain places in the world, as I have observed, the sun does not rise for three months together. The people of course would be in the dark all this time, if it were not for the invention of artificial light.

But there are other ways of procuring fire, without which there can be no light, as I have shewn; but the general way with us, is striking a flint-stone against a piece of hard iron; this produces fire, sparks of which falling upon burnt linen, called Tinder, will continue burning, till you can produce flame; by touching this tinder with a piece of thin dry wood, dipped in brimstone: this presently flames and will light a candle.

Providence we see never deprives mankind of a convenience without putting them in the way of supplying its place; and the darkness of the night, would deprive us of half our lives, were it not for this providential snbstitute. 'Tis true that in the night we take our rest, but as the winter-nights are longer than the days, and longer than we need or wish to sleep; without this artificial light we should be uncomfortable and wretched.

LAWS.

FROM the entry of sin into the world, men became vicious and naturally inclined to evil. Whilst our first parents continued in a state of innocence, they knew no wrong; but having offended their Maker, they became wicked and sinful, and all their posterity partook of their infirmity. Their children were born in sin, and so are ours, and nothing but a true love for religion, and fear of punishment, can keep them honest.

Whilst man lived in a savage state, every thing he took possession of, was his own: but when he came to fix his abode, turn husbandman, and feed cattle, the produce of his labour became his property, and he found it necessary to guard that property by weapons, force and other means. As honesty could not keep his neighbours from robbing him, he was obliged to keep them off by force; for if men could not enjoy the conveniences and free use of what they worked for, there is little encouragement to make store of any thing. There are times and seasons when men are more able and more disposed to work, than at others; and then diligent and industrious people labour hard to make such provisions, as will enable them to relax from their toils and afford them comforts; at a time when sickness and old age comes on, and they find themselves unable to work.

It is proper therefore that such diligent persons should be protected in their property, and that the lazy and slothful should not be suffered to take it from them.

This led men, when a number of families came to live together in society, to make rules and laws, to protect each other from plunder, and to secure every man's property to himself.

Laws then were made of various kinds by the wiser men in these societies, in imitation of those laws ordained by God for the good of mankind. In the early days of the world, before men had arrived at that excess of wickedness we see them in at present, it was not necessary to aggrandize the laws, or give them any appearance of power or authority. It was sufficient to shew that what the law proposed, was calculated to make men happy. They were issued in a hovel or a barn, and the people looked up to the plain and humble law-giver with reverence, as was the case with Solon.

ANTIENT LAW-GIVERS.

But in course of time, even laws began to lose their force, and it was found necessary, to give them a greater degree of authority, that they should be attended with solemnity, with pomp and magnificence. The long robe and large wig, gave a kind of seeming

consequence; and, like the lions before Solomon's throne, added terror and majesty to the appearance. A regular government was established, a chief or king was chosen to put the laws in force, and carry them into execution.

MODERN LAW-GIVERS.

This king being thus empowered by the people to govern and protect them, appointed judges to declare and enforce the laws, and officers of justice, to enquire into the nature of offences, and punish those that committed them. Hence arose the government of countries, as we shall see hereafter.

Such then is the difference between ancient and modern law. The former had its origin in the dictates of a good heart; whereas the latter originates in power and authority. The first was enforced by the good that attended it, the second is kept up by terrors and punishments.

But, in spite of these laws, in opposition to all that is right and just, there are men so lazy and wickedly inclined, that rather than work themselves, they will, as the slothful drones, plunder the actives bees, and rob those that are industrious. Some will steal privately and unobserved, and others, more daring, will attack travellers on the roads, and break open houses while families are asleep, and take from them their property, threatening them with death, if they resist.

PLUNDERERS AND ROBBERS.

Those of the first stamp are called petty thieves and pick-pockets. These will pick a man's pocket when he is off his guard, or steal from him his property, whilst he turns his back. Those of the second stamp are called highwaymen, street-robbers, and house-breakers.

In large cities and towns watchmen are appointed as a nightly guard, who walk about the streets all night; but all this is insufficient.

The laws of all countries punish such offences with death; but there are desperate wretches, who regardless of all law, will commit such crimes at the risk of their lives. If they are caught in the fact, there is little hope of escape; they are taken into custody, loaded with chains, and brought to trial.

Here they are charged with the crime before their fellow-citizens, twelve of whom are appointed to examine into the charge and try them. These twelve men are called a Jury. Before these, and a judge, the criminal is put on his defence. His accusers are brought before him. They are all sworn, and what they say is upon oath; and, when the accusers are heard, and they have proved the crime, as far as they can, the criminal is heard in his turn; and all the friends he can find, either to prove his innocence, or give him a good character, are suffered to speak in his favour. When this is all gone through, the judge repeats to the jury, what has been said, both for and against the prisoner, and it is then left to these twelve men to determine whether they think him guilty of the crime he is charged with or not. If he be deemed not guilty, he is instantly set at liberty: if guilty, he receives from the judge the sentence of his punishment, and is sent back to prison, to be there kept till it is inflicted.

The several punishments which the laws inflict, to punish men for offences, in this country, are fines, that is, obliging them to pay a sum of money, imprisonment, whipping, pillory, transportation, and death.

If one man assault and beat another, or if he injure another in his property, the laws will fine him; that is, make him pay the injured party a sum of money, equal to, if not exceeding, the loss he has made him sustain.

