THE WORLD'S BIRTH-DAY

PROFESSOR GAUSSEN

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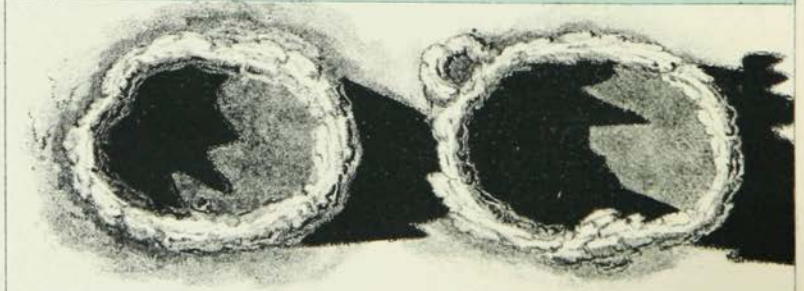

CIRCULAR MOUNTAINS OF THE MOON AND THEIR SHADOWS AS SEEN THROUGH A HIGHLY MAGNIFYING TELESCOPE

THE MOON.

THE

WORLD'S BIRTHDAY.

A Book for the Young.

By

PROFESSOR L. GAUSSEN, GENEVA,
Author of "It is Written," &c.

TRANSLATED BY MRS. CAMPBELL OVEREND.

"In the beginning God created the heaven and the earth."
GEN. i. 1.

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Author's Preface.

THE AUTHOR OF THESE LESSONS

to

The Children who heard them Four Months ago in the Chapel of the Oratoire.

WHEN I dedicate to you these explanations of the first chapter of Genesis, which you heard some time ago from my lips, I am only paying a debt of gratitude which I owe to you, and returning the kind visit which I received from you eleven Sundays ago. I can never forget it.

I had scarcely recovered from the severe attack of illness which had so long kept me a prisoner in bed —I was bruised both in mind and body, and was scarcely able to support myself on my crutches—when I was requested to receive a visit. "It is impossible; I cannot," replied I. Still I was entreated to appear for a moment on the balcony of my room. I did so, and saw you all assembled, my friends, my dear young friends!

You were all standing in a circle on the grass. I felt deeply at seeing you. I heard your voices and your hymns; I received your beautiful bunches of flowers, and I spoke a few words to you from the balcony. But what pleased me more than all the rest, was the packet of cards presented to me by three of you in the name of all. On each card there was written one of your names, along with a few verses of comfort and exhortation, chosen for me by each from the word of God.

This bunch of more than a hundred flowers, gathered for me by your hands in the garden of Scripture, and for the most part very well chosen, brought to me a precious fragrance. I frequently read them. They revived and strengthened my soul, and I felt myself comforted by God. I was then unable for the slightest exertion; but I resolved that I would send you in return a passage from Scripture, as soon as my health permitted me to get the notes of these lessons corrected and copied.

I now dedicate to you the lessons on the first chapter of Genesis, which we had been considering together when I was separated from you by the hand of God. I had also explained to you the first seven verses of the second chapter; but you will not find them in this book: I have thought it better not to begin a new chapter. I present to you the first chapter only: and may these thirty-one verses—which

I hope you will read often, with care and attention—do you as much good as yours have done to me!

I hope that, in future, the glorious scenes of the work of creation, here related, will come more frequently into your thoughts as you look at the magnificent works of God, in the midst of which his goodness has placed you,—on the shores of our beautiful lake, on our hills, on our meadows, and at the foot of our glorious mountains. I hope that they will teach you daily to know more of the power and wisdom of God, and that they will encourage you to pray to Him who is all good as well as all powerful.

Lastly, I hope that this account of the visible creation may ever remind you that there is a new creation, more wonderful still, of which the Bible constantly speaks, and which is absolutely necessary for each of us. It is wrought in our souls by God, when he converts them; for "if any man be in Christ," says St. Paul, "he is a new creature."

Therefore, my friends, I entreat you to seek this living and true God, our creator, in the holy word in which he has revealed himself to us. There he is to be found; there will he meet the child who is longing for him, praying to him, waiting for him. He will "create in him a new heart, and renew within him a right spirit." He will take him in his arms, as the father in the parable his prodigal son, and will say,

"Bring forth the best robe, and put it on him,"—the robe of our Redeemer's righteousness! (Luke xv. 22.)

It is by laying to heart the truths revealed in Scripture that a soul is converted to God, and escapes from the wrath to come. Hear the words of the parable spoken by our Lord Jesus: "They have Moses and the prophets; let them hear them..... If they hear not Moses and the prophets, neither will they be persuaded, though one rose from the dead" (Luke xvi. 29, 31).

But let us ever search the Scriptures with a sincere and humble heart; for the Lord has said, "The heaven is my throne, and the earth is my footstool..... all those things hath mine hand made, and all those things have been, saith the Lord: but to this man will I look, even to him that is poor and of a contrite spirit, and trembleth at my word" (Isa. lxvi. 1, 2).

Translator's Note.

In presenting this book to English readers, the translator feels that a benefit is conferred not only on children, but on all parents and teachers; for it is a model of what Bible lessons ought to be.

It ought not to detract from the merit of these lessons, as models of teaching, that all cannot fully agree in Professor Gaussen's views about geology, as he does not teach anything dogmatically, or that is still uncertain. He says, "There are still many difficulties in the details of this subject, which we do not perfectly understand, but which will yet be cleared up, as former difficulties have been." Geology is a science still in its infancy; and the wisest philosophers, when attempting to read the records of the rocks, are but as children learning to read, stumbling and making mistakes very often. He is the wisest who is the most willing to confess how little he knows, and who ever feels that if there sometimes seem to be contradictions between Nature and the Bible, the fault is in the reader, and not in the books, whose perfect agreement and harmony will be more and more clearly seen the better they are understood.

The translator has not attempted to make this translation perfectly literal: to do so would be to destroy the spirit of the book in order to preserve the letter. Long words have been avoided when possible, even by adding, when it appeared necessary, a few words or sentences, to make the author's meaning more clear in English. Quotations from English books are given in the words of the English authors, sometimes at greater length than in the French work; and the quotations from Scripture have in some cases been given more fully, and verses have been added, where it made the passage more complete.

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THE

WORLD'S BIRTH-DAY.

CHAPTER I.

"IN THE BEGINNING."

"In the beginning God created the heaven and the earth."—GEN. i. 1.

THE Book of Genesis is the most ancient and the most venerable, the most instructive and the most indispensable of all books. It is the foundation, the beginning, and the anticipated explanation of all others.

How necessary it is, then, before beginning the study of this book, that we should pray to God that his Spirit may give us understanding and a teachable spirit—a spirit of meditation and prayer.

You already know, doubtless, what is meant by the Greek name "Genesis," which we are accustomed to give to this book. The ancient

Jews called it *Bereschith*—that is to say, "In the beginning"—because they were accustomed to name each book of Moses after the two or three first words of it. Thus, for example, they named Exodus *Veéléhschemoth* ("Now these are the names"); Leviticus was named *Vajikra* ("And he called"); and Numbers, *Bemidbar* ("In the wilderness").

The name "Genesis" means *the birth.* In the time of our Lord this book was so named by the Jews who spoke Greek, because it was by this word Genesis that they translated the word "generations" in the fourth verse of the second chapter. The expression used in our translation is, "These are the generations [or births] of the heavens and of the earth." They had translated it thus: "This is the book of the *genesis* of the heavens and of the earth." It must be acknowledged that this title is a most suitable one to be given to the first book of the Bible, for it makes known to us the birth of all things,—the birth of the world; the birth of the earth and of the heavens; the birth of the light; the birth of the atmosphere; the birth of the great lights of heaven; the birth of continents and seas; the birth of moun-

tains and valleys; the birth of plants, birds, fishes, and quadrupeds; then, last of all, the birth of the first man and woman; and then, soon after, alas! the birth of sin, and death by sin; but also the birth of the gospel, or of the good news of the promise of grace in Jesus Christ; then the birth of the Church of God in the world; then again the new birth of the earth after the flood, and the birth of the nations who repeopled it; and lastly, the birth of the nation of Israel, by whom the Saviour of the world was to be waited and looked for, and among whom the Saviour of the world was to be born.

So much for the title of the book. Now let us speak of its Author.

You all know that it was dictated to Moses from on high,—that he was inspired by God to write it while he was miraculously leading across the desert the millions of Israel; and you also know that at his death Moses left it to be studied by them from age to age; and after them, also, by all Christian churches in every tribe, and tongue, and people, and nation. "These words, which I command thee this day," said Moses to the people of Israel,

"shall be in thine heart; and thou shalt teach them diligently unto thy children, and shalt talk of them when thou sittest in thine house, and when thou walkest by the way, and when thou liest down, and when thou risest up"—"Only take heed to thyself, and keep thy soul diligently, lest thou forget the things which thine eyes have seen, and lest they depart from thy heart all the days of thy life; but teach them thy sons, and thy sons' sons" (Deut. vi. 6, 7; iv. 9).

You see, then, my friends, that it is in obedience to this holy command that I am now trying to explain these words to the children of this school.

I told you that Genesis is the oldest of books; but you may judge better how old it is when I tell you that it was written 1491 years before the time of our Lord Jesus Christ; or, in other words, about 738 years before the old city of Rome was founded, or about 869 years before the fall of Nineveh,—that is to say, 869 years before the time at which the books of profane history generally begin their narratives.

Genesis surpasses all other books in an-

tiquity, and it is one of the most instructive and indispensable of all books. You may judge of this also when you consider that if we had not the Book of Genesis, we should be ignorant of nearly half of the history of mankind on the earth. From Adam to Jesus Christ was a period of 4004 years, and from the time of our Lord Jesus Christ to our time 1859 years; which, added together, gives a period of 5863 years for the whole time that man has been in the world from his creation to our day. Now, Genesis alone gives us the history of the world for 2368 years; that is to say, during the 1656 years from Adam to the Flood, and the 712 years from the flood to the death of Joseph. You see, then, that the entire history of mankind, from the first man to the present time, is not so much as twice and a half the period the history of which is related in the Book of Genesis alone.

Think how indispensable this sublime book is also from the things which it makes known to us. Without this, the first book of the holy Scriptures, what should we know of all that is necessary to be known before we can understand any of the other books?—nothing

of the creation of the heavens and the earth, —nothing of the wonderful six days' work,— nothing of the birth of the first man and woman,—nothing of their abode in Eden, or of their first state of innocence,—nothing of the first covenant in paradise, or of the trial of their obedience, or of their fearful rebellion, fall, and condemnation,—nothing of the first promise of a Saviour even at the very gate of Eden,—nothing of the institution of bloody sacrifices, or of the history of Abel the righteous,—nothing of the Church of God during the first 1656 years of the history of man,—nothing of the prophet Noah, your ancestor and mine, the preacher of the righteousness which is by faith,—nothing of the great flood which destroyed the old world and renewed mankind,—nothing of the re-birth of the world, or of the history of man during the first four centuries which followed the Deluge,—nothing of the calling of Abraham, of the calling of Isaac, of the calling of Jacob,—nothing of the promises which were made to them of the Saviour,—nothing of the history of the patriarchs—nothing of the going down of the children of Israel into Egypt, or of the story of the

life and death of Joseph. And yet, dear children, what can be more necessary for us to know than these very things? What should we be, what would become of mankind, where would the Church be, if the Book of Genesis had not been given to us, and so many necessary questions answered in it? Is there any knowledge more indispensable to reasonable beings who are passing through this world and going to another, than the answers to these three important questions — Who am I? Whence came I? Where am I going?

Who am I in this world? Why am I here, and who placed me here? Whence came I, and what have I to do? Where am I going, and what would become of me to-morrow if I were to die to-night?

Again: why is there so much misery in this world? Why is there so much sin in my heart? Why so much suffering in my life? And, more than all, why am I subject to this dreadful death, which must come to all? And if death *must* come, why are there along with it so many sufferings, such anguish, sickness, torture, agony, and all the horrors of the dark grave?

Ah! these questions must be answered, and God has answered them all in the Bible, in this Book of Genesis; and you cannot find the answer anywhere else except in books which have been copied from it.

Let us thank God that he has given us this blessed light, and think how we should value it. Think with what reverence you should receive it. Ought you not to come to your lessons with attentive minds? Ought you not to prepare them carefully through the week, learning your allotted verses perfectly, with deep thought and prayer? On the way here you should pray for a quiet spirit, trying to avoid any of your young companions who have no proper respect for divine things, and who might try to distract your thoughts. And when you are seated in the school, your hearts ought to be raised to God in secret, inward prayer, that he would himself speak to you, and that, opening your hearts to receive his word, he would make it effectual in you by his life-giving Spirit.

"*In the beginning God created the heaven and the earth.*"

Here are five words to be explained before we go further. What is meant here by "the beginning?" What is meant by "create?" What is the meaning of the name "God," or *Elohim*, here given to the Creator? Lastly, What are these "heavens" and this "earth" which were created by God?

These are important questions. We can only attempt to answer them very shortly in this lesson. We must return to them again at another time.

"*The beginning.*" These words, "In the beginning," teach us a truth of the most solemn importance. It is, that the world has not always existed; that there was once a time when nothing that is now in the heavens or on the earth was yet made,—neither you nor me, nor any man, nor any woman, nor any angel; when there was neither sky, nor earth, nor sea, nor things visible, nor things invisible. What was there then? What existed then? God alone!

"*In the beginning!*" Have you sufficiently understood, dear children, the great importance of this word to all the families of men? It is like a sun rising on the dark world.

When God proclaimed it to Israel by Moses about thirty-three centuries ago, the whole of the rest of the earth was plunged into the deepest night, as far as regarded this great truth, the story of the beginning of all things; and for centuries more, men who knew it not vainly tormented themselves in conjectures and uncertainties about it. All men, except the people of Israel, were going to eternity like one walking in his sleep. They had forgotten the knowledge of God which their first father had. They knew nothing either of whence they came, of their creation, or of whither they were going. They were blind to the glory of God as shown in his works. Their state is thus described by the apostle Paul: "Professing themselves to be wise, they became fools." "That which may be known of God is manifest in them: for God hath shewed it unto them. For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse: because that, when they knew God, they glorified him not as God, neither were thankful; but became vain in

their imaginations, and their foolish heart was darkened" (Rom. i. 19-22).

Such is man without the light of the Bible, and such were they for centuries. There were many wise among them,—wise according to this world, of whom you will read in the course of your studies,—but foolish as to this. Plato, Aristotle, Pliny, and Plutarch, believed that the world had always been. The great Plato, the wisest among them, who lived about 1100 years after Moses, even believed that the stars were gods; and Pliny, who lived in the time of the apostle John, fancied that the world itself was a god. These poor men, the wise men of a dark world, were in the most melancholy and distracting state of doubt on all the great questions of which we have been speaking. They got confused and bewildered when they thought about them; they often declared themselves that they knew not what to think. Thus spoke all the disciples of Socrates and Plato. Those of you who learn Latin may possibly read some day a well-known dialogue on the "Nature of the Gods," which was written fifty years before the time of our Lord Jesus Christ, by the

greatest of Roman orators, the celebrated Cicero. In this you will see how very little they knew of the truth, and in what deplorable doubt and uncertainty they were. It is a conversation, and each of the wise speakers tells in his turn some of the foolish thoughts and fancies of the time. Oh, what thick darkness! what sad confusion in all their thoughts! When all had finished, poor Cicero declares that he is still in doubt what to believe after he has heard them all. Well, my children, suppose that while all these wise men were thus assembled in Cotta's house in Rome, a little boy of the tribe of Judah had come among them with his Book of Genesis in his hand, what might he have said to all these wise Romans?

"Much honoured sirs, you know not what you say, you are in doubt, and you cannot tell what to believe, and you are all deceived; but we, in our children's school, know the truth with perfect certainty,—we know it because God himself has told us in his book, that 'in the beginning God created the heaven and the earth.'"

A little child with the Bible is wiser than

all the so-called wise men of the earth without it. These great truths have been often "hid from the wise and prudent, and revealed to babes" (Matt. xi. 25).

You see then, my friends, that it is by the Bible that we have the knowledge of the truth; and it is by faith that we have the happiness to know it with certainty. So the apostle Paul told the Hebrews: "Through faith we understand that the worlds were framed by the word of God, so that things which are seen were not made of things which do appear" (Heb. xi. 3).

"In the beginning God created the heaven and the earth." But when was this beginning? Remark that Moses says nothing of the time before "the beginning." This is a time which we cannot understand; it is a depth too great for man to look into, it is too long for man even to conceive,—words cannot express it, and it is better not even to think of it,—it does not concern us. Again, Moses does not tell us how long a time has passed since "the beginning." This time is longer, perhaps, than we can either understand or express. But this does not concern us either.

One thing is certain, that the heavens and the earth *had "a beginning,"* however long ago it may have been.

All things have had a beginning except God. He alone, the Holy Trinity, has had no beginning, because he has been from eternity. "From everlasting to everlasting he is God" (Ps. xc. 2). That is why he is called Jehovah, "I AM." "He is, and was, and is to come." He is "the high and lofty One that inhabiteth eternity" (Rev. i. 8; Isa. lvii. 15). The Father is called "Jehovah," the Son is called "Jehovah," the Holy Spirit is called "Jehovah." That is why the apostle Paul writing to the Hebrews speaks to them of the "eternal Spirit" (Heb. ix. 14); and the apostle John speaking of the eternal Son, begins his Gospel as Moses begins his Genesis, with the same important and mysterious word,—"*In the beginning:*" "In the beginning was the Word, and the Word was with God, and the Word was God. The same was in the beginning with God. All things were made by him; and without him was not any thing made that was made" (John i. 1-3).

Thus Moses says, "In the beginning God

created the heaven and the earth;" and John says that "in the beginning was the Word," and "all things were made by him." Then, was there anything before this "*beginning?*"

There was God, and the "Word who was with God, and is God."

Read what the Father says to the Son in the 102d Psalm, as it is quoted in the Epistle to the Hebrews: "Unto the Son he saith, . . . Thou, Lord, in the beginning hast laid the foundation of the earth; and the heavens are the works of thine hands: they shall perish, but thou remainest; and they all shall wax old as doth a garment; and as a vesture shalt thou fold them up, and they shall be changed: but thou art the same, and thy years shall not fail."

These words are in the 102d Psalm, and in the Epistle to the Hebrews the apostle Paul tells us that the Father says these words to the Son (Heb. i. 8-12).

In our Lord's last prayer while he was on earth—when he knew that the hour was near when he was to leave the world and return to the Father—he speaks of the time before the beginning of the world, when he was with

the Father. He says, "And now, O Father, glorify thou me with thine own self with the glory which I had with thee before the world was. . . Thou lovedst me before the foundation of the world" (John xvii. 5, 24).

But I must go on to the second word of our verse—the word "*created.*" I call it the second, because though it comes third in our translation, it is the second word of the verse in the original Hebrew, and I follow the same order.

"*Created,*" means made of nothing. These things were not; but God spoke, and they were.

It is through faith, St. Paul tells us, "that we understand that the worlds were framed by the word of God; so that things which are seen were not made of things which do appear" (Heb. xi. 3).

We must distinguish carefully between the two words "*created*" and "*made.*" Moses observes the difference when he says, "God rested from all his work which he *created* and *made*" (Gen. ii. 3).

