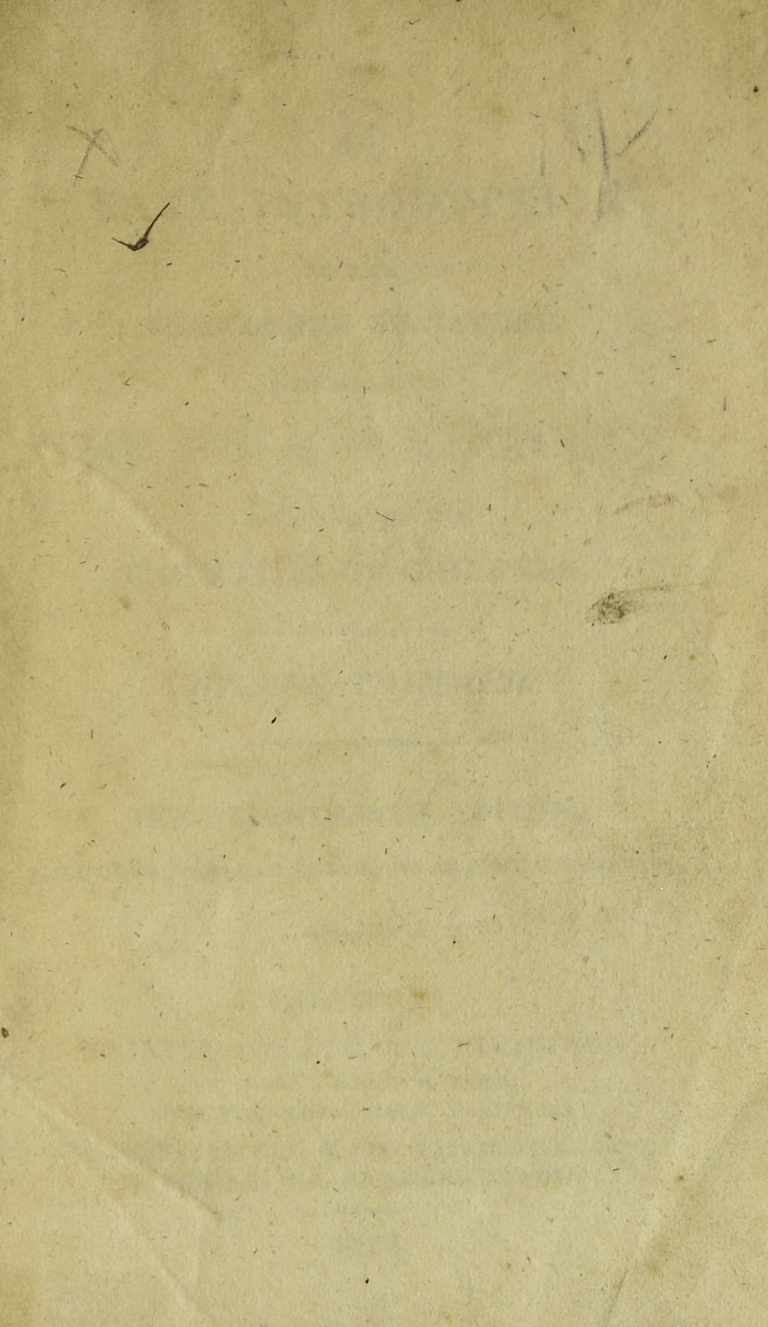




From dear

Aunt Hannah
to her little Niece

June 1823



AN
EASY INTRODUCTION
TO THE
KNOWLEDGE OF NATURE,
AND READING
THE HOLY SCRIPTURES,
ADAPTED TO THE
CAPACITIES OF CHILDREN.

~~~~~  
*BY MRS. TRIMMER.*  
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THE SEVENTEENTH EDITION,
WITH CONSIDERABLE ADDITIONS AND IMPROVEMENTS.

LONDON:

PRINTED FOR F. C. & J. RIVINGTON,
ST. PAUL'S CHURCH-YARD,
AND WATERLOO-PLACE, PALL-MALL;
BALDWIN, CRADOCK, & JOY, PATERNOSTER-ROW;
R. HUNTER, & J. HATCHARD AND SON.

1822.

[ENTERED AT STATIONERS HALL.]

Printed by R. Gilbert, St. John's Square, London.

TO THE
RIGHT HONOURABLE
LADY CHARLOTTE FINCH.

MADAM,

THE purpose for which this little treatise was composed can alone entitle it to your Ladyship's notice ; for in its execution I fear it is very imperfect : but as it is intended to lead to the most serious concerns of human life, *The Knowledge of the GREAT CREATOR, and the study of his works*, I hope it will not be thought totally unimportant.

Permit me to say, MADAM, that before I ventured to produce it to the world, I had the happiness to obtain the sanction of your Ladyship's approbation, which encouraged me to hope for a favourable reception from the public ; as the great success with which

you have educated the ROYAL FAMILY so evidently proves that your LADYSHIP is perfectly acquainted with the most happy arts of winning the attention of children, and the most proper method of conveying religious and moral instruction to their tender minds.

With the most ardent wish that your LADYSHIP may long continue to enjoy every comfort both of public and domestic life, I have the honour to be,

MADAM,

Your LADYSHIP'S

most obliged

and obedient Servant,

SARAH TRIMMER.

BRENTFORD,

Dec. 12, 1780.

PREFACE

TO THE NINTH EDITION.

The idea of the following little work was originally taken from Dr. Watts's Treatise on Education, Section II. on the exercise of the natural powers in children ; his words are these :

“ Almost every thing is new to children, and novelty will entice them onwards to new acquirements ; shew them the birds, the beasts, the fishes, the insects, trees, fruit, herbs, and all the several parts and properties of the vegetable and animal world. Teach them to observe the various occurrences of Nature and Providence, the sun, moon, and stars, the day and night, summer and winter, the clouds and the sky, the hail, snow, and ice, winds, fire, water, earth, air, fields, woods, mountains, rivers, &c. Teach them that the GREAT GOD made all these, and that his providence governs them.”

But delightful as these things are to chil-

dren if communicated in a way that is accommodated to their capacities, they can never be brought in their early years to attend to scientific accounts of causes and effects, or to enter far into each particular branch of knowledge.

I therefore thought that a book containing a kind of general survey of the works of Nature would be very useful, as a means to open the mind by gradual steps to the knowledge of the SUPREME BEING, preparatory to their reading the Holy Scriptures.

In the former editions of this work, I gave, at the end of it, a summary account of the Revelation of God's will to mankind, and of the history of the Israelites; this part has undergone a considerable alteration, and I hope it will prove a better *introduction to the reading of the Scriptures*, than the pages which have given place to it.—If I might be allowed to recommend a publication of my own, I could wish that the next book to be put into the hands of my young readers should be “*An Abridgement of Scripture History, consisting of*

Lessons selected from the Old and New Testament,” by means of which they may be made acquainted with the principal events recorded in sacred history, without the labour of reading the whole of the Bible, or without engrossing too large a portion of time: these lessons are contained in two small volumes, one from the *Old Testament*, the other from the *New*; which may be had separate *. They were originally designed for Charity Schools; but as they are in the very words of Scripture, and religion is the great concern of *all*, whether rich or poor, I should hope no objection would be made to them on account of their being used in schools for the lowest classes of children. When the scholars have read these books through, I would recommend that they should not only read them again, but hear a portion of them read and explained in the school every day, and be questioned in classes, to see whether they really understand them or not †.

Published by Messrs. Longman and Co. Paternoster-row; and Rivingtons, St. Paul's Church-Yard.

† A specimen of this mode of teaching may be seen in

The good effects of this mode of instruction I have witnessed among the children of the poor, and happy should I be to see it universally adopted in schools for the higher orders of children; for I am not only convinced by my own experience, but have been assured by persons of superior judgment who have made trial of it, that it is calculated above all others, to engage the attention of children, and to make lasting impressions. With a view to facilitate this business in schools and families, I some time ago published a series of books upon the plan of familiar conversation, viz. *An Attempt to familiarize the Catechism of the Church of England; An Explanation of the Office of Baptism and the order of Confirmation; and A Companion to the Book of Common Prayer, with questions for the Use of Teachers.* Subsequently a work entitled *A Sequel to the Teacher's Assistant*, which consists of a comment upon the Scripture Lessons, from the Old Testament in the catechetical form. It is my intention to compose a *shorter* catechism upon the Scripture Lessons for children who are young to understand the above comment; and so to lead them step by step, to my Sacred History, and from thence to the Bible itself.

jects which surely ought to make a part of the early education of those who have been received as members of the Church of England. But my expectations have been greatly disappointed—these books, it is true, have been adopted by many whose approbation does honour to my labours, but they are not so generally used in schools, as from the uncommonly favourable reception of my *Sacred History* and other works, I flattered myself they would be. Conscious that in every work I have presented to the public, *utility* has been my first and principle object, I hope I shall be acquitted of selfish motives when I request those who approve of my other writings, to make trial of these—at least till some better or easier means are provided for accomplishing the same important ends. When the enemies of Christianity are so industriously at work, and, it is to be feared, with fatal success, in poisoning the minds of youth by means of infidel books in which the BIBLE itself is openly attacked; it is highly incumbent on all who engage in the important business of education, to fortify

the yet uncorrupted minds of their young pupils against the dangers to which they in their turn will be exposed when they mix in society; and what can so effectually answer this purpose as giving them an early acquaintance with the Scriptures, and instructing them in the principles of religion?—On the masters and governesses of schools it certainly depends, in a great measure, whether the generation which is growing up to maturity shall be *Christians* or *infidels*. Since then the eternal happiness of thousands may be promoted or injured by their assiduity or neglect, it is devoutly to be wished that all may unite in doing what is already done successfully by many; and that they may see the happy effects of their pious labours in the exemplary conduct of their pupils in this world; and their everlasting happiness in that which is to come.

If any difficulties should occur in using the books above mentioned, I shall be thankful to those who will take the trouble of pointing them out to me, that they may be removed if new editions should be wanted.

AN

EASY INTRODUCTION,

&c.

PART I.

I HAVE been thinking, my dear Charlotte, that you and I might take some very profitable walks together ; and at the same time that we are benefiting our health, by air and exercise, might improve our minds ; for every object in Nature, when carefully examined, will fill us with admiration, and afford us both instruction and amusement ; and I am persuaded, we shall find that nothing has been in vain.

Though Henry is so young, he is a sensible little boy, and will be able, I dare

say to understand many things which we shall have occasion to talk of; therefore I think to take him with us; I long to see him, as I suppose he is greatly pleased with his change of dress! Oh! here he comes. Your servant, sir! you are very smart indeed; I could not imagine what little beau it was strutting along; I suppose, now you are dressed like a man, you begin to fancy that you are one; but, though you can read and spell, spin a top, and catch a ball, I do assure you there are a great many things for you to learn yet, and I shall be happy to teach you what I know. Your sister and I are going to take a walk; we shall have many pretty things to look at and talk about, therefore I dare say you will be happy to be of our party, will you not?

You know, my dears, in the walks, we have already taken in the fields together, I shewed you a great variety of plants

and flowers; you have seen the cattle and sheep grazing, the little birds hopping and flying about; and though I told you the name of every thing you saw, which I hope you will remember, you must learn to know a great deal more about them. Charlotte is going to get herself ready, so fetch your hat, Henry, and let us go into the meadows, where I am sure we shall soon find something worth examining.

Well, Henry, what do you think? is not this a charming place? You know that it is called a meadow. See how green the grass looks, and what a number of pretty flowers! Run about and try how many different sorts of grass you can find, for it is now in blossom. One, two, three: you have got eight sorts, I declare! Charlotte has gathered quite a nosegay: daisies, cowslips, butter-cups:

as for the rest, I do not know their names, so we must search the herbal, where we shall find them, and learn what they are called.

I need not tell you what is the use of grass, because you have so frequently seen the cows, horses, and sheep eating it; but they do not eat it all in that state; no, a great quantity of the grass that grows is cut down with a scythe, like what our gardener uses, which is called mowing; then come the haymakers, who turn it over and over again, spreading it upon the ground; and when the sun and air have sufficiently dried it to keep it from becoming mouldy, it is carried home to the farmer's yard, and put together in great heaps called hay-ricks and hay-stacks.

There are thousands and thousands of loads made every year, which serve to feed the cattle in the winter; for there is but little green grass for them then.

All of it grows from little seeds no bigger than pins' heads: look at the blossoms in your hand, Henry; they would soon have turned to seeds.

In a meadow, where there has been hay made, a great many of the dry seeds drop and are scattered about, and grass springs from them the next year: but if people want to make a new meadow, they must keep some seeds and sow them.

The beautiful flowers which you have in your hand, Charlotte, grew likewise from seeds which were mixed among the hay seeds; for the plants which sprung from those seeds are good for the cattle, and serve to give a pleasant taste to the grass. Besides, numbers of them are medicinal, that is, good to make medicines for the cure of many disorders to which we are subject.

Don't you think that grass is a very useful thing? I am sure the poor horse

cows, and sheep, would say so, could they reason and speak: for they have no cooks to dress victuals for them, nor money to buy bread, nor can they ask for any thing they want; so you see their food grows under their feet, and they have nothing to do but to eat it.

Now we will take leave of the meadow and go into the corn field. Look, Henry, pray take notice, Charlotte, this is wheat. I hope we shall have a plentiful harvest; but it will not be ripe till August, which is called the harvest month: however, I put this ear in my pocket, which was plucked last year, on purpose to show you what all this which grows here would come to: rub it with your hands, Henry, blow the chaff from it, give me one of the seeds. This is called a grain of corn. You see there are a great many grains in an ear; and look, here are a great many ears from one root,

and yet the whole root grew from one single grain which was sowed last year.

The earth was turned up with a plough, then the grains of corn were thinly sprinkled in the furrows, and the earth drawn over them with a harrow; after they had swelled some time, and become soft, by the moisture of the ground, little roots struck downwards, and stalks grew upwards, broke through the ground, and branched out, in the manner you see here; and produced ears, each of which, perhaps, contains twenty grains; and so, if you reckon all that are grown from the seeds which came up, there may be a hundred times as many, as were put into the earth.

This which grows now will be ripened by the sun, and look like that which you rubbed to pieces; then it will be cut down with a sickle, and tied up in bundles called sheaves, and carried to the barn,

where it will be threshed, cleaned from the chaff, and sent to the miller: he will grind it into flour, which will be sold to the bakers, who will make it into bread; but they must leave some for puddings and pies.

Only think, Henry, what quantities of corn must be sowed every year, to furnish bread for thousands and ten thousands of people! And what should we do without it? For bread is the cheapest and wholesomest food we have; many poor people can get but little else to eat.

But corn will not grow without sowing, as the hay seed does, because the seed is larger, and must be buried deeper in the earth, therefore hard work must be done to prepare the ground for it. But, my dear Charlotte, I think you have tired yourself; and Henry seems to have done so too; therefore let us sit down on this grassy bank, and rest.

What a fine spreading oak is this, which serves us for a canopy, and shades us so comfortably from the sun? See what a number of acorns hang upon it; they are excellent food for hogs. But do not think that the stately oak is good for nothing but to supply them with provision; it is of the greatest use to us. How large it is! it is bigger round than any man ever was; it has hundreds of branches, thousands of acorns, and still more leaves. It has great roots, which strike a long way into the ground, and spread all round at the bottom; they keep it from being blown down by the violent gusts of wind, which it frequently has to encounter, and through the roots it is that the moisture of the earth nourishes it, and keeps it alive.

Now, Henry, is it not a very surprising thing, that this great tree grew at first from a little acorn? Look, here is a

young one, called a sapling : it is so little, Charlotte, that you will be able to pull it up yourself. There you see is the acorn still sticking upon the root. The oak we sit under probably is an hundred years old ; when it is cut down it will be called timber ; the sawyers will saw it in pieces proper to be used in building ships and houses.

There are many sorts of timber trees besides, as ash, elm, chesnut, walnut, and others.

When there is a number of trees growing near together, the place is called a wood ; you have each of you been in one ; you recollect that, I suppose, and what kind of place it was. I wish we were in one now, for it is hot walking.

But I was going to observe, that all sorts of trees grow either from seeds or ker-

nels that are withinside their fruit, or else from little plants taken from the old roots, or slips taken off from their branches. All timber trees grow without any trouble, for the rain waters them; but I forgot to mention the bark, Charlotte, which is this outside part. It is of great use to tanners and dyers; and the dry branches, which are good for nothing else, make cheerful comfortable fires; so that you see trees are very valuable; nay, poor Henry would miss them, for traps, tops, and bats, are cut out of them.