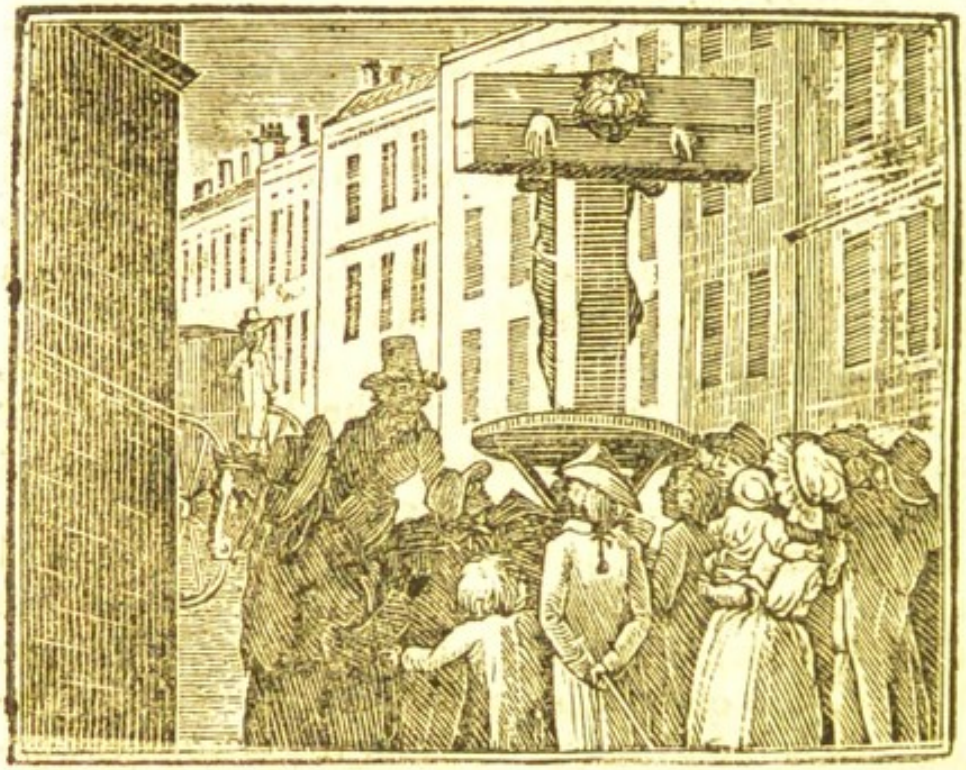
If a man accuse another, upon oath, of a crime that he has not been guilty of, and it is proved

upon trial, that the accusation was malicious, the accuser is liable to be tried for the same; and, if found guilty, to be imprisoned for a certain time, and to stand in the pillory, or be transported for seven or 14 years, or for life, as the judge shall think proper. Innocence will appear in spite of the blackest accusations, and we seldom hear of an honest man's falling a sacrafice to artful malice. Judges are too clear-sighted to be deceived, and, have too much penetration, to be led aside from truth or justice.

If a man pick another's pocket, or pilfer, that is, steal from a man his property, the laws will order him to be whipped on his bare back, in prison, or to be publicly whipped in the street.

In a court of justice, a man is always examined upon oath; that is, he solemnly calls God to witness the truth of what he says; and, if in so doing, he tell a lie, the offence is called Perjury, and the punishment is the Pillory. That is, the criminal is exposed to public view, in an open part of the town; is placed upon a stage above the heads of the people, and his head and hands are put through holes in a board, where he is fastened, and obliged to stand one hour, and to be looked at by an insulting populace. If his offence be attended with aggravation, that is, if by taking a false oath, he has done a great deal of harm; the people will inflict a punishment of their own; for they will pelt him the whole hour he there stands with mud; and men have been known to have been so put to death by the people.

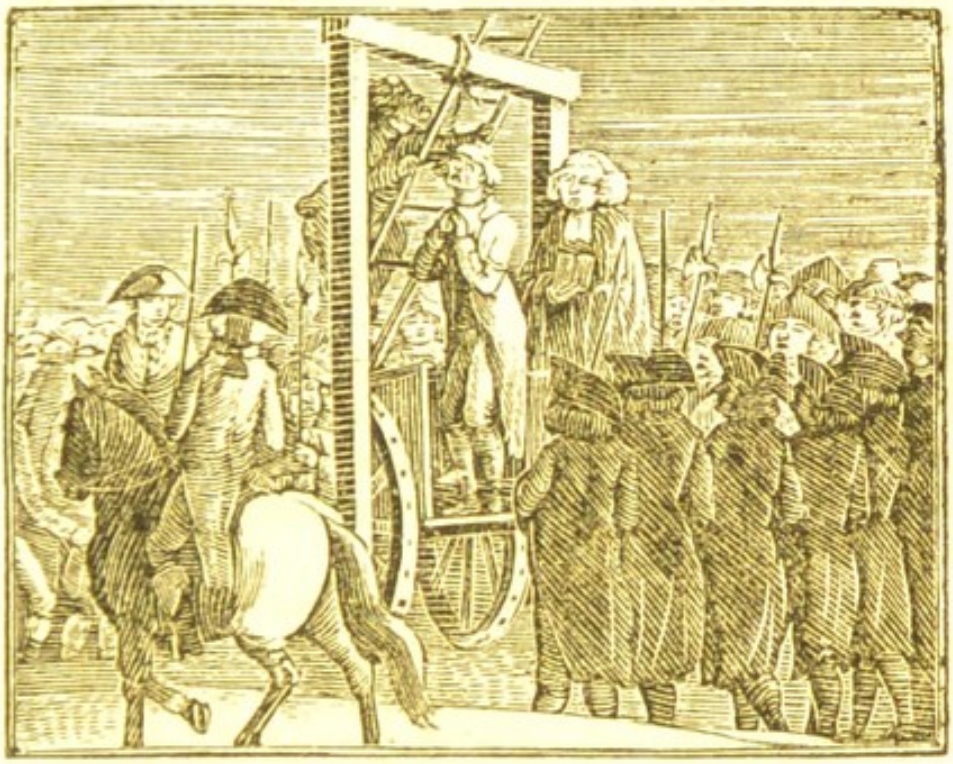
PILLORY.