A watchmaker *makes* a watch, but he does not and can not *create* it. He gets the gold, and the copper, and the zinc, and the steel,

and all the other materials out of the earth, and then he forms them into a watch; but he could not have made it of nothing. Man can *make*, but God alone can *create*. No man, no, not even one of the angels of heaven can *create* even the smallest grain of dust.

These words, "God created," ought to fill our minds with wonder and admiration.

Does it not make known to us the immense distance between the Creator and all his creatures? How far he is above all, not only above us, poor worms of the dust, but above the highest of the angels! There is less distance between a grain of dust and the highest archangel, than there is between the archangel whom God has *created* and called out of nothing, and the great God who has created him. The smallest insect and the highest angel, the smallest speck of dust and the starry heavens, are all alike God's *creatures*—he *created* them all. He alone is the Creator—far above all, greater than we can even conceive. The angels are commanded to worship the eternal Son who created them; as it is written, "Let all the angels of God worship him" (Col. i. 16; Heb. i. 6).

When we think of God, we may well say with the Psalmist, "Such knowledge is too wonderful for me; it is high, I cannot attain unto it"—"Great is the Lord, and greatly to be praised; his greatness is unsearchable"—"No man can find out the work that God maketh from the beginning to the end"—"Unsearchable are his judgments, and his ways past finding out"—"How little a portion is heard of him? but the thunder of his power who can understand?" (Ps. cxxxix. 6; cxlv. 3; Eccles. iii. 11; Rom. xi. 33; Job xxvi. 14).

This wonderful thought, "God created," makes known to us still further what God is to us, and what we ought to be to God.

God is all, and we are nothing. He can do all, since he has called all things from nothing, and all things are his. By him all things are; he "upholds them all continually by the word of his power." God knows all, since he has made all; the immensity of the heavens, and the earth from its surface to its centre, the heart of man and the hearts of angels, all are alike open in his sight. He has "numbered the very hairs of our heads," and counted the sands of the sea, and measured the dust of the

earth, as he has also counted the unnumbered starry suns that roll on high in the heavens above our heads. "Lift up your eyes on high, and behold who hath created these [the stars], that bringeth out their host by number: he calleth them all by names, by the greatness of his might, for that he is strong in power; not one faileth" (Isa. xl. 12, 26).

The same God who created all things governs all things. He keeps them every moment by the same almighty power which called them into being at first.

Unless he were to keep them continually they could not continue to be, and their preservation is a continual creation. Thus our Lord Jesus Christ says, "My Father worketh hitherto and I work." All the creatures are ever depending upon God. They could not live if he did not keep them alive. The Psalmist says, O Lord, "Thou hidest thy face, they are troubled: thou takest away their breath, they die, and return to their dust. Thou sendest forth thy Spirit, they are created; and thou renewest the face of the earth" (Ps. civ. 29, 30).

O my friends! how much reason we have

to give ourselves willingly to God, whose we are—to whom we rightfully belong.

"Happy is he," says the Psalmist, "that hath the God of Jacob for his help, whose hope is in the Lord his God; which made heaven and earth, the sea, and all that therein is; which keepeth truth for ever; which executeth judgment for the oppressed; which giveth food to the hungry" (Ps. cxlvi. 5-7).

This wonderful thought, "*God created,*" is continually repeated again and again, in every part of the Scriptures, by men of God, prophets and apostles, and by the angels of light,—yes, even by the divine Son of God himself.

Hear Moses, how many times he repeats it; hear David, his Psalms are full of it; hear Job, he speaks of it with wonder. Hear the apostles, they constantly return to this thought. They use it in pleading with God in prayer. We are told that "they lifted up their voice to God with one accord, and said, Lord, thou art God, which hast made heaven and earth, and the sea, and all that in them is" (Acts iv. 24). They use it as an argument in their preaching. "We preach unto you," say they, "that ye should turn from these vanities unto the

living God, which made heaven, and earth, and the sea, and all things that are therein" (Acts xiv. 15).

And in the high worship of heaven the saints ever remember this among their adoring praises. St. John tells us that they "fall down before him that sits on the throne, and worship him that liveth for ever and ever, and cast their crowns before the throne, saying, Thou art worthy, O Lord, to receive glory, and honour, and power: for thou hast created all things, and for thy pleasure they are and were created" (Rev. iv. 10, 11).

The subject of the next lesson will be the first five verses of Genesis, along with the first seven verses of the 8th Psalm, which ought all to be committed to memory.

CHAPTER II.

THREE GREAT WORDS: "GOD"—"HEAVEN"—"EARTH."

"In the beginning God created the heaven and the earth."—GEN. i. 1.
Ps. viii. 1–7.

WHAT an imposing picture was presented to us in our last lesson!—the earth, the heavens, and the heaven of heavens rising out of nothing "*in the beginning;*" that is to say, at some time in the depths of past ages—we know not how long ago—perhaps hundreds of thousands and millions of years. We have now to continue this magnificent subject, but first let us read a few verses of the 8th Psalm, and let us pray that our hearts may be filled with humble adoration and praise:—

"O Lord our Lord, how excellent is thy name in all the earth! who hast set thy glory above the heavens. When I consider thy heavens, the work of thy fingers, the moon and the stars, which thou hast ordained; what is man, that thou art mindful of him? and the son of man, that thou visitest him?"

Ah! certainly, dear children, if the sight of the heavens fills us with admiration and

wonder, there is something which ought to astonish us much more; and it is, that such a great God should have remembered worms of the earth such as we are—that he should have humbled himself to be made like unto us, and should have come to visit and dwell among us.

In the last chapter we considered only the first two words of the verse—the words, "*in the beginning,*" and "*created.*"

From these words, you will remember, we learned two great truths: First, That there was once a time, called here "in the beginning," when nothing existed but God alone—neither spirits nor matter—neither angels nor archangels — neither heaven nor earth, nor the least grain of the dust of the ground. Second, That God made all things out of nothing. He spoke, and from nothing there arose our earth and all that is therein—from nothing came all the heavens and heaven of heavens —from nothing came things visible and invisible, thrones, dominions, and powers.

We have now to consider the latter words of the verse, "In the beginning God created the heaven and the earth." We have to think of the meaning of these three words:

"*God*," "*heaven*," "*earth*." I begin with the word "*God*."

You must understand how very important it is, that, when the Creator of heaven and earth gives to men his written word for the first time, we should study with the greatest care all the expressions he uses, and particularly observe and remember the names by which it has pleased him to be called; for as he sends us his word to make himself known to us, he must, of course, have chosen among all possible names those which might give us the most true idea of what he is.

The great name "God" is the word by which is translated the Hebrew name, *Elohim*, used by Moses.

In the Bible God sometimes calls himself Jehovah (He who is, or the Eternal), and sometimes Elohim, which is usually translated "God." In the first verse of Genesis it is the word Elohim that he uses. There is a very remarkable thing about this name, which I think even young children may be made to understand, and it is, that this word "Elohim" is a plural word, while the verb which follows it is in the singular.

Why, it may be asked, has it pleased God thus to use a plural name in the very first line of the Scriptures, when through the whole Bible he declares so repeatedly that the Lord our God is one Lord—that there is but one God, and beside him there is none else?

You know, doubtless, what is meant by the singular and plural of names. None of you are ignorant that a word takes two different forms, according as it is meant to express one thing or more—one person or more. Thus, for example, we say "man" when we mean one, and "men" when we mean more than one; "child" when we mean one, and "children" when we mean more than one. We do not say, "I have seen three child," but, "I have seen three children." Those of you who are learning Greek can tell that there are some languages in which nouns, besides the singular and the plural, have a third form, called the *dual*, which is used when we are speaking of *two* things or persons. Thus, for example, the Greeks have three forms for the word "*God;*"—singular, *théos*, one god; dual, *théō*, two gods; plural, *théoï*, several gods. And in the same way in Hebrew, there are

also three forms of the name of God. There are the singular, Eloha; the dual, Elohaim; and the plural, Elohim.

Well, dear children, remark the word used by the Lord our God himself to express his own name, when for the first time he gave the Scriptures to man, in the Hebrew tongue. It is neither the singular nor the dual that is used, but the plural—Elohim. And yet this plural noun has a verb in the singular. It is difficult to explain this exactly in English, as our word "*created*" is the same both in the singular and plural; but you may perhaps understand it if we use the word *has*, the plural of which is *have*—as we say, "*he has*," and "*they have*." Thus in the Bible the words are not, "Elohim *have* created," but, "Elohim *has* created."

What may we understand from this? We may understand that God had an important design in choosing this very peculiar way of expressing this first sentence in the Bible, and that he wished, at the very beginning of his written word, to teach men that there is but one God — one only eternal and all-powerful Jehovah; but that in this wonderful and

mysterious unity there is a mysterious plurality of persons—the Father, the Son, and the Holy Spirit, and that these three are one. This truth is clearly expressed in other verses of the Bible: "There are three that bear record in heaven, the Father, the Word, and the Holy Ghost; and these three are one" (1 John v. 7).

[This is a wonderful thing—too wonderful for any human being to understand; yet we know it to be true, because God himself has said it. We cannot even understand our own threefold nature. We all have a body and a life such as the animals have, and besides these we have a soul that will never die, and yet these three things make only one person. We know that these three things are distinct, because they can be separated; the soul can be separated from the body, and yet we feel that still when united they form only one *me*. We cannot understand how this is, and yet we know it, and must believe it, as we must believe many other things which are too difficult for us to comprehend while we are in this world.]

This remarkable word, "*Elohim*," is used

also in the 6th chapter of Deuteronomy: "Hear, O Israel: the Lord our God is one Lord." The Hebrew words used are these: "Hear, O Israel, *Jehovah*, our *Elohim* is one *Jehovah*." Jehovah means, "He who is," the very being of God. Thus it is as if Moses had said, 'Hear, O Israel: the very being or essence of the three persons of our God, Father, Son, and Holy Ghost, is only one essence.'

There is much more to be said about this, but our space forbids. We shall return to the subject again at another time. We must go on to the other words of the verse.

What, then, are these "*heavens*," and what is the "*earth*," which God created in the beginning?

The word "heavens" is used to express the whole universe, all the creation of God except the earth, all the starry worlds which we see over our heads. "Earth" means this poor little planet on which we live—a planet so great when compared with man, but so very small when compared with the rest of the universe. Among the numberless starry worlds around it, our earth is only like an

almost invisible atom of dust. Yet, as among all these, it is the earth which concerns us most, because it is our dwelling-place, therefore God, who in his Scriptures speaks to men, and condescends to accommodate his words to their weakness, says to them: 'I have created all things: I have created the universe, and I have also created this little grain of dust called "earth," on which you are walking.'

In Scripture, as well as in ordinary language, the word "*earth*" is used in two different meanings: sometimes it means the whole globe on which we live; and sometimes only the solid dust with which the globe is covered, which is supposed not to be much more than from nine to twelve miles in thickness.

First, The word "earth" is used to express the whole globe in the 1st verse of Genesis,—"In the beginning God created the heaven and the earth;" and it is so used also in the 40th chapter of Isaiah, verse 22; and again in the 26th chapter of Job, verse 7, where we are told that the Lord "hangeth the earth upon nothing."

Second, The word "earth" is also used to

express the solid and rocky crust with which our globe is everywhere covered, and on which rest the vast waters of the ocean. It is used in this sense in the 10th verse of the 1st chapter of Genesis: "God called the dry land *earth.*"

Earth is the dry land as distinguished from the sea; it means the continents and islands which appear above the waters.

And as this word "earth" has two different meanings in the Bible, so also the word "*heavens*" is used to express three very different things.

The first "heaven" or "heavens" is the air and sky over our heads and around us, the sky of the birds and of the clouds—*the atmosphere;* and it is in this sense that the word is used in the Bible where we read of the "dew of heaven," the "clouds of heaven," the "four winds of heaven," the "birds of heaven" (Ps. civ. 12; Hag. i. 10).

The second "heaven" or "heavens" is the starry heaven, far away beyond our atmosphere; the distant space where we see the sun, the moon, the planets, and all the countless stars.

The third "heaven" or "heavens," where St. Paul tells us he was carried, is the holy place, far away in the immensity of space, called in the Bible the "highest heaven," the "heaven of heavens," the heaven of the angels, the heaven where our Lord Jesus Christ went when we are told that "he is passed into the heavens" (Heb. iv. 14), where the glory of the Most High is manifested.

I shall first say a few words about the earth in the first meaning of the word,—that is, the "earth" which we are told God created in the beginning, the globe on which we live.

First, You know that it is round. This had been told us long ago in the Bible;* and since then men have been able to see that it is true, because hundreds of ships sail round the world every year, thousands of sailors leave Europe and go to the westward without ever turning back, and at last, after sailing straight on for long months or even years, they return by the east to the very place from which they set out.

Second, We know that our earth goes

* Isa. xl. 22; Job xxvi. 10, "encircled," instead of "compassed"—*translation*. Prov. viii. 27, "circle," for "compass"—*marginal reading*.

round the sun once every year in an immense oval course, turning round upon itself at the same time as a ball does when it rolls along. It turns round upon itself once in twenty-four hours, with a speed so great that at the Equator it moves at the rate of seventeen miles in a minute, or 1,020 miles in an hour; and while it is turning thus, it is at the same time going round the sun at the rate of 20 miles in a second. If you could be lifted up to a distance of 300 miles above the earth, how you would wonder to see it passing beneath your eyes, flying through space sixty times faster than a cannon-ball!

Third, The earth has been measured. It is 25,000 miles all round, or *in circumference;* and nearly 8,000 miles straight through, or *in diameter.* You may imagine its size when I tell you that it has been reckoned that Mont Blanc, the highest mountain of Europe, is no larger when compared with the earth than the thickness of one of your hairs is to your head, or like a small grain of sand placed on a house 20 feet in height.

You may judge of it also in another way by another calculation.

Suppose that you wished to take a rapid glance at all the world, and that for this purpose it were possible to place you for an hour on a height from which you could see forty miles in every direction. This would be certainly a very extensive view, and it would take more than an hour to see it well, since it would comprehend 1,800 square miles, or forty-five times the territory of our republic, yet, notwithstanding, this great space would be only the forty-thousandth part of the surface of the earth. Suppose, then, that you should be lifted up and carried every hour to the midst of a new view of the same size, and that this went on for twelve hours every day, allowing you to see twelve new views all equally large, how long do you think it would take for you to see the world at this rate? Not less than nine years and forty-eight hours!

Fourth, This earth, although covered all round with a solid, crust is all on fire within. Its interior is supposed to be a burning mass of melted, glowing metals, fiery gas, and boiling lava. This was mentioned in the Bible long before learned men had found it out for

themselves by observation. It is spoken of in the Book of Job, about 3,000 years ago (Job xxviii. 5). We often read also in Scripture of the mountains being "melted like wax," rising and leaping like lambs, and raised from the depths of the earth by the force of the inward fire (Ps. xcvii. 5). We read in the Psalms of a time "before the mountains were brought forth" (Ps. xc. 2); and we read also in Proverbs of a time "before the mountains were settled" (Prov. viii. 25), while they were yet being tossed and thrown up by the mighty power of fire.

"The mountains ascend, O Lord! and the valleys descend to the place which thou hast appointed for them" (Ps. civ. 6-9,—marginal reading).

This inward fire often breaks out still. "God touches the hills and they smoke," and "the mountains flow down" at his word (Ps. cxliv. 5). The solid crust which covers this inward fire is supposed not to be much more than from 9 to 12 miles in thickness. Whenever this crust breaks open, or is cleft in any place, there rush out lava, fire, melted rocks, fiery gases, and ashes, sometimes in such floods as

to bury whole cities. From time to time we read of the earth quaking, trembling, and sometimes opening, and of mountains and small islands (which are mountains in the sea) being thrown up in a day.

Thus the Bible said, thirty-three centuries ago, what learned men have only lately discovered, that some of the greatest mountains of the earth (such, for example, as Mont Blanc, and the highest of the Alps), have been formed long after the first creation of the earth, by the work of God's mighty servant—the fire.

So great is the heat within the earth, that in Switzerland, and other countries where the springs of water are very deep, they bring to the surface the *warm* mineral waters so much used for baths and medicine for the sick; and it is said, that if you were to dig very deep down into the earth, the temperature would increase at the rate of a degree of the thermometer for every 100 feet, so that, at the depth of 7,000 feet, or a mile and a half, all the water that you found would be boiling; and at the depth of about ten miles all the rocks would be melted.

Such is the state of the globe on which we live, dear children, and you cannot have forgotten that the Bible also declares to us, that a day will yet come when this earth will be burned up by the fire. There is fire, as you have heard, within it, ready to burst forth at any moment, at God's command.

"The heavens and earth, which are now, by the same word are kept in store, reserved unto fire against the day of judgment and perdition of ungodly men. . . . The day of the Lord will come as a thief in the night; in the which the heavens shall pass away with a great noise, and the elements shall melt with fervent heat, the earth also, and the works that are therein, shall be burned up. Seeing then that all these things shall be dissolved, what manner of persons ought ye to be in all holy conversation and godliness; looking for and hasting unto the coming of the day of God, wherein the heavens, being on fire, shall be dissolved, and the elements shall melt with fervent heat? Nevertheless we, according to his promise, look for new heavens and a new earth, wherein dwelleth righteousness. Wherefore, beloved, seeing that ye look for such

things, be diligent, that ye may be found of him in peace, without spot and blameless" (2 Pet. iii. 7-14).

How wonderful are the works of creation! Even the little that I have been able to tell you has given us much cause to wonder, admire, and adore. But how great ought to be our adoring gratitude when we remember, that this earth was even then being prepared to become, perhaps millions of years afterwards, the abode of man, and then the great scene of his redemption by the only Son of the Almighty God,—a work infinitely greater and more glorious than all the wonders of creation! The Word, who was in the beginning with God, and was God, was made flesh, descended to this earth, and here lived and died, to save the elect who had been given him by his Father before the foundation of the world; and he will come again to raise them from the dead, and take them to himself to reign for ever with him, their Lord and Redeemer.

But this is not my present subject. I have yet said nothing of the creation of the sea, of the plants, of the fishes, of the reptiles, of the birds, and of all the animals which were

produced upon the earth during the six days' work before man appeared.

I will speak of all these in their order. In the meantime, the subject of the next chapter will be the first verse of Genesis, along with the first eleven verses of the 19th Psalm.

CHAPTER III.

THE HEAVENS.

"In the beginning God created the heaven and the earth."—GEN. i. 1. Ps. xix 1-11.

THE chapter for this day is a glorious subject. We are to consider not only the heavens, and the "heaven of heavens," but something even greater than they are,—their creation. We are to consider not only the splendour, the extent, the light, the motions, and the infinite spaces of the heavens,—we have to think also of the mysterious time when all these beautiful and glorious bodies rose from nothing, when the Eternal called them into being by a single act of his all-powerful will.

"In the beginning Elohim created the heaven." "The heavens," says the Psalmist, "declare the glory of God; and the firmament sheweth forth his handywork. Day unto day uttereth speech, and night unto night sheweth knowledge. There is no speech nor language where their voice is not heard."

I shall first try to show you how their "voice is heard." They speak to our eyes—

they speak to our understandings—they speak to our hearts.