See how the pretty birds sit singing on the branches; how glad they must be, when it rains, to shelter themselves amongst the leaves; besides if a heavy shower was to come now, we should be happy to stand under a tree ourselves, provided there was no appearance of a thunder-storm; for in thunder-storms trees often attract the lightning, which

might make it very dangerous to be near them.

Do not you smell something very sweet? Look about in the hedges, Henry, and try if you can discover what it is. See, Charlotte, what a fine parcel of woodbines he has got; they are quite delightful; take notice the woodbine is very different from the oak; it has long slender stalks and would fall upon the ground but that it borrows assistance of its neighbours. Observe how it twists about, and lays hold first of one thing, then of another. Last month there were briar-roses and hawthorns, that were very beautiful, but now they are out of blossom, and see the fruit is growing. The briars produce hips; the hawthorn haws; they are for the birds to eat in the winter. There are many pretty things that grow

in the hedges, as you may see, and all are of some use. These are brambles; they will soon produce blackberries. Don't you love blackberries? you shall come and gather some when they are ripe; but you must be sure never to eat any thing that grows wild in the fields, without knowing what it is, because some berries that appear very beautiful to the eye are poison, and would kill you.

There was a little boy who gathered something that looked almost like currants, and as soon as he had swallowed them, his throat and stomach felt as if he had eaten fire; and he swelled and swelled, till in a short time he died; and yet those berries might be very good and even valuable for some uses.

The farmers plant hedges to divide and secure their fields; for if the cattle should get amongst the corn they might do a great deal of mischief; besides, peo-

ple would not know exactly where their own ground ended, and their neighbour's began; and the cattle would be very cold in the nights, but that the hedges shelter them.

Don't you think this has been a very pleasant walk, Henry? Shall I cut you a stick? Here take this, it is a hazel-twig; nuts grow on hazel trees: filberts are another kind of nut, much more delicious: walnuts you have seen growing in our orchard. There are a variety of fruits which are contained in hard shells, in the same manner: as almonds, chesnuts, &c. The cocoa-nut is the largest that I know of; you saw and tasted one the other day. I never saw a cocoa tree, so I cannot give you a perfect description of it, but have read that it grows straight without any branches, and is generally very

high: at the top it bears twelve exceeding large leaves, used by the Indians in covering houses, making mats, and other things: between the leaves and the top arise several shoots, as thick as a man's arm, which being tapped, yield a very agreeable liquor, called in the East Indies, toddy, from which arrack is made; but frequent tapping destroys the tree: these shoots of branches put forth a large cluster or bunch of cocoa nuts, to the number of ten or twelve.

Three times a year the tree yields fruit, which is as big as a man's head: but there is another sort no larger than your fist, of which they make punch ladles in the West Indies.

It is astonishing to think what a quantity of provision and useful materials these trees supply; they grow in the East and West Indies, and in Africa.

There is another sort of nut called the

cocoa; this grows in the West Indies and South America. The tree which produces it is something like our cherry-tree, and the nut about the size of an almond: there are seeds withinside, which are made into chocolate, with the addition of some other ingredients. The best sort of this nut is imported from Caracca.

I begin to fear you will be tired; we must therefore think of returning home, but we will go through the barley-field.

Observe; this is very different from Wheat; the ears have long, hairy spikes, which are called beards. Do not put them in your mouth, for if you do, they will stick in your throat and choak you. Barley is sown in the same manner as wheat is, but does not make such good bread: it is however very useful to us; for after it has been threshed, it is sold

by the farmers in great quantities to the malsters, who pour water upon it, which makes it sprout; then they dry it with hot cinders, and it becomes malt; with the addition of water, and some hops, to give it a pleasant bitterish taste, and keep it from becoming sour, it is brewed into beer, which is one of the comforts of life, and helps to give the poor men who drink it strength to their laborious work. Barley is also good to feed chickens, turkeys, and other poultry.

Hops grow in gardens and fields, which are from thence called hop-grounds, and run up long poles: when they are ripe they are gathered, dried, and sold mostly to people called hop-merchants.

Now we are come to a field of Oats; pray look at it, that you may know it again from wheat and barley. The poor

horses make their meal of oats and hay all the winter ; and when they are kept in stables they eat them in summer too ; so that you find oats are very useful.

We have in England another kind of corn, called Rye, of which bread is sometimes made ; but this is inferior to Wheat.

Some countries do not produce corn like that which grows here, but are in general supplied with something that partly answers the same purpose.

The grain which is called Turkey Wheat is very different from ours. Its stalk is like a reed with many joints, and grows to the height of five or six feet ; out of the joints shoot the ears, which consist of a great number of grains, each about the size of a pea, enclosed in coats or husks, which burst open with the heat of the sun, and then it becomes quite ripe.

Millet, I believe, comes from Turkey. Rice grows in the East and West Indies.

I need not tell you, for you already know by experience, that they make delightful puddings; and I dare say you think rice-milk is excellent food, and that it is right to let those people who furnish us with such good things have a little of our Corn in return.

In countries where there is no grain to be had, the inhabitants are under the necessity of eating roots or fruits; and even in some parts of our king's dominions, the poorer sort of people are obliged, from the barrenness of their soil, and extreme poverty, which prevent their either cultivating or purchasing wheat, to eat cakes, puddings, and porridge made of oatmeal; and, instead of a good dinner of meat and bread, are glad to satisfy their hunger with potatoes alone. How happy therefore, my dears, ought we to think ourselves, who have never known the want of bread. I hope you will

remember this, and let it be a rule never to waste what such numbers would be glad to have. Even the crumbs which you accidentally let fall, might, if collected, afford a hearty meal for a little bird, and make him merry for the whole day; or would serve to divide amongst its nestlings, which might otherwise open their mouths and chirp for food many a time, while the parent bird was seeking it with weary wings. I was very angry with you, Henry, the other day, for flinging bread at your sister; but I hope you will never do so any more, now I have informed you what a blessing it is; for I have seen persons who wantonly wasted bread, live to feel great distress for want of it. +

Can you tell me, Henry, what grows in this field? They are turnips. I will pull one up. This root, when it is boiled, is very wholesome and excellent

sauce for mutton, lamb, and other meat : there are quantities of turnips sown every year for our tables, and likewise to give to the cows, turnips being cheaper than hay.

Some fields are planted with potatoes ; numbers sown with carrots, a great many with peas and beans, others with hemp and flax, which are very valuable commodities : when I have an opportunity I will shew you some. The stalks of hemp and flax, after they have been beaten, and properly prepared, are spun into thread, of which all linen cloths are made ; they likewise furnish the materials for all kinds of ropes and cords. That fine cloth, which your frock is made of, Charlotte, once grew in a field, and so did that of Henry's shirt. It was made in Ireland and Scotland, 'but a great deal of the same sort is made in Flanders and Germany.

Flax is also spun into exceeding fine thread, for weaving of lace and working upon muslin.

Instead of these plants, they have in some countries, particularly in the East and West Indies, cotton. Of this they make, muslins, dimities, and calicoes. Cotton is a kind of down that is round the seed of a tree, called the cotton tree. It grows in pods about the size of a walnut; as they ripen, their outsides become black, and the heat of the sun makes them split open; they are then gathered; and with a proper machine the cotton is separated from the seeds, and afterwards spun for the purpose of weaving. So you see, my dears, there are a variety of materials for clothing; and the ingenuity of mankind has invented many ways of applying them to useful purposes. Even the very bark of trees is, with incredible labour and industry, sometimes converted

into curious cloth by savages, who to us appear extremely ignorant ; and there are others who weave themselves ornaments and garments of net-work covered with feathers. +

Besides what grow in the fields which belong to the farmers, the gardens afford many excellent things. There are cabbages and cauliflowers, brocoli, lettuce, endive, cucumbers, French beans, in short a hundred things very pleasant to the taste, and extremely wholesome.

Besides you know there are fruit-trees. the names of which, I fancy, you are intimately acquainted with ; currants, gooseberries, apples, pears, peaches, nectarines, plums, grapes, apricots. Don't you wish they were all ripe, Henry ? Then what excellent tarts we could make ! and what feasts we should have ! Well, have a little patience, my dear, they will soon be ripe, and then you shall have plenty :

but you must not eat them before they are ripe; for they will make you very ill.

I knew a little boy, Henry, who used to look as fresh and rosy as you do, and run about, and be merry all day long. His mamma had a great garden, and she told him not to gather the green fruit; but the little greedy fellow would not pay attention to what she said; like a silly child as he was, he thought he knew better than his mamma, so he stole in unperceived, and ate the green gooseberries, and currants, by which means his stomach being filled with trash, he entirely lost his appetite, and his rosy cheeks became as pale as death; at last worms, live worms, came in his bowels. They were in the green fruit, but so small that he could not see them, and he was taken very ill and had like to have died: so when all the good children were eating ripe fruit every day, he was lying

sick a-bed, and did not get well before it was gone. Was he not rightly punished for being so undutiful and greedy?

You remember, my dear children, how very beautiful the fruit-trees looked a little while ago, when they were in full bloom; the blossoms are now gone, and the fruits grow in their stead; they will get bigger and bigger every day, till the heat of the Sun ripens them, and then they will be fit to gather.

Apples and pears will keep all the winter; but the other fruits will become rotten unless they are preserved, by boiling them up with syrup made of sugar and water; or else dried; so we must speak in time to the house-keeper, that she may preserve us some damascenes and gooseberries for tarts, make marmalade of quinces, preserve apricots, and make currant jelly and raspberry jam.

Currants, grapes, and gooseberries,

will make wine ; but that is not at all good for little boys and girls : they can be merry enough without it ; and sweetmeats must be eat very sparingly, or they will make you sick and spoil all your teeth, I assure you.

When you can get no ripe fruit, a little currant jelly, and other things of that kind are very agreeable ; but as for sugar-plums, and the rest of those foolish things, they answer no purpose in the world but to make people disrelish what is wholesome ; and when they have lost all their teeth by indulging themselves with them, it will be too late to resolve against eating any more : therefore it is better to prevent the mischief, by not eating them at all. I am sure I would not part with one tooth for all the sweetmeats in the world.

Charlotte, if you are not tired, my dear, we will go into the flower garden : as

for Henry, he is too much of a man to complain; nay, I am ready to believe he could keep upon his feet from morning to night. Come, Sir, take the key and open the gate. This I think is the most delightful place we have seen yet!

What shall we look at first? There is such a variety of beauties that one knows not which to prefer; you admire those in the fields, but these excel them.

Look at those tulips! examine those carnations! observe that bed of ranunculas! and then admire that stage of auriculas! The whiteness of this lily exceeds that of the finest cambrick. This blue flower is a convolvulus; it is very like the binds that grow in the hedges, only they are of a white colour. Pray, Charlotte, gather one of those very little flowers; I have forgot its name; but when one sees it near, it is beautiful and curious as the large ones. Now turn your

eyes to that noble sunflower ! that elegant holyoak ! that glorious piony !—I beg of you to gather me one of those charming roses : how sweetly they smell ! get me also a little sprig of jessamine, and one honeysuckle, for I cannot tell how to leave all these beauties behind me ; but I will not permit you to gather many, because it is a pity to spoil them. The gardener brought us some to dress our rooms with this morning, and I know if you should pluck any, they would soon be dead in your warm hands, for nothing but water will keep them alive.

Have you taken notice that every flower has different leaves from the rest ? That some of them are variegated with all the colours you can name, and polished in the highest manner ? In short, their beauties are too many to be num-

bered ; and when you come to be able to read books of natural history, you will be astonished to find how much can be said about them ; but you are too young to understand them at present : however, I must not forget to tell you, that all flowers grow either from seeds, or little roots taken from great ones.

Few of those which grow here would grow wild in the fields, because the earth there is not rich enough for them. There is a great deal of trouble required to make some of them grow at all, the gardener is obliged to do many things or they would wither away : and particularly he must water them properly ; for earth and water are the same to trees, plants, and flowers, as victuals and drink are to us : but as they are fixed to one place, and can neither fetch nor ask for it, it either comes to them in rain and dew, or the gar-

dener pours it on them with a watering pot.

Some tender delicate plants will grow only in very light earth, for they could not get through hard ground, any more than you could break through a stone wall. Other plants are strong and stiff, therefore light earth would crumble away, and leave the roots bare, so they grow best on clay: Some require a great deal of water, nay, grow even in ponds and ditches; others will thrive only in sandy ground. Many curious plants are kept in green-houses; they would not grow in the open air in this country, because they are brought from foreign parts, where it is hotter than here: If you were to go to a place much colder than this, you would not be able to bear it like those who always live there.

From what I told you just now, my

dears, you must understand that there is not only great variety in what grows out of the ground, but even in the earth itself. Look at the walks; some of them are of a yellowish red colour. That is gravel: does it not make pretty walks? it is exceedingly good for the roads likewise, Henry, which would soon be very bad where there are a great many carriages continually going, if they did not spread gravel upon them to keep them in repair. Of another kind of earth bricks are made which are afterwards used in building houses, walls, &c. Chalk comes out of the earth. That is very useful to lay upon some sorts of land, in order to make what the farmer purposes to sow there grow the better: It is likewise burnt to make lime of, which mixed with sand, makes mortar for the bricklayers to fasten their bricks; for they would fall down if they were not cemented together. Stone

and marble are dug out of the ground. When they find a vast quantity together, they call the place a quarry. Some fine churches and castles are built of stone. Marble is used for chimney-pieces, slabs, and ornaments in elegant houses.

Coals are likewise dug out of the earth, with which we make fires to warm us, and dress our victuals. Oh! how we should go shivering and shaking about if we had no fires in the winter! And what would meat and puddings be good for, if we could neither roast, boil, nor bake? and we could not get wood enough for these purposes.

I have not yet told you half the riches that are in the bowels of the earth. Out of them are dug gold, silver, copper, lead, iron, tin; these are called metals. Look at my watch; this is gold: guineas and half-guineas are likewise made of it, and it may be beaten into leaves thinner than

paper. Did I not give you some, Henry, to gild your oak-apple?

With leaf-gold they gild wood; the picture-frames in the drawing-room appear very fine, but are only wood covered with those thin leaves.

Gold is the most valuable of all metals. This shilling is made of silver, which, though inferior to gold, is yet much esteemed. It is used for coffee-pots, candlesticks, waiters, spoons, and an hundred other things, which people who can purchase them make use of. Lead is very heavy: there is great plenty of it to be had, and it is of the utmost service to us; for it is made into cisterns to hold water; pipes to convey it from the springs; gutters to carry the wet from off our houses; weights, and a variety of other conveniences. Our saucepans and kettles are made of copper, which would be very unwholesome if they were not lined with tin;

which is a whitish metal, softer than silver, yet harder than lead. We have many mines of it in England, and send quantities of it to foreign countries. Halfpence are made of copper. Iron is one of the most serviceable things we have; most kinds of tools that are used in the fields and gardens are partly made of it; likewise most of those which are employed in different trades have generally some iron about them: in short it would take up a great deal of time to tell you the whole of its value. Steel is iron refined and purified by fire, with other ingredients; it is much prized too. Our knives, scizzars, razors, needles, and many articles besides, are made of it.

All kinds of precious stones likewise are found in the earth; diamonds, rubies, emeralds, topazes, &c. They do not look so fine when they are first dug up, for there is much patience and labour

required in cutting and polishing them. Look at the diamonds in this ring ; you see they are cut with a great many sides, and the light falling on them makes the appearance of such a variety of beautiful colours.

Now you see, my dears ; that every thing, when we examine it, is curious and amusing. None need go sauntering about, complaining that they have nothing to divert them, when they may find entertainment in every object in nature ; but I am sure, if you are not tired you must be hungry, and I fear the dinner will be spoiled. So let us make haste into the house. You have been told enough to employ your thoughts till to-morrow, when we will take another walk, if nothing prevent us.

Good morning to you, Charlotte, have you seen Henry yet? I did not expect you

quite so early ; but hope it is a proof that my instructions were agreeable to you yesterday : pray see whether he is up.

Are you not ashamed of yourself, you little lazy boy, for lying in bed so late ? I was obliged to send Charlotte to call you. Your sister and I longed to be walking ; let us therefore lose no more time, but be gone.