If a man be a notorious thief, but not guilty of an offence deserving death, he is transported; that is banished, or sent out of his country, for a certain number of years or for his whole life; and, if he return before the time of his banishment expires, he is hanged.

If a man be guilty of murder, highway-robbery, house-breaking at night, or some other great crime, the punishment is hanging, till he is dead.

EXECUTION.



If a nobleman should commit treason, that is, stir up the people either against the King, or against the state, he is beheaded; that is to say, he is brought out upon a scaffold, and his head is chopped off by an axe, upon a block.

One would naturally suppose that men who love themselves, would not commit a crime, that would draw on them such corporal or bodily punishments; but the wickedness of their hearts, the perverseness of their dispositions, and their coveting the property of others lead them to such acts, as when committed, they are heartily sorry for, and wish they had not done. But this is repenting too late. If we dread the punishment, let us avoid the offence; for, independent of what we suffer from the laws, crimes leave such a stain upon our character, that if we outlive the punishment, no respectable person will be seen in our company. We shall be, as it were, an

outcast in society, and can only associate with the wicked and the abandoned. Good men will fly from us, as from a pestilence, and the remainder of our lives must be wretched.

THE PUNISHMENTS OF HEAVEN.

HAVING seen the punishments which men inflict upon each other for offences among themselves, let us next advert to those which God thinks proper occasionally to inflict on mankind, for offences against Him.

When any family, or body of men, have arrived at such a pitch of wickedness, as to be past the correction of the laws, God has taken up the cause himself, and punished them with the rod of heaven. He has sent sickness and mourning into a family; has taken a father from his children, or children from their father; has caused families to decay, and made beggars of the rich.

When whole towns or countries have offended past correction, He has sent slaughter and fire among them: He has destroyed them with famine or pestilence, by tempests, inundations, and earthquakes. Let us consider each of these calamities apart, and endeavour to learn wisdom, from a prospect of the misfortunes of others.

When God has determined to punish a nation by slaughter, he has caused inundations, rebellions and civil wars among the people; and they have in such contentions destroyed one another with the sword.

There was a civil war in this kingdom about one hundred and sixty years ago, which lasted eighteen or twenty years, when the people took arms against their King, and the whole nation was drowned in blood.

When God would revenge himself by conflagration, he has set whole cities on fire, and laid every building in ashes.

For the iniquities of this nation he caused a fire to take place in London, about one hundred and forty years since, and two thirds of the city in a few days were burnt to the ground.

Famine I shall speak of by and by; and as to Pestilence or epidemic sickness, we have experienced this calamity among the rest. In the 17th century, a plague or pestilence ravaged the city of London, and the people died so fast, as to lay about in the streets for want of persons to bury them. Thousands were alive in the day, and dead at night.

The judgment of Heaven upon a sinful people, shewn in the case of earthquakes, we have already spoken of, when treating of volcanos. Not many years since, the whole city of Lisbon in Portugal, was swallowed up by an earthquake. The earth opened, and the city, with its inhabitants sunk, and was instantly buried.

DELUGE.

It remains then only to speak of Inundations or Deluge. In the early days of the world, when the sins of man provoked the Almighty, it is well known that he caused it to rain so heavily for forty days together, as to drown the whole world. One family only, that of Noah, and the male and female of every animal was preserved in a ship called an Ark, which Noah had built, previous to this calamity, by express direction of his Creator, that the world might be re-peopled, and restored by means of this family and the animals preserved with him. This ark floated upon the surface of the waters. and when they subsided, rested upon dry land. The distress that came upon mankind, by this dreadful deluge, is sufficiently painted in this unnappy family before us, using their utmost efforts to save each other, and vain it was; for God intended it as a punishment on the sins of a wicked world, and determined to root out

the whole generation from the face of the earth. Since this there has been no such universal flood, but partial inundations have taken place, and whole provinces have been washed away. Owing to rains and other causes, rivers have swoln, and overflowed the banks, and carried away bridges, houses, cattle, and every living thing before it. Islands have sunk into the sea, and disappeared, and large tracts of land in Peru, and other places, with their inhabitants have been buried in the waves. The capital city of Russia was very lately overflown by the sea, and some thousands of people drowned; and in Holland, which is a flat country, bordering on the sea, and where the waters are kept out by strong and extensive banks, it has happened, owing to particular winds and unexpected tides, that these banks have given way, and the sea has rushed in, overflowed a great extent of country, distressed thousands of people, and swept away every thing from off the land.

INUNDATION.

Ought we not then to shudder at these accounts and dread the vengeance of so powerful a hand? For though we may carry our iniquities so secretly as to deceive mankind, and escape the lash of the law, and the punishments of men; yet God who reads the intentions of the heart, and looks into the breasts of men, will overtake the offender, when he least expects it, and make him smart for his iniquities.

Even single and private persons have felt the wrath of the Almighty, and have been punished for their private crimes. Though they have escaped the punishments of their country, they have sunk under the stripes of their Creator. He has laid some on the bed of sickness, taken from others their peace of mind or reason, lashed them with the stings of a guilty conscience, deprived others of the use of their limbs, and others of their dearest relations and friends, and others again of all their worldly property. He has tumbled kings from their thrones, dragged princes from their palaces, and the wealthy from their riches; has imprisoned the one, and obliged the other to take shelter under the charitable cover of an hospital, In short, he has humbled the proud, and laid the exalted low.