First, They speak to our eyes with a beauty, a variety, a power, as wonderful as delightful. They tell us of the glory of the great God; they proclaim it to the most ignorant as well as to the most learned—to the pious shepherd when at the early dawn he opens the door of his mountain cottage, as well as to the astronomer who has passed the whole night beside his telescopes, and who has been watching with admiration and delight the course of the suns and distant worlds, as he sees them cross with the speed of the eagle the wonderful field of his magic glass.

Second, They speak to our understandings. They make known to us wonderful things—things too high and too wonderful for us to comprehend; they tell us of wisdom, grandeur, and infinite glory, in a language more forcible and expressive than any words. One day tells it to another, and night teaches it to each succeeding night.

Lastly, They speak to our hearts another language, more eloquent and more powerful still. They say to us, 'O man! the Creator of all this glory and beauty is *thy* God—the God

who desires to save *thee*—thy Father! O man! hear the wonderful tidings: The only Son of God, the eternal Word, who was with God in the beginning, and who is God, who has made all things, and without whom nothing was made,—this Word has been made flesh. The only Son of God, the Creator of the heavens and of the earth, with a love greater even than his glory, came to live and to die on this earth to atone for thy hateful and abominable sins; and when he came to this world which he had made, he had not even where to lay his head!'

Ah! if we would but listen attentively to the silent voice of the heavens—this language more eloquent than words—we might say as Jacob did when he saw the glorious vision at Bethel, "Surely the Lord is in this place, and I knew it not. . . . This is none other but the house of God, and this is the gate of heaven" (Gen. xxviii. 16, 17).

Yes, my children, there is a voice in the heavens which is ever saying to us, 'The Lord is here.' Each morning, each evening, each moment makes known to us his power and tells of his glory—"Day unto day uttereth speech, and night unto night sheweth know-

ledge. There is no speech nor language where their voice is not heard."

"In the beginning Elohim created the heaven and the earth."

It must be remembered that as the word "earth" has two meanings in the Bible, so the word "heaven" has three meanings, or rather, the Bible mentions three heavens created by God. The first heaven is meant when it speaks of the "birds of heaven," "the clouds of heaven," "the four winds of heaven,"—this is what we call the atmosphere; but this is not all that is meant by the word in the first verse of Genesis.

The atmosphere does not rise to a greater *height* than forty or forty-five miles above the earth. Even at the top of Mont Blanc the air becomes so thin, and there is so very little of it, that people can scarcely breathe there; and forty miles higher there is no air at all. Men have been able to measure the height of the atmosphere by observations made when the sun is rising, and also by the barometer, which tells the weight of the air. But this is not our present subject; it will be mentioned again in a future

lesson. In the meantime we have to consider the second heaven, the immense space stretching far beyond our atmosphere; the starry sky—magnificent beyond our highest thoughts—more glorious than imagination can conceive.

Men have been able to measure the distance from the moon, which is 240,000 miles from the earth; also the distance from the sun, which is so great, that a cannon ball flying at the rate of 1,000 miles an hour would take more than ten years to reach it. The nearest of the fixed stars are at least 400,000 times more distant, and there are others that are millions and millions of times more distant still.

Yet even beyond this second heaven God has created also what St. Paul calls the third heaven, or paradise (2 Cor. xii. 2-4), and what is also called in Scripture the "heaven of heavens," or the "heavens of heavens," because this third heaven is as much beyond the starry heaven as the starry heaven is beyond our atmosphere. Solomon speaks of the "heaven of heavens" in his letter to Hiram, king of Tyre, about the building of the Temple in Jerusalem. "The house

which I built is great," writes king Solomon; "for great is our God above all gods. But who is able to build him an house, seeing the heaven, and heaven of heavens, cannot contain him? who am I then, that I should build him an house, save only to burn sacrifice before him?" (2 Chron. ii. 5, 6.)

It is in this heaven of heavens that the glory of God is more especially manifested. It is thither that St. Paul tells us he was one day "caught up, whether in the body or out of the body he could not tell."

It is there that the glorious angels stand round the throne of God and of the Lamb; there will be the glorified saints in millions and millions; there are the thrones, the principalities, the powers, the seraphim of glory.

In the beginning God created the second heaven, the starry sky, and he created also the heaven of the angels, for they existed long before man. When Adam was placed in the garden of Eden some of the angels had already passed through their state of trial, for we are told that some of them "had not kept their first estate," and others had kept it (Jude 6, 9).

The glorious angels, clothed with light and

perfectly happy, dwelt in heaven long before the time of Adam. We are told that millions and millions of them stand round God's throne and behold his glory,—that they worship him and sing his praise, and fly to do his will.

What a glorious idea does this creation give us of the great God who made it all—of his wisdom, power, glory, and infinite majesty! What an idea does it give us of the work of redemption and of our adorable Redeemer,—so great, so all-powerful, yet so meek, and lowly, and long-suffering!

Think of all that is told us in the Bible about the angels, their wisdom, and holiness, and power, and goodness, and then think what He must be who created them, and who preserves and governs them all,—he who gave them their immortal life and their unspotted purity,—he whom they ever adore. "All the angels of God worship Him," is said of the Son of God, our Saviour (Heb. i. 6).

But our present subject is the second heaven, which we can see with our bodily eyes, and I have now to tell you something

about it. It would take weeks and months to tell you even the little I know of it. Astronomy is the highest subject of human study, and the more you know of it, the more will you be filled with wonder, admiration, and delight.

The starry sky has proclaimed from age to age the glory of Jehovah, even from the beginning of the world; but it is only between two and three hundred years ago since the powers of the telescope and the science of geometry opened, as it were, the windows of this world; and they have given to men a view far beyond any ever seen before, of twenty heavens, a thousand heavens, more distant and more vast than the heavens known in the early ages, and have at the same time enabled men to learn many things about the starry worlds, most wonderful, and yet assuredly true. By means of the telescope and mathematics, astronomers have been able to measure the heights of heaven, the distance and the size of the bright stars that are sparkling by thousands in the sky. Nay, (can you believe it?) they have even discovered the weight of some of the bright worlds of light that are shining so far

away,—the weight of the sun, the weight of the moon, and the weight of the far distant planets.

I shall try to make you understand how, by means of mathematics, men have been able to measure the distances of places far beyond their reach, even where they cannot go.

You all know what a *triangle* is. Here is one, for example, which I make with my two thumbs placed in a straight line, and my two fore-fingers meeting. My two thumbs form one line, the *base* of the triangle, and each of my fore-fingers forms a side of the triangle. You see that a triangle is a figure having three sides, and three *angles* or corners.

Well, it is a truth that can be proved by geometry, that if I can measure one side and two of the angles of a triangle, I know all the rest; for if I know the size of these, I know exactly what the other sides and angle *must* be. If the angles at each end of the base of the triangle are very small,—that is to say, if the *base* and the lines that form the sides are not far apart,—the lines will meet sooner, and the top of the triangle will be

nearer the base; but if the angles at each end of the base are large,—that is to say, if the lines go far apart,—they will not meet so soon, and the top of the triangle will be more distant from the base.

For example, if any one were to say to me, Can you tell me the distance to the top of the mountain of the Salève, by geometry alone, without going out of the promenade of St. Antoine where we are? I might answer, Yes, I can easily do so in this way: I imagine a triangle, the top of which is the summit of the mountain, and the base the promenade of St. Antoine. I must measure one side and two angles of this triangle. For this purpose I should begin by measuring very carefully a line from the house Vernet at one end of the promenade, to the other end of it near the lake. This is one side of our triangle, and forms the base of it,—it is 800 feet in length. After that I should go to the house Vernet and place my instrument there to measure the angle. This instrument is simply two telescopes crossing each other, so that I can measure how far the lines that they form separate from each other. I turn one of my

telescopes so that it points exactly to the top of the Salève, and the other so that it points exactly to the end of the promenade St. Antoine, and then I measure the angle which they form; and this is one of my angles. Then I go to the other end of the promenade and direct one of my telescopes to the house Vernet, and the other to the top of the Salève, and again measure the angle which they form; this is my second angle, and this is all I want: for, knowing the length of the base (800 feet), and knowing the size of the angles at each end of the base, I could reckon how long the other two sides must be before they meet at the top of the triangle, which is the summit of the Salève; and I could tell you exactly how many feet and inches it is from the house Vernet to the top of the mountain.

It is exactly in the same way that astronomers have measured the distance between the earth and the moon. Two observers, placed far from each other, at different points on the earth, measure exactly the distance between them; then both directing their telescopes towards the moon, they measure the angle which this line between each of them and the

moon forms; thus they have one side (the line between them) and two angles,—one at each end of it,—and so they know the whole size of the triangle. Thus it has been discovered that the distance from the moon to the earth is equal to thirty times the diameter of the earth, which, as I told you, is 8,000 miles. Thirty times 8,000 are 240,000 miles, and this is the distance to the moon.

But now, how can they know the distance of the sun? for the whole earth is too small even to form one side of the triangle to measure this immense distance. It may be done in various ways. The following is one of the most simple:—

They have imagined a triangle formed by three imaginary lines between the earth, the moon, and the sun. We know the length of one side of this triangle,—it is the distance between the earth and the moon, which is 240,000 miles. It is easy to measure one of the angles formed by two telescopes directed at the same time from the earth to the moon and to the sun. Thus we have one side and one angle. But how can we measure the

other angle? for we cannot go to the moon to measure the angle formed by two telescopes directed at the same time to the earth and to the sun. This is how it is done: Care is taken to measure the one angle on the earth at the time when the moon is half full, because it is known that at that time a line between the sun and the moon forms exactly a *right angle* (or the angle of a square) with the line between the moon and the earth. Thus, then, having the length of the base, 240,000 miles, and two angles, one at the end of the base in the moon (a right angle), and the other, which can be measured on the earth at the other end of the base, we know the size of the triangle, and can tell that the line between the sun and the earth is 400 times as long as the line between the moon and the earth: therefore, the distance between the sun and the earth is 400 times 240,000 miles, or 96,000,000 of miles.*

When we know the distance between the earth and the sun, it is then easy to discover by geometry the size of the sun. It is 1,300,000 times larger than the earth. It is so large, that if its centre could be placed

* Round numbers are here given. More exactly the distance of the sun is 95 000,000 of miles.

where the centre of our earth is, it would fill up not only all the space between us and the moon, but would even extend far on the other side, to a distance of about 200,000 miles beyond the moon; for half of the diameter of the sun is 110 times the half-diameter of the earth, and the distance between the earth and the moon is only 60 times the half-diameter of the earth. It is reckoned that a ball flying as fast as when it is shot from the mouth of a cannon would take ten years, three months, and thirteen days, to travel from the earth to the sun!

But what will you say when you hear that we ourselves, carried along with the earth in its course round the sun, go every year a distance six times longer than the journey which a cannon ball would take more than ten years to travel at its greatest speed? Our earth moves at the rate of twenty miles in a second—much faster than a cannon ball—yet we take this long journey without perceiving that we are moving: while you are comfortably seated on these benches, and I am standing in the reading-desk, we are all the while flying through space, carried along by

our earth. It is a large, heavy carriage to move so quickly, for it is 25,000 miles round, and weighs, we are told, twice as much as if it were all made of marble.

Astronomers have counted more than sixty planets which all move round the sun, as our earth does, at different distances from it. Some of these are much smaller, and others very much larger, than our earth,—Uranus, for example, 77 times larger, Saturn 887 times larger, and Jupiter 1,470 times larger. These great worlds, instead of having only one moon like ours, have several moons, and are much further from the sun than we are. Jupiter is more than five times further from the sun, Saturn more than nine times and a half, Uranus more than nineteen times. Yet even these great distances, which almost bewilder the imagination, are as nothing when compared with the distances of the fixed stars, which the telescope and modern learning have made known to us within the last fifty years. These innumerable little sparkling lights, no larger to your eyes than the head of a pin, are all suns, equal to and often much larger than our sun. Since God has given to man that

wonderful instrument the telescope, astronomers are every day discovering new wonders, further and further away in the immensity of space,—so far away that we have neither words nor figures that you can understand to express the distance,—further than your very thoughts can reach.

In a fine winter night about a thousand stars may be seen by the naked eye; and it is now known that, with the help of the telescope, about 80,000 times as many may be perceived. The telescope of Herschel, with its large reflector of forty feet focal length, which magnifies 6,000 times, shows us the mountains and valleys in the moon as we should see them if we could be conveyed in a moment to a place at about forty miles distant from that luminary. This wonderful telescope makes an object 3,700 times more brilliant than it is to the naked eye,—and allows us to distinguish stars of the thousand three hundred and forty-fourth magnitude,* whilst the most practised eye, unaided, can only see those of the sixth or seventh magnitude. In

* Arago, "Annuaire du Bureau des Longitudes," 1842, p. 286.

a dark night Herschel could see through his telescope the spire of a church at the distance of 3 miles, and could tell the hour at which the hand of its clock was pointing at the moment. Stars of the first magnitude, before coming within the field of view of his glass, announced their appearance by a dawning light like the rising sun, and soon after shone with such dazzling brilliancy that the weak eye was obliged to turn away from the blaze of light.

I should wish to give you some little idea of the number of the fixed stars (or suns), and also of their immense size. That you may form some idea of their number, I may tell you that Herschel assures us that when he looked at what is called the milky way, through his telescope, he could count 2,000 suns in a space on the sky only as large as the apparent size of the moon; and if he looked at one of the clusters of stars called "*nebulæ*," he could count 200,000 suns within the small space which the moon appears to cover in the sky. The strongest eye, unaided by the telescope, can see in a dark clear night only stars of the sixth degree of magnitude; through ordinary telescopes stars

of the sixteenth magnitude may be seen; and every increase in the power of the telescope brings into view new stars. So many have been seen of late years, particularly by means of the new telescope constructed by Lord Rosse, that we may truly say their number is infinite,—God alone can number them, as the Bible tells us (Ps. cxlvii. 4).

While before the invention of the telescope, about three hundred years ago, the eye of man could not reckon more than 1,000 stars, while the most learned men of former ages supposed their number to be 1,022, or 1,026, the Bible all along testified that they were *innumerable*,—except by God,—compared them to the sand of the sea-shore (as Herschel has done in modern times), and told us that God had scattered them like dust in the immensity of space, and yet that he calleth them all by names (Gen. xv. 5; xxii. 17; Heb. xi. 12; Isa. xl. 26).

Their number is infinite, and now try to imagine their immense size. I have called them suns, for such they are; and I have told you that the moon, as she moves across the heavens, hides from our view 2,000 of these

suns at a time. These points of light, not larger to our eye than the head of a pin, have been measured. Four of the most brilliant stars seen in our sky have been named Sirius, Arcturus, Antares, Vega. According to the observations and calculations of Herschel and Arago, two of the greatest astronomers, the diameter of Arcturus, the finest star in the *constellation* (or group of stars) called Bootes, is at least eleven times greater than that of our sun, so that if it were put in our sun's place, it would appear to us a sun 121 times larger than our great light. From the observations of Wollaston, it has been reckoned that the diameter of the bright star Sirius is at least three times and three-quarters that of our sun, and that placed at the same distance from us it would appear to us fourteen times larger than the sun. Yet Vega, the most brilliant star in the constellation Lyra, far exceeds even these. From the observations and measurements of Herschel, its diameter is reckoned to be 3,000 times that of our sun, and its distance from our earth is calculated to be twenty-two millions of millions of miles. Such measurements are almost too vast for

our minds to conceive, and yet there are others greater and more distant still.

Astronomers have tried to form triangles for measuring some of the distant stars, by taking as the *known side* an imaginary line between the two extreme points of the earth's orbit, which are nearly 200,000,000 of miles distant from each other; but even this long line is too short for such a purpose, and they have only been able to give an idea of their distance by the speed of light. They reckon that light, which travels 192,000 miles in a second, and comes to us from the sun in eight minutes, would take more than six years to come to us from the nearest of the fixed stars; and that if light takes six years to come from a star of the first magnitude, it will take 2,000 years to reach us from a star of the eighteenth magnitude.

Ah! my young friends, let us adore the Creator of these wonders, and let us say with Amos,* "Seek the Lord, and ye shall live. . Seek him that maketh the seven stars [Pleiades] and Orion," — these grand

* Amos v. 6, 8.

constellations in the heavens. And let us also say with David, "O Lord, when I consider thy heavens, the work of thy fingers, the moon and the stars, which thou hast ordained; what is man, that thou art mindful of him? and the son of man, that thou visitest him?" (Ps. viii. 3, 4.)

There is an evil thought which sometimes comes into the minds of men when they behold all the glory and grandeur of the heavens, and it is this: They say to themselves, "Ah! heaven is so great that I can scarcely believe that the Creator of all could have humbled himself to come down into this miserable little world to die for us." I shall answer this in two ways. First, This difficulty only occurs to those who do not know or consider enough the infinite greatness of God. God is so great that in his sight there is but little difference between what we call great and what we call little. All is as nothing compared with him. Suppose that, instead of creating men about six feet in height, he had chosen to make them of such an enormous size that, with their feet on earth, their heads should have reached the sun, so that a cannon ball flying day and

night would have taken ten years and three months to go from their feet to their heads. Suppose, I say, that men had been created as large as this, would they have been worthy then that God should trouble himself with them? No; certainly not. If the objection, the evil thought were true at all, it would still be equally true even in that case. Even then men would be very small compared with the infinite distances and wonderful size of the numberless stars; they would be but very small compared with fixed stars of the eighteenth magnitude, and still but atoms compared with the nebulæ. When compared with these immense far distant suns unseen by the naked eye, men would even then be less than the millions of invisible animalculæ are, which the microscope shows us swimming in a drop of water, when compared with the visible glories of our starry sky.

You see, then, that what proves too much in fact proves nothing; for if this objection were true, it might lead us to say that God is too great to trouble himself about any created thing at all, since all are nothing compared with him; and such a supposition, instead of

exalting him, would, on the contrary, tend to take away from his glory, as his work of preserving and governing the creatures he has made is as great a wonder as his work in creating them at first.

But there is a second answer to this evil thought. Does the greatness of God bewilder us and crush us to the dust, because we are so small and low, and it is too high for us,—we cannot comprehend it, for it is infinite? Ah, my friends! let us remember that the goodness of this all-perfect God is infinite too, and that we ought to feel still more humbled in the dust when we think of it. Sin has made us even more unable to comprehend his infinite mercy than his infinite power, and we are much smaller in the view of his great love than even in the view of his great power. Ah! if it is true that these heavens, which were created by his powerful hand, are so far away above our heads, let us remember that it is written in the Bible that "*as the heaven is high above the earth,* so great is his mercy toward them that fear him" (Ps. ciii. 11).

You see, then, that in God one mystery corresponds with another mystery,—the mystery

of his infinite power to the mystery of his infinite love; both are equally wonderful, and the immensity of the wonders of his power which we see may help us to understand and believe the immensity of his love. The more you see that he is great beyond all that you can even conceive, the more ought you to know and to feel that his mercy and compassion are also infinitely beyond your thoughts; for we are told that "the Lord is good to all, and his tender mercies are over all his works" (Ps. cxlv. 9).

"Seek ye the Lord while he may be found, call ye upon him while he is near: let the wicked forsake his way, and the unrighteous man his thoughts: and let him return unto the Lord, and he will have mercy upon him; and to our God, for he will *abundantly pardon*. For my thoughts are not your thoughts, neither are your ways my ways, saith the Lord. *For as the heavens are higher than the earth*, so are my ways higher than your ways, and my thoughts than your thoughts" (Isa. lv. 6–9).