There is the dairy-maid milking the cows. How comfortable the cattle look grazing in the verdant meadow ! I dare say the herbage is as pleasant to them as apple-pie is to you. See what charming thick coats they have got. As beasts cannot make themselves clothes, they have what answers the same purpose growing on their backs. All cattle have four legs ; they do not walk upright, for that posture would be both painful and inconvenient to *them*, whose food is on the ground, as they would be always stooping, which would tire

them sadly; and had they only two legs, they could not move their long heavy bodies with them. Observe what hard hoofs they have got. If they had not, their poor feet would be torn in pieces without shoes. Their great horns serve them for a defence, in case any thing threatens to hurt them, for they cannot get guns, swords, or sticks, you know.

Can you tell me what becomes of the cows and oxen; I am sure you cannot, therefore shall inform you. Do not run away, Henry; see how attentive Charlotte is.

Cows, as you see, give milk; a vast deal indeed, which supplies the dairies with cream; for it is put into great dishes, and in about twelve hours the cream rises thick on the top, which is skimmed off; when they have got enough of it, they put it into a churn, and work it about very fast, by which means part of it becomes butter;

the remainder is butter-milk, which is very wholesome for little boys and girls.

Cheese is made from milk, and so are puddings too, with the addition of eggs and flour, bread or rice.

The calves are the cows little ones, and many of them are sold to the butchers, who kill them; their flesh is called veal.

See that drove of oxen! do not be terrified, Charlotte; observe how quietly they suffer themselves to be driven along, so many of them by one drover! He will drive them to market, where the butcher will buy them: when they are killed, their flesh will be beef, and their skins will be sold to tanners, who will make leather of them, and sell it to the leather dressers, then it will be bought by the shoe-makers, for shoes and boots; by the sadlers, for saddles, bridles, and other things. The horns of these beasts are made into combs, lanterns, &c.

Look at the pretty harmless sheep, with their innocent lambkins by their sides. Sweet creatures! you also have got fine thick coats; they are very comfortable to you in the winter, when you are obliged to lie in the open fields in the frost and snow, but must make you very hot in the summer. Well, a way is contrived to ease you of them; as soon as the sultry heat comes on the farmer will get you all together, and begin his sheep-shearing; then all your load of wool will be cut off, and you will spring away from him, and run frisking and skipping about, like little boys who pull off their coats to play.

The poor sheep would not be so merry if they knew that they should be sold to the butchers too; but that must be the case. Their flesh will be mutton, and their skins will either be parchment, such as Mr. Green, the lawyer, brought to your papa the other day, and like what your drum is

covered with, Henry, or else leather, like the outside of your spelling-book.

The sheep's wool is very valuable indeed, for it is sold to the wool-combers, who clean it, and poor old women, who live in cottages, spin it with their spinning wheels. Have you not seen Goody Newman sitting at her work, singing and happy to think that she should be paid enough for it to keep her from begging?

When the wool is spun it is called worsted, and the weavers make it into cloth for men's clothes, flannels, blankets, stockings, and other things: so that sheep supply us both with food and raiment. But I dare say you think it very cruel to kill the poor creatures: Indeed, my dears, it is a pity; but if some were not killed there would be such numbers that there would not be a sufficient quantity of herbage for them to eat, and many would die of hunger; and now whilst they live, they

are as happy as they can be, have fine green pastures to feed and play in, and when they die, have no relations to be sorry for them, or who will suffer by their deaths ; because, though ewes are very fond of their lambkins while they are little, the fondness continues no longer than while they are helpless ; for when they have done suckling them, and shewn them what to eat, they drive them away, and take no more notice of them. When the butchers take the sheep to the slaughter-house, they know not what is going to be done ; and when their throats are cut, they are but a little while dying, therefore they do not suffer much. When they are dead, they can feel no more, you know. We *must* kill them to preserve our own lives, but should never be cruel to them while they live.

Horses are sent to market, Henry, but not to be killed. Horseflesh is not good

to eat ; it is carrion, and only fit for dogs and crows. Horses are noble creatures. That is a riding horse. See how he leaps and bounds now he is at liberty. But though he is so strong, can kick hard, and raise himself upon his hind legs, he is so gentle that he will suffer himself to be mounted and guided any way. His legs are slenderer, and his body not so heavy as the ox, so that he can move nimbly ; neither is his back so broad but that a man can easily sit across it. He has hoofs also ; but as he travels so much, they would be worn out, therefore all persons who keep horses should be careful to let them have iron shoes, to keep their feet from being bruised. The smith makes them, and nails them on, which, if done cleverly, does not hurt the horses at all.

Don't you wish, Henry, that you could ride on horseback ? When you are old enough you shall be taught to ride, and

learn to manage a horse ; but if you get on one by yourself, without knowing what to do, he may run away with you and kill you.

There was a little boy who wanted to ride, and had not patience to stay till his papa had bought a pretty little gentle nag for him ; but got upon the servant's horse, which was hung at the gate. He laid hold of the bridle, and could not reach the stirrups ; gave the horse a cut with a stick, and away he galloped with him so fast, that the little boy was thrown off with his head against a stone, which fractured his skull, and he was taken up dead : and yet that was not a vicious horse, when he had a skilful rider on his back : the accident was entirely owing to the child's not knowing how to manage the bridle.

There was another little boy, who was always running into the stables amongst the horses, and one day he was kicked

and had his ribs broken, for the horse did not know that it was a little boy at his heels.

Those fine large bay horses, with black manes and tails, are coach horses: they are stronger, but not so nimble as the others, those with great clumsy legs and rough coats, are cart horses. There is another sort of horses, which are very beautiful and swift; they run races, and carry their masters when they hunt; but it is very expensive to keep them.

We can walk but a little way in a day, as we soon tire on foot; but when we are upon a horse's back we can travel a great many miles, and see our friends, who live at a distance; and it is very pleasant to go in coaches; do not you love it, Charlotte? Now these pleasures we could not have without horses; don't you think that we ought therefore to use them well? Besides, we could not tell how to manage

many things without them, for it would be exceeding hard work for *strong* men to do what horses can perform with ease. It is extremely fatiguing to a poor boy, with his heavy nailed shoes, to walk by the side of a plough all day; but do not you think it would be a great deal harder to him were he forced to draw it along through the rough ground: and how would *men* be able to move heavy waggons and carts, and other great loads, without the help of horses? So I think that the least we can do, is to give them plenty of oats and hay, and a warm stable at night. Don't you think those people are very barbarous who ride them too hard, who whip and spur them till they are ready to die? and yet such cruelties are exercised every day; but remember, Henry, that it is both foolish and wicked to act in that manner.

There is a poor ass; he makes but a mean appearance after we have been viewing such beautiful fine animated creatures as horses; but do not despise him on that account: he has great merit, I assure you, for he will do hard work, and it costs but very little to keep him, as he will be contented with what the hedges afford, or even a few dry leaves, or a little bran; and requires no stable to shelter him, nor groom to attend him; so that poor people who cannot afford to keep horses may have an ass, and he will draw a cart, carry panniers, nay, will not disdain to lend his back to a chimney-sweeper. Have you not seen the little grinning rogues, with their black faces and white teeth, riding on a jack-ass with a sack of soot?

I must not forget to tell you likewise that asses' milk is one of the finest medicines in the world, particularly for any

one who inclines to a consumption: many persons who drink it get well, after they have been so ill that they were thought ready to die. Is it not very barbarous to treat such valuable creatures with inhumanity? and yet it is very common to do so. I am sure it would grieve you to hear how people beat and starve them frequently.

Let me look at my watch; it is past eight; we must return home to breakfast. Who is that? O! it is John coming to call us, and poor Tray with him. You are very glad to see us, Mr. Tray, and we are glad to see you too, for you are an honest faithful fellow. Don't you love Tray, Henry? How he wags his tail, and jumps about. I declare he looks so pleasantly, I could almost fancy he had a smile on his countenance. When we are in bed and fast asleep, he keeps watch

all night, and will not let a thief come near the house. When papa goes shooting and coursing, Tray runs about, round the fields, and across the fields, and finds out all the game for papa to shoot; for he can smell it a great way off; then he is so good-natured that he will let the little baby play with him, and will never be persuaded to leave his master.

Poor Tray desires no other reward for his services than a little food, and the pleasure of walking out sometimes with his master or any body in the family. I have got the key of the paddock, so we will go through it, and take a peep at the deer.

There is a noble stag, with his fine branching horns! Do not you admire him? and see the little frisking fawns! Active as you are, Henry, I think you cannot bound like them.

This kind of animal is only kept by

those who have parks and paddocks properly paled in, for they would not stay in the fields as cows and sheep do. Their flesh is very fine flavoured meat, called venison.

Gentlemen often take great diversion in hunting stags. They turn one out of the park, and then let loose a great number of dogs, of which he is so fearful, that he runs from them as fast as his legs will carry him; a number of gentlemen on fine swift horses follow him, and are so eager for the sport, that they leap over hedges and ditches to overtake him. Sometimes he will lead them a great many miles; but at last his weary legs will carry him no farther, he pants with fatigue and apprehension, stops, and makes an effort to repel them with his horns; but the dogs seize on him, and tear him till he dies. I suppose there is pleasure in hunting, but I think the

poor creature should be allowed to return to his park again, in order to make him amends for the terrors he must have suffered, and for the diversion he has afforded to his pursuers.

Sometimes people hunt hares also. They go into the fields with their dogs, who can smell them out if they hide themselves ever so cunningly; and when the hares find they are in danger of being caught, they spring up, and run with all the speed they can, and practise many tricks to save themselves; but all in vain, for they are generally overtaken and suffer the same fate as I told you the stags do.

I don't know how it is with the gentlemen, Henry, but I should feel so much for the poor little frightened creature, as would destroy all enjoyment of the sport.

I am sure it would delight me more to save one from its distress.

Well, now for breakfast.—Run into the parlour, Henry; see, Charlotte! there is a good bason of milk for each of you; I dare say your walk has given you an appetite. There is nothing like air and exercise for improving health and cheerfulness.

Whilst you eat your breakfast I will tell you a piece of news; your favourite Tibb has got kittens, Charlotte; there they are in a basket. Call her out to lap a little milk, and then we can look at them. How they mew and tumble about! They cannot now see, but in nine days their eyes will be open, and they will soon begin to play a hundred diverting tricks. When old puss has taught them to catch mice, she will make them provide for themselves, and so far from giving herself any trouble about them,

will grumble, and give them a good box on the ear, if they take any freedoms with her, but she will be a good mother to them for all that; for she will be extremely tender to them as long as they stand in need of her care: and they have no reason to expect her to catch mice for them all their lives, when they will be as clever at it as herself.

Mice are pretty creatures to look at, but they do a great deal of mischief; and so do rats. If we had not cats, we should be overrun with them.

I should never have done were I to enumerate every kind of animal; but must not forget to mention that there are great numbers of *wild* beasts; lions, tigers, leopards, panthers, wolves, and others.

They have great strong claws, monstrous teeth, and are so fierce that they can tear a man to pieces in an instant.

Now had they been amongst us like the flocks and herds, what havoc would they have made in the world ! We should not have dared to go out of doors. The cows, sheep, and horses, would have been a constant prey to them : but there are none here ; they avoid the habitations of men, and range the forests and deserts far from our abodes.

As their skins make very comfortable clothing for people who live in cold countries, the hunters frequently pursue them ; for there are seldom many wild beasts together, and there are usually a number of hunters, who provide themselves with proper weapons ; they frequently get the better of them.

Sometimes they are caught alive when they are young, and shewn about as curiosities ; and those who look after them have a way of managing so as to cure them in a great measure of their

fierceness; there is no beast whatever so fierce, but it may be tamed or subdued by men. I have seen several sorts, particularly at the Tower of London, and read a very entertaining account of that collection in one of Mr. Newbery's little books: I think you have got it, Charlotte; I desire you will shew it to Henry.

The elephant is a most astonishing creature, I believe the largest of all beasts. Remind me, when we are in the library, to shew you the picture of one; and as soon as I have an opportunity, I will take you to Mr. Parkinson's Museum, where you will see an elephant and many other curious things: their teeth are very valuable. They are ivory, and you know there are abundance of things made of that. You have several pretty ivory toys, and there are combs and knife-handles; in short, one might soon name twenty things made of ivory.

The skin of elephants is extremely hard, and their strength wonderful, so that when they are provoked, nothing can stand before them; yet they are of a very gentle, harmless nature, and will submit to be guided by a man. We read in history, that it was formerly the custom to employ elephants in armies; and that they had little wooden castles built on their backs which were filled with men, who shot from them with bows and arrows. When these beasts had been some time in the battle, they grew angry, and then they trampled to death all who came in their way, and could even beat down trees, and demolish houses. How would you like to ride on an elephant, Henry? Why, you would look on his back like a little marmoset on a horse.

The camel is another noble beast; we have none of them here, only now and

then one, which is shewn about as a sight. You can form no idea of him from a description, but I will look for a picture of him likewise.

In the countries where the camels are, there are many sandy deserts; places where there are no houses for many miles, nor a tree to shelter travellers from the scorching rays of the sun; and yet people are under the necessity of taking journeys through them, in order to carry the goods they want to sell from one country to another: it would be impossible for them to bear such heavy loads themselves, and horses would perish with thirst, as there is no water to be met with; but a camel will carry very great burdens, and requires no refreshment on the road; and when he gets to his journey's end will kneel down, that his master may be able to reach his back to unload him; for he is

so tall, that it could not be conveniently done otherwise. I could tell you wonderful things of an hundred other creatures, but that I hope you will have curiosity enough to read about them.

If you have breakfasted, and are not fatigued, we will go into the poultry yard. You, Charlotte, shall carry some barley, and Henry some tares, and I am sure we shall be welcome visitors.

See what a fine brood of chickens that hen has got; and she takes as much care of them as a fond mother does of her children. Do not attempt to catch her chickens, Henry, for she will fly upon you. Yesterday they were in the egg-shell; she laid them in a nest in the hen-house, sat upon them three weeks, and would scarcely come off to eat, for fear they should perish for want of being

kept warm : as soon as they were strong enough, they broke the shell and came out, and she gathered them under her wings ; now she is teaching them to peck and scratch ; and when she fears that any thing is going to hurt them, she flies at it with the fury of a lion. Poor hen ! what will you do now there is a hawk ! oh, how the poor creature is terrified ! the little chickens throw themselves on their backs, expecting to be caught up by his talons, and the hen runs about in agonies ; for he is too powerful to contest with. Go, Henry, call Thomas, and desire him to bring his gun immediately. Poor hen ! the hawk shall not have your chickens. Now, we have driven him away, come and eat your barley.

We want some eggs for custards, Charlotte, see if there are any in the hen's nest. Oh, you have found some ; these

are new laid; there are no live chickens in them yet, but were we to let them remain for the hen to sit on, some would grow withinside, and she would hatch them. But we want eggs for many uses, and were they all to be hatched, there would be too many fowls. All kinds of poultry and birds come out of eggs.

It is possible to hatch chickens in ovens. And I have read that in Egypt this is a common practice, and that as soon as the young chickens come out of the shell they are put under the care of a fowl, which, having been trained to the business, leads them about, scratching for them with the same anxiety that a hen would do. This is certainly a wonderful thing; but, for my part, I do not approve of such unnatural proceedings. I am sure we may have a sufficient number of eggs and chickens in the usual way if we manage them properly. It appears

to me a robbery to take the chickens from their parent, and put them under a fowl which provides for, and protects them only because it is his business to feed and attend little chickens. It is like taking a child from its mother, and putting it to nurse without her consent, in a place unknown to her. But I have the pleasure of hearing that hatching chickens in ovens has been tried in England, and rejected.

There is another foolish custom, which is indeed very common here; I mean that of putting duck's eggs to be hatched by a hen. You can scarcely conceive the distress it occasions. The hen, not conscious of the exchange that has been made, supposes she has hatched her own chickens; for she has not sense to reflect on these matters; therefore when she sees them go into the water, as it is their nature to do, she is seized with the most

alarming apprehensions lest they should be drowned, and yet dare not attempt to follow them, as she is not able to swim.

I am sure you would pity the poor creature; therefore never make such experiments, as they only serve to gratify curiosity, by proving that it is warmth that hatches eggs.

It grieves one to be obliged to kill any of the poor chickens; but, as I told you in respect to the sheep and oxen, were we to suffer them all to live, they would die of hunger, and cause us to do so too, for they would eat up all the wheat and barley, and we should have neither bread nor meat for our use. But we will take care to feed them well, not hunt them about, and put them to as short pain as possible. I am sure I could not kill a chicken, but somebody must.

The feathers of geese and chickens are what our beds are filled with.

Don't be afraid of the turkeycock, Henry, he is a saucy fellow, but has very little real courage. Turn towards him, and he will run away from you as you did from the man who held up his stick at you for flinging stones at him.