If such then be the omnipotence of God, how much does it concern every individual, to make his peace with Heaven, to keep his conscience clear of offence, and act so, that even his own heart shall not condemn him!

TEMPEST.

THOSE who take long voyages, and travel far to sea, are more immediately under the protection of Providence than other men. The crew of a ship, have no back-doors to escape through from fire, nor can they run as from the reach of a falling house. If a ship take fire at sea, or founder, by the planks parting, and letting in the water, there is little hopes of escaping. Each ship has a long-boat, that will carry twenty or thirty men, but what are twenty or thirty out of a whole ship's company, consisting often of some hundreds: and what chance has a boat of conveying twenty or thirty men, without provisions, and at such a distance from land, that they could not perhaps reach it for many weeks?

A ship of war has a great deal of gunpowder on board, and this powder must be fetched with a light: consider then the danger of a spark falling among the powder, and blowing up the vessel. This has

frequently happened, and all the ship's company have been blown piece-meal at one instant into the air. Should a ship take fire, and many such accidents happen, it is so full of pitch, tar, and other combustible matter; that though it has no gunpowder on board, it will often burn to the water's edge, and every soul on board will perish. If it leak or let water, faster than the men can pump or lade it out, it will sink, and all the people with it. Sometimes a ship will strike against a rock under water, and split; and, sometimes in shallow water, a ship will run upon the sands, and there stick so fast, that no human power can get it off again. If the tide do not rise, that is to say, if the waters do not swell and overflow it, the great force of the waves will soon beat it to pieces.

But a ship is subject to another calamity, that of storm or tempest. In the finest weather, when the sailors hearts sing as it were for joy, and the vessel is cheerfully scudding before the wind, in a few hours the day shall be overhung, the clouds shall lower, the thunder roar, the winds shall blow, and such a tempest shall come on, as no human being can guard against. The only chance of escaping the danger of being overset and sunk, or being driven on a rock or shore, is that of taking down the sails, closing every hatch or door-way, and committing themselves to the mercy of the waves; and after all, if Providence do not abate the storm, the ship may founder and sink. In these unhappy situations, some few of the men will quit the sinking vessel, and jump into the water, with a beam, a tub, or any thing that will swim, and keep them floating. But, where this has saved one man, by directing him on shore, or keeping him from drowning, till chance has brought some other ship near him, that shall take him up; it has been the means of prolonging the miseries of many: for without provisions,

they have been some hours buffetted by the billows, or waves, that in some tempestuous weather, run mountains h gh ; and, at last chilled with cold, spent with fatigue, and dispirited with fear, they have found relief only in death, and a watry grave.

When such are the disasters and dangers of the sea, how much should we respect those brave fellows, who encounter these dangers, as do seamen in the defence of their country ; and, how much does it behove such men to lead a good life, that Providence may stand their friend, and that should such a dreadful accident happen to them, they may be prepared to meet their God in the next world, without the dread of future punishment!

FAMINE.

AS it has pleased our Creator to fill us with abundance, and bless us with the good things of this life, so has it pleased him at times, to punish the in-

gratitude of men, by withholding his hand, and taking these good things from us. By making the earth fruitful, by watering it with the dews of heaven, and causing the sun to shine upon it, "He giveth us plenteously all things to enjoy." "He giveth food to the cattle, and green herbs for the service of men." He causeth animals to increase, and we have food in plenty. Such are the blessings of life, that we are able to gratify our appetites, without any dread of want.

It is by food that the life of man is preserved, and prolonged. Deprive him of meat and drink, and he starves and dies. Hunger and thirst are those cravings of nature, that urge and impel us to seek for food, and thus preserve a life, we might otherwise be indifferent about It is this that taught men the art of hunting, and catching wild beasts, the method of taming them, and all the knowledge of husbandry.

To procure bread, we till the land; to provide ourselves with meat, we breed and rear cattle; but all our labours would be fruitless, if it pleased God to counteract them. "Paul may plant and Apollos water, and all to no purpose, unless God give the increase." Our dependance is wholly upon him: and of him are we to ask our daily bread.

When the Almighty, as a punishment for man's transgressions, has scattered dearth upon the land; when he has thought proper to withhold the rain and suffer the sun to scorch up the earth, or when it has pleased him to give us too much rain, and drown the fruits of it; famine has ensued, and all the train of evils attending her; wretchedness, disease and death.

Such has been the calamity on board a ship, when men have been longer out at sea than they expected, and their provisions have run short and failed them; I say such has been the calamity, that for want of food, they have been under the necessity of drawing

lots to determine, which of them should be put to death, by way of food for the rest. For nature has implanted in us such a love for life, that we would run any lengths to preserve it. If so dreadful then is the case among a ship's crew, where provisions run short, how much more dreadful must a famine or a general want of food be, throughout a whole country!

The calamity cannot be more lively described than in the scene before us, where men floating upon the water are famishing for thirst; and others, starving with hunger, are feeding on a horse, that died for want of food. Distress and anguish, are painted in their faces, and they are made to feel their dependance on their Maker.

This scene is still heightened, by God's relenting. He has not given them up wholly to destruction, but "in his anger, thinketh upon mercy." Not willing to cut them off entirely from the face of the earth, he bids the famine to cease, causeth rain to fall from heaven, to water the land, and quench the parching thirst of men, which the salt waters of the sea is incapable of doing; and, throws the carcase of an animal in their way, to save them from death.