"I thank thee, O Father, Lord of heaven and earth, because thou hast hid these things

from the wise and prudent, and hast revealed them unto babes."

The next lesson will be from the 2d to the 5th verse of the first chapter of Genesis, along with the 4th, 5th, 6th, and 7th verses of the 38th chapter of Job

CHAPTER IV.

THE WORK OF THE FIRST DAY.

"And the earth was without form, and void; and darkness was upon the face of the deep: and the Spirit of God moved upon the face of the waters. And God said, Let there be light: and there was light. And God saw the light, that it was good: and God divided the light from the darkness. And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day." —GEN. i. 2–5. Job xxxviii. 4–7.

WE are told in the first verse of Genesis that God caused the heavens and the earth to spring from nothing, in the beginning. The Holy Spirit of inspiration permits us as it were to take a brief glance at the whole wonderful universe which God created at first, and then immediately brings us back to this earth, the spot which has the deepest interest for us, which in the fulness of time was to be the scene of the great work of redemption,—a work even more wonderful than creation, wrought out for us by the Son of God.

In the wonderful story which follows in this chapter, we hear no more of all the far distant worlds of which I spoke to you in the last lesson—of all the suns and planets, clus-

ters of stars and nebulæ which are studded over the immensity of the heavens. Why should any more be told us about them? The object of this holy book is not to teach us astronomy, or to make known to us the history of the angels. No; it is written to tell us of the great work of grace—of the redemption of the elect on this small but glorious earth—of the eternal reign of our Lord Jesus Christ. Therefore, after merely noticing the creation of all the universe by God, we are recalled at once, in the second verse, to the history of our earth alone, and we are told in what a state of darkness and confusion it was plunged before it was formed by the six days' work into a fit habitation for man:—

"*And the earth was without form, and void; and darkness was upon the face of the deep.*"

It has already been said, when explaining these words in the first verse, "In the beginning," that no human being knows how long ago that time was. We know that it was very long ago,—perhaps hundreds of thousands of millions of years; we cannot tell, for the Bible has not told us. But you may

ask, Can we not find out how long ago it is since the time that is mentioned in the second verse, when "the earth was without form, and void, and darkness was upon the face of the deep," and when God began on our earth his great six days' work?

To this question we must still answer as we did before, We cannot tell, no man knows, for the Bible has not told us; but it may very probably be ten millions or ten hundred millions of years ago. We do not know. Two things only we know certainly about this, and these are: First, That it is about six thousand years ago since the sixth day's work of the creation *ended*, and the first man appeared on the earth. Perhaps, speaking more correctly, we might say that it is about 5,860 years ago. Second, We know that before this time, long before God had created man, he had created the angels, since we find that there were good and bad angels at the time when man fell. We know, therefore, that these angels must before then have had their time of trial;—that some of them had persevered in obedience and kept their first estate; and that others, on the contrary, had

fallen, as the apostle Jude tells us that "the angels which kept not their first estate, but left their own habitation, he hath reserved in everlasting chains, under darkness, until the judgment of the great day" (Jude 6). All this had taken place before the fall of Adam, therefore we see that the creation of the angels must have taken place long before the creation of man. The angels rejoiced in the wonderful work of God in creating the world, long before there was any man formed. "Where wast thou," the Lord says to Job, "when I laid the foundations of the earth?" (that is, the crust of the earth.) "Who laid the corner-stone thereof, when the morning stars sang together, and all the sons of God shouted for joy?" (Job xxxviii. 4, 6, 7.)

We see, therefore, that, according to the Scripture account of the creation, we must suppose that between the first verse and the second a long time passed—how long we cannot tell.

Let us now go on to speak, not of the creation of the earth, but of its new formation, or of the great six days' work.

That you may be better able to understand

the great truths of which we are now to speak, it may be well to recall clearly to your minds what we have already learned about the earth in our former lessons.

What do the Scriptures say of its form?

That it is round (Isa. xl. 22).

What does the Bible call its solid crust?

Earth (Gen. i. 10; and also Job xxxvii. 5, 6).

What does the Bible tell us of the interior of the earth?

That under it there is fire (Job xxviii. 5).

When the Bible speaks of the globe of the earth, on what are we told it is hung?

On nothing: "He hangeth the earth upon nothing" (Job xxvi. 7).

On the other hand, when the Bible speaks to us of the crust of the earth by the name of "earth," how strikingly it calls upon us to admire and wonder at the mysterious, unknown, astonishing way in which this thin crust, on which rest our seas, our rivers, and our high mountains, is yet fixed so securely on a sea of fire, of lava, and of melted rocks!

Read what is said of it in the Book of Job:—

"Where wast thou when I laid the foundations of the earth? declare, if thou hast understanding. Who hath laid the measures thereof, if thou knowest? or who hath stretched the line upon it? *Whereupon are the foundations thereof fastened?* or who laid the corner-stone thereof?"

What is the circumference of our globe?

Twenty-five thousand miles.

How long does it take to make its annual journey round the sun?

A year of 365 days and a quarter, at the rate of twenty miles in a second.

Does it not at the same time turn round itself like a ball once in twenty-four hours?

Yes, and it moves at the rate of 1,000 miles in an hour at the Equator.

So that if at this moment any of you were to be lifted up to a distance of six or eight miles above the spires of St. Peter's Church in Geneva—to a height two or three times higher than Mont Blanc—and then suppose that a strong hand kept you fixed there in its powerful grasp for twenty-four hours, what would you see?

First, you would see the three spires of St

Peter's passing quickly away under your feet; then the Fort of l'Ecluse and the Lake of Nantua would be seen rushing towards the side where you had seen the Lake of Lausanne and Vevey disappear, with the speed of fifteen miles in a minute. In less than six minutes you would see beneath you the city of Mâcon on the Saône; and in less than twenty minutes the town of La Rochelle and the great Atlantic Ocean would appear in sight. At the end of three hours this vast ocean would have passed below you, and you would see the coasts of America and the great River St. Lawrence; then Quebec and the Canadian lakes; then the Rocky Mountains and the country of the Mormons; then, at the end of thirteen hours, you would see California and the great Pacific Ocean; and at the end of seventeen hours you would see China and its capital city Pekin below your feet. At the end of twenty-three hours and a half the Gulf of Venice, Trieste, and Upper Italy would pass under your view; and at last, half an hour later, you would find yourself again where you set out,—hovering over the spires of St. Peter's, the trees of St. Antoine, and the court of the Oratoire in Geneva.

The rotation of the earth upon its own axis may be perceived in many ways. Travellers in our day may see its effects on the railways in America which run directly north and south. It is quite perceptible, says Lieut. Maury, that all the carriages which come from the south keep in their rapid course the impulse which they have received near the Equator, and have a tendency to throw themselves towards the east; and, on the contrary, all those which come from the north, having received less of the impulse caused by the whirling of the earth, have a tendency to throw themselves to the west.

Perhaps some of you will find it difficult to believe that we are thus turning, and whirling, and travelling onward, day and night, without perceiving that we are moving. It may also be equally difficult to realize the truth that men are standing on their feet all round the round earth, some on one side, and some on the other. This very week I saw a little friend of mine, who was tormenting herself by puzzling about this; and I soon satisfied her, by explaining to her that this world is a large magnet, and that the point of attraction

in this large magnet must be always the centre of the magnet. To make her understand this better, I took a ball of sealing-wax to represent the earth, and, having rubbed it well upon my sleeve, I made it a magnet. Then I placed little paper men all round this magnetic ball, some here, some there, some on one side, some on the other; and I showed her, to her great astonishment, that this little imitation earth *attracted* (or drew to itself) all these tiny paper men, which clung to it, and seemed to stand upright on all sides of it, above and below.

"Well, dear child," I said to her, "you see the way in which all the men in the world are drawn towards the earth, and kept upon it, on all sides of the round globe, whether in Britain or in its antipodes, New Zealand, whether in Australia or Geneva."

But now I must return to the verses for the day. Let us think what a state the world was in at that far distant time. We shall find many interesting things to consider and explain in the work of the first day.

"*The earth was without form, and void;*" or, as others translate the words, "The earth

was still in disorder and solitude,"—that is to say, there were no distinct objects, and all in it was in confusion. There were no men, no animals, no birds, no fishes, no reptiles, nor even the smallest insect; no trees, no plants, no fresh green grass; no dry land, no sea, no air, no light.

"*Darkness was upon the face of the deep.*"

This yet unformed earth, so void and desolate, had an abyss of waters all around it; and, besides this mass of waters with which it was entirely covered, it was wrapped in a thick cloud of the deepest darkness.

There was then no light at all,—not even the feeble glimmer which we now see in our darkest nights. The mass of waters, boiling over the burning fire within, were changed into steam and hot vapour, which formed a thick mantle of dark clouds round the melting rocks and boiling oceans—night and chaos prevailed over all the earth.

Let us here remark something of great importance. See how admirable the Bible is, in revealing to men many things about the mysterious creation of the world which were not otherwise known for ages afterwards! Two

facts are here revealed to us, which at first sight may appear incredible, and almost contradictory, but which learned men, who at first could scarcely believe them, have discovered, even to their own surprise, to be true, as they have studied more carefully and exactly the mountains and the crust of the earth.

These two apparently incompatible facts are, that fire and water have united to form the crust of our earth. What two things could agree worse than fire and water? Nevertheless this is true.

In the present day learned men are all agreed in acknowledging—First, That formerly the surface of the earth must all have been covered by the sea, and that for a long period; and that many of the old rocks which form the crust of our globe have been composed of beds or layers of sand or mud, deposited at the bottom of a deep and wide sea. Secondly, That fire has been at work at the same time; and that the greater number of our high mountains have been forced upwards by the fire upheaving the rocks as it burst from the burning depths within.

Well, you see, in the second verse of

Genesis, that such was once really the state of the earth—water over and around the fire. This is clearly the case at that time of chaos. And you may also read in the Second Epitsle of St. Peter these two facts, brought out and explained in a remarkable manner; for he tells us—First, That the earth has been drawn out of the water, and that it subsists among the waters.* Secondly, That this same earth will one day be destroyed by fire.† You will hear afterwards, in the explanation which is to follow of the first events in the history of this world's creation, that many times since the first day these depths of waters, under which the fire burns, have again and again burst out, raised up by the force of the fire, and have overflowed various parts of the world.

But let us go on with our subject. In order to finish the explanation of our four verses, I must try to answer these four questions:—

1st. What is meant by these words, "The Spirit of God moved upon the face of the waters?"

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* 2 Peter iii. 5. † 2 Peter iii. 7.

2d. What are we to think of the light which God caused to appear on the first day? "God said, Let there be light; and there was light."

3d. What are we to think about the sun? Where was he during the first three days?

4th. What are we to think of the evening and the morning of the first day? and how long did this day last? "The evening and the morning were the first day."

To the first question I answer, that the Spirit of God which moved upon the face of the waters was the Holy Spirit, whose existence is thus made known to us in the very beginning of the Bible. The Holy Spirit united with the Father and the Son to create the world, as he still unites with them to save each soul—three glorious persons in one only God over all, blessed for ever.

We are here taught that, although soon after, the plants, the animals, reptiles, birds, beasts, and man, with all the wonderful works of creation, sprung from the earth and the waters, yet it was not the earth and the waters which produced them by any virtue or power in them,—it was the creating Spirit who

prepared them, and caused them to spring forth.

How beautiful and significant is the expression, "*The Spirit of God moved upon the face of the waters.*" The Hebrew word translated "*moved,*" refers to the movement of the wings of a bird as it hovers over its nest.

What more beautiful emblem could be found in all nature to signify the life-giving creative power, than that of a bird hovering in silence over the lifeless egg from which a beautiful and graceful creature will soon burst forth—bright and gay as the peacock, pure as the swan, dazzling our eyes with its beauty like the humming-bird, or charming our ears with sweet sounds like the nightingale?

It was on the first day of creation that the Spirit of God moved upon the face of the waters. He hovered in silence over the shapeless and desolate earth, which, covered with thick darkness, was rushing on without life, without light, without glory,—the Creator Spirit was preparing it to burst forth into beauty.

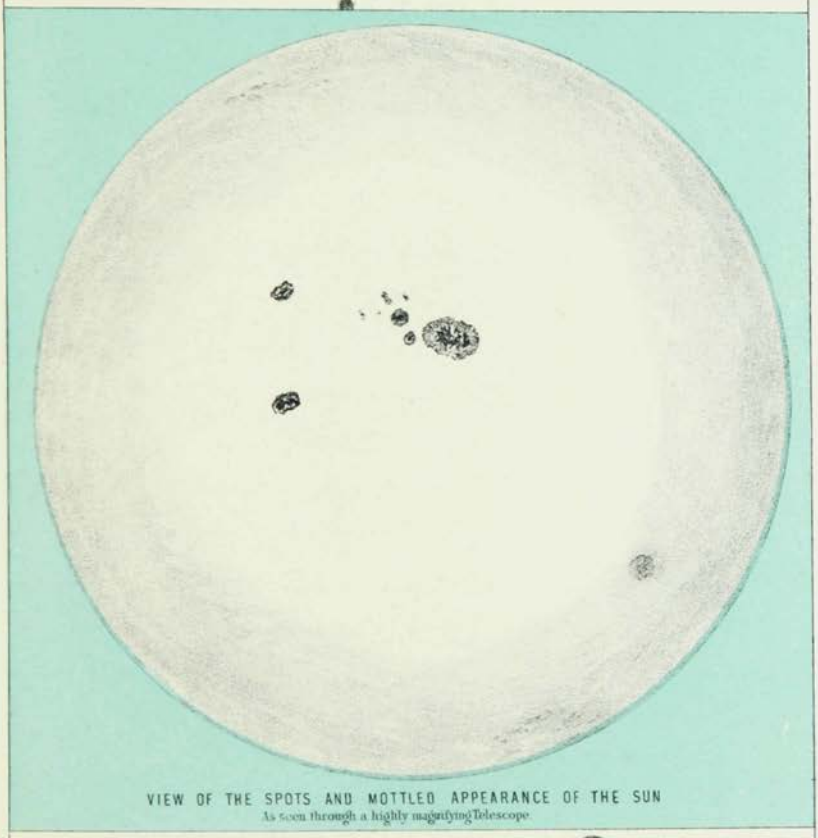
But let us go on to the third verse: "*God said, Let there be light; and there was light.*"

God had but to speak a single word—"Let there be light"—and light, the most beautiful of his material works, "shone out of darkness," as St. Paul has said (2 Cor. iv. 6).

"*And God saw the light, that it was good.*"

Before entering upon this subject, which is the answer to our second question, we must first try to answer the third. "What are we to think about the sun during the first three days of creation?" Did the sun exist before God created the light on the first day, or did he not then exist? The answer is simple. We must suppose that he did exist, because he is a part of those heavens which God created "in the beginning." He was then as now a very powerful magnet, 1,300,000 times larger than our earth, which was probably turning round him as it does now, but turning in darkness—for all was yet dark. The sun was like an immense lamp still unlighted. He was lighted up only on the fourth day, and the moon also was lighted up by reflection from him—they then became "*lights*," ver. 14. And even now, although our sun is lighted up and has become a *light*, we must not fancy that he is all light. No,

VARIOUS FORMS OF SOLAR SPOTS



VIEW OF THE SPOTS AND MOTTLED APPEARANCE OF THE SUN
As seen through a highly magnifying Telescope.

CHANGES IN THE FORM OF A SPOT AS IT IS SEEN PASSING OVER THE SUNS DISC

THE SUN.

he is a great dark globe, as you may clearly see on some days, even through the dazzling brilliance of the light with which he is surrounded. At certain times there are openings in the light, through which his dark nucleus may be seen, like a black kernel in a bright covering. These openings are called the "spots" in the sun. Learned men have even been able to discover that the dark nucleus weighs 355,000 times more than our earth.

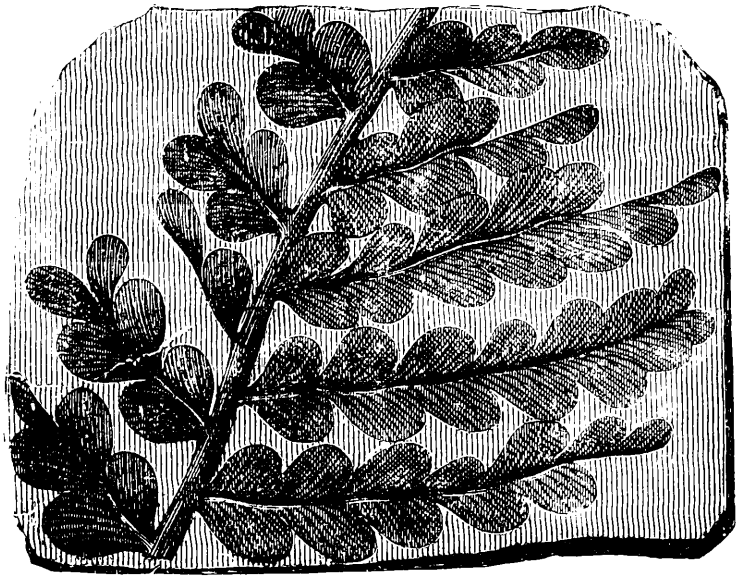
But you will ask, perhaps (and this brings me to our second question), Whence came the light at first, if the sun were then only a dark globe? Ah, dear children, have you not often seen that there can be both light and heat without the sun? When you walk about the streets at night, or when you go into one of our large shops brilliantly lighted with gas, whence comes the light then? It is not from the sun. He is hid behind the mountains and has disappeared below the horizon.

God can give light without the sun, and we must suppose that during the first three days of creation he had caused the light to come from other sources, as it was only on the

fourth day that he commanded it to gather around the surface of this immense globe, round which our earth has never ceased to turn, and which God has given us for our great "*light.*"

Before concluding, I would entreat you to admire the account given by Moses of this wonderful creation. Nothing can show more clearly the divine inspiration of the Bible, for what merely human historian would have ever dreamed of telling us that the light appeared three periods before the sun? Would any merely human historian have told us that trees, plants, and herbs sprang up, grew, and bore fruit long before the sun shone on the world?

Well, I must tell you further, that in our day all geologists and botanists, who examine what is found in the coal mines (which are the remains of the forests of the old world), have discovered plants, trees, and seeds so gigantic, that all have agreed that these pines, palms, and giant ferns, are such as could not have grown under the light of our present sun, even in warm climates, and certainly not in the climates where they are



PLANTS IN THE COAL MEASURES.

found, such as these are now. These trees, now turned into coal, the remains of the primeval world, have been found in the coldest countries—not only in England, but in Canada, even at Baffin's Bay and under the snows of Melville Island, the coldest place in the world. These large trees require a great deal both of light and heat. All learned men who have examined these remains, even such as do not love the Bible, have yet agreed in saying that certainly there was once a time, long ago when these old forests grew, when there were light and heat upon the primeval earth different from the light and heat of our present sun. Honour, all honour, to the word of God, which told us this long before learned men found it out!

There is still one other question to answer, on the subject of the fifth verse, and it is the fourth,—"*The evening and the morning were the first day.*"

What are we to think of this "*evening?*" How long did it last? Was this "*day*" a day twenty-four hours in length?

Certainly not, since there were then no great lights "to divide the day from the

night,"—to be a sign and a measure of the days (ver. 14).