Chickens and other fowls have very sharp claws, that they may scratch about in dung-hills, and at barn-doors, where they usually find plenty of food ; besides, their feet have several joints to them, so that when they sleep at night they still hold fast round the roosts, and preserve themselves from falling. Water-fowls usually sit on the ground to sleep. They endeavour to find a snug corner ; but a little damp does not injure them.

Cocks are noble birds, and very fierce ; sometimes they will fight till they kill one another ; and there are people in the world who are cruel enough to make them do it for their own diversion.

They got two of these fine creatures, and fasten to their legs sharp spurs made of polished steel ; then they put them in the middle of a round place, covered with turf, called a cockpit, where they stand about them hallooing, swearing, and saying shocking wicked words, whilst the cocks fight till one of them dies. Oh, Henry ! I hope you will never take pleasure in such barbarous sports. I can see that your tender heart is moved with the bare relation of it. I could tell you many stories of the bad consequences of cock-fighting, which has frequently been the ruin of those who were fond of it ; but hope, before you are a man, you will entertain such sentiments as will effectually preserve you from the danger of practising it.

I will tell you of another kind of barbarity, which is sometimes practised by cruel, wicked boys on cocks. On a particu-

lar day in the year, called Shrove Tuesday, they assemble in parties, and fling cudgels at these poor harmless creatures, till they kill them. First one little tyrant throws at a cock, and perhaps breaks a leg; this is mended, as they call it, with a piece of stick tied to support it; and then the next boy flings, who, it is likely, may knock out an eye; another blow perhaps breaks a wing; and scarce a stroke fails of crushing some of its tender bones; as long as strength remains, the tortured bird attempts to escape from his tormentors; but continued agony soon obliges him to drop. If he discovers the least remains of life he has still more to endure; for they run his head into the ground to recover him, as they say; this makes the creature struggle: and he is set up once more: a few blows now complete the cruel sport, and he drops down dead, whilst his murderers exult over him, and call themselves

very clever fellows! What do you think of such boys, Henry? Is there not much more pleasure in seeing the happy creature pecking at the barn door, strutting on his dunghill, clapping his wings, and crowing with joy, than to see his noble courage subdued in this manner; his bright eyes hid with a deadly film, and his beautiful plumage covered with dirt and blood?

See that stately swan, how magnificently he sails along with his silver wings expanded to catch the fresh breeze. And pray observe his mate, with what pride she leads forth from the nest her new-hatched cygnets! Of all the water fowls I ever saw, the swan appears to me the most beautiful.

That simple goose looks mean in comparison of a swan. Observe how she hisses,

and waddles along ! However we must not despise any thing merely for its look : geese are very useful creatures, and we are in some measure obliged to them for all the learned and entertaining books we have, since they were originally written with pens made of quills taken from goose-wings ; besides, geese afford us many excellent meals ; for when roasted they are very good eating. This goose, you see, has got a numerous brood of goslings ; and here is mistress duck too, with a fine train of ducklings ; now they go into the pond ; now they swim away ; they are amphibious ; that is, they can live either on land or in water. Observe the feet of the geese and ducks. It is the same with every other water fowl ; they are webbed, and to serve like oars you have seen the watermen use to row with.

There is another kind of birds, called birds of passage, such as quails, wild

ducks, plovers, woodcocks, swallows, &c. these do not constantly reside in one place, but go from country to country, at particular seasons of the year. They all assemble together on a certain day and take their flight at the same time. Some cross the seas and fly many hundred miles, which is very wonderful.

Pray look at the peacock. Did you ever see a more beautiful sight? He spreads his resplendent tail, which the sun shines on, and shews it to perfection. There is one of his feathers on the ground. I desire you to examine it particularly. The nearer you look at it the more admirable it seems.—And pray pick up some of those which the pigeons and other poultry have dropped; you will find them worth examining. I would have you accustom yourselves to look at

every thing; that is the way to gain knowledge.

Did you ever see any gold or penciled pheasants? they are charming creatures. All birds, I think, are pretty; even the owl and the crow are not to be despised when you see them near. But if you are not satisfied with the little information I have given you, we will read some books of natural history, and go to the Museum over Black Friars Bridge, where you will see a most beautiful collection.

There are many sorts of birds in this country, and numbers different in other parts of the world: but I shall not at present give you a description of them all, because you must take the pains to read about them yourself. I shall only mention the humming bird, and the ostrich.

One species of the humming bird is a little creature, scarcely bigger than an

humble bee, and so beautiful, that ladies in the country where they are, wear them in their ears for ornaments. The ostrich is remarkably large, and something resembling a goose, but taller than a man; their eggs are so big that I have seen drinking-cups and sugar-dishes made of their shells, and their feathers are very fine. Those beautiful ones, which have lately been so much in fashion, are ostrich plumes; and so are those fine black ones which are put upon a hearse. These birds are too heavy to fly, but they have short wings, which are of great use in helping them along, and they run with surprising swiftness.

They do not sit upon their eggs, but leave them to be hatched by the sun.

I must go into the house now, so pray take leave of these favourites of yours for the present.

There is little Dick Williams coming in at the gate ; I fancy he has something that he thinks will please us. What have you got there, child? a bird's nest! oh, fie upon you, to rob the poor things of what cost them so much pains to make. The young ones, you say, are flown? well, Henry, take it in your hand, and I will tell you how the birds built it.

Two of them agreed to live together; for though they cannot talk as we do, they can make one another understand; so they set about building them a house. First they got some small sticks and hay, then in a snug place, which was not likely to be found out, they began the outside, then they picked up some moss and horsehair; after all they lined it with feathers, the hen bird laid her eggs, and her mate sang to her whilst she sat over them; at last come out the little birds, and away flew the old ones to get food

for them. As soon as they had found any, they came hurrying with it to the nest. When the young ones heard the sound of their parents' wings, they chirped, and opened their mouths, as much as to say, "*feed me, feed me.*" The old birds fed them one after the other. Sometimes the hen sat upon them a little while to warm them, then abroad she went for more food, and so the old birds kept on till the young ones were strong enough to fly, when they went along with them to shew them where to get food, and how they must shift for themselves, and all their care about them was over. As soon as the little birds are big enough they will build nests too, and do as their parents have done.

I am always angry with those who take birds' nests, when I think how many miles the poor creatures may have flown to procure the materials, and how hard

they must have worked with no other tools but their beaks and claws to build with.

We should not like to be turned out of a comfortable warm house ourselves, though few of us have the ingenuity to build one. The farmers indeed find themselves under a necessity of destroying some kinds of birds for eating the corn ; and hundreds are killed on that account ; besides, there are great birds, such as hawks and kites, which devour a great many, so they have enemies enough without little boys. For my part, I would willingly spare them some of my fruit to pay them for their music, and would not have my sweet blackbird killed, which sings so charmingly in the orchard, were he even to eat up all the cherries.

You have got a canary bird in a cage, Charlotte ; I hope you take care to feed

him well and keep him clean. He never knew what liberty was, and therefore does not want it; nay, if you should turn him loose, he would starve and die; besides he could not bear the cold air out of doors in the winter, because canary-birds were first brought here from a hotter country, and only build in houses. But should you catch a poor bird which had been used to fly about, hop from twig to twig, and sing amongst the branches, he would at first flutter, and almost beat himself to pieces against the wires of the cage; and when he found he could not get out, would sit moping in a corner, and refuse to eat and drink till extreme hunger and thirst obliged him; and long would it be ere he would be reconciled to confinement.

I knew a little boy who was otherwise good, but so exceedingly fond of birds, that he would try every means in his

power to catch them. One day he had fixed some traps made of sticks and bricks, and being called away to go to school, forgot to mention his traps. He did not come home till a week afterwards, when the first news he heard was that a poor robin had been caught in one, where he remained till he was starved to death; a sparrow was crushed to pieces, and another had his leg broke: Now, would not any good little boy have been very sorry to have tormented the poor things in this manner? And so was he, and I hope has never caught any since. But I must leave you now, for I have many things to do; and so good bye to you.

The weather continues so remarkably fine, Charlotte, that I long to be in the air. Do you vote for a walk? Henry,

I am sure, will attend us ; so let us equip ourselves and be gone.

What is Henry running after ? Oh ! it is a butterfly, I see ; well, you have caught it, poor little tender creature ! take care how you handle it ; would you believe it ; all that powder, which comes off on your fingers, is feathers. I have seen some like it in a microscope, and will shew some to you by and by.

Try if you can find a caterpillar. Why, you have got several sorts ! well, I have a long history to tell you about them when we go home. See what a nest of little ones are in that web in the hedge : As soon as they were big enough to go to work, they spun it to keep the wet off ; the dew, you see, hangs withoutside, and does not penetrate through. There are more ! Sure, there are thousands ! We have had such dry weather lately, that I fear the gardens and fields will be over-

run; they will destroy all the cabbages; and the birds may feast away, for they eat caterpillars, as the larger birds destroy *them*.

Behold what a swarm of very minute insects are there, like a cloud before us! You would scarcely suppose that these little creatures, when seen with a magnifying glass, are very beautiful, and adorned with magnificent fringes as fine as gold and silver, with elegant tufts of feathers, and some parts appear like velvet embroidered with pearls. Every one of them is furnished with weapons of defence, and all have enemies to defend themselves against; each has some particular plant or herb to feed on, and knows where to seek it. There are some so exceedingly small that they cannot be seen at all with the naked eye, but when seen, are as wonderful as the rest.

Look how busy that spider is at her

work. Your silly maid has taught you to be afraid of spiders, but I hope you have both of you sense enough to get the better of such ridiculous fears. Pray consider how much stronger you are than they, and how much larger. It is true they will sometimes drop down suddenly, but that is from fear of your hurting them : how often are their nests and webs cleared away ! But I never heard that a spider took a broom and swept a little boy away, or trod one to death. I desire you both to take notice, that when a spider drops down, it always runs away as fast as it possibly can, therefore certainly has no design against you. But, as they dirty our houses, and cobwebs have a very untidy appearance, I must desire that the housemaid will keep them away : yet I am sure little boys and girls may take a good lesson from spiders, and learn both industry and exactness ; for

their webs are woven with the most perfect regularity. You will be exceedingly pleased to read an account of their method of working, and I shall shew you parts of them in a microscope.

Take care, take care, Charlotte, mind where you tread! why you might have destroyed a city for aught I know. Look at those little busy ants; they are at work as hard as possible. Do you know that they get all the corn they can, and lay it up against the winter comes? They bury their dead, carry their young ones about, and do many laborious things. If all men and women were as provident as they are, there would not be so many beggars.

Let us go and see the bees at work in their glass hives. See they are in a great bustle: surely there is some curious

work going on. Curious indeed, my dear! all the honey and wax we have is the work of these little creatures. They fly about, and with a kind of trunk they have, they suck something sweet out of the flowers; others get materials for the wax, and form the honey-comb, in which the honey is deposited. Are they not very surprising? the cells join exactly together; there is no room lost. This whole swarm of bees are subject to one bee, which we call the queen; they follow her wherever she goes, and will suffer themselves to be killed sooner than forsake her. But I must not tell you every particular about them, because I want you to read the account yourselves in the books I mentioned to you. Most people keep bees in straw hives, and burn them as soon as they have finished their combs, in order to get their honey; but I bought these glass ones on pur-

pose to have the pleasure of seeing them work, without being obliged to kill them. When the honey is taken you shall see how it is managed, and I will treat you with some for your supper. Should you at any time have a cough or sore-throat, I will make a medicine with honey in it, which will help to cure you: so pray remember how useful bees are, and never hurt them. Keep in mind also, that not even the least of these creatures which I have shewed to you, is idle; all are employed. They do not saunter away their time, but take care of their families, and build houses. The young ones learn readily what the old ones shew them how to do; and little boys and girls should likewise be desirous of improving from the instructions that are given them. It is very fatiguing to teach children all that is necessary for them to learn, and very expensive also. If they do not ac-

cept of knowledge when it is offered, people will grow tired of instructing them; and they will be laughed at and despised for their ignorance. The days pass heavily along, when spent in idleness and folly. You may now go and divert yourselves as you please, and in the afternoon come to me again.

See, I am prepared for you; here is the microscope; in it is a magnifying glass, that is, a glass which makes every thing appear larger than it does to the naked eye; some magnify much more; but this will answer our purpose. Now some of the wonders I told you of will be presented to your sight. In this box are a set of objects ready prepared for us. Now the glass is fixed. Pray, sir, let the lady look first; if you are a philosopher, do not forget you are a gentle-

man. Can you guess what this is, Charlotte? Do you look, Henry. It is only *part* of a feather of a goose, but appears like an *entire* one. This is a bit of a peacock's, examine it before I put it in; now view it, and you will percieve it to be perfectly beautiful. I am going to shew you the feet, wings, and head of a common fly; this is its leg, see the claws; the head appears to have an hundred eyes. I must shew you the parts of a bee. See what a dreadful weapon the sting appears. Ah! Henry, I hope you will be cautious how you catch bees again: and I am sure you will not take a pleasure in tormenting flies now you have seen what limbs they have. You may assure yourself that they suffer great agony when their wings and legs are torn off. I never could endure, without great uneasiness, to see a cock-chafer spinning as they call it, on a pin. The

noise and humming it makes, is its way of crying and groaning. Let me beg of you, therefore, Henry, if you wish to be thought a boy of a generous spirit, never to take pleasure in hurting any thing that is less and weaker than yourself. Think how you should like to have a man tie a string about you and pull you along, and whirl you about in the air, till you lose your senses, break your limbs, and perhaps throw you down at last, and tread upon you.

I must shew you this bean ; you know I told you that all plants grow from seeds ; this is the seed of a bean. I have split it open, and at bottom you may see the little plant. It is at present too tender to bear the earth next to it, so you see it is provided with a covering. The white part of the bean will nourish the plant till it is stronger, when it will spring out, and the white will drop off, and

leave it to the earth, where it will increase every day till it grows up and comes to perfection. It is just the same with all vegetables, from the humble grass to the stately oak; only in very little plants, we cannot discover them without exceeding good glasses.

I had like to have forgot this butterfly's wing; there you see the holes where the quills came out, and here some of the bits of dust, which you may convince yourself are actually feathers. I must shew you this little insect, which came off a rose leaf; and here is a drop of vinegar full of little things like eels.

You must not pore too long, for it will hurt your eyes. I have only shewn you these, to convince you that a curious search may discover new wonders; and were you to keep on to the end of a long life, you would not see them all.

What does your brother say, Char-

lotte? That he wishes his eyes were microscopes. Alas, my dear boy! you know not what you wish for. If that was the case, we should see very surprising things to be sure; but then, what we now look at with pleasure, would become monstrous to us. Men and women would appear so large that we could only see a bit of them at once. We should not know a house from a wall, an ox from a mountain, and should be involved in a thousand difficulties. If we came to a kennel, we might mistake it for a river; take a cat for a tiger, a mouse for a bear: in short, absurdities out of number would follow. So rest contented that your eyes can see with ease every thing that is useful or hurtful to you; and if you want to be curious, there are glasses to assist you.

I promised you the history of caterpillars, and make it a rule never to break my word, so pray attend to me.

I believe I must fix upon silk-worms, because they are the most useful to us. First of all they are in little greyish eggs, which may be laid by in a drawer till warm weather comes the next year, when they must be put where the sun shines hot; in a little time they break, and out come small grey maggots; those who keep them, pick them up, and lay them upon mulberry leaves: they grow very fast, for they eat all day long; in a few days the skins come off, and they look a little handsome when they have got new ones: Soon after they change them again, and then are pretty white worms, larger than before, as big as one of your fingers. They soon begin to look yellowish, leave off eating, and go to work: first they spin a sort of wool, then they

form a ball the size and shape of a pigeon's egg, and are quite hidden from our sight; but their business is not yet complete, they make a lining withinside, much closer woven than the cloth of a man's coat.

Their silk is extremely valuable, and all the fine dresses which ladies wear are the works of these little crawling insects. Who would be proud of being dressed in silks and satins when they know this to be the case?

A great many of the balls are put into warm water, and those who are used to the business readily find the ends. They are obliged to put several together to make the silk of a proper size, and they wind it off in skeins upon a little reel; then they come to the linings I told you of, which they cut open with a pair of scizzars, and use them for making artificial flowers. But what do you think

they find withinside, silk worms; no, nothing the least like them, but chrysalids, as they are called. A chrysalis is a brown thing, the size of a small bean, somewhat of the shape of a barrel, no head, no legs, no body to be seen; but if you touch it, one end will move a little, which shews that it is not quite dead. In this state it lies some days, and then breaks forth a large white moth with two black eyes, four wings, long legs, and a body covered with feathers; view it through a microscope, and you might take it for a chicken. Is it not very astonishing? It truly is, but not more so than many other things. Almost all things in nature, whether they have life or not, undergo as surprising changes.