From this lesson we are taught not to presume on our own sufficiency, but to be sensible of our dependance on God. He it is, to whom we owe all that we have! "The Lord giveth and the Lord taketh away, blessed be the name of the Lord!" How little reason then have men to be proud of their wealth, or vain of their possessions; when a chilling blast, a dry season, or a mildew, shall throw them into the situation we here behold! If food be not to be procured, or purchased, of what use is wealth? Man can neither eat his silver or his gold, and of course must starve in spite of all his riches.

Those who are better fed than taught, the nice and daintiful may also learn, from the scene, the

absurdity of rejecting meat, because it is not palatable and exquisite. When hunger presses, the palate yields, and he who with a full stomach, will turn up his nose at plain and unwholesome food; let him but experience the wants of the dist•ssed, feel a little of their hunger, and he will blush at his own folly, and be ashamed at his unthankfulness.

PESTILENCE.

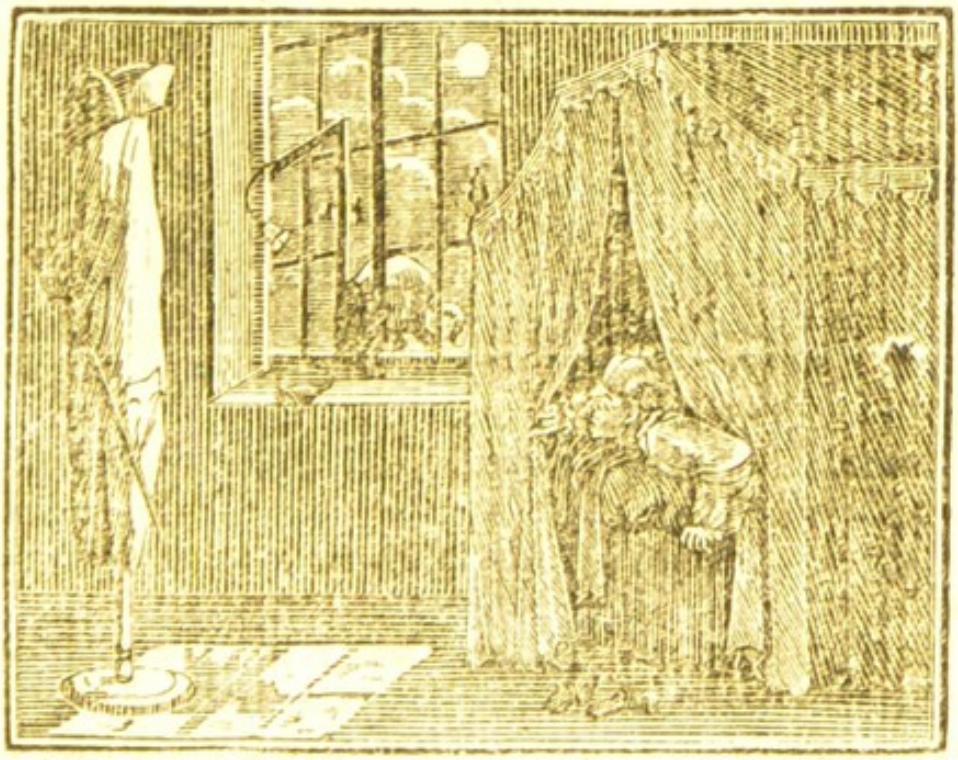
PESTILENCE is still another scourge of Heaven, upon the wicked. This is disease, mortality and death. It has pleased God sometimes to punish the sinfulness of men, by sending sickness among them and cutting them off by thousands. Such general sickness is called Epidemical; it will often rage throughout a whole district and has thus clothed a whole country in black.

In the year 1666, that is about 150 years ago, such a mortal sickness raged in London, that in a few

months died a third of the inhabitants. This was called the plague; it baffled the skill of all the physicians, and so sudden and general were the deaths, that few were left to bury the dead. They were brought out of the houses several at a time, and carried away in carts.

A proof this, that it is in vain when sick, to apply to a physician for a remedy, unless it shall please God to restore us. He is Lord of life and death, and to Him we should first apply, and beg a blessing upon the endeavours of the physician; in such a case, we may hope for a cure; but without it, an application is little less than presumption.

THE EFFECTS OF IMAGINATION.



ONE of the greatest punishments of Heaven, inflicted on sinful man, is the terrors of a wounded mind. God has implanted in our breasts, a

sure monitor, that approves our actions when we do right, and condemn them when we do wrong; and no rational man need make any inquiries into the rectitude of his conduct; his conscience will be his best examiner, and his best judge.

We are told in scripture-history, that when Cain killed his brother Abel, his sin was more than he was able to bear, and he flew from reflection, as a man would fly from his greatest enemy. "The wicked" says the Psalmist "fleeth, when no man pursueth." Conscience stings him for having done wrong, and the sting it leaves is intolerable.

The murderer is frighted at his own shadow, and the robber is always thinking officers of justice are after him, to apprehend him. Whatever may be the crime of the man before us, is of no great moment, it is sufficient that it disturbs his quiet, robs him of his rest, and keeps him in alarm. Evil spirits are continually before his eyes, and he is in dread of the avenging hand of the Almighty. The cat pushing into his chamber-window, throws down the bell, wakes him in an alarming dream, and with all that fear naturally attendant upon crimes, his troubled mind will not suffer him to recollect himself, and he conceives his cloaths, which he had hung upon a stand, to be some avenging spirit, or some nightly enemy, approaching to destroy him.