No one can tell how long that day lasted,—perhaps long years and long ages. All that we know about it is, that it was a period of time which began by the night of chaos (when darkness covered the face of the deep) and ended when the light shone forth.

The subject of the next lesson will be the 6th, 7th, and 8th verses, of the first chapter of Genesis.

CHAPTER V.

THE WORK OF THE SECOND DAY.

"And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters. And God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament: and it was so. And God called the firmament Heaven. And the evening and the morning were the second day."—GEN. i. 6-8.

WE considered in our last lesson the work of the first day. Under the mighty operation of the Holy Spirit, moving by his divine power on the face of the waters of the great abyss, there was first the wonderful work of the creation of light. "God said, Let there be light; and there was light." There was an evening, when darkness covered the face of the deep; and there was a morning, when light was created; and this was the first day.

Our lesson for to-day, dear children, is to be about the work of the second day. This was also a most magnificent work, the creation of the atmosphere, a work more wonderful, as you will see, than you have ever before thought it. "*God said, Let there be a firmament*" (or rather "*expanse*," as the word is

better translated) "*in the midst of the waters . . And God made the expanse.*"

In order to try to understand the work of the second day, we must speak first of what began it; it was an evening, for we read in verse 8, "*And the evening and the morning were the second day.*"

What was this second evening which began the second day? and how long did this day last? We must consider these two questions before going further.

Let us first speak of the second evening. It is not difficult to imagine the cause of it; but, before saying anything about this cause, I must first tell you the way in which the Jews reckoned their days. Instead of beginning the day with the morning, as we do, they reckoned from the evening before,—perhaps because they had read in Genesis that each of the six days of creation began with an evening. Monday did not begin with them at sunrise on Monday, but at sunset on Sunday; and their Sunday began at six o'clock on the evening of the day before, and ended at six o'clock in the evening.

You see then, in verse 8, that between

the first day and the second there was a return of darkness; and this is not surprising. We have seen that the interior of our globe was almost entirely composed of a burning mass of melted metals; and we can easily suppose that the boiling abyss of waters, which covered this globe of fire, might send up great clouds of thick dark vapour; and we can also easily imagine that this terrible struggle between boiling oceans and melted rocks everywhere bursting up beneath them, might bring back night upon the earth, and cause darkness to wrap it round on all sides, till, after a long contest and new combinations of metals and gases, the light appeared once more.

It was, then, after such a struggle that in the light of the second day, and by the divine working of the Holy Spirit, our atmosphere was created.

"God said, Let there be an expanse, and let this expanse divide the waters from the waters." There was something expanded or spread out,—a globe of air spread round the globe of the earth. As the air is called *atmos* in Greek, this globe or sphere of air, which was then wrapped round our globe, is called

the *atmosphere.* "And the evening and the morning were the second day."

We now come to the second question,—How long did this day last, and how long did the first day and the third day last? I must simply answer you that I cannot tell, I do not know. No human being knows. There were then no great lights to divide and measure the days. We only know that these days were periods of time, and most probably very long periods, as you will see when I come to speak to you of the many different kinds of rocks, composed of the rust and remains of the different metals then burning in the heart of the earth, which were deposited in successive layers under the abyss of waters.

You need not be surprised at the length of the periods of creation. God had time to make them long if he pleased, for time is nothing with him. "A thousand years are in his sight but as yesterday when it is past, and as a watch in the night" (Ps. xc. 4). "One day is with the Lord as a thousand years, and a thousand years as one day" (2 Pet. iii. 8). The Lord has ever behind him the infinite time of ages gone by—a past eternity; and he has ever

before him the infinite time of future ages—a coming eternity.

Doubtless, if it had pleased God to do so, he might have created in a moment both the light and the air, the sea and the dry land, the plants and the trees, the insects and the birds, the fishes and the whales, beasts and men. But it was not his will to do this. It pleased him in this, as in all his other works, to act in order and by degrees; perhaps to teach us to wait with patience for the development of his will and the fulfilment of his promises. See how it is his will to cause a tree to grow,—an oak of Carmel, for example, a cedar of Lebanon, or a pine-tree of our Alps. He does not create it at once eighty feet in height. No; it is first a feeble plant, that might be put in a child's little cup, or in a nut-shell. Twenty years afterwards, the tree having grown a little each day, in an imperceptible manner, may perhaps be as tall as a house; and a hundred years later it may cover a large space with its shade, and be the admiration of all, for its size and its beauty.

Well, dear children, it is thus that it has been the will of God to proceed, both

when he created the world and when he redeemed it.

When he created the world, he first arranged chaos and chased away the darkness; then he formed the air above the abyss of waters; then, after causing the crust of this earth to be deposited above the fire and under the water, he raised it above the seas, and covered it with an immense variety of plants, vegetables, herbs, grass, and trees; then he caused the greater and the lesser lights to appear; then he created the fishes, the reptiles, and monsters of the deep; then the animals of the earth; and last of all man, in whom the glory of his mercy and love was to be shown forth before the whole creation to all eternity.

God has abundance of time. Our God is the Lord of time, because he is the Lord of eternity. "He shall endure for ever," and "his years shall have no end" (Ps. cii. 12, 27). The heavens and the earth shall pass away, but He is ever the same. He is patient, because he is eternal. As the heavens and the heaven of heavens cannot contain him, neither can ages and ages beyond ages contain him.

He has also been pleased to execute the

work of redemption in the same way as he executed the work of creation, by degrees and in a long course of time.

He first promised the Saviour to Adam. Our first father believed that the promised Saviour would come in his time, and yet 2,300 years after, when the deluge took place, the Saviour had not appeared. The promise of a Saviour was then given to Noah, who trusted also to see him in his time, but he died without having seen him. Later still Abraham received the promise, but Abraham died also without having seen him with his bodily eyes. It was not till 4,000 years after the creation that our Lord Jesus Christ at length appeared upon the earth. Now the gospel is spreading over the world, but how very slowly, when we consider that it is promised that the whole earth shall one day be "full of the knowledge of the Lord, as the waters cover the sea" (Isa. xi. 9; Hab. ii. 14). How very far this is still from being the case!

We must, then, remember, dear children, this great truth. "Though it tarry, wait for it" (Hab. ii. 3). We must wait for God; we must trust in his promises; we must remem-

ber that when it is his will to save a man, a child, he may call him, perhaps, while he is still a child; and then he may try him, and lead and guide him through life, and may gather him to his rest when he is perhaps an old hoary-headed man. Even then all is not done: all will only be completely accomplished at the return of our Lord Jesus Christ, when all the dead shall awake, and when the Saviour will gather all his people around him. He will not forget in that day the least little boy or girl who has died in the faith, in Asia or in Europe, perhaps a thousand years before.

I have sufficiently explained the 8th and last verse of your lesson, "The evening and the morning were the second day;" I return now to the other verses: "God said, Let there be an expanse in the midst of the waters, and let it divide the waters from the waters." What is this "expanse," this thing spread out? I must explain it to you, that you may admire in this also the great word of God.

Let us recall to mind the state in which the earth was left at the end of the first day and during the second night, which began the work of the second day.

At the end of the first day light had come, that glorious creation. This was much in itself, but the globe of the earth was still entirely covered by the waters. Do you think, my friends, if you had then been placed on it, in an ark, as Noah afterwards was, floating over this vast sea, with abundant provisions beside you, that you could have lived? No, dear children, because then you could not have breathed for a single instant. You would have fallen down in the very first moment that you were put there, stifled, suffocated, like a man who has been strangled. And why so? For a very simple reason,— because you would have had no air, and without air man cannot live a moment.

Do you think, if the power of God had enabled you to live by pouring air into your lungs, that if you had then held a flower in your left hand and a lighted candle in your right hand, the flower could have lived and the candle could have burned? No, dear children. And why? Because there was no air, and without air nothing can burn, and no plant can live.

And do you believe, if by miracle you and I had been preserved in life, and had been

together in this ark, that if I had spoken as loudly as I could, you could have heard me? that if even I had rung a bell as large as the bell of a church, or if I had fired a cannon, you could have heard either my voice, or the bell, or the cannon? No, my friends because there was no air, and without air there can be no sound,—the air is the instrument of sound.

And do you think, if, placed on the deck of our ark, I had been able to make a large fire, that then the smoke would have risen? or if I had set free a bird, that it could have flown, even if it had been made to live? No, dear children; the smoke cannot rise without air; and a bird would fall to the earth and could not fly were there no air, just as a fish would fall to the ground were there no water.

Lastly, do you think that you could then have seen the clouds floating above your heads in the sky? No; the clouds only float in the sky because they are borne up by the air, as the fish are borne up by the water.

Thus, then, the earth during the time of the first day was all covered with the abyss of waters, but no sound was heard over all its depths,—no wind could blow, no flame

could burn, no smoke, no vapour could rise, —no man, no animal, no plant could live. Then from the war of elements which was raging over the earth God called into existence the wonderful and necessary thing which we call air, and caused it to surround the whole globe.

Remark, dear children, that the story of this wonderful creation is told by Moses with a clearness, a precision, and a choice of expressions such as no learned man of old times could have used. I should like you to see and admire the divine wisdom which has dictated the Scriptures, for it is seen in the language used in speaking of subjects of which the most learned at that time knew nothing; for this was written 3,000 years before the discoveries of science about the nature of air, and about the existence, the weight, and the properties of gases.

The Bible here speaks to us of the atmosphere, thirty centuries beforehand, in a manner which is in perfect accordance with the discoveries made about the weight of the air by a learned Italian named Galileo, who lived about 200 years ago. He had remarked that a

common pump could not draw up the water from a well to a greater height than thirty-two feet; and as he was a man of genius, he studied carefully the reason of this, and succeeded in discovering that the earth is completely surrounded by an invisible transparent substance, elastic and yet heavy, which rises above our heads to a height of about fifty miles; that we are placed here upon the earth, at the bottom of this sea of air, as the fishes are in the sea of water; and that this layer of air rests upon us with a weight as great as if the waters of a lake thirty-two feet in depth were over our heads.

It has since been discovered that this air, which was created by God on the second day, is chiefly composed of two different kinds of gas; which, when they are combined, form azotic gas, or *aqua fortis*, but which are not combined in the air, but are only mixed, as wine and water are mixed when poured into a glass together. One of these gases is necessary for our breathing, and it is by its means that our blood is formed in our lungs. Do not think that these two gases have been mixed by chance. No! they have been

weighed in the balance and mixed in due proportion, as an apothecary would do when preparing at his counter a medicine of great importance for his patient. There must always be one part of one of these gases to four of the other. If the proportion were less, we could not breathe; and if it were greater, our lungs would become inflamed, and we should all have diseases of the chest.

Now, dear children, look at your Bibles and see with what simplicity and precision it tells us about this wonderful work of creation, so necessary to our existence.

Ver. 6. "God said, Let there be an expanse," —that is, something extended or spread out— "in the midst of the waters," or between the waters.

How admirably chosen is the word "expanse!" It is impossible to find a better to describe it to people ignorant of the nature of air or gas, and thirty centuries before learned men discovered anything about it. The Hebrew word translated "firmament" in our Bibles, more properly means "expanse," because it comes from the Hebrew verb "to spread out." It is literally, "Let there be something spread out or stretched

out between the waters." It thus compares this thing spoken of (the atmosphere) to a tent, or to a pavilion stretched across the deck of a ship. The same emblem is used in the 104th Psalm, where it is said that God "stretcheth out the heavens like a curtain" (Ps. civ. 2). The tent of air thus stretched out by God between the waters above and the waters below, is the only place in which human beings, formed as they now are, can exist.

"And God said, Let there be an expanse in the midst of the waters, *and let it divide the waters from the waters.* And God made the expanse, *and divided the waters which were under the expanse from the waters which were above the expanse:* and it was so."

Here we are told of one great use of the atmosphere. It "divides the waters from the waters." It prevents the immense clouds of vapour (or water in a thin, light form) from resting on the earth, and causes these clouds to rise to the heights of the first heaven, the sky above our heads. And how does it accomplish this? It is done by means of

the weight of the air,—a thing which no one knew anything about in the time of Moses, or, indeed until 3,000 years after the time of Moses, when it was discovered by Galileo. Yet the Bible, written by Moses, but inspired by God, tells us that this wonderful change on the earth was done by means of the atmosphere. The waters above, or the treasures of the clouds, the store-house of the rain, were divided from the waters below by the atmosphere, spread out like a curtain between them on the second day, thus preparing for man a *tent* in which he could dwell—*between the waters.* "The Lord stretcheth out the heavens as a curtain, and spreadeth them out as a *tent to dwell in*" (Isa. xl. 22).

The same great truth is alluded to in the Book of Job, where it says, "God maketh a *weight* for the winds, and he weigheth the waters by measure. When he made a decree for the rain, and a way for the lightning of the thunder; then did he see it, and declare it; he prepared it, yea, and searched it out. And unto man he said, Behold, the fear of the Lord, that is wisdom; and to depart from evil is understanding" (Job xxviii. 25-28).

Oh, how wonderful are these words! The wisest men of old time knew not why the clouds, the vapours, and the smoke rose upwards to the sky. They thought that these things rose by some mysterious virtue in themselves; for the weight of the air was then unknown, or not understood. It is only in modern times that the *weight* of the air, of which Job speaks, has been discovered to be a truth, and that we know that smoke-clouds and vapours rise because they are lighter than the air; just as a cork rises to the top, because it is lighter than the water. It is for the same reason that warm air, which is lighter than cold air. rises in our chimneys, carrying up the smoke; and it is for the same reason also that the clouds, which are composed of little hollow drops, or, as we might call them, *droplets* of vapour, resembling the soap bubbles blown by a child, rise to the heights of the first heaven, or the sky, —because they are lighter than the air. There are millions and millions of these *droplets* in every passing cloud. They rise and are carried away over our heads on the wings of the wind, to water the most distant countries, to pour rain over the plains, and to drop down

the pure white snow on the mountain tops, there to feed the many streamlets, brooks, and rivers which gush from the mountain sides to enrich and fertilize the fields, and cause the tender grass to grow green and fresh.

At the word of the Lord "the waters stood above the mountains. At his rebuke they fled; at the voice of his thunder they hasted away. They go up by the mountains; they go down by the valleys unto the place which he has founded for them. He has set a bound that they may not pass over; that they turn not again to cover the earth. He sendeth the springs into the valleys, which run among the hills. They give drink to every beast of the field: the wild asses quench their thirst. By them shall the fowls of heaven have their habitation, which sing among the branches. He watereth the hills from his chambers: the earth is satisfied with the fruit of his works. He causeth the grass to grow for the cattle, and herb for the service of man: that he may bring forth food out of the earth" (Ps. civ. 6-14).

How beautiful this is! is it not, dear children? And see how clearly it is explained in the 7th verse of your lesson: "And God made

the expanse, and divided the waters which were under the expanse from the waters which were above the expanse: and it was so."

There is still one thing more on which a word of explanation is necessary. At first sight you may, perhaps, imagine that in these lines Moses mentions a thing of very small importance as one of the works of creation produced on the second day; and that he compares together things of very unequal greatness, when he tells us that God divided the *waters above* from the *waters below.* What are these clouds (perhaps you may say) which we see floating over our heads, when compared with the rushing rivers which flow over the earth, or with the immense oceans which cover two-thirds of our globe? To compare the waters above in any degree to the waters below, is like comparing a single glass of water to our beautiful lake.

Ah, dear children! this consideration gives us another proof of the divine wisdom of the Bible, which told so long ago that the *waters above* had an importance unknown to the ancients, and only lately discovered by modern

science. The learned Mr. Arago tells us, that he has recently calculated that the force necessary to raise the water to the clouds in one year, is greater than what the strength of all the nations of the earth united could do in 200,000 years. Have you ever thought of the size of the great rivers of our globe, many of which are broader than our Lake of Geneva is at Rolle, and several of which have a course of between three and four thousand miles, such as the Amazon, the Mississippi, the Orinoco? Have you ever thought of the quantity of water in the rivers of Switzerland alone, the Rhone, the Arve, the Aar, the Reuss, the Rhine, and so many others, which have been flowing for thousands of years? The Rhone was flowing on as it does now, a thousand and nine hundred years ago, when Julius Cæsar visited Geneva, fifty years before the time of our Lord Jesus Christ. Whence came all these waters? From the mountains, you will say. Yes, but whence did the mountains receive them? They were poured down on the mountains from the waters above. Thus you see that the water of all these great rivers, the Aar, the Rhone, the Reuss, the Rhine, &c., has floated over

our heads in the expanse above, before it came down to flow through our valleys below; and even far more than all the water of the rivers has floated above us in the clouds, for it has been reckoned that in France, for example, only a third of the water which is poured down from above flows away in the rivers.

Ah, dear children, our time is limited, or I should have liked to tell you much more about the wonders of the atmosphere; for instance, I should have wished to tell you about the winds and their wonderful circuits, so well described by Solomon (Eccles. i. 6); about the wonders of the clouds, which are raised up from all seas and oceans by the atmosphere, and carried from one side of the globe to the other on the wings of the wind; about the wonders of the rain,—the form in which a mass of water is poured down gently and by degrees through the air from the waters above, while, if this great quantity of water fell at once, it would be enough to crush our houses, to tear up by the roots our mightiest forests, and to lay waste our cities and fields. I should like to tell you, too, about the treasures of the snow, which, by means of the same bene-

ficent atmosphere, descends gently on our mountains every winter, and is there stored up to feed the brooks and rivers, and refresh the fields parched by the summer's heat. "It is the atmosphere," says Lieutenant Maury, "which draws up vapours from the sea and land; retains them dissolved in itself, or suspended in cisterns of clouds; carries them from one hemisphere to another, and throws them down again in snow, rain, or dew, when they are required. It is the atmosphere which bends the rays of the sun from their path, to cause them to produce the bright and lovely tints of twilight, or of early dawn; for without the atmosphere the sun would burst on us on a sudden at his rising, without the gentle preparation of the dawn, and would disappear so suddenly at his setting as to remove us at once from the blaze of noon into midnight darkness. Without the atmosphere we should have no twilight to soften and beautify the landscape, no clouds to shade us from the scorching heat. It is the atmosphere which brings to our lungs the gas which vivifies and warms our frames, which feeds the flame of our life, as it keeps up the flame of our fires.

It is the atmosphere which carries away the air which we have destroyed by breathing it, and takes it to feed the plants. The carbonic acid with which to-day our breathing fills the air, to-morrow seeks its way round the world. The date-trees that grow round the falls of the Nile will drink it in by their leaves; the cedars of Lebanon will take of it to add to their stature; the cocoa-nuts of Tahiti will grow rapidly upon it; and the palms and bananas of Japan will change it into flowers. The atmosphere is a great reservoir which supplies the food of living creatures; for the animal feeds on the plant, and the plant sucks in much of its food from the air."

Animals are furnished with legs to move about, claws and mouths to seize their prey,—they can go to look for their food, lay hold on it, and swallow it; but the plants cannot move from the place where they grow, they must wait till their food comes to them. Every breath of air that rushes past them is loaded with the supply they need, in a form invisible to our eyes,—hydrogen, carbon, nitrogen, and watery vapour are ever ready in the air for their wants, not only to give them food at the right time,

but in the very form in which it can be of use, as their leaves are formed to *absorb* it; that is, to draw it in.