You want to keep silk worms, Charlotte; I am always glad to indulge you when I can, and will let you have a few next summer, because I could wish you

to see these curiosities yourself; but you will never be a silk merchant, nor will it answer to ladies to keep a great quantity of the worms. Besides they are reckoned unwholesome when there are many of them together; and it is dirty troublesome work to change the leaves they feed on twice a day. The case is different in those warm countries where they are on mulberry-trees in the open air, help themselves, and spin amongst the leaves. It must be a pretty sight to see the shining balls, like golden plumbs, amongst the green branches.

All butterflies and moths undergo the same changes, though they do not all spin silk; some creep into holes in the walls, others into houses, and some into the earth, and there become chrysalids, and remain in that state from the end of one summer to the beginning of the next, when the butterflies come out in all their

variegated beauties, and instead of crawling about, soar in the air, and amuse themselves with flying from flower to flower.

PART II.

COME here, Henry and Charlotte, look at this globe. Do you know what it was made for? Why, small as it is, it represents the whole earth.

When you were very little children, I dare say you thought the world was no bigger than the town you live in, and that you had seen all the men and women in it; but now you know better, for I think I have told you that there are thousands and ten thousands of people; you have seen a great many at church, but they are only a small number of what the earth contains. When you go to London you will be quite astonished at the multitudes, for they crowd along the streets

in the city like bees in a hive, and are as busy too.

The *world* is an exceeding large *globe*, and *this* before us is a kind of *miniature picture* of it. You see here vast numbers of lines drawn; one part is painted *blue*, another *red*, another *yellow*, another *green*; they stand for different kingdoms.

It is not possible to draw every part of the *great world* on a *globe*, any more than it was for the painter to mark every hair of the eyebrows on this small picture in my bracelet. Here is a *pea*; now you see this is of the same form as the *globe*, but we should not be able to describe so much upon it, and yet we might represent the large *green* and *yellow places*, &c. by dots of different colours, and call them *England*, *France*, and so on, just to shew what situations those kingdoms have.

In the same manner then as the *pea*

resembles the *globe*, the *globe* resembles the *world*.

The earth is not smooth and even as this *globe* is, because there are many mountains and hills on it; but though we call them large, and so they are to such little creatures as us, they are no bigger in proportion to the earth, than grains of sand would appear here; therefore we say it is round.

Neither is the world all land; for there are vast hollow places between the different kingdoms, and they are filled up with water. The largest waters, such as this on the globe, are called oceans, lesser ones seas, and there are others yet smaller, which run in among the land, that are called rivers; there are, besides, smaller pieces, called ponds, ditches, brooks, and others which are used for supplying us with what is necessary to boil our meat, brew our beer, clean our houses, water

our gardens when there is want of rain, and likewise for the cattle, and other living creatures to drink. These generally spring out of the earth, and are at first only little streams, but run along till they join with others, and are increased by the rains that fall, and so in time become great rivers like the Thames.

As the land is full of living creatures, so are the waters, for they abound with fish, many of which are caught for us to eat. Some people are very fond of angling with a line and hook, but I cannot help thinking it a very cruel sport, and always was of opinion that it is an idle one also, and never had patience to follow it. To sit hour after hour watching a floating quill ! what an employment !

I was told of a gentleman, who, after sitting a whole day in a mizzling rain, was asked by a friend that saw him in the

evening what success he had had? Fine sport! fine sport! said he, three bites and a nibble. I should have caught one fish, only my line broke, and it swam away with the hook. This person might truly say, indeed, that he had done no harm, but, in so many hours, how many good actions might he have performed! If none should rest contented without endeavouring to improve their time, what do they deserve who trifle it away!

Now let us have another peep at the globe. See what a great part of it is water. Now suppose we were to take a number of those mites which I shewed you to-day in the cheese, and set them to crawl about the globe, they might serve to represent the men and women that inhabit the earth. As there is no real water on the globe, only a picture of it, the mites might go which way they pleased; but suppose the places which

stand for water were really dug hollow, and made into little seas and rivers, how would they contrive to get across them to any other part which the water came in betwixt? It is the same with us, for we should never be able to reach parts beyond sea unless there was a contrivance to cross it.

This place is Great Britain, the kingdom we live in; you see it is quite surrounded with water. Now suppose we should want to go to any other country, we must cross the sea to get to it. This place is France, which is a very fine country, and in times of peace is famous for its fine manufactures of china, lace, and cambric in particular; and also for its fine vines, from whence claret, and burgundy, and champaigne, and other wines are made: there are also silk worms kept in France, and silk manufactured. We could easily get to France by going

in a coach, a chaise, or on horseback, to Dover, and from thence in a small vessel to Calais, from thence we might travel to any part of France ; but if we wanted to go from France to Italy, we must cross the Alps, those high mountains, the tops of which are all the year round covered with snow.

You have seen in the winter both ice and snow, but did you know that they were only water? The snow would have been rain, only the air being excessively cold, made it freeze in falling ; but as soon as the weather became warmer, it dissolved, and the ice thawed, as we call it, and then both were water again.

After this fatiguing and frightful passage over the Alps, where you would be in danger every minute of falling down

dreadful precipices, and of being dashed to pieces, but that the men who carry you are used to the ground, and can run as fast on it as you have seen little boys do on a wall;—after this, I say, you would arrive in Italy, and there the beautiful appearance of the country would quite transport you; for it is deservedly called *the Garden of the World*. There are myrtles and orange-trees growing wild in the hedges, as the hawthorn does here. Don't you wish we could make such hedges in England? Should we attempt it, Charlotte, I fear the first winter would entirely destroy them, because the air is so much colder here than it is there. You know the gardener always carries the myrtles and orange-trees into the green-house in the winter.

The fruits in Italy ripen much better than ours do, and therefore have a richer flavour: and they have in great plenty

several sorts which do not grow here, particularly olives, which, when pickled, many people are very fond of; besides, there is a great deal of oil made from them, part of which they sell to us, and is what we dress our salads with. There are silk-worms in Italy also, on the mulberry-trees. The sky in that country is mostly of a fine blue colour, and the sun shines brighter than it does here.

The houses are very magnificent, and most of them large; some are built of marble, for they have many quarries of it, and their churches are most magnificently adorned with fine pictures, large silver crosses, candlesticks, and a thousand other curiosities, particularly the noble buildings which were erected a great many years ago, and are now falling to decay, which occasion many people to travel thither, in order to see them.

But, amongst the curiosities of Italy, I must not forget to mention Mount Vesuvius, a large mountain, which sometimes bursts out with an astonishing noise much louder than thunder, and casts forth flames, with hot ashes and cinders, many miles distant; numbers of houses are sometimes destroyed, and people are killed by these eruptions. A fiery matter, called lava, issues from the mountain, and runs with a most rapid stream for several miles together, carrying away every thing before it till it reaches the sea, which boils and hisses in an astonishing manner when the lava reaches it.

Suppose we were there, Henry, do you think you should like to go up the mountain? What say you, Charlotte? Had you not rather live in England, and be contented with what it produces, than go to live near a burning mountain, to enjoy all the fine things I told you of?

There are numbers of these volcanoes (as they are called) in the world ; the largest we know is mount Etna, in Sicily. —When you are older you shall read a description of it in Brydone's Travels, which will astonish and delight you.

I am entirely of your mind, Charlotte ; were I to go into that country, I should endeavour to get courage to view it near, but should approach it with trembling steps. But you must not think that these mountains were only made to frighten and destroy people. Like all things else, they have their use. There is fire within the earth, which, if it had not places to vent itself at, might do greater mischief, nay destroy the earth entirely.

The persons who live on these mountains enjoy life as well as others ; and, as there are generally some years between the eruptions, they plant vines and other things, which prove very fruitful ; and

the mountain usually smokes, or they hear noises from it, which shew that it is near bursting, so they sometimes save themselves from the danger by removing for a time.

When you are older, Charlotte, you shall read books of travels, which describe what is worth observation in every country. Perhaps Henry may be a traveller himself, for you know gentlemen often make the tour, as they call it, and it is very right they should see the world, if they take care to get sufficient knowledge before they go, to enable them to make proper observations; but for an ignorant person to visit foreign countries is only to expose his own shame wherever he goes; because every one who sees a gentleman that has left his own country to visit theirs, naturally inquires what he is;

and should they find him deficient in knowledge, he would deserve to be laughed at and ridiculed; but, should he prove sensible and well-informed, his company would be sought for, because he could give an account of places and things which they have never seen; and would be respected and honoured.

The language which people in Italy speak is Italian, and it is very fashionable to learn it; besides if travellers reside there long, they must be at a great loss without it. The French indeed is a language which almost all nations learn: therefore, if a person knows it he may find somebody or other in most places with whom he can converse; and if they understand Italian (or the language of the persons in that country where they are,) they may explain to the Englishman what the Italian says, and to the Italian what the Englishman says; this is called

interpreting. But who would wish to be so troublesome to others, when by a little pains and application he may learn all the languages himself, and be an accomplished gentleman?

I think we have staid long enough in Italy, Henry, and am afraid you are tired; so take leave of the world for to-night, eat your supper, and go to bed; to-morrow I will tell you more. Good night, Charlotte.

Well, Henry, how did you sleep? Did you dream of the myrtle hedges and burning mountains? I suppose you would like to have a full description of every country in the world; but I hope you will one day be fond of reading, then I shall furnish you with books, which will make you acquainted with a great deal; from them you will learn that some people in

the world are black, others have copper-colour complexions : that every country produces something that does not grow any where else ; that some parts of the world are hot, others excessively cold ; but every climate agrees with the natives, that is those who are born there, better than any other would do ; and the people in one land make themselves as happy as others who have greater advantages, usually thinking their own country the best in the world, and would not change it for any other.

You are an Englishman, Henry, so you must love England the best ; and, if you travel all the world over, you will never find a better country. Here we have neither such piercing cold, nor such scorching heat, as some countries are subject to : we have plenty of corn to make bread ; barley to brew beer ; wool to spin for clothing ; flax for linen ; the best roast

beef in the world, and many other comforts. And we have artists and manufacturers to make every thing we actually stand in need of; in short, Old England is a very desirable place, and here your friends live, so that I make no doubt, my dear boy, you will return from your travels with great pleasure, tell us, who stay at home, what wonderful things you have seen, and love your native land better and better. But you must not despise the people of other countries because they do not speak, act, and dress, as we do, for to them we appear as strange as they do to us.

I must now tell you a little about the sea. You know I said that between the different kingdoms on the earth there are vast hollow places. Pray observe this large space on the globe; it is called the

great southern ocean. You have seen a fish pond, which is so deep, that if a man stood at the bottom, the water would cover his head; but that is no more than a cup full, in comparison of this great ocean. Only look what a space it covers on the globe; then cast your eyes to those parts of the land which stand for the greatest kingdoms. Observe, the sea is by far the broadest; it is so deep in many places, that you cannot get a line long enough, with a piece of lead tied to it, to reach the bottom. When the wind blows very high it drives the waves up like great mountains of water, which roar, and make a frightful noise by their motion. Sometimes ships are driven about so by the winds and waves, that they are thrown upon rocks, which are a sort of ragged hills in the sea, as hard as stones, some of them of an enormous size, even above the surface of the water, others

concealed under it. All sea water has salt in it, which may be separated from it by boiling; salt is so serviceable to us, that, after having been accustomed to it, we should not know what to do without it, particularly for meat, which, by being well rubbed with it, may be kept many months.

The reason that the fresh water in rivers does not spoil and grow good for nothing, is, that it keeps running continually from the fountain-head, that is, the place in the earth it first springs from, towards the sea; and where there is a tide, as you know is the case in the Thames, it is owing to the ebbing and flowing of the sea, which sends the water of such large rivers back again every day.

The sea is in constant motion; and you would think it very astonishing to stand on the shore, and behold how majestically

its mighty waves follow one another, rolling with a solemn and pleasing noise; gradually advancing till they gain considerably on the shore, and when they have reached the bounds allotted them, and it is high-tide, they retreat in the same manner to visit the opposite shore.

Philosophers tell us that it is the moon which influences the water and occasions the ebbing and flowing of the sea; and I fancy you will be of their opinion when you are old enough to understand Mr. Nicholson's Introduction to Natural Philosophy.

Henry wishes to know where all the water that fills the sea comes from. Indeed, I cannot tell; perhaps it may spring out from the middle of the earth: I rather think it does, and that there is a great collection of water there; but it is of no consequence to us to know that: we are certain that it is of the greatest use to us,

and we can see 'enough to admire in it, without searching for its source.

If the hollow places had been left empty, instead of being filled up with water, how frightful they would have appeared! It would have been impossible to have got across to any part whatever. You think we might have had wings to fly over, Charlotte? Why, I must own, that when I have seen the little feathered race soaring over our heads, and sporting about in the air, I have been tempted to wish for a pair of wings myself; but when I considered how large they must have been to have carried such heavy bodies as ours, I am apt to think we should have found them very troublesome incumbrances, and am sure we are better without them. But had there been those immense abysses I was talking of, and we could have contrived to make a clever pair of wings, we could not at any rate

have flown far without resting, and therefore must have tumbled headlong, and been dashed to pieces.

Besides, had there been any fishes they must all have died, because they can no more live out of the water, for any considerable time, than we can live in it; and now there are various kinds, as many perhaps, as equal the number of the different sorts of living creatures on the land. Some so astonishingly large that I know not what to compare them with; others as minutely small; many extremely beautiful, others frightful to behold: some of them are most delicious food, and are caught in great quantities with nets. The turbot we are to have for dinner to-day came out of the sea, and so do soles, whittings, cod-fish, salmon, lobsters, and many others.

Should all fishes keep in the wide ocean, there would be but few caught,

and none but sailors could eat them ; but they come in shoals to the narrow parts of the sea near land ; and fishermen, whose business it is to go out in boats, throw nets into the sea and catch them ; then some are sent to all great towns, and from thence sold to every place to which they can be carried before they are tainted or spoiled ; some again, such as the cod, on the Banks of Newfoundland, are caught with a hook and very long line ; a bit of fish, or red rag, is fastened to the hook, and serves as a bait to entice the fish to it. They are then salted, and sent in ships to different parts of Europe, which furnishes employment for a great number of sailors, and is an extensive and profitable branch of commerce.

If we did not eat fishes, the larger kinds would, for they prey upon one another as birds and other animals do. In books of natural history there are

many entertaining things concerning fishes. Only think what pleasure you will have Henry, when you can sit still long enough to read them, and are sufficiently improved to be able to understand them ! In many of those books there are pictures of what they describe.

I forgot to tell you that fishes have no legs. You know it. Oh ! I beg your pardon, sir, I did not recollect what a man I was talking to ; give me leave to inform you, however, why they have not : because they have no use for them, and would find them very troublesome : their fins answer the purpose of swimming much better.

Many fishes have very sharp teeth, others thorns at their sides, and various weapons of defence ; and, instead of

clothes, are covered with scales which the water cannot penetrate.

There are many things growing at the bottom of the sea, called sea-weeds; I have a picture in my dressing room made of them; you have often admired them, Charlotte. Indeed, they are extremely curious; the fishes, I suppose, eat them.

Besides those I have been speaking of that swim about, there are numbers of shell-fish. That cabinet which stands there is filled with shells: it contains a great variety, but there are many other kinds. Some are much larger than any here: others you see so small that you could not perceive them unless they were laid on white paper; and yet in the microscope they would appear to as much advantage as the insects did. Observe what curious shapes and variety of colours; I know, my dears, you admire

this beautiful collection, and well you may! every one of these shells formerly had a fish in it; it used to come part of the way out, as you have seen a snail do, and draw back again at pleasure; they generally remain at the bottom of the sea, but sometimes storms throw them on shore, where they are picked up and kept by curious people.

There is likewise coral, both white and red. Here is a bit of each; that beautiful yellow substance by it is amber; it makes elegant cabinets and other things; and the ladies in former days were fond of wearing necklaces of it.

All pearls come from out of the sea too; there are quantities to be met with in a particular kind of oysters; and people, called divers, have the skill to sink themselves to the bottom of the water, and,

by means of some ingenious contrivances to supply them with air, are able to stay long enough to get a great many pearls, which they sell for a great deal of money; and those who can purchase them think themselves very fine when they are adorned with them.