Many an unhappy wretch, so troubled in thought, has put an end to his existence; and rashly, rushed to the seat of judgment, with all his sins upon his head.

If we would not have this fear; if we would not have our peace of mind disturbed, but enjoy ourselves calmly and quietly, let us live a good life, for "the righteous is as bold as a lion;" his mind is always at ease. The silly stories, which old nurses and others tell, of apparitions, and evil spirits, invi-

sible, will lose their effect ; for there being no such things in existence, they will not dwell in the imagination of a good man. If there were such things, Good spirits would not hurt us, and God who is the protector of men, and lord of the universe, would not suffer any Evil spirit to do us any harm. In short, the fact is, these are creatures merely of the fancy ; and, it is the wicked, and the weak only, that are afraid of them.

True courage is the pride and boast of men ; and the way to be truly courageous, is to have no dread of death, or the spirits of the other world. Live a good life ; this will make a soldier brave, and a christian fearless ; for as death will reach us sooner or later, when we are always prepared to meet it, the more unexpected it comes, the less trouble it will give : we shall lay down our heads composedly on the pillow, and our departure from this life, will be little more than a sleep, which the pious man enjoys, and the sinner only dreads.

WAR.

I HAVE had occasion, in the course of this work, to observe, that from the natural selfish disposition of mankind, which leads them to incroach upon and make free with the property of others, it was necessary to enact laws to bind them to honesty, and to punish those who should presume to take from others what they have no right to. This gave rise to governments; but, though laws and punishments may keep individuals in order, they are not sufficient to restrain great bodies of men, when they think proper to oppose them. It has been found necessary, that government therefore should keep a number of soldiers, or armed men, in constant readiness, to quell any insurrection, or rising of the people; and this body of men is called an Army. They are trained up to arms, and are maintained at the expence of the state.

It has often happened in this country, as well as

in others, that the people have taken it into their heads that they have been oppressed by taxes, by the dearness of provisions, and other causes; and have therefore armed themselves, and united in one body, to oppose the state. In such cases, the soldiers are collected and march out to quell them; and if they did not lay down their arms, a civil war would ensue, and a battle would be the consequence. But the soldiers being trained to arms, are, for the most part, too powerful for the rest of the people, and generally subdue, and overcome, them.

But this is not the only use of an army; as all states have armies, one state will sometimes incroach upon, or invade the territory or kingdom of another; that is, one king will make war with another; in which case, the armies of such kingdom or state, will march out and meet each other, in some open place, and there try which is most powerful, by fighting; and that army that keeps its ground the longest, is said to conquer.

The more populous a kingdom is, the more numerous is its army. The army of England, is not less than 200,000 men. These are all under the command and direction of their several officers, and the whole body united, is subject, in time of war, to the controul of one man, who is called the Commander in chief.

When two armies meet, to fight, the ground on which they stand is called the Field of battle. They first attack each other, with cannon, firing great iron balls; then with their musquets, which carry leaden bullets, and after this with their bayonets, which is a sword, fixed at the end of their musquets. If one army give way, the other pursues, and kills all it can; if one army surrender, and the men lay down their arms, they are immediately taken prisoners by

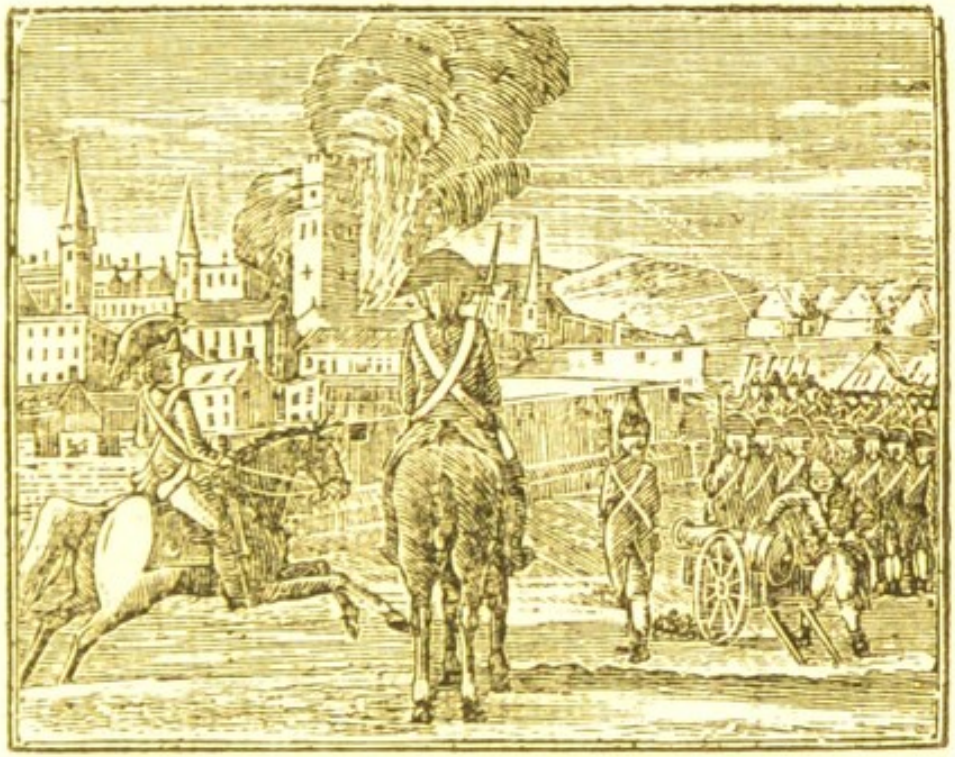
the enemy. It is not an uncommon thing, after a battle, to see twenty or thirty thousand men lie dead upon the field.