["The atmosphere," says a philosopher,* "is a spherical shell, which surrounds our earth to a depth unknown to us." "Its upper surface cannot be nearer to us than fifty, or further off than five hundred miles. It surrounds us on all sides, yet we see it not; it presses on us with a load of fifteen pounds on every square inch of surface of our bodies, or from seventy to one hundred tons on us in all, yet we do not so much as feel its weight. Softer than the softest down,—more impalpable than the finest gossamer, it leaves the cobweb undisturbed, and scarcely stirs the lightest flower that feeds on the dew it supplies; yet it bears the fleets of nations on its wings around the world, and crushes the most refractory substances with its weight. When in motion, its force is sufficient to level the most stately forests and the firmest buildings to the earth; to raise the waters of the ocean into ridges like mountains, and dash the strongest ships

* Dr. Buist of Bombay.

to pieces like toys. It warms and cools by turns the earth and the living creatures that inhabit it."]

But we have said enough at present about this wonderful creation of the second day; I must conclude with but one word more.

Oh, pray to God, dear children, and ask him to cause his divine presence to be to your souls what the atmosphere is to your bodies. O yes! as the air which you breathe surrounds you on every side; presses on you, though you can neither see it nor feel its weight; supplies you with the breath of life, quickens, refreshes, and revives your bodies; so let it be with the presence of God in your souls. Oh, ask him to be to you what he is to all who truly believe in him,—"the same God and Father of all, who is above all, and through all, and in you all" (Eph. iv. 6); so that you may abide in him and he in you; that you may all live in him, by him, and for him.

The subject of the next lesson will be from the 9th to the 13th verse of the first chapter of Genesis, along with the first eight verses of the 104th Psalm.

CHAPTER VI.

THE THREE GREAT WONDERS OF THE THIRD DAY.

"And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so. And God called the dry land Earth; and the gathering together of the waters called he Seas: and God saw that it was good. And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit-tree yielding fruit after his kind, whose seed is in itself, upon the earth; and it was so. And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind: and God saw that it was good. And the evening and the morning were the third day."—GEN. i. 9–13. Ps. civ. 1–8.

WE have now come to the third day of creation. The works of the first two days have been great and wonderful, but the works of the third day are more magnificent still. They are terrible and charming in turn; terrible in the first two wonders that were done, charming and delightful in the third.

At the end of the second day our globe was still on fire within, and still entirely covered with water. But the reign of darkness and silence was at an end; light had appeared on the first day, and the air, the instrument of sound, had been created on the second; the waters above, raised to the heights of the expanse, and reflecting in the sky light

and its glorious colours, floated majestically through the air, borne on the wings of the wind; while beneath, the roar of the tempest, the loud voice of the thunder, and the sound of many waters could now be heard.

Yet there was no life, either on the earth, in the air, or in the waters.

On the third day three wonders appeared in succession, which I shall try to explain to you.

First wonder. The crust of the earth, which had been long forming beneath the waters above the burning fires within, burst forth impetuously, upheaved from the bottom of the ocean by the mighty power of the fire, tossed up by volcanoes and their burning gases, —the dry land rose, welcomed by the noise of thunder and the roar of the stormy and troubled waters. What a grand and terrible scene!

Second wonder. The great abyss of waters, which had overflowed the whole earth, threw themselves, at God's command, into the vast depths prepared for them, and were surrounded by his power with barriers which their wild waves dared not cross without his permission: "The Lord set a compass upon the face of

the depth: he gave to the sea his decree, that the waters should not pass his commandment, when he appointed the foundations of the earth" (Prov. viii. 27, 29). What a terrible scene, yet how full of majesty!

Third wonder,—the last and the most marvellous of the three. Life at last began on the earth. The earth and the air, the store-houses of food for the plants, were prepared, and the great family of plants appeared. What a numerous family they are! Some botanists reckon 60,000 varieties, and M. de Candolle says that there are 100,000 species. What a charming covering for the desolate and bare earth, worn by the waters, tossed by the fire! The earth, at God's command, brings forth her buds, and giant trees and grass, and all green things, spring up in beauty. "It is the reign of plants, when the earth was covered with mighty forests such as no human eye has ever seen, although we may guess their beauty from their vast remains and the dark pictures of their graceful leaves and tall stems which they have left printed on the rocks below the surface of the earth." And oh! wonder of wonders! all these new and

charming works of God have their seed in themselves,—all these innumerable kinds of plants bear fruit, each according to its kind, and so are prepared to continue and reproduce themselves for thousands of years.

Thus, step by step, calling forth one wonderful work after another, God was preparing a dwelling-place for his people, long before he formed them. The coals that warm us, and the gas which lights us, were stored up long ages ago for our use, deep below the surface of the earth. Should not such thoughts fill our souls with deepest gratitude and love to Him who has so graciously provided for our every want?

This whole subject is so marvellous and so deeply interesting that I have not time to explain it now, and it must be left to a future lesson.

Meantime let us return to our verses for to-day. I shall begin with verse 13,—"*The evening and the morning were the third day;*" because the third day, like the others, began with an "*evening.*" Is it any wonder that there was a return of darkness while such great revolutions were preparing under the

watery abyss? When the crust which had been so long forming under the depths of the ocean, boiling and surging over the mighty fires within, was at last upheaved above the surface of the water, with its valleys, its mountains, its volcanoes, its half-melted rocks and rivers of boiling lava—amid awful explosions, terrible earthquakes, and showers of ashes—was it wonderful that, in this struggle and war of the raging elements, thick vapours arose to obscure the air, and darkness again covered for a time the face of the earth?

In order to make you understand this better, I shall give you an account of the effect of one volcano, and then you may judge in a degree what our world must have been when its whole crust was bursting up on all sides, torn and tossed by the fierce fires.

Some years ago I visited the kingdom of Naples, and near the volcano of Vesuvius I saw the remains of two large cities which had been completely buried under the ashes of its first recorded eruption, which took place seventy-nine years after the time of our Lord Jesus Christ. These buried cities were discovered in modern times by people who were digging a well

near the place. I also saw the famous Cape Misene, situated about fifteen miles from Vesuvius, where the Roman fleet was lying at anchor whilst their commander, the celebrated Pliny, perished in the eruption. His nephew, who was present, relates that even at midday thick darkness covered the country, caused by the showers of ashes; and it has been said that the ashes of Vesuvius were then carried the length of the African coast, and even as far as Palestine.

But it may be more interesting to you to hear of an eruption nearer our own times; so I shall tell you about one which took place, during my youth, in the Island of Sumbawa, in the East Indies. The earth was shaken violently for a distance of 1,000 miles, and the darkness was so great that at midday, in the Island of Macassar (situated as far from the volcano as Paris is from Geneva), a man could not see his hand when he held it up before his eyes. I shall give you the official report of this eruption, sent to Sir Stamford Raffles, the English governor of Java, by the commander of the East India Company's ship *Benares*, which was lying at Macassar

at the time. It is dated the 12th of April 1815.

"On the 5th of April," he writes, "a firing of cannon was heard at Macassar, continuing at intervals all the afternoon, and apparently coming from the southward. Toward sunset the reports seemed to have approached much nearer, and sounded like heavy guns, with occasional slight reports between. Supposing it to be occasioned by pirates, a detachment of troops was embarked on board the Honourable Company's cruiser *Benares*, and sent in search of them; but after examining the neighbouring islands, returned to Macassar on the 8th without having found any cause for alarm. During the night of the 11th the firing was again heard, but much lower; and towards morning the reports were in quick succession, sometimes like three or four guns fired together, and so heavy that they shook the ship, as they did also the houses in Fort Rotterdam. Some of them seemed so near that I sent people to the mast-heads to look out for the flashes, and weighed at day-dawn, proceeding to the southward to ascertain the cause. The morning of the 12th was extremely dark and

lowering, particularly to the southward and south-west; the wind light, and from the eastward. At eight A.M. it was apparent that some extraordinary occurrence had taken place; the face of the heavens to the southward and westward had assumed a dark aspect, and it was much darker than before the sun rose. As it came nearer it assumed a dusky red appearance, and spread fast over every part of the heavens. By ten it was so dark that a ship could hardly be seen a mile distant. By eleven the whole of the heavens were obscured, except a small space near the horizon to the eastward, the quarter from which the wind came. The ashes now began to fall in showers, and the appearance was altogether truly awful and alarming. By noon the light that had remained in the eastern part of the horizon had disappeared, and *complete darkness covered the face of day.* This continued so profound during the remainder of the day, that *I never saw anything to equal it in the darkest night;* it was impossible to see your hand when held up close to your eyes. The ashes fell without intermission throughout the night, and were so light and subtile, that notwithstanding the pre-

caution of spreading awnings fore and aft as much as possible, they pervaded every part of the ship.

"At six o'clock the next morning it continued as dark as ever, but began to clear at half-past seven; and about eight o'clock objects could be faintly discerned upon deck. From this time it began to get lighter very fast.

"The appearance of the ship when daylight returned was most singular, every part being covered with the falling matter: it had the appearance of calcined pumice-stone, nearly the colour of wood ashes; it lay in heaps of a foot in depth on many parts of the deck, and several tons weight of it must have been thrown overboard; for though an impalpable powder or dust when it fell, it was when compressed of considerable weight. A pint measure of it weighed twelve ounces and three-quarters; it was perfectly tasteless, and did not affect the eyes with painful sensation; had a faint burnt smell, but nothing like sulphur; when mixed with water it formed a tenacious mud, difficult to be washed off.

"By noon of the 12th the sun made his

appearance again, but very faintly, through the dusky atmosphere, the air being still charged with ashes, which continued to fall lightly all day.

"From the 12th to the 15th the atmosphere continued thick and dusky, the rays of the sun scarce able to penetrate through it, with little or no wind the whole time."

("The Tomboro Mountain, from which the eruption proceeded, is in a direct line from Macassar, about 217 nautical miles distance.")

"On the morning of the 13th left Macassar, and on the 18th made Sumbawa. On approaching the coast passed through great quantities of pumice-stone floating on the sea; which had at first strongly the appearance of shoals, so much so that I sent a boat to examine one, which, at the distance of less than a mile, I took for a dry sand-bank upwards of three miles in length, with black rocks in several parts of it. It proved to be a complete mass of pumice-stone floating on the sea, some inches in depth, with great numbers of trees and logs, that appeared to be burnt and shivered as if by lightning. The boat had much difficulty in pulling through it, and

until we reached the entrance of Bima Bay, the sea was literally covered with shoals of pumice and floating timber.

"The shores of the bay had a most dreary appearance, being entirely covered with ashes.

"From the account of the Resident of Bima it appears that the eruption proceeded from the Tomboro Mountain, situated about forty miles to the westward of Bima. On the night of the 11th the explosions he represents to have been most terrific, and compares them to the report of a heavy mortar close to his ear. The darkness commenced at seven in the morning, and continued twelve hours longer than it did at Macassar. The fall of ashes was so heavy as to break the Resident's house in many places, and render it uninhabitable, as well as many other houses in the town. The wind was still during the whole time, but the sea greatly agitated; its waves rolled in upon the shore, and filled the lower parts of the houses with water a foot deep. Every boat was forced from the anchorage and driven on shore."

Yet this all happened at forty miles distance from the volcano.

The following account is given by the Rajah of Saugar, a spectator of the eruption :—

"About seven P.M. on the 10th of April, three distinct volumes of flame burst forth near the top of Tomboro Mountain, all of them apparently within the verge of the crater, and after ascending separately to a very great height, their tops united in the air in a troubled, confused manner. In a short time the whole mountain next Saugar appeared like a body of liquid fire, extending itself in every direction.

"The fire and columns of flame continued to rage with unabated fury until the darkness caused by the quantity of falling matter obscured it, at about eight P.M. Stones at this time fell very thick at Saugar, some of them as large as two fists, but generally not larger than walnuts. Between nine and ten P.M. ashes began to fall, and soon after a violent whirlwind ensued, which blew down nearly every house in the village of Saugar, carrying the tops and light parts with it. In the part of Saugar nearest Tomboro its effects were much more violent, tearing up by the roots the largest trees, and carrying them into the

air, together with men, houses, cattle, and whatever else came within its influence." (This will account for the immense number of floating trees seen at sea.)

"Of the whole of the villages of Tomboro, Jempo, containing about forty inhabitants, is the only one remaining. In Precate no vestige of a house is left. Twenty-six of the people, who were at Sumbawa at the time, are the whole of the population who have escaped.

"From the most particular inquiries which I have been able to make, there were certainly not fewer than 12,000 individuals in Tomboro and Precate at the time of the eruption. The trees and herbage along the whole of the north and west sides of the peninsula have been completely destroyed."

It has been ascertained that these eruptions of the Tomboro Mountain were heard through the whole chain of the Molucca Islands, from Sumatra to Ternate. The same noise, taken by all who heard it to be a cannonade, was heard at various stations along the coast. "From Sumbawa to the port of Sumatra, where the sound was noticed, is about 970 geogra-

phical miles in a direct line; from Sumbawa to Ternate (where the sound was also heard) is a distance of 720 miles. . . . . The distance to which the cloud of ashes was carried, so thickly as to produce darkness, is clearly pointed out to have been the Island of Celebes and the districts of Gresie on Java. The former is 217 nautical miles distant from the seat of the volcano; the latter, in a direct line, more than 300 geographical miles distant."*

Such is the effect of a single volcano even at so many hundred miles distance. M. Gay Lussac knew only of 163 at present burning on the earth; but M. de Quatrefages has reckoned that there are 559 either burning or half extinguished.† Besides these there are

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* See "Life of Sir Stamford Raffles."

† The following table gives the number and the geographical distribution of all the volcanoes and *solfataras* (semi-extinct volcanoes) whose existence has hitherto been verified:—

Parts of the World.	Volcanoes of Continents.	Do. of Islands.	Total.
Europe, ...	4	18	22
Asia, ...	55	71	126
Africa, ...	13	12	25
America, ...	114	90	204
The Ocean, ...	...	182	182
	186	373	559

the traces of thousands of volcanoes wholly extinct, in every part of the globe. Imagine, then, how deep must have been the darkness produced by all the volcanoes of the third day, when the whole of the immense crust of the earth was at once upheaved by the force of the internal fire! Think of the commotion of a world covered with volcanoes!

But I must now return to the other verses of your lesson. Read verse 9.

"*And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so.*"

"God said,
Be gathered now, ye waters under heaven,
Into one place, and let dry land appear.
Immediately the mountains huge appear
Emergent, and their broad, bare backs upheave
Into the clouds; their tops ascend the sky:
So high as heaved the tumid hills, so low
Down sunk a hollow bottom, broad and deep,
Capacious bed of waters: thither they
Hasted with glad precipitance, uproll'd
As drops on dust conglobing from the dry;
Part rise in crystal wall, or ridge direct
For haste; such flight the great command impressed
On the swift floods."

Milton.

Oh, wonderful spectacle! The scene was then preparing, the very place where I was destined one day to appear—the place where

I was to run my race and finish my course here below, and then meet my Redeemer. God has summoned this earth to appear above the fire and above the waters,—this earth, to which the Word made flesh was to come, long afterwards, to manifest the glory and the mercy of the Eternal to every creature under heaven. It was on this earth that he spoke these wonderful words: "No man hath ascended up to heaven, but he that came down from heaven, even the Son of man which is in heaven" (John iii. 13).

Remark here the words used by Moses. He does not say, God said, Let the dry land be *created*. No; he says, "God said, Let the dry land *appear*." The dry land had been long before formed and prepared at the bottom of the waters. It existed already, but it was necessary that part of it should be raised up, that it might *appear* above the waters; and that part of it should be lowered to receive into its depths and hollows the abundance of the waters, for God said also, "Let the waters under the heaven be gathered together unto one place; and it was so."

Have you ever seen jewellers or silver-

smiths melting metal in their crucibles in a hot furnace? If so, you may have seen the crust or scum of the impurities mixed with the metal rising to the top. Well, thus probably the crust rose, under the depths of the sea, on the surface of the boiling metals beneath. Under the fourfold influence of the fire, the water, and the surging and foaming metals and gases, a crust was formed, which was shaken about under the boiling abyss of waters, whilst this crust and these waters were constantly pierced and disturbed by the melted rocks, the gas, and the fires bursting up through them. It was this crust, so formed, part of which at God's command *appeared* on the third day above the surface of the waters, whilst at the same time part of it bent to receive into its mysterious depths the gathering together of the seas.

"O Lord, my God, thou art very great," exclaims the Psalmist, speaking of these wonders of creation. "Thou makest the flaming fire thy servant. Thou coveredst the earth with the deep as with a garment: the waters stood above the mountains. At thy rebuke they hasted away. They go up by the moun-

tains; they go down by the valleys unto the place which thou hast founded for them. Thou hast set a bound that they may not pass over; that they turn not again to cover the earth" (Ps. civ. 1, 4-9).

But perhaps you may ask why I always speak of burning, melted metals in the interior of the earth? Even if it has been discovered that the interior is on fire, yet how can we know that the burning material with which it is filled must be metallic?

We know it for two reasons, both very simple. We know it, first, from the weight of our globe; for it has been proved, by means of a very correct instrument called the pendulum, and by other processes that you will understand when you are older, that our globe, with its earths, its rocks, and its waters, weighs twice as much as if it were all composed of marble, more than five and a half times as much as if it were all of water, and only a little less than if it were all made of melted iron or zinc: therefore, if it weighs twice as much as marble, it must necessarily be, that all within it which is neither earth nor rock must be metallic.

There is yet another way of proving it, more simple still. Chemists have examined the composition of the crust of our globe, and of the earth on which we tread, and they tell us that all the substances of which the earths of our fields and the rocks of our mountains are composed, are different kinds of the rust of metals. Ochre is the rust of iron; white-lead is the rust of lead; lime is the rust of a metal named calcium; soda, potash, magnesia, alumina, silex, are the rust of metals named sodium, potassium, magnesium, aluminum, silicon. Thus, for example, the rocks of the Jura, of which we build our finest houses, are composed of the rust of calcium, combined with fixed air, or carbonic acid; the sandstones that we bring from Lausanne, or from Savoy, are composed of silicious sand, mixed with a cement of lime and iron. Gun-flint is composed of a rust of silicon mixed with the rusts of iron and of aluminum. The lava of volcanoes is half formed of the rust of silicon, mixed with those of iron, of sodium, and of aluminum. The hard granite of Mont Blanc, of which our pavements are made, is also chiefly composed of the rust of sili-

con, combined with magnesia, alumina, and potash.

Thus, then, the crust of our earth was formed, and deposited beneath the waters until the third day of creation, when God said, "Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so."

I wish, before going further, to cause you to remark here the divine wisdom of the Scriptures in the admirable correctness with which they are expressed, and how far their divine and simple narratives have been before all the learning of man, by many, many centuries.

Learned men, for more than a century, have devoted themselves with great ardour to the study of mountains, mines, volcanoes, rocks, and all the materials of which the earth is composed, in order to discover, if possible, what has been the history of our globe before man was created.

As the earth is called "*ge*" in Greek, this kind of study has been named "geology."

The fathers of this interesting science were two illustrious Genevese, MM. de Luc and de

Saussure, who were born in 1727 and 1740 respectively. M. de Luc especially devoted himself to explain in his writings the deep and superhuman wisdom of the Book of Genesis. He was reader to Queen Charlotte, consort of George III. of England, and he dedicated to her a series of letters about the formation of the mountains and the history of the earth's crust, which are held in high esteem.