People of fortune should have handsome clothes, jewels, and other ornaments, because it is very right for them to dress better than their inferiors, who could not afford such things, as they find it hard to get money enough for the bare necessities of life; therefore, persons who have plentiful fortunes ought to encourage labour and ingenuity, by laying out some part in buying what others sell and make, to procure themselves and families a livelihood; but it is very wrong in any to value themselves on riches and fine clothes, for they should consider that gold, silver, and jewels, come out of the

bowels of the earth, and that they could not *make*, nor probably *find*, any of them ; that their finest silks are from the entrails of a little crawling worm, and that after it is spun they could not use it till it had gone through the hands of many poor workmen. What would the rich do without the poor ? Could they make their own shoes, build their houses, plough their fields, fell their timber trees, shear their sheep, and a hundred other things absolutely necessary to be done by somebody ? They should therefore learn to behave with kindness and condescension to the industrious, and remember that the meanest artificer, if he discharge the duties of his station, is preferable to themselves, unless they are distinguished as much by their benevolence and greatness of mind as by their rank and riches.

Neither should the poor ever forget

how much they are obliged to their superiors, and how much they depend upon them, but treat them with all possible respect, and never envy them; for as they have no money nor land of their own, they must perish for want of necessaries unless they could obtain some by their labour. If they are so fortunate as to be paid for what they do, they can purchase what they want with the money, you know, and may in their humble condition, enjoy an equal share of happiness with the rich, and avoid many anxious cares and dangers, to which an elevated station is frequently exposed. *H*

I dare say you did not think there were so many curiosities at the bottom of the sea, nor should we ever have known it, but by the invention of ships, which was a very curious and useful contrivance.

Fine china, muslins, calicoes, spices, and other articles are brought from the East-Indies in ships, which carry back in exchange what our own country produces; they also convey to England vast quantities of tea, which is a plant that grows in the East Indies in great abundance; the leaves of it are dried upon plates of metal heated; this makes them curl; then they are packed in boxes and canisters, and sent to different parts of the world; But a good basoon of milk, or tea made from herbs, which our own gardens supply, are, in my opinion, greatly preferable, and much more wholesome for us.

From the West Indies we get sugar, which is produced by boiling the juice of a particular sort of plant called a sugarcane; the inhabitants have large plantations of it, which bring them in a great deal of money; but the poor negroes, who are employed to work in the plantations, undergo severe hardships.

Negroes are black people; many persons in England, you know, have them for servants. In some places abroad they toil like horses, and are frequently much worse used, which is a very barbarous thing, for they are *men* as well as their masters, though they are of that black colour; but how happy am I to tell you that this inhuman commerce, which puts these poor creatures into such a dreadful situation, is now no longer practised by this Nation.

From Spain we get oranges, lemons, nuts, almonds, figs, and raisins, (which last are dried grapes;) from Lisbon the same, and, besides those articles, a great deal of wine. If there were less of that it would be better; for many people drink so much of it as to hurt their constitutions. Would they make it a rule to drink only when they were thirsty or weary, and leave off drinking as soon as

they were refreshed, they would preserve their healths, and might perhaps live many years longer.

I could mention the productions of other countries, but do not intend to travel round the globe with you. I shall only tell you that there are many things valuable and worth observation in every part of the world; and those which you have no opportunity of seeing, you may read of in books, which will give you much better accounts of them than I am able to do.

You find, my dears, what great use ships are of, but how shall I make you understand the nature of a voyage? I will take you both to Mr. Wilson's, where you will see the model of a ship; that is a little thing made exactly like one, only considerably less, as you will judge by the

figures which represent the sailors. Mr. Wilson will explain the masts, sails, ropes, and other parts, which I am totally unacquainted with.

When a voyage is to be taken, the ship is first perfectly repaired, if it be not a new one, so that it may effectually keep out the water, and not sink. The sails and masts must be in exact order, strong, tight, and whole, that they may be able to stand the force of the winds; then they lay in a great quantity of biscuits, as bread would soon get mouldy; several casks of fresh water, for that in the sea is very nauseous; some barrels of salt beef and pork, because they cannot get fresh meat when they launch out into the wide ocean, and leave the fields and meadows behind them. They carry as much garden stuff too as they conveniently can; when it is gone, they are obliged to make shift without, till they land somewhere to get a fresh supply.

A ship which goes on a trading voyage, besides a stock of provisions, takes in her cargo, that is, the goods which the owner proposes to sell in foreign countries ; such as wool, watches, hardware, I mean knives, scissars, various kinds of tools, and numerous articles, which other nations are glad to purchase from England, because they are made better here. Every ship requires a certain number of men, some more, some less, according to the size of the vessel ; for there is always a great deal of work for them to do, especially in stormy weather. One time all the sails must be spread in order to receive the wind, at other times all must be furled, or taken in, to prevent the vessel's being overset by violent squalls of wind. They have large iron things on board called anchors, with very great ropes, or cables, which are tied to them, and fastened to the vessel, and when they

want to keep the ship in a particular place they cast them into the sea, where they can reach the bottom, and they stick into the ground and fasten, so as often to preserve the ship from being lost. Somebody on board is obliged frequently to keep letting down a line with a large leaden plummet that they may know the depth of the water. A man stands at the helm with a compass before him: the helm turns the rudder, by which means he can steer the ship to any point of the compass he pleases, according to the directions he receives from the officer who commands the watch.

When the vessel is perfectly fitted, and ready for her voyage, the captain is impatient to be gone, and keeps himself and all his jolly tars in readiness to sail with the first fair wind; but I believe I must inform you what I mean by a Fair Wind. Let us just step out of doors.

Now look forward ! that is the east, behind you the west, on the right hand the south, on the left the north. Now, you know, that when the wind blows behind you, it forces you along ; when you face it, if very high, you can scarcely stand against it ; but it does not always blow the same way : let us go in and look at the globe. Here is the east, west, north, and south : now if they want to sail to a country which is north, they must have a south wind to blow them along ; for if the wind were in the north, it would be impossible for them to get forward ; so that sometimes a voyage is made much longer than it would have been, from the wind's changing about from one corner to another, which often obliges them to go to other places if it blow very high ; but they are not obliged to return for every change of wind, because the art of navigation teaches the sailors a method

of managing the ship, so that they can get on by crossing backwards and forwards, though if it blows right it saves them a great deal of trouble.

It is a very surprising thing to think of, but it is really true, that in some parts of the sea the wind will blow constantly for months together, every year the same way, which enables ships to reach the places they are wanted to go to; and then the wind turns and blows the direct contrary way, which brings them back again: therefore people contrive these voyages so as to endeavour to get to those parts time enough to have the benefit of them; They are called trade winds, or monsoons, and these arrows on the globe shew the particular parts of the ocean they blow in.

When people are upon the wide ocean, they are frequently whole months together

without seeing any thing besides sky and water, excepting what their own ship contains. Look here for instance, in the middle of the great southern ocean: it is very distant from the land, and there are no paths marked out on the surface of the water, to shew the nearest way to any place; but those who have been there formerly have kept exact accounts of the rocks they escaped, the little islands they met with, and other particulars, which serve those who come after them, as some rule to go by; for there are maps or pictures called charts, made of those parts of the sea, which people who sail that way carry with them; by which means they know how to escape rocks quicksands, whirlpools, and other dangerous things which are described to be in particular latitudes. You must at present be contented without an explanation of the word latitude: you

will know all about it when you learn geography.

But, after all their clever contrivances, they would be utterly at a loss without a compass on board, which is an instrument that looks like the dial of a clock, only, instead of the hours, they put east, west, north, south; in the middle comes up a little spike, upon which is a needle that has a small hole in the middle of it, to receive the little spike, upon which it hangs very lightly. This needle must be rubbed on the loadstone, which gives it the remarkable property of pointing always to the north. One of these compasses is fixed on board every ship, and when they look at it, they can tell where the north is, and the order the ship accordingly; because they can neither sail towards the north or from it as suits their purpose. But I shall soon get beyond my knowledge here, Henry, and must

own myself a very indifferent sailor; so I have done with navigation; but must say little more about the loadstone or magnet, as it is certainly a most wonderful, as well as useful thing.

The loadstone is hard, very much resembling iron, and usually found in mines with that metal. It attracts or draws iron or steel, so as to make them stick to it. If you rub those metals upon it they will attract also, though in a less degree. Here is a magnet, with two pieces of steel fixed in it; they are called its poles; one the north, the other the south. Now let us see what effect they will have on these needles which we work with; I will lay them on the table. Hold the magnet over them; see how they jump up; you would think they were alive; but it is only that the loadstone draws

them ; they would lie still enough if there were no loadstone near them. Now take notice, I will touch two others, one at each pole. If I attempt to bring that which has been touched by the north to the south pole, it will drive it away, and so of the other, which is called repelling it.

I will give you this pretty little magnet, Henry, which I have got in a case. It is only a piece of steel, that has been rubbed in the manner I said, but will divert you very much. How the loadstone performs all this I cannot tell, any more than I could inform you where all the water in the world comes from : but there are many things we see that we have not wisdom to understand perfectly ; happy is it that we can learn so much as we do.

Don't you think, Henry, that it is very entertaining to hear of all these

wonderful things which I have been telling you of? and will you promise me to endeavour to remember them? You will be enabled to instruct William by the time he is as big as you are now; and will not that give you pleasure? Now you may go and amuse yourselves; I have a hundred things more to tell you, but would not tire you with too many at once; so adieu for the present.

Well, Charlotte, I see, by the preparations you have made, that you intend to solicit me for a walk. It will be equally agreeable to me after the heat of the day, and our little beau will, I make no doubt, attend us. Come hither, my charming little fellow! you are so good natured, Henry, and so attentive to my instructions, that I am happy to have you by my side. Charlotte and I are

going to walk in the fields, and could not bear to go without you, though I fear we shall be obliged to make you sit up beyond your usual hour.

We will first walk up this shady lane, where we may gather bachelor's buttons, and numbers of other flowers, which were blown the other day; there will be fresh ones continually till the summer is over.

Who will get over the stile first? The gentleman to be sure, and then he can hand the ladies. Take care! take care! Henry, do not be in too great a hurry, lest you tumble, and that would be a sad disaster to see our beau rolling in the dust. Now we are all safe.

What a delightful prospect is here! How rich the earth looks with the beautiful mixture of pastures, where the flocks and herds are feeding, and corn-fields almost ripe for harvest, which promise bread for thousands! How cool

and refreshing does that river look, winding along amongst them. Then that majestic wood! where grow oaks, which perhaps, will be one day made into ships, and plough the ocean to bring us treasures from distant lands. But above all observe the glorious sun! he appears to be now sinking in the west, but to morrow will shew himself in the east. I think I have never told you any thing about him, and indeed I scarcely know what to say, because many particulars which are known concerning him you could not at present be able to understand.

However, you may depend on it, that I will never tell you any thing but truth, and if you do not comprehend me now, you undoubtedly will, when it shall be repeated to you some time hence, when your understanding will be improved. You must endeavour to gain a little

knowledge every day, and in time you will have a considerable share.

Well, the sun then is supposed to be a very large globe of fire, but different from any that we know. It is thousands and thousands of times larger than the world you live in. It keeps every thing that grows alive by its heat; for in all plants and trees there is a juice called sap, which, if the sun did not melt it, would be so thick that they would not shoot out. You know that in the winter all the leaves drop off the trees, and there are no plants or corn growing; that is because the sun shines but little at that time of the year, rises late, and sets early, so that the earth has but little of its heat, to what it has in the summer, when it appears by four o'clock in the morning,

and we do not lose sight of it till eight at night. The sap has not time to get thick in those short nights; besides the air, though cooler in the night than in the day, retains a great degree of heat, and is not like the chilling cold of winter, even at *noon-day*. I saw you very curious the other day, Henry, examining the carpenter's glue pot when he was at work in the house. Did you not observe that the glue was very thick before it was put on the fire, but when it had been on some time, it melted and became quite thin? Now we may compare the sap in the trees to glue, because, like that, it requires heat to melt it. If the glue-pot should be put on a fire, and taken off soon, it would not be much melted, and if it stood off a long while it would be quite hard; but if you set it on long enough to dissolve it entirely, and keep it from the fire but a little

while at a time, it would never get cold and thick. In the same manner the sap is affected by the summer and winter. The continued heat of the sun in the long warm days dissolves it so entirely, that it cannot get thick in the short nights, and, on the contrary, in the short cold days it does not receive warmth enough to melt it.

Winter is a dreary unpleasant season, though of very great use, as it prepares the earth for the growth of the various fruits which the other seasons produce, and in its turn is exceedingly beneficial to our healths, though, were it to continue always, we should be in a terrible situation; but as it is only for a little while we do very well, because there is plenty of provision, both for man and beasts, laid up in barns, and ricks. There

are coals and wood to make us cheerful fires, and there has been wool enough taken from the sheep's backs to furnish us with flannels and other warm clothing. When we have felt the pinching cold of this uncomfortable season, we are the better prepared to enjoy the lively one that follows. How agreeable it is to see the trees which have been stripped of their leaves renewing their verdure ; to behold the little crocuses and snow-drops peeping out of the ground ; to hear the little warblers chanting forth their notes as if they were singing songs of joy ; and to observe the poor people come out of their cottages with cheerful looks to pursue their daily labours, now no longer hindered by winter's frost and snow, which must have been dreadful to those who could not afford themselves good fires and warm clothing.

I am going to tell you a very sur-

prising thing, Charlotte. I dare say you think the sun goes round the earth. It does not I assure you; it is fixed, and the world goes round it once in a year. Before they discovered how large the sun is, people thought as you do; but now we might as well suppose (as Mr. Ferguson said) that if you had a fowl to roast, it would be necessary to keep a great fire going round it while the spit remained immoveable. No, I think indeed, if the earth wants so much assistance from the sun, it is very well worth while to travel for it; and thus the matter really is ordered.

But we must begin to think of returning, for there is dew on the grass, and I fear we shall wet our feet and catch cold. This dew is very refreshing to the earth, and as acceptable as a glass of water to you when you are thirsty

There is, as I told you, a great deal of water in the earth, but in summer it lies very deep and could not get up of itself to moisten the plants; however, the heat of the sun draws it, and when he sets it falls and supplies the want of rain, of which you know there is but little in the sultry weather. Much of it would do harm; spoil the hay, beat down the corn, and a hundred bad things. After all the crops are got in, it is very necessary, to make the earth fit to receive the seed and to help it to grow afterwards; for were the ground to continue always as dry as it is now, there would be great difficulty in breaking and turning it up with a plough, and the seed, when sown, would not swell at all: however the sun not only draws moisture out of the earth, but much more out of the sea, which goes up high in the air, and gathers into clouds, that are driven about

by the winds till they come over different parts of the land; and when they are too heavy, they break and fall down in showers. You may have some idea of this, if you put some boiling water into a tea pot, and cover it with the lid. When it has stood a little while, if you take the lid off, you will find drops of water withinside. The heat which the fire left in the water caused them to rise up. In the same manner the sun acts in respect to the sea, and perhaps the fire that is withinside the earth may heat the water at the bottom, and help to make the vapours rise.

I shall make a little philosopher of you Charlotte! I do not mean, my dear, to excite a desire in your mind of entering too deeply into the study of these things. I would only have you read some easy books on the subject, that you may not, like the ignorant common

people, think the sun a little thing, the size of a plate, and placed in the heavens only to be gazed at. I am glad we are almost at home, for it begins to be very cool, and I imagine you wish to go to rest. To-morrow evening we will once more look at our globe.

Oh! you are come to claim my promise, which I shall gladly fulfil. Now for the globe. I told you that the sun remains always in the same place, and that the earth goes round it once in every year; besides that, she turns round every day. You think it strange to move two ways at once. Not at all. You can do the same, I am sure; you may keep turning about, and contrive so to change your place every turn, that you can get from one end of the room to the other by degrees. What I want to convince you

of at present is, that the earth's turning round is the cause of day and night; you must therefore suppose this candle to be the sun standing still. Now, I will put a little pin in the middle of this side of the globe next the candle, another in the side which is turned from it. When I turn the globe about, the side which is now dark will be enlightened, and the light side will be in darkness. This is a representation of what happens to the earth every day and night. These places on which the sun shines have day-light; those on which it does not shine are in darkness: by this means the parts of the world have the benefit of the sun's heat to warm and ripen their several productions; and likewise to refresh the earth plants and animals: for you know it is after the sun disappears in the evening that dews fall. The parts of the earth which are represented here where the wire

comes out, are called the northern and southern poles. They are very cold places; for sometimes the sun is not seen there for several months, and then they never lose sight of him for several more. The reason of this you will be told when you are taught the use of the globes, for which I will procure you a more able instructor than myself. I shall only tell you that the absence of the sun is not so great a misfortune to those people who are subject to it as it would be to us; because those countries where it happens do not produce the same things which England does; and all that grows there naturally are so formed as to be able to live in that climate. The inhabitants are as happy as we; they work hard in those months while they have day-light, and lay up stores for their long winter, when they dance and sing and are as happy by

torch and lamp light as our country lads and lasses when they celebrate harvest-home, enlightened by the mild beams of the setting sun.