When an army marches out against its enemy, if not opposed, the soldier's would enter that enemy's country, ravage it, and plunder the inhabitants of their wealth; it is necessary therefore, to keep an army to oppose such hostilities.

The army is said to be a good school for young men, and why? Because they are there taught submission to their superiors. If a soldier is commanded by one above him, to do any thing, he does it, nor does he ask the reason why; it is sufficient to him, that he has received orders. If these orders be wrong, the soldier is not answerable for the wrong, but the person who gave him the orders. A young man so bred up, will not presume to disobey those under whom he acts, but implicitly act, as he is directed. So ought a child to act, when under the command of his parents, or governors. They are supposed to be the best judges of what he ought to do, and his duty is implicitly and constantly to obey them; leaving them to be responsible and accountable for the propriety of their orders.

In every kingdom, there are particular towns where magazines of warlike stores are kept for the use of the army, and these towns the state finds it necessary to fortify, and defend by walls and ditches, against an enemy; that should a numerous army approach these walls or fortifications to attack them, a few soldiers within the fort, or fortified town, may be able to defend themselves against it. The soldiers and inhabitants in the garrison, or fort, are called the Besieged, the army without, the Besiegers, and the attack, is called

A SIEGE.



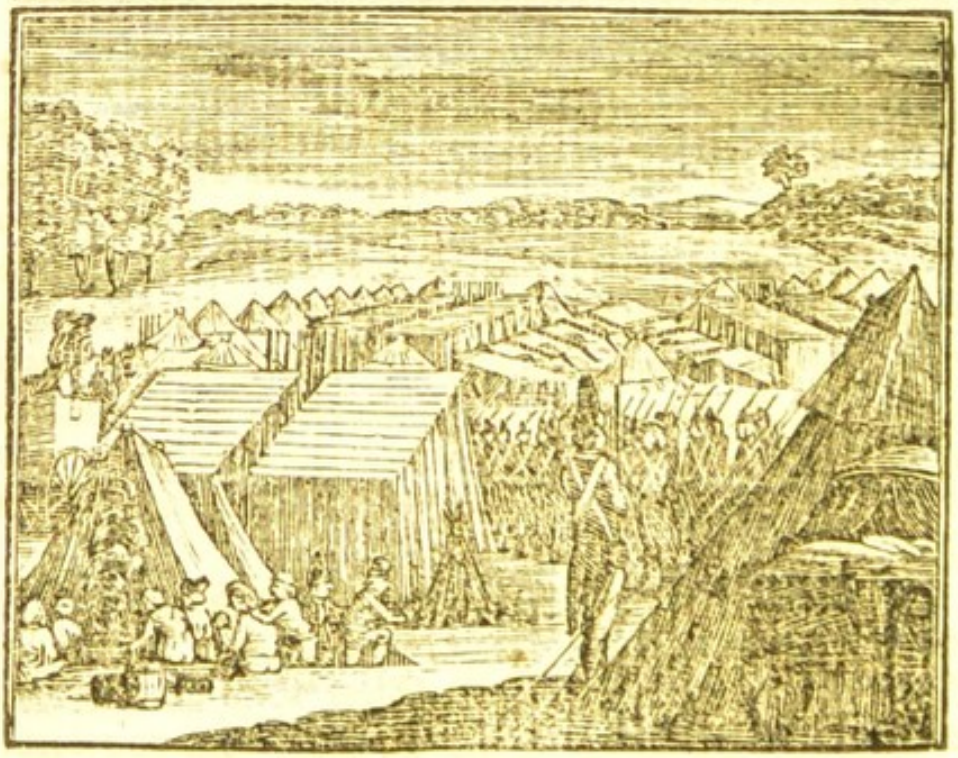
If the besiegers can surround the town, and block it up, so as to prevent any provisions being carried in; in the course of a few months, all the provisions stored up in such a town, will be consumed: and the people must either surrender, or be starved to death. This the besiegers endeavour, if they can, to bring about; if not, they will endeavour to batter down the walls, with their cannon, and enter the fort, sword in hand. This is called Storming a fort; and if they can thus conquer a fort, they are said to Take it.

Till they can accomplish this, the besieged and the besiegers attack, and annoy each other, by bombs, which are hollow iron balls filled with combustible or fiery matter: these being thrown from mortars, a kind of cannon, by the force of gunpowder, over the walls among the enemy; will when they fall, burst, blaze out, burn and destroy every thing within their

reach. Sometimes red-hot balls are fired from cannon, and these with the bombs thrown into a town, will often knock down the houses, and fire the place. In short, the destruction, on such occasions, is dreadful, and horrible.

It may be asked, how an enemy can lay before a town, some months besieging it? They encamp at a small distance, that is, erect tents, where they eat, drink, and sleep; all their provisions and bedding being carried about in baggage-waggons; and on this spot will they often continue for a length of time, unless driven off by a body of soldiers, that come to the assistance of the besieged, or by the besieged themselves who sally, or march, out of the town to attack them. The place where an army thus continues, is called

A CAMP.



Such a camp is attended by a number of the soldiers' wives, who wash for the men, and dress their

food for them, and by a number of other people, who are not soldiers, but, who are found necessary to attend them.

The soldiers themselves, at such times, go through a great deal of hardship; little sleep, cold and uncomfortable lodgings, lying upon straw within their tents, and living on very poor and scanty food; but the officers mostly having private fortunes, besides their pay, are accompanied by servants, and are furnished with beds and a variety of comfortable accommodations. The approach of an enemy, is no sooner announced, or made known, but all is bundled up, clapt into a waggon, wheeled off the ground, and they are quickly ready with their arms, to make a stand in their defence.