M. de Saussure also published very interesting books on the same subject; and as he was the first learned man who succeeded in climbing to the top of Mont Blanc, he made many interesting discoveries there. I shall tell you in a future lesson of several things which he remarked about the Alps, when he looked at them from this high point.

For a long time these learned men and their successors remarked that two kinds of rocks existed in the mountains very different from each other. Some had evidently been formed under the waters, for they are *stratified* (that is, composed of strata or layers deposited successively one above the other); and others had as evidently been formed in

the fire, for, instead of being *stratified*, they are composed of substances that have been melted and crystallized. Therefore, learned men were for a long time divided into two parties, of which one said, 'The crust of the earth was formed by the fire;' and the other said, 'No, gentlemen; the crust of the earth was formed by water.'

But the Bible, which contained more knowledge than was known to learned men, had said long before, 'You are both right, and both wrong;' for the Bible had taught, more than 3,300 years ago, that the crust of the earth was formed by the combined action of fire and water, the unstratified rocks having been formed by the fire, under the weight of the abyss of waters; and the stratified rocks having been deposited in the water, in the midst of a deep ocean, subjected also to the action of the fire below.

Well, dear friends, this is the opinion held by all learned men now, whether they love the Bible or not. Is not all this very admirable?

Consider, then, that the condition of the earth on which we live, which has risen out

of the fire and out of the water, ought ever to remind us of our dependence on God, and ought to teach us that we are kept and guarded from day to day by his almighty power. We know that the crust which covers our globe, on which we build our houses and our cities, is placed above the fires which are surging beneath, like a frail raft floating over a sea of liquid fire. A learned modern geologist, Mr. Buckland, tells us that scientific men have counted in this crust about twenty-eight kinds of stratified rocks (such as sand-stones and chalks, &c.), each on an average about 1,000 feet in depth; and about eight kinds of unstratified rocks (such as granite, gneiss, &c.), each having a still greater depth; so that the thickness of the entire crust may be reckoned nearly nine miles in depth,—that is to say, about three times the height of Mont Blanc.

What is this when compared with the size of the earth, a globe 24,000 miles in circumference, and about 8,000 miles in diameter! The form of the earth has often been compared to an orange; but the skin of the orange is much thicker, in proportion to its size, than the

crust which envelops the fluid part of our globe is, when compared with the size of the earth. Think, then, how thin is the crust on which we tread, and how near the fires below are to us. What wonder is it if this thin crust is often shaken and disturbed by the outbursts and movements of the fire and boiling gas within ?

It is but a short time ago since the inhabitants of Geneva felt the earth trembling on the right bank of the Rhone. Did any of you visit, during the summer of 1856, the unhappy Valley of Viége, in the Canton du Valais? If so, you must have seen the country laid waste, houses overthrown, rocks cleft and dashed down into the valley. Thus, you see, it is but a short time since the crust of the earth shook and trembled even among the mighty Alpine mountains; and at the rocky base of the gigantic Monte Rosa, of the Cervin, and of the Gemmi, the earth quaked, and the rocks were cleft, and the solid ground was burst open, by the power of the internal fire !

[Disturbances and convulsions such as these took place not long ago on various parts of

the earth's surface. Islands have risen in the waters, and disappeared again; mountains have been upheaved; earthquakes have made the fields shake like a stormy sea, and have even been felt in both hemispheres at once. "We see that everything teaches us that the crust which we call *terra firma* in reality very little merits that title."]

"A very erroneous idea," says M. de Quatrefages, "is generally entertained in reference to the thickness and solidity of the earth's crust. The following figures will furnish a more exact idea on this subject:—

"The uppermost strata of the soil share in all the variations of temperature which depend upon the seasons; and this influence is exerted to a depth which, although it varies with the latitude, is never very great. Beyond this point the temperature rises in proportion as we descend to greater depths, and it has been shown, by numerous and often-repeated experiments, that the increase of temperature is on an average one degree (Fahrenheit) for about every 54·5 feet. Hence it results that at a depth of about twelve miles from the surface, we should be on the verge of the in-

candescent mass which constitutes almost the whole of our globe.

"Now this thickness, when compared with the dimensions of the earth, would represent about one inch for a globe whose diameter is about nine yards. In other words, it would very nearly equal the thickness of a sheet of ordinary letter paper for one of those globes which are commonly used for geographical studies. With this illustration of the question before us, we cease to be astonished at the movements which can agitate this pellicle; and, indeed, if there is anything to excite our surprise, it is rather that the habitable surface of our globe has not more frequently been the theatre of such convulsions, —which, although they might be terrible in their results to ourselves, would not the less remain almost inappreciable on the vast extent of our planet."

Thus you see, dear children, how very thin is the pellicle which surrounds our globe. When you look at the giant mountains which surround us, it is strange to think, that though their tops are covered with snow, and cool streams of water are flowing down their sides,

yet their feet (so to speak), at a depth of twelve or fourteen miles below the surface, are plunged in the hot floods of boiling lava and ever-burning fires within the globe.

How wonderful it is that the crust on which we live is kept so firm and fixed as it is! How marvellous is the power of God, who called the dry land up from the depths, and established it in its appointed place, and restrains both fire and water from overwhelming it again!

The Book of Job (speaking of the thin crust which God caused to appear on the third day, and which is called "earth" in the 10th verse,) proclaims the inability of man to tell how this "dry land" is kept firm and fixed over the fires beneath: "The Lord answered Job out of the whirlwind, and said, Who is this that darkeneth counsel by words without knowledge? Gird up now thy loins like a man; for I will demand of thee, and answer thou me. Where wast thou when I laid the foundations of the *earth?* declare, if thou hast understanding. Who hath laid the measures thereof, if thou knowest? or who hath stretched the line upon it? Whereupon are the founda-

tions thereof fastened? or who laid the corner-stone thereof?" (Job xxxviii. 1-6.)

Have I not already told you, dear children, that it has been reckoned that there are hundreds of volcanoes at present burning in different parts of the globe, and that there are traces of thousands now wholly extinct? Thus, although the earth itself is preserved, changes are still taking place to a small extent on its surface, which serve to remind us of the fire beneath.

"In 1831 an island, called the Isle of Julia, rose in the Sicilian waters, although not a trace of it now remains; at other times these islands become solid and increase in number,—as, for instance, in the case of Santorin, the Aleutian Islands, and the Azores, where in 1757 nine new islands were formed in less than a twelvemonth. Plains have been upheaved in a single night,—as was the case at Mechoachan at the time of the formation of the volcano of Jorullo in 1759, an account of which is given by Baron Humboldt:—

"A tract of land, not less than from three to four miles in extent, rose up in the shape of a dome, and those who saw it said that flames

were seen issuing from a space of more than six square miles, while fragments of burning rocks were thrown up to an immense height, and the surface of the ground undulated like an agitated sea. Two brooks, which watered the plantations, threw themselves into the burning chasms. Thousands of small cones rose suddenly; and in the midst of these, six great masses sprung up, having an elevation of from 1,312 to 1,640 feet above the original level of the plain. The most elevated of these mounds is the great volcano of Jorullo, which is continually burning."

In something of the same way thousands of the coral islands of the Pacific Ocean have been lifted above the waves; since their coral rocks have been formed under the surface of the water, as the little creatures by which they are constructed die as soon as they are out of it. The coasts of Sweden have been recently raised several feet above the sea level, and the same thing has taken place in Chili. You see, then, that all over the crust of our globe we may observe traces of the work of the fire which is beneath it.

In the year 1787 when M. de Saussure

ascended to the top of Mont Blanc, the highest point in Europe, he remarked, not without much astonishment, that when he looked at the magnificent range of hills around him, they appeared to be placed round Mont Blanc as the leaves of an artichoke are round its centre. Since then geologists have agreed that many of our largest granite mountains are of a later origin than some of the others. Piercing through the older mountains, and pushing them aside all around, they have risen like giants even above the clouds, raised by the power of the hidden fires.

Geologists have also remarked, when studying the stratified rocks and mountains all over the world, that these are often cleft and rent asunder, and that the clefts and fissures have been filled with melted granite, or lavas, or by the ores of the metals,—gold, silver, iron, copper, zinc, tin, or lead, which, gushing upwards in a melted state, have filled these cavities, and have then cooled and hardened.

Well, dear children, I hope that you now understand something about the first two wonders of the third day,—the dry land

appearing above the waters, and the waters being gathered together into the places which God had prepared for them, and so forming the magnificent oceans and seas of our globe.

How wonderful is the ocean! I wish I had time and space to tell you something about its extent,—its tides,—its upper and lower currents, ever flowing in their regular course, —its immense depths, which in some places reach to 40,000 or 50,000 feet, according to the soundings made by officers of the American Navy.

I should like to tell you also how very useful the ocean is,—how very necessary it is, to keep up life on our globe. For do not suppose that the proportions of the sea and of the dry land have been fixed by chance. No; our God has done all by rule and measure: "Who hath measured the waters in the hollow of his hand, and meted out heaven with the span, and comprehended the dust of the earth in a measure, and weighed the mountains in scales, and the hills in a balance?" (Isa. xl. 12).

If the oceans and seas were smaller than they are, our earth would perish, for the waters

which are raised up in the air from their vast surface are indispensably necessary to water our fields and keep our rivers ever flowing. If the oceans were larger, our earth would probably become an uninhabitable marsh, from the too great abundance of rain.

Think, besides, of the use of the ocean as the great highway of the world. As the illustrious Fenelon has said, "These vast oceans, which seem at first sight as if they were placed as barriers to divide the different continents and lands of the earth, are, on the contrary, the meeting-place of all nations, who could in no other way travel over the globe, without incredible difficulties and dangers. It is by this boundless pathway across the deep that the Old World holds out her hand to the New, and that the New World sends to the Old its valuable productions and rich treasures.

But, before concluding, I must say a single word about the third, and most wonderful of the works of the third day. This was the birth of the plants, a family so numerous that M. de Candolle reckons that there are at least 60,000 different kinds. This was not a mere transformation; it was a new creation,—a miracle, or

rather 60,000 miracles in one. A chemist can form rocks, and even precious stones, by combining silicium, lime, carbon, &c.; but could any chemist form a tree, a blade of grass, a bit of moss, or the smallest living plant? Look at the flowers, the trees, the seeds, the fruits, and all the wonders of vegetable life! Oh, what a collection of miracles! but the miracle of miracles is, that each has "its seed in itself."

A watch, which is one of the most admirable works of man, is very inferior in its workmanship even to the smallest plant, which we can scarcely see without the help of a microscope; but what would you think of a watch which could produce watches, which in their turn could produce other watches, and so on from generation to generation, from age to age?

Oh, think of the power of God! the wisdom of God! the beneficence and faithfulness of God!

"And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit-tree yielding fruit after his kind, whose seed is in itself, upon the earth: and it was so.

And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind: and God saw that it was good. And the evening and the morning were the third day" (Gen. i. 11-13).

Let us adore God in all his works, and let us trust his faithfulness.

The next lesson will be from the 11th to the 13th verse of the first chapter of Genesis.

CHAPTER VII.

PLANTS AND THEIR SEEDS.

"And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself upon the earth: and it was so. And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind: and God saw that it was good. And the evening and the morning were the third day."—GEN. i. 11–13

WE concluded our last lesson with the mere mention of the most magnificent of the works of the third day—the first appearance upon earth of the wonderful family of plants. Let us consider this interesting subject for a little before we go on to the work of the fourth day, when God caused lights to shine in the sky, to divide the day from the night and to measure the time.

Oh, may God dispose our hearts to meditate with deep attention and devotion on his glorious works!

I begin with the 11th verse: "*And God said, Let the earth bring forth grass,*" &c.

Remark, I pray you, these words, "*And God said.*" Do not believe, as some self-styled philosophers pretend, that all the

wonders of creation are unfolded before your eyes, by some power in themselves, in obedience to the laws of nature once established. Do not imagine that light, the atmosphere, the plants, fishes, reptiles, birds, beasts, and lastly, man himself, have sprung naturally from the earth or the waters, as smoke mounts upwards, as a stone falls to the bottom of the water, or as a bird springs from the egg,—simply by the operation of rules and laws established at the beginning of the world. No! "*God said*"—this was the true cause and first beginning of all things. All the great changes, all the new creations of which we read, were produced by the power of his almighty word. "*God said,*" and everything had its being. "*God said,* Let there be light; and there was light." "*God said,* Let the earth bring forth grass, herbs, and trees;" and the earth brought them forth.

Ah, dear children, I entreat you, when you read the Bible, and when you pray, ever to remember the almighty power of the word of God. Repeat to yourselves that the word of God is powerful,—all-powerful. O Lord, grant that thy word may be all-powerful in

us, so that our feeble, sinful, and diseased souls may be truly healed, cleansed, and saved! O Lord Jesus, we say to thee as the centurion once did, "Speak the word only," and thy servant shall be healed (Matt. viii. 8). Lord Jesus, I wish most earnestly to be a true Christian; I wish truly to love thee, to follow thee, never to offend thee more. "Speak the word only;" say that I am to be cleansed and healed, and I shall be so; say that the dry and barren soil of my soul shall bring forth fruit, and it shall bring forth fruit.

But we must go on: "*The earth brought forth grass, herb,*" &c.; "*and God saw that it was good.*"

"*That it was good;*" that is, that it was magnificent and sufficient,—perfect in beauty, perfect in usefulness, perfect in abundance, perfect in fruitfulness, perfect in continuance, perfect in variety and immensity. *Living* plants and trees are created, which have their seed in themselves,—the seed from which they are renewed, raised up again from generation to generation, from age to age, till the end of the world. Have you considered how very wonderful this is?

Have you ever thought what *life* is? for it was then that life appeared for the first time upon the earth. The air, the winds, and the tempests have no life; the sea, the dry land, the mountains, the valleys, the rocks, the volcanoes and their flowing lavas, have no life—a gas has no life. But a tree and a plant have life, although they have not thought or feeling. Consider how the plant is born and grows: it springs from its seed as the bird springs from the egg; it pierces the soil; it grows up; it is fed by the juices of the earth through the hundred mouths of its roots; it drinks through its leaves the air and the dew of heaven; and it faithfully gives out in return its delicious odours. We know that it even breathes,—it inhales and exhales the air; it sleeps in the night, and is revived to new beauty and vigour in the day. A life-giving juice circulates through all its vessels, as the blood circulates in our veins. Every year it gives birth to numerous children, which resemble the mother plant, and live, and grow, and breathe, and bring forth other plants in their turn.

I spoke to you in the last lesson of the

rocks which have been formed by deposits under the waters of the sea; of the gases which, on the second day, were mingled to form our atmosphere; of the dry land which rose above the level of the waters; and of the depths which were prepared to receive the "gathering together of the waters." In a certain sense, we might say that all these were formed by the action of the fire, of the waters, of the gases, and of all the elements working upon each other, according to fixed laws given in the beginning. But what a difference is there when we come to the appearance of plants! It is no longer a development or a transformation which takes place; it is a new creation,—it is life. Is it for a moment to be supposed that a cedar, an olive-tree, a sycamore, a vine, a rose, a narcissus, a hyacinth, a lily, could spring of themselves from the dust of the earth, with their bulbs, their roots with hundreds of mouths, their beautiful cellular tissue, their sap-vessels, their pith, their leaves with hundreds of pores, their buds, their magnificent flowers and delicious fruit?

Scientific men, such as Sir James Hall and others, have succeeded in imitating some

of the natural rocks in their laboratories. By taking chalk, silicium, vegetable matter, and other things, and subjecting them to strong heat and powerful pressure, they have been able to manufacture, in small quantities, marble like that of our mountains, coal such as we burn in our fires, crystallized silicates like the granites of the Alps, and even a few small fragments of precious stones. But do you suppose that any chemist could succeed in making a living plant, even a blade of grass, a sprig of hyssop, a morsel of the humble moss that grows on the wall, a strawberry-plant, a blue-bell, or a field daisy?

All the greatest triumphs of human art and skill have been lately collected in the Exhibitions of London and Paris; but if all the mechanics who made these, and all the learned men in the world were united, and if they were to work together for a thousand years, they could not form one living grain of corn, one seed of a living poppy, one seed of any kind, containing within it, infolded in the germ, 10,000 plants of corn, or 100,000 plants of poppies, proceeding from and succeeding each other from this time till the end of the world.

This brings me back to the 12th verse:— "*And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind: and God saw that it was good.*"

Ah, my friends, when we read these words we are ready to exclaim with the Psalmist, "O Lord, how manifold are thy works! in wisdom hast thou made them all: the earth is full of thy riches" (Ps. civ. 24). Oh, how great is the wisdom of my God! the power of my God! the abounding riches of my God! the goodness of my God!

First. How great is his goodness! See how it is displayed, even on the third day of creation, on the earth which he is preparing for the abode of man! Consider the beauty of the plants! Our earthly dwelling-place might have contained nothing but what was absolutely necessary for our food and clothing. For example, our food might have been produced on the surface of the earth, without appearance and without beauty; or the dust of the ground might have been made fit to nourish us, so that a man might have been able to lift from the soil a handful of earth for his food, just as

he takes up water from the stream in the hollow of his hand to quench his thirst. But, on the contrary, it has pleased God that we should receive our food by an ever-renewed miracle—the miracle of the wholesome bread springing every year from the furrows of our fields, that it may repeat to us every day: 'Ungrateful that you are, it is your God who feeds you.' But he has done even more than this. He was pleased to prepare our future dwelling-place to receive us, as a tender and affectionate mother prepares her house to receive a long-absent child. Oh, how carefully she adorns her dwelling! Oh, how pleased she is to arrange and ornament the room where her dear child is to sleep! Everything in the house expresses her tenderness and joy. There are nosegays in every room, lovely wreaths over every door, flowers are strewed even on the floor of the hall—on the very steps of the stairs where her darling is to tread.

With such love did our heavenly Father prepare this earth for us, his unworthy children. He adorned the world with beauty, as if for a festive day. It was his sovereign will that every mountain, every valley, every lonely

island of the sea, should unite in telling us of the riches of his love.

The whole earth was covered with a soft carpet of brightest green; and there was one spot lovely beyond all others, the Eden, the very paradise of flowers, where every tree was crowned with wreaths of blossom and loaded with the most delicious fruit. And even still, the delightful coolness of the woods, the beauty of the rich orchards and flowery meadows, the fields covered with daisies, violets, anemones, bright roses and pure lilies, and all the lovely family of flowers, which are clothed by the great Creator's hand with a beauty far exceeding the splendour of the dress of the Empress Eugenie, or even of the Queen of England in her coronation robes,—all these luxuriant beauties of the field have a voice, which is ever saying to us, "Praise the Lord, for he is good, and his goodness endureth for ever."

Have you ever read a well-known anecdote of the famous traveller Mungo Park? On one of the most trying and miserable days of his African journey he was alone, troubled in mind, worn out, and almost despairing.—he

thought himself lost. He lay down weary and exhausted on the ground, under a burning sky; he thought that he was doomed to die far away from home, and from all the tender care of those who loved him. Hope had almost fled, when he saw, on the dry, sandy soil, a little moss growing, green and fresh even in the desert. The sight of it roused him to new hope. He remembered the power of the great God who had formed and preserved the little plant. He felt that this great Creator is everywhere present, all-powerful, plenteous in mercy, abundant in goodness and truth, and that his works proclaim his glory and his faithfulness even in the burning deserts of Africa. This thought gave fresh courage to the lonely, weary traveller. He shed tears of grateful joy even in his solitude; his courage revived; he rose, went on his way, and was delivered.