In the last mentioned countries they catch whales also, which I must give you some little account of.

They are fishes of an enormous size. I have read of some two hundred feet long. You, Charlotte, know how much a foot is, but Henry does not. This piece of string is a foot long. You can count an hundred; one, two, three, four, five, &c. very well; only think then of a living creature two hundred times as long as this piece of string! What large eyes he must have. And such a throat that he can swallow a man up at a mouthful; and yet this creature may be overcome, and vast numbers of them are

killed in Greenland, particularly by people who go from Holland. Find Greenland on the globe. This is the frozen sea; so called because there is generally a great deal of ice in it. The air of this place is so cold, that one would think nothing could induce people to venture thither; but many do, for their voyages are very profitable. They have a particular kind of vessels on purpose for whale fisheries; and when they see one they immediately throw a sort of dart at him, called a harpoon, which sticks in and wounds him, and then he sinks under the water with the harpoon sticking in him; but there is always a string tied to it, with a large gourd fastened to the other end; this floats on the water, by which they know whereabouts the whale is and wait for his raising up again, when they are ready to strike at him with their harpoons, till with repeated wounds he

dies. When they have killed him, they lash him to the side of the vessel, or find means to drag him hard on the ice or shore, and cut him in pieces, and put his fat into casks, which they boil and make oil of, and sell it for a great deal of money when they return home, for it is useful in dressing several sorts of skins, likewise wool, and in a hundred other things.

The people who live in that cold country, where I told you they continued for several months without the light of the sun, burn this oil in lamps; and it is quite a treasure to them.

The large whales have two monstrous tusks sometimes fifteen feet long, which rise out of their jaws, and serve them to gather the weeds together, upon which they are supposed to feed: these tusks are split, and made into what we call whalebone; which is likewise sold to great

advantage; for it is used in stays, whips, and many other things. The inhabitants of these countries catch a number of wild beasts, and make very comfortable clothes for themselves of the skins.

I hope you perfectly understand me, my dears, in respect to the earth's turning round. You do, you say, Charlotte; but Henry looks a little doubtful. You think if it were so you should tumble off. No you would not; for there is something in the earth which draws you towards the ground in the same manner as a loadstone draws iron and steel. Pull your magnet out: take up this needle; there, see, if you turn it round an hundred times it will not drop off; and if you pull it away, it will fall towards the magnet again. So, if I were to hold you up high, and let you go, you would

tumble to the earth, because it draws you. The steel of which the magnet is made is hard, and therefore the needle cannot enter it, but sticks to the outside; the surface of the earth is likewise hard, or we should be all drawn into it. The needle has no life in it, therefore cannot move about on the magnet, or it might go all over it, because one part does not draw any stronger than another. We, you know are alive, and therefore can change our place upon the earth; but were we to attempt to fly into the air, we should certainly tumble down; and not only people, but every thing on the earth, is affected in the same manner. If we ride upon a horse we are still attracted, but his body supports us from falling to the earth, because it is impossible for us to tumble through a horse; but if by any accident he shakes us off, down we come to the ground immediately.

You wonder we do not feel the earth move. Why do you think this little fly which stands here on the globe can feel that move? I dare say he cannot, but seems to himself to stand quite still while it is turned round; for all that he sees about him are moved as well as himself, and therefore he remains in the same place on the globe. Could he be taken in a moment from this part of the globe to that, and had the understanding of a man, he would be convinced that it really does turn round, because he would find the face of the sky perfectly changed; for suppose he was removed at midnight, when the moon was shining, and the stars glittering in the heavens, he would, to his astonishment, find himself in broad day, enlightened by the meridian sun.

But till you are older you cannot understand much about the stars; and indeed, I know but very little of them

myself ; sufficient, however, to fill me with wonder and admiration. I am convinced, in my own mind, that it is possible there may be thousands and ten thousands of suns and worlds, many of them much larger than this which we inhabit : it is as probable to me, as that we might roll thousands and thousands of marbles about different parts of this earth without their touching or coming in one another's way ; because I am sure there is room enough for them in the heavens ; and I think, if you turn your thoughts that way and read what has been written on the subject, when you are old enough, you will be of the same opinion.

What do you say, Henry ? Do you think that the people on that part of the earth which is opposite to us, stand at this time on their heads ? Indeed, my

dear, they do not: they have their feet upon the ground, and their heads towards the sky. The trees, plants, houses, and all, are the right end upwards to them. They cannot possibly fall into the sky; it would be nonsense to say such a thing.

The air we breathe in entirely surrounds the earth in the same manner as peel surrounds an orange, or the shell a nut; but is so thin that you cannot see it. You know that chocolate is not so thin as water, and water is a great deal thicker than air; for we can see that, but cannot see air. If it were not so very thin we could not breathe in it. Every time we fetch our breath we draw in fresh air; if we drew in water in that manner it would drown us. When we draw in fresh air we throw out that which is become hot by having been in our body. Convince yourself of what I say; put your hand to your mouth, and draw

your breath : does it not come out warm ? but the open air feels cool to your face. If there was no air we could not live ; and if we could live we should not be able to breathe. Air is of use to us in an hundred respects, being necessary for the preservation of all living creatures in the world. Even the fishes have air bladders, which are of infinite use to them. The trees and plants in general would die without air, and we should have no winds, which are very useful, as I told you before, in respect to blowing the ships along, and driving the clouds about, so that they may break and fall in different places on the dry land, instead of returning back to the sea from whence the sun draws the vapours that form them.

The wind is a great stream of air ; and though it sometimes does mischief, yet it is of great use, as the air would become

extremely unwholesome, if it were to remain still and motionless.

Now I have made you turn your thoughts to the sky, I must not forget the moon, for that is a very beneficial thing to us. She is not a globe of fire, like the sun, but supposed to be like the earth we live in. All the light she has is borrowed from the sun, for the light goes from him to the moon as it comes down to us; and the inhabitants, if there be any living on the outside, as we do, see the light in the same manner, and in all probability enjoy equal advantages with us, from his warm, refreshing beams. Could we be removed thither, our earth would appear to us like the moon, only larger. The moon and earth are both so large and thick that the sun cannot shine through them, but only make them look bright, as even the

candle will do any thing that it shines upon, which could not be seen in darkness.

Take this gold watch, put it in a dark place, and it will not be seen; let the candle shine upon it, and it will appear very bright because it receives the light; so it is with the moon; we see that part light which the sun shines upon. Sometimes it is but a very little crescent, at other times a full round moon. The sun always shines upon half of it at once; but it happens that part of that half may be turned from us. I can make you understand this better by the globe than from any description.

We will suppose it to be the moon, the candle the sun, and your little round head, Henry, to be the world. Now you see the whole of the light side fronts you; but move the globe a little from the place it now stands in, or move yourself, and

part of the dark side will be towards you.

We can see no more of the moon than that piece of the enlightened part which fronts us, that is like a half moon. Go round to the other side, and you will see there is no light shining on it; it appears very different from the other; and you would not see it at all, only that the whole room is enlightened by the candle; but in respect to the moon itself you can see no part of that which the sun does not shine upon, any more than you would see this globe if the candle was taken away.

The eclipse, which you were so entertained with a little while ago, was occasioned by the shadow of the earth falling on the moon, which always happens when the earth is in a straight line between the sun and the moon. You see, if I place a screen, or any thing between the candle and the wainscot, the shadow of it will be seen on the wainscot: there is the shadow of my hand; put

yourself, Henry in this place, and we shall see your shadow ! as the light cannot shine through you, you keep it from falling on that part of the wainscot which is opposite to you, which makes a shadow, so you make a wainscot eclipse.

I shall say nothing to you about the other planets, comets, fixed stars, milky-way, &c. because I fear they would puzzle your little heads too much at present. It grows very late. Henry, how have you been able to keep your little eyes open so long? Good night !

PART III.

THE rain will prevent our walking out to day, so come and sit with me, Henry and Charlotte, and let us have a little conversation together. Did I not tell you, my dears, that we should find much to amuse and instruct us while we were taking our walks, if we would but pay attention to the different objects which should present themselves to our observation? And have you not really found the amusement and instruction I promised you? And yet, my dears, you have had but a very slight view of the wonders which the earth contains, nor have I said any thing to you of the highest creatures in it—I mean MANKIND, that race of

beings to which you yourselves belong. Yes, Henry, though you are now but a little boy, you are really one of mankind; and I hope if you grow up to be quite a man, you will be a good one, and live according to the dignity of your nature. It is a great honour, I assure you, to be a human creature, that is, one of mankind; as you will be convinced when I tell you what mankind are, and what God has done for them.

Mankind, my dear children, are rational creatures, they have immortal souls, and God designed them to be angels hereafter, and to live happy for ever and ever in heaven, You know we have taken notice in our walks of many different kinds of living creatures; sheep, oxen, horses, birds, fishes, insects, &c. these are all called animals and brute creatures; and very wonderful they are, in respect to their make, and the various qualities be-

longing to them, from the least to the biggest, whether they move about upon the land, fly in the air, or swim in the waters. But they are greatly inferior to mankind. In respect to their bodies indeed, mankind are animals themselves, and greatly resemble the inferior animals, for they have flesh, bones, blood, eyes, ears, feet, and the senses of seeing and hearing, and they move about from place to place ; but mankind are more noble in their form than the inferior animals, and by walking erect they have a more majestic appearance ; they have also the faculty of speech, by means of which they can converse together, and make their thoughts and wishes known to each other in a great variety of languages, while the inferior animals are dumb ; they can only utter a few sounds peculiar to their respective kinds, to call their young, and express their fears and sufferings, when

they are in danger, or greatly hurt. Some particular kinds of birds, such as parrots and magpies, may, it is true, be taught to pronounce a few words without knowing the meaning of them; but no creatures in this world besides mankind have the faculty of speech, so as to converse together. But, my dear children, the great difference betwixt mankind and the inferior animals consists in their having *immortal souls*. The Soul is that part of a human creature which thinks. You wish me to describe the Soul to you, Henry; this, my dear, I cannot do, any farther than that it is of a spiritual nature, and consequently invisible, for a spirit has not bodily parts, and therefore cannot be seen with the eyes; but I am convinced that I have a Soul by what passes within myself, and that human creatures have Souls by what I observe in other people. Do. not each of you, Charlotte

and Henry, find that there is something within you which thinks ! that is, which contrives, resolves, recollects, and remembers ? Are these things done by your bodies ? Do you think with your eyes, your ears, your hands, your feet, or any part of you which can be seen ? What can it be then that thinks ? Your Soul, to be sure.

It is by means of the Soul that mankind have so many ingenious contrivances ; that they know how to make use of the different things of the earth ; for instance, to convert iron into tools, to build houses with wood, stone and bricks ; to make clothing of the flax of the field, and the wool of the sheep ; to prepare food for themselves, of milk, vegetables, and the flesh of beasts, and, in short, to do numberless things besides, which the inferior animals cannot do. And it is by means of the Soul, my dear

children, that mankind are capable of knowing God, and of paying that tribute of prayer and praise which is due to the great CREATOR.

I told you, my dears, that the Soul is immortal, and so it certainly is, it will live for ever; the Body is condemned to die, but the Soul will remain alive to everlasting ages. Every human creature dies sooner or later; the Soul leaves the Body and the Body turns to corruption, but the soul cannot die, for the CREATOR has said it shall live. The soul then is by far the better part of us: Do not you think so, Henry? I believe, my dears, I have told you as much as you can at present understand about the nature of the Soul, and I shall not talk to you now of its future state, because what relates to that important subject will be best learnt from the Scriptures, which you will shortly read. I hope the weather

will be fine to-morrow, for I want to say a great deal to you about GOD, the CREATOR of all things, before you read his WORD, that is, the BIBLE. You may now go to your usual lessons, but I shall rise early to-morrow morning, and you may come to me in my dressing room as soon as you please, to hear what I have to say to you about GOD.

You are early visitors indeed, Charlotte and Henry; it is no more than six o'clock, and you are already equipped for walking! however, I am delighted to find that you are desirous of knowing your MAKER, and we will go in search of Him presently, for the morning is favourable to our wishes, and every thing is very beautiful after the showers of yesterday; but first let me say a few words

to you concerning that great and wonderful Being whom we call GOD.

In speaking to you, my dear children, of GOD, I feel myself at a loss to adapt my expressions to your tender capacities. The idea of GOD in his infinite perfections is too great for the highest human understanding, and were even the sentiments which at this moment fill my own mind to be communicated to yours, they would overpower you so that you would be lost in wonder and admiration. Yet, young as you are, you may contemplate the Deity notwithstanding, for GOD has graciously made himself known to mankind under the endearing character of a Father. Yes, my dear children, the greatest and best of Beings allows all who believe in him, and are desirous to serve him, to look up to him as a HEAVENLY FATHER, ready at all times to do good to those whom he has created! Nay,

GOD does more; he first inclines the hearts of mankind to know him: it is from God that the desire which you now have to know him proceeds, and it is my part as a parent, to cultivate this good seed, which I will do most assiduously; listen to me then while I tell you as much as I think you are capable of understanding of the nature and attributes of GOD.

GOD, my dear children, is the greatest and the best of Beings; he is almighty, most wise, most merciful, and most holy. God formed all things from nothing; he can do whatever he pleases. GOD knows all things, past, present, and to come; nothing can be hidden from him, GOD is in all places at the same time, but he shews forth his glory in a peculiar manner in heaven, where he has a glorious throne brighter than the sun, and is attended by multitudes of happy and

good spirits called angels. GOD is perfectly happy in himself, and he is the cause of happiness to all creatures who enjoy it in any degree. GOD created mankind to be happy in heaven, and whoever shall miss of this happiness will do so by their own fault, as you will be convinced when you read GOD'S WORD, which tells us what GOD has done for mankind, and what rewards he has graciously provided for those who obey him. Do not you wish, my dear children, to know that best of Beings who created you from nothing, has given you life, health, the use of your eyes, ears, and all your senses; who provides for you from day to day, and who has prepared for you in heaven an eternal inheritance which exceeds all that we can possibly conceive or desire? Come then, and let us go and see the great CREATOR in his works—I mean, let us see whether we

cannot convince ourselves that there is a God by the *Works of Creation*.

Before we examine particularly any of the works of God, tell me, Charlotte, whether you think the houses which mankind inhabit could come into the form they appear in of themselves? or do you think any creature not endued with reason could build them? It is true that birds, and beasts, and insects, make nests and places for their young, and to shelter themselves from the cold: but without any great contrivance of their own, for all creatures of the same kind make their nests alike: you may know, for instance, when you see a bird's nest, whether it was built by a linnet, a magpie, or any other kind of bird: and there is a great difference betwixt a house completely finished and the most curious bird's nest that ever was built; the same may be said of the habitation of the most sagacious of the

brate creation. It is very certain that neither birds nor beasts could build and furnish a house, and yet there must have been builders; nay, you have seen bricklayers and carpenters building houses. You know for a certainty that houses are built by men; but did they also *create* or *make from nothing* the materials of which houses are composed? Certainly not; trees, earth, stone, iron, lead, and the materials used in building, are far beyond the art of mankind to produce; we must therefore look higher than mankind for a CREATOR: nay, my dear children, if we carry our thoughts ever so high, and think of creatures vastly superior in knowledge and power to the human race, we must come at last to one GOD, the CREATOR *of all things*, for creatures can neither make themselves nor one another. But to prevent all our doubts, and satisfy our

minds at once, we are told by GOD himself, as you will shortly read in the BIBLE, that *in the beginning he created all things in heaven and earth.* Now let us set off. Which way shall we go? Up this shady lane where we shall hear the sweet melody of the birds.