Since the introduction of commerce, by shipping, nations have found it necessary to protect this shipping, from the plunder of an enemy at sea. Of course, most states have a navy, as well as an army; that is, a number of Men-of-war, or battle-ships, in their service. These are very large ships, that carry cannon, soldiers, and other implements of war. Twenty or thirty of such ships, are called a Fleet. The design of these ships, is to seize the trading ships of the enemy's country, or destroy their towns by the sea-side. To prevent this, the enemy sends out a fleet of ships, like ours, and if the two fleets meet, they will attack, fire, and endeavour to sink each other, or take a part of their ships from them, Such a battle at sea, is called,

AN ENGAGEMENT.

The balls that fly about on these occasions, make holes in the sails, and thus disable the ships from sailing, batter the sides, and let in the water, to sink them; kill the men within, or set fire to the ship, and blow it up: for should such fire reach the magazine of gunpowder within that ship, it will go off all at once with an explosion, and blow the ship, and all the people in it, to shatters. Such is the destruction of a naval fight.

Indeed, war may be considered, as one of the judgments, or punishments of Heaven, upon a sinful people. When the iniquities of a nation, have gone on to an uncommon pitch or height, it has pleased God, to stir up the minds of such people, to make war with others; and such a war, lasting a number of years, has impoverished and depopulated a whole country, beyond the power of a thirty years' peace to recover.

SAGACITY OF ANIMALS.

SUCH is the wisdom of the Creator, that, in the formation of animals. he has given each species or sort, a certain degree of understanding, sufficient for their use, and their comfort. This understanding to distinguish it from reason, with which man, the superior animal is endowed, is called *instinct*. The Ass is ignorant of science, the bird of passage of calculation; yet, by instinct, the one will foretel a change of weather, and the other will quit this country, before the approach of winter, and make its way to a warmer clime. By instinct, animals feed, bring up, and protect their young. By instinct, the beasts of the fields eat certain grasses and herbs, and the birds pick up stones, to relieve themselves from certain disorders, to which they are naturally liable; and by instinct, they guard their safety, in cases of danger. By instinct, the beasts of the forest, prowl

about for prey; that is, wander in search of certain animals, on which they feed; and, by instinct, such animals seek their protection, by flight and by art. The tyger squats in secret, to jump upon the timid hare; as does the cat, to seize upon the unguarded mouse: but, on the other hand, the hare is gifted with long ears, by which, laying them down upon its back, it is enabled to hear the coming of the enemy, at a great distance; and the mouse is by nature taught to smell the approach of the cat. The hound we have seen is endued with a power of smelling, by which it can trace a hare to its seat, or place of residence, by the scent of its foot upon the ground; and the hare, sensible of this, to avoid it, will, before she reaches her seat, leap over the ground, by continued jumps, that her enemy may not be able to trace her out by the scent of her foot. So that, if God have given one animal power over another, it has at the same time provided the other with a means of escaping, if it be sufficiently on its guard.

But, in the great variety of creatures, God, in creating them, has given to some animals a greater degree of instinct, or sagacity, than to others, and perhaps to make them more useful to man, for whom they were made. The horse has more sagacity than the ox, that he may be able to comprehend the will of his master, and obey his commands. He is often directed by the voice of his driver, to quicken or slacken his pace, and turns to the right or left, in obedience to the commands he receives. Dogs will do the same, and, it is thus they are trained up for sport, and for the exercises of the field. We see here before us, a dog taught to carry a basket, and another to run into the water and fetch a hat, blown from off a school-boy's head.

The elephant, we are told, comprehends or understands almost every thing its keeper says to it; and it

has hence been called the half-reasoning elephant; and, the beaver has such an extraordinary share of understanding, that a number of them will live together, like men, in society; will build themselves houses, will, with their teeth, cut down trees for the purpose, contrive to convey them to the place where they erect their houses, plaister these houses with mud, using their tail for a trowel, or plaistering tool, nay, they will go farther, one will lay down on its back, as is here shewn, holding his feet upright, and suffer himself to be loaded with provisions between his legs as on a cart, and thus loaded, will permit others to drag him, holding each other by the tail.

Whoever has examined a bird's nest, must stand amazed at the ingenuity, with which it is constructed. No art of man has ever yet been able to form one like it. Such is the power of natural instinct, that it often exceeds the power of reason.

But man, by his exertions, has by a kind of edution, taught some animals to perform wonderful things, and make their sagacity wear the appearance of reason. Monkeys have been taught to wait at table; dogs to fetch and carry; bears to dance; horses to jump through hoops suspended in the air; birds to fire guns, and the like; and, what are we to learn from all this? Not only to train up animals to our use, but that, as we see, from this improved sagacity, what teaching is able to perform; we are to learn how unpardonable it is in man, to neglect his own education; for, if a dog, can, by practice, be taught to do things that exeite our admiration, how much more is the mind or understanding of man, capable of exceeding in things that exceed his conception? The infant mind may be taught almost any thing: education includes such things, as tend to use, and to its happiness; and those headstrong,

ungovernable youths, that oppose instruction, and set themselves against information, are not half so respectable in the eyes of the world, as a sagacious dog, or a well taught monkey.

It has been the study of the Author of this work, to give youth a just conception of every thing in life, to endeavour to cheat him into knowledge by amusement; and, having so done he must be indulged with the liberty of saying, that if all this will not do, there is a perverseness in his mind, that wilfully shuts out improvement, and places him several degrees below the brute creation.

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