What have you got there, my dear Henry, a leaf? Do you know any man, Charlotte, that could make such a curious thing as this? See how delicate the texture! how curious the veining, how delightful the colour! But observe that there are upon the plant it was taken from hundreds of leaves equally curious, and flowers which are still more beautiful. What did all these spring from? A little seed which was put into the earth. And

where did this seed come from? A blossom of the same kind with these before our eyes. Let us carry our thoughts back to plants of this kind, which have sprung from the earth before it for thousands of years, and we must come at last to a CREATOR, who made from nothing the first of the kind with seed in itself, from which in succession from year to year, all the plants of this kind which have ever adorned the earth originally came; and this exactly agrees with what you will read in GOD'S WORD of the creation of trees, plants, and herbs of every kind; and it is the same in respect to all kinds of creatures, whether animate or inanimate, nay the earth itself; they must all have been formed originally from nothing. Do not you then, my dear children, perceive the hand of GOD in every little leaf and flower? Are you

not convinced that if there were no God, there would not have been any of these things? or, in short, any thing that now exists?

Let us stop a little and listen to that sweet lark which is mounting in the air; how delightful his note, and how wonderful the strength of his voice! Do you not hear the nightingale also, the blackbird, the thrush, and the linnet? What an harmonious concert! how perfect is each little songster in its part! Who has instructed them to sing to such perfection? The almighty CREATOR, my dear children, has endued them with the powers of harmony, and they are impelled by him to use them for the delight of mankind.

My dear Charlotte, did you not greatly admire the fine clothes and jewels which lady Mary wore the other day when she was going to court? If I ask you who made and trimmed her dress? you will tell me the mantua-maker and milliner; and who made her jewels? you will say, Mr. Somebody, the Jeweller: but if you consider the matter you may trace every thing with which her ladyship was adorned to the CREATOR. Henry I dare say, can tell what little insects spun the silk of which the dress was made, and where the gold and diamonds came from. The people who made use of these things were certainly very ingenious; but who created them and gave them understanding superior to the brute creatures? Here we find the CREATOR again, my dear children, nay, we may even find patterns for these sumptuous dresses among the works of God; for

the highest efforts of human ingenuity are but faint imitations of the beauties of creation.

What little flying insect have you caught there, Henry? take care you do not hurt it. Poor little flutterer, we will not detain you long, but pray let us look at your beautiful dress. Take this microscope, my dears, and look one after the other at this insect. Do not you perceive that it is adorned as it were with gold and velvet; that its dress is embroidered in a most beautiful pattern; that it is fringed with gold, and spangled in the most delightful taste? yet no mantua-makers, milliners, or jewellers, have been here employed! No, this delicate and complete creature came first of all from a little egg, no bigger than a small pin's head; and the first of its kind was formed from nothing. Is not the hand of the CREATOR visible here also, my dear

children? Were you not greatly delighted Henry, with the beautiful collection of coloured drawings of flowers, birds, and insects which you saw the other day? Yet what were they, my love, but imitations of the works of GOD? They resembled flowers, birds and insects, in nothing but their outward appearance; they had none of their qualities, they had no life; no one can give life but the CREATOR. And is not a growing flower, a living bird and insect, far more excellent than the picture of it? And could mankind with all their ingenuity produce even this picture without some part of the works of GOD? Even the materials for paper, paint, and pencils, are all furnished by the CREATOR.

It is to be sure a charming thing to have ingenuity, for it sets mankind greatly above all other creatures in the world, and they can make the different things of

the earth useful to them in a variety of ways ; and make the living creatures work for them, though they do not know it. The silk-worm has no notion that he is spinning dresses for fine ladies, neither does the sheep know that his woolly coat will be converted into coats for gentlemen, and for clothing for the poor. It is well for mankind that they have REASON, or they would be sad destitute creatures ; but the CREATOR has made all things partly for their use, and has given them dominion over the other creatures, as you will read in the Bible.

But there is one advantage above all, which mankind possess over the animal creation ; they alone are capable of admiring the works of GOD, and of making a suitable return for his bountiful goodness displayed in the creation. Surely the Maker of all these wonderful things deserves praise, and those who are capable

of it should give him thanks! Do not you think, my dear children, that it is a very great advantage to be capable of studying the works of God, and a very great indulgence to be allowed to view them? You thought yourself much obliged the other day, when Mr. Thirkle shewed you his collection of curiosities, and allowed you to turn over the leaves of the large folios of natural history which had cost him so much money; but the CREATOR is boundless in his indulgence; every garden, every field is a collection of curiosities; and the creation itself (I mean the earth we tread on, the ocean which surrounds it, and the sky which is over our heads) forms the great BOOK OF NATURE, which proves the existence, the power, and the goodness of GOD in every page of it, and should awaken the gratitude of mankind for the numberless blessings he has bestowed

upon them. What can we render to GOD for all the benefits we have received at his hands? Nothing but our thanks. Do not you think, my dear Charlotte, that all who have leisure should study the great Book of Nature? I hope my dear children, you will both do so to the end of your lives, and not slight the beautiful works of GOD, as if they were unworthy of attention. But there is still another book in which the goodness of GOD to mankind is more fully displayed, I mean the BIBLE; from which you may learn how to worship your Creator, to please and obey him; but of this I will talk to you to-morrow.

Well, my dear children, have you been reading the *Book of Nature*, or have you in your morning walk passed over

the works of God without examining any of them or bestowing a thought on their excellency? I judge not, by the collection which Henry has got in his little basket: plants, flowers, snail shells, pebbles, and I know not what besides. Here are materials for study in abundance! and we will consider them all in the afternoon. But we have another book to talk about, so the *Book of Nature* must be laid aside for the present. Here my dear children, is THE BIBLE, GOD'S best gift to mankind. I told you that the soul of man is immortal, and that God graciously designed mankind, when he created them, for eternal happiness in heaven. This sacred book instructs them what to do in order to obtain this happiness, for it cannot be thought reasonable that God should do so much for mankind without requiring something on their part as he has made them capable

of knowing the difference between right and wrong, and has given them powers and faculties by means of which they can please and obey him.

Do not you, my dear children, wish to please that good and gracious Being, who has given you life, and bestowed so many other blessings upon you? Do not you wish to be admitted to his glorious presence in heaven, and to dwell for ever in that blessed place where there is nothing but joy and goodness? If you really have these wishes, you must read **THE BIBLE**, and practise the lessons it teaches.

There is not in the whole world such another book as **THE BIBLE**, for it is really and truly the **BOOK OF GOD**, the **HOLY SCRIPTURES**. Men indeed were the writers of it, but they were inspired, that is, **GOD** himself put into their minds what to write; and it is full of wisdom

from beginning to end. This most excellent book, my dear children, was written for all sorts of people ; it is calculated to inform the ignorant, to improve the wise, to comfort the afflicted, and to increase the joy of the happy ; it contains precepts suited to people of all descriptions, from childhood to old age ; it teaches the poor to be contented in a state of poverty, and instructs the rich how to make their riches a blessing to themselves and others ; and, above all, it instructs every human creature how to think of God, how to pray to him, and how to thank him, and points out the means by which they may prepare themselves for the society of angels in heaven.

When you come to read **THE BIBLE**, my dear children, you will be quite surprised to find what the greatest of all Beings who fills heaven and earth, who

is the Creator of all things, has done for mankind, for those sinful creatures, who, as you will learn from the Scriptures, broke his commandments, and forfeited all the blessings he graciously bestowed upon them. But I will not tell you in my own words what cannot be fully expressed but in the words of Scripture: you shall learn of GOD himself, in his Holy Word, what he has graciously done, and what he has been pleased to reveal; but remember, my dear children, that you are not to read THE BIBLE either as a reading task, or as a book of amusement; but as the WORD OF GOD.

Open the Bible and read the TITLE PAGE, Henry; you find, my dears, it is called the HOLY BIBLE, which is, in other words, THE BOOK OF GOD. It consists, you see, of two principal parts, the *Old Testament* and the *New Testament*; the

first of these contains what GOD was pleased to make known to mankind before the coming of our LORD JESUS CHRIST; the other gives us the history of our SAVIOUR'S life and doctrine, and of the preaching of his Apostles. The BIBLE is here said to have been *translated out of the original tongues*. You know what translating is, Charlotte. The BIBLE was first written in Hebrew, Greek, and Latin; and then it could only be read by the learned; but at length it was translated into English, which was a most happy thing for the nation. Do not you think, my dears, that it is a great blessing to have the WORD OF GOD in the language we all understand? Now turn over leaf; this is no part of the Bible itself, it is called the *epistle dedicatory*: you would not understand this if you were to read it, so turn over leaf again, Henry. THE BIBLE is a large volume; it was not all

written by the same person, nor at the same time, but God inspired different people, at different ages of the world, to write the separate books of which it is composed; and these Books are divided into *chapters*, and the *chapters* into *verses*. Here you see are the *names* of all the books as they follow one another in the *Old Testament*. Here are the books called *Apocrypha*, which are reckoned as making no part of the Bible, because it is not known that the writers of them were inspired; but they are very pious good books: and here are the names of the books of the *New Testament*, as they follow one another; these *figures* show the number of chapters each book contains. Look here, my dear Henry, this is the beginning of the first book of the Bible, called *Genesis* in the table of contents; here you see is chapter i. and it is

divided into *verses*; look down the left-hand side of the page, and you will see the numbering of the verses from one to thirty-one. Now let us see how many chapters there are in the *Book of Genesis*. What says the table of contents? *Genesis hath chapters fifty*. Let us turn over and find the last chapter: fifty, you see.—Which is the second book of the BIBLE? *Exodus*. Well, is not *Exodus* immediately at the end of *Genesis*? And you will find all the rest of the books agreeing with the table of contents. Do not you think, Charlotte and Henry, you should be a long while reading through such a great book as the Bible? You would indeed, my dears; and a hard task you will find it; for a great part of the Scripture is too difficult for children to understand; but it contains the most delightful and instructive histories in the world; and

these I have got separated from the difficult parts of Scripture, that you might have both the pleasure and benefit of reading them: to-morrow you shall begin with some lessons from the *Old Testament*, which I will explain to you as you go on; and I trust it will please God of his infinite goodness to open your minds to understand the Scripture, and that he will graciously incline your hearts to do his Holy Will and obey his commandments, that you may enjoy his blessing upon earth, and dwell with him in heaven hereafter.

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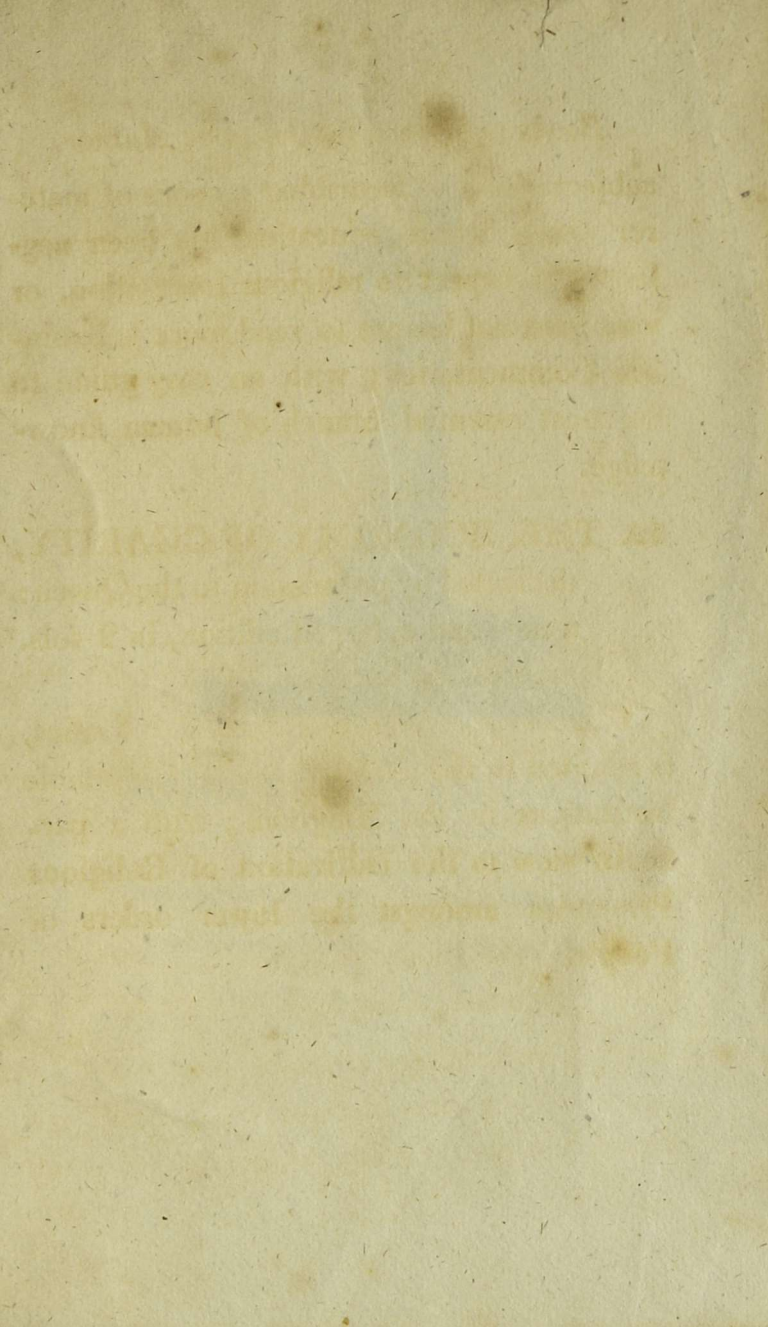
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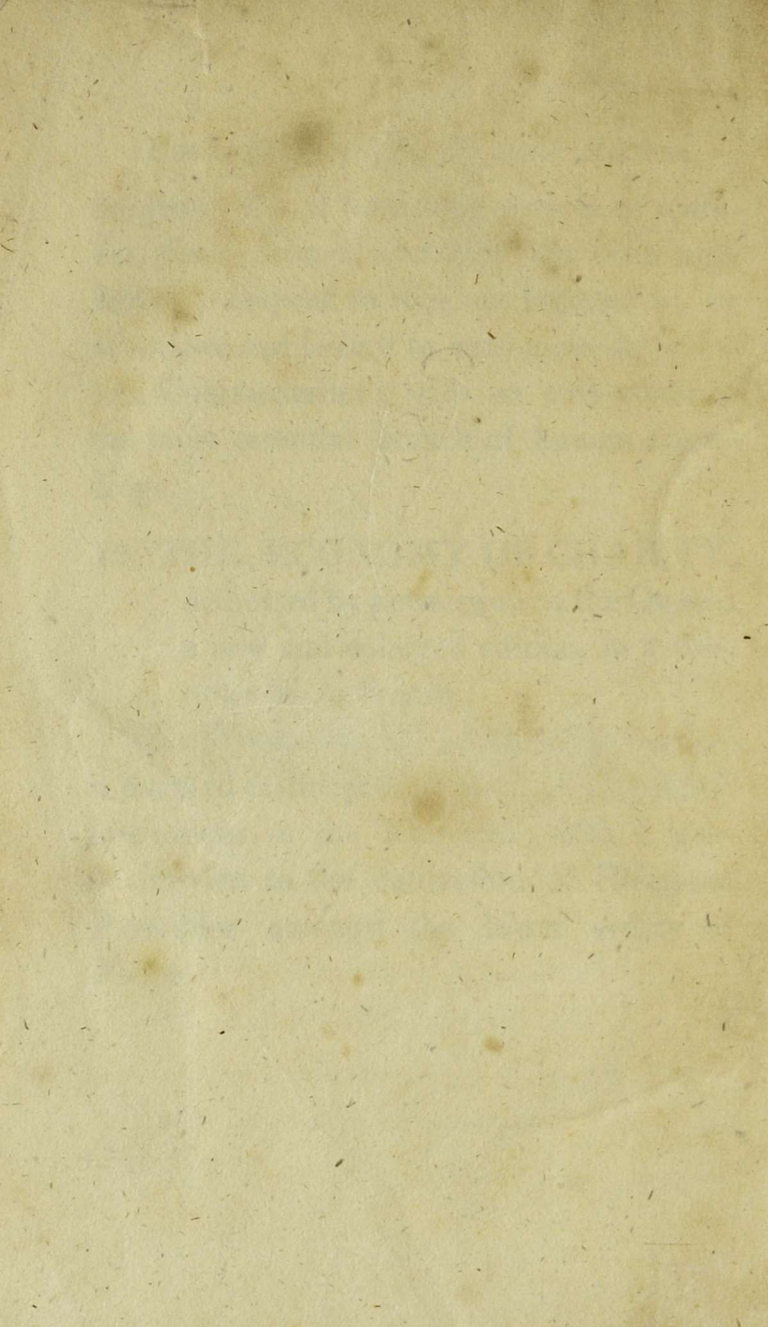
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