When we think of these things, dear children, there is one thing that we ought never to forget, and it is this: If the earth that we now behold is so lovely and glorious, even now when it has been polluted by sin, what must it have been in its first fresh beauty, when it

rose into being at the great Creator's word? When God looked on it then, he said that it was "very good;" but afterwards he cursed the ground for man's sake. He said to Adam, "Cursed is the ground for thy sake; in sorrow shalt thou eat of it all the days of thy life: thorns also and thistles shall it bring forth unto thee" (Gen. iii. 17, 18). Oh, when we admire its beauty now, let us try to picture to ourselves what it must have been, when the great Creator himself saw that it was "very good!"

But now think again of the wonders of the third day's work. Have you ever considered how wonderful a thing the seed of a plant is? It is the miracle of miracles. God said, Let there be plants "yielding seed;" and it is further added, each one "after his kind."

The great naturalist, Cuvier, thought that the germs of all past, present, and future generations of seeds were contained one within the other, as if packed in a succession of boxes. Other learned men have explained this mystery in a different way. But what signify all their explanations? Let them explain it as they will, the wonder remains the same, and

we must still look upon the reproduction of the seed as a continual miracle.

Is there upon earth a machine, is there a palace, is there even a city, which contains so much that is wonderful as is enclosed in a single little seed,—one grain of corn, one little brown apple-seed, one small seed of a tree, picked up perhaps by a sparrow for her little ones, the smallest seed of a poppy or a blue-bell, or even one of the seeds that are so small that they float about in the air invisible to our eyes? Ah! there is a world of marvels and brilliant beauties hidden in each of these tiny seeds. Consider their immense number, the perfect separation of the different kinds, their power of life and resurrection, and their wonderful fruitfulness!

Consider first their number. About a hundred and fifty years ago, the celebrated Linnæus, who has been called "the father of botany," reckoned about 8,000 different kinds of plants; and he then thought that the whole number existing could not much exceed 10,000. But, a hundred years after him, M. de Candolle of Geneva described 40,000 kinds of plants; and at a later period he

counted 60,000, then 80,000, and he supposed it possible that the number might even amount to 100,000.

Well, let me ask you, Have these 100,000 kinds of plants ever failed to bear the right seed? Have they ever deceived us? Has a seed of wheat ever yielded barley, or a seed of a poppy grown up into a sun-flower? Has a sycamore-tree ever sprung from an acorn, or a beech-tree from a chestnut? A little bird may carry away the small seed of a sycamore in its beak to feed its nestlings, and on the way may drop it on the ground. The tiny seed may spring up and grow where it fell, unnoticed, and sixty years after it may become a magnificent tree, under which the flocks of the valleys and their shepherds may rest in the shade.

Consider next the wonderful power of life and resurrection bestowed on the seeds of plants, so that they may be preserved from year to year, and even from century to century.

Let a child put a few seeds in a drawer and shut them up, and sixty years afterwards, when his hair is white and his step tottering, let him take one of these seeds and sow it in

the ground, and soon after he will see it spring up into new life, and become a young, fresh, and beautiful plant.

M. Jouannet relates that in the year 1835 several old Celtic tombs were discovered near Bergerac. Under the head of each of the dead bodies there was found a small square stone or brick, with a hole in it containing a few seeds, which had been placed there beside the dead by the heathen friends who had buried them, perhaps 1,500 or 1,700 years before. These seeds were carefully sowed by those who found them, and what do you think was seen to spring up from this dust of the dead?—beautiful sunflowers, blue corn-flowers, and clover, bearing blossoms as bright and fresh and sweet as those which are woven into wreaths by the merry children now playing in our fields.

Some years ago a vase hermetically sealed was found in a mummy-pit in Egypt, by the English traveller Wilkinson, who sent it to the British Museum.* The librarian there having unfortunately broken it, discovered in it a

* *Christian Times*, 6th April, 1849.

few grains of wheat and one or two peas, old, wrinkled, and as hard as stone. The peas were planted carefully under glass on the 4th of June 1844, and at the end of thirty days these old seeds were seen to spring up into new life. They had been buried probably about 3,000 years ago, perhaps in the time of Moses, and had slept all that long time, apparently dead, yet still living in the dust of the tomb.

Is not the springing of the seed an emblem of the resurrection of the dead? Accordingly it is mentioned by the apostle Paul, in the 15th chapter of First Corinthians, where from the springing of the seed he explains the doctrine of the resurrection unto life.

Lastly, consider the almost incredible fruitfulness of these marvellous seeds, for it is in this that the divine all-power of the great Creator is most clearly shown in his glorious work of the third day.

When I give a chestnut to a little child, think how much is clasped in its tiny hand—not only the magnificent chestnut-tree which might spring from the chestnut, but also all the thousands and thousands of chestnut-trees

which might be produced from it, generation after generation, even to the end of the world.

"Lo! on each seed, within its slender rind,
Life's golden threads in endless circles wind;
Maze within maze the lucid webs are rolled,
And as they burst, the living flame unfold.
The pulpy acorn, ere it swells, contains
The oak's vast branches in its milky veins
Each ravell'd bud, fine film, and fibre line,
Traced with nice pencil on the small design.
The young narcissus, in its bulb compress'd,
Cradles a second nestling on its breast,
In whose fine arms a younger embryon lies,
Folds its thin leaves and shuts its floret eyes.
Grain within grain successive harvests swell,
And boundless forests slumber in a shell!"

I have heard it said that a very well known traveller, who returned from America to Europe between two and three hundred years ago, having admired in the New World this beautiful tree, then unknown in Europe, had put two or three chestnuts in the pocket of his coat. After his arrival in Paris, having put on the same coat again, he found a single chestnut still remaining in the pocket, and he took a fancy to plant it in the court of his house. The following spring a young chestnut-tree appeared, which grew and flourished, and became the parent, not only of all the chestnuts

in France, but of all the magnificent trees of this kind under which the people of France, Germany, and Italy assemble on their days of festival. These all sprang from the solitary chestnut brought from America in that traveller's pocket.

Such is the fruitfulness of seeds apparently insignificant, that the botanist Ray tells us that he counted 2,000 grains of maize on a single plant of maize sprung from one seed, 4,000 seeds on one plant of sun-flower, 32,000 seeds on a single poppy plant, and 36,000 seeds on one plant of tobacco. The great naturalist Pliny tells us that a Roman governor in Africa sent to the Emperor Augustus a single plant of corn with 340 stems, bearing 340 ears,—that is to say, at least 10,000 grains of corn had been produced from a single seed. In modern times, Buchez tells us that 12,780 grains have been produced by a single grain of the famous corn of Smyrna, called "the miraculous corn."

But what do you think of the wonderful reproducing power of seeds, when I tell you that from a single poppy seed, not larger than a grain of gunpowder, there may spring in

four years poppies enough to cover all the habitable earth,—that is to say, one-fourth of the surface of the globe, or about 50 millions of square miles? If each seed should produce as much as Ray calculates, I have reckoned it would amount in four years to a million of millions of millions of seeds; which may be estimated at 660,000 bushels, (or 82,500 quarters,) and would be more than enough to cover the five continents of the earth. All this immense multitude of seeds might spring in so short a time from a single little seed, not nearly so large as a grain of oats.

Now, let us try to calculate the productive power of a grain of corn. All historians tell us that in old times the harvests in Egypt and Syria returned a hundredfold for one, and in Babylonia two hundredfold for one.

Well, I can prove to you that if I were to sow a single grain of wheat in a soil as fertile as this, I might be able at the end of eight years to supply all the families on the earth, for more than a year and a half, with the produce of a single harvest of the corn sprung from my one grain.

It is reckoned that in France, where bread

forms a large proportion of the food of the people, each person, on an average, consumes a pound of bread a-day, or about six bushels in the year. It is supposed there are 1,200 millions of people on the earth; so that, at this rate, about 7,200 million bushels, or 900 million quarters, would be required every year for the whole human race.

Well, suppose that I were to sow my grain in a soil as fertile as that of Egypt is said to have been in old times, my first harvest would be 100 grains; these 100 grains would produce 100 times as much for my second harvest, or 10,000 grains; my third harvest would be 100 times 10,000, or 1,000,000 grains; and my fourth, 100,000,000 grains. It has been reckoned that there are about 820,000 grains in a bushel. At this rate, my fourth harvest would yield about 122 bushels of grain; and four years after, it would be 100,000,000 as much, or 12,200,000,000 bushels, or 1,525,000,000 quarters. This is scarcely one-sixth less than twice the 900,000,000 quarters which we reckoned would be necessary to supply the whole human race for a year.

Thus in eight years as much corn might

spring from one seed as to supply all mankind with bread for more than a year and a half.

Remark also, my friends, that God has not given the reproductive power of plants to their seeds alone. The life of vegetables exists in many parts of them separately, and each of these parts alone, separated from all the others, can reproduce the whole plant. Each bud, each shoot, each branch of many kinds of plants, may be planted separately, and will send forth roots, and soon become an entire plant, and the parent of a new race, not less numerous than if it had grown from a seed.

Ah, my friends, at each new discovery of the wonderful works of God, we are forced again to exclaim, "O Lord, how *manifold* are thy works! in wisdom thou hast made them all; the earth is full of thy riches." What wisdom and abounding riches are to be seen even in the humblest and apparently the most insignificant of the works of God,—in a bud, in a tiny shoot, in a grain of wheat or oats, in a little root, or even in one of the smallest seeds which float invisible in the air, and yet carry within them so much beauty, so much fruitfulness, such power of life and resurrec-

tion from age to age! Honour, glory, praise, and adoration to our God, Father, Son, and Holy Spirit, the almighty Creator of the heavens and the earth.

The next lesson will be from the 14th to the 19th verse of the first chapter of Genesis, along with the 8th Psalm.

CHAPTER VIII.

THE GREAT LIGHTS AND THE CLOCK OF THE WORLD.

"And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years: and let them be for lights in the firmament of the heaven, to give light upon the earth: and it was so. And God made two great lights; the greater light to rule the day, and the lesser light to rule the night: he made the stars also. And God set them in the firmament of the heaven to give light upon the earth, and to rule over the day and over the night, and to divide the light from the darkness: and God saw that it was good. And the evening and the morning were the fourth day."—GEN. i. 14–19. Ps. viii.

THE work of the fourth day was even more magnificent than the work of the preceding days, and it was at the same time more marvellous, more mysterious to us. On the fourth day it pleased God to alter the nature and form of light, by means of changes and revolutions which our small minds cannot comprehend. He gathered the light round the sun, and caused his reflected light to shine on us from the moon. We know the fact, that it was so. On the fourth day the sun and moon became the lights of our world, but we cannot explain how or why, or anything more about it. "*It was so.*" God, who knows best, for

he did it, tells us so; but more we cannot even guess. When, how, why the sun was made, "we know not now;" perhaps God may be graciously pleased to let us "know hereafter."

We may with much probability suppose that the sun, that immense globe, distant from us 95,000,000 of miles, around which our earth is ever turning, had not been *created* on the fourth day. It had most likely sprung into being at the time, "in the beginning," when God created the heavens and the earth. But it was on the fourth day that it was lighted up for us, and became the "light of this world" by day; and by night our attendant star, the moon, which is but the mirror and reflector of the sun, began to shine upon our earth with her borrowed light.

Remark particularly that it is not said in Scripture that God *created* the sun on the fourth day. No; we are only told that God said, "Let there be lights," and "God *made* lights." Is it not just as I might say of the lamp which is now hanging from the ceiling of this room at present quite dark, "Let it be lighted;" and the instant the gas already

within it is lighted it becomes a light? You would not say that I first placed the lustre there at the moment when I desired that it should be lighted; for the lustre may have been there years before, but I made it a light to the room at the moment I caused it to be lighted up.

The sun and the moon had most probably been in existence like lamps or lustres still unlighted, we know not how long before; but when it pleased God to command them to become lights, they were lighted, and then these two great globes became our lights, to give light to us by day and by night, the one by its own light, and the other by reflected light borrowed from the greater luminary.

What a touching and yet what a glorious spectacle was this fourth day's work! It was a work carried on in darkness and light successively, for there were an "evening and a morning." It was as if fireworks, more magnificent than the imagination can conceive, had been gradually kindled. This was the time when a great revolution took place, when the light which had been before scattered all over the earth, without any meeting-place or centre known to us, from

that moment was gathered round the sun and the stars. There was an evening, that is to say, there was universal darkness over the world, at the beginning of this period; but then there was a morning, when the sun appeared at last, clothed with light, in his glorious career, and revived the world by his welcome light and heat. This was the fourth day; and God saw that all that he had made was good.

But you will doubtless ask, Whence then came the light under the influence of which our earth became verdant and beautiful? How could the earth be lighted before the sun appeared?

I have answered this question already by saying that we do not know; but I may tell you at the same time that all the learned men who have studied the book of creation, believers and unbelievers, have agreed in this, that before the creation of man the earth was lighted and warmed in a different way from what it is now;—there was in those very old times a different kind of light, differently distributed on the earth.

You may ask how they know this. They know it very simply and easily, and yet very

surely. I hope to explain this to you in few words. People have dug deep down in the earth, and in Scotland, and in Canada, colder still,—nay, even on the icy shores of Baffin's Bay, and on Melville Island, the most northern region of the earth that has ever been reached by man, there have been found—what? magnificent buried forests, and gigantic trees which could only live now in the warmest countries of our globe—palm-trees and immense ferns, which, in our day, have scarcely light and heat enough to grow even in the torrid zone.

Consider, for example, what the learned M. de Candolle of Geneva says on this subject in "The Universal Library" of 1835. I give you his own words:—"It is necessary to suppose that a more equal light and heat was at that time shed over the polar regions,—a light now unknown; and it appears to me a certain fact that the fossil vegetables of Baffin's Bay were lighted in a different way from those which now exist on the earth."

All honour, then, dear children, and deepest reverence to the word of God, which had told us this so long before.

Such was the work of the fourth day. Then, if you could have beheld it, you might have seen for the first time upon earth the glories of a starry sky, with the moon walking in brightness across the deep blue vault of heaven. Then for the first time the sun rose in splendour above the mountain tops, and ran his daily race around the sky, lighting up the world then fresh and beautiful in its dress of green, unstained by sin, and lovely as it rose at God's creating word.

But that you may understand better the incomparable beauty of the marvellous creation of the lights of heaven, you must know something of the light which they send to us ; for, of all the visible works of God, there is none which proclaims so loudly his supreme wisdom and power. I cannot tell you all I should like to say about the nature of light; I can at present only mention a few things that will be the easiest for you to understand, about its speed, its abundance, its colour, and its radiation.

Its speed! Have you any idea of it? The mind becomes confused when we try to imagine it. For instance, whence, think you, came

the bright rays which this very morning lighted up your room with their dazzling brightness? Ah! they had travelled very far before they reached you, even all the distance between the sun and the earth. If a man could take the same journey, travelling at the rate of ninety-five miles a-day, he would take a million of days, or nearly 3,000 years to do it. And yet, how long do you think those bright rays have been in travelling this morning from the sun to your window? Only eight minutes and thirteen seconds. Learned men have been able to count the time of their rapid flight by means of the eclipses of the moons of Jupiter, in a way which you cannot yet understand. But it is nevertheless true, they have taken only eight minutes and thirteen seconds to come 95,000,000 of miles; so that they travel with a speed of 192,000 miles, not in a day, not in a minute, but in a single second,—that is to say, they come 192,000 miles in one single tick of the clock. Look, my friends, at the bright ray which is now shining on the ceiling of our room. It is only eight minutes and thirteen seconds since that ray left the

sun. Surely a traveller who has come so far, and come so quickly, is a very interesting sight.

But if you wonder at the speed of light, what will you say when you think of its abundance? This is, if possible, still more wonderful. Who can even imagine the immense and immeasurable torrents of light which from age to age have gushed forth from the sun in every direction, constantly filling with their ceaseless waves the whole extent of planetary space? I do not speak thoughtlessly when I tell you of the *ceaseless* flow of these waves of light, for they gush forth from the sun by night as well as by day. Some young people fancy that when it is night with us, it is then night in the universe; but this is a childish fancy, for, on the contrary, there is perpetual day in the wide universe of space. Whilst we in Geneva see only darkness around us, the universe at that very moment is bathed in light; darkness reigns over a part of our poor little globe which we call the Earth, only because it glides into its own shadow,—the darkness formed by itself. You know that while we are sleeping in dark night, our

antipodes in Australia are going out of their houses with large parasols to shelter themselves from the overpowering heat of the sun's dazzling rays.

Remark, my friends, that although our earth is every day bathed in the sun's rays, yet it receives only a very small portion of the torrents of light which are continually flowing from this great luminary, and spreading in every direction with almost incredible speed. The small quantity of the sun's light which the earth actually receives can be easily calculated; for if I consider the immense size of the orbit of the earth, which has a diameter of 190,000,000 of miles, and in the centre of which the sun is ever sending forth his brilliant rays, I find, by a very simple calculation, that 83,000 millions of millions of globes like the earth might be placed in this space, and might each receive the same amount of light that the earth does now. Is it not then true, as I told you before, that the abundance of light is a wonderful thing? Now let us consider its brilliant colours.

The rays of light which come to us directly from the sun, are, you know, of a dazzling

white. If you shut carefully all the shutters in your room, so as to make it perfectly dark, and if you allow a single ray of light to enter through a small hole, you will see it mark on the opposite wall a beautiful circle of white light. But do you know what would happen to this ray if you were to place before the hole a prism of finely polished glass? When the great Newton tried this experiment for the first time, he tells us that he started with joy. The sight that he saw, and that you would see, would be this: The prism would *decompose* and divide the beautiful white ray into seven rays, still more beautiful, of bright-coloured light, which would paint themselves each separately on the wall, in the following order: violet, indigo, blue, green, yellow, orange, red. These brilliant-coloured rays, of which each white ray is made up, are reflected in various ways, according to the nature and composition of different bodies, and thus they give their varied and manifold tints to all objects in nature.

Is not this very wonderful? I shall say no more here on this subject, because I intend to tell you in a future lesson about the wonder-

ful radiation of light, and of its marvellous adaptation to the eye of man. Certainly this ought to claim, more than anything else, our grateful wonder, adoration, and praise.

In order to make you understand better what I mean, I shall relate to you an old remembrance of my childhood. When I was about eleven years old I was at school. One winter day, when the sun was shining brightly at our usual play hour, the tutors were walking about, and the boys were playing in the school-yards. I and three of my companions imagined that we had been the favoured witnesses of a miracle, or at all events that we had made a wonderful discovery. The entrance to our school-room was closed by two doors, on account of the extreme cold; between the doors, distant from each other six or seven feet, there was a sort of small lobby, which was quite dark when both the doors were shut. One of our companions not knowing what to do, began idly to bore a hole in the outer door with a gimlet, and afterwards three or four of us shut ourselves in between the two doors. Imagine our surprise and delight, when, upon looking at the inner door which had been

white-washed, we saw a picture appear on it of all the school-yards, the trees, the master's house, the walls, the boys, the tutors,—all depicted upside down, yet so clearly and exactly that we could see the boys running about, and could recognise them, one in particular, who wore a red vest. It was amusing to see the tutors walk slowly across our picture with their heads downward and their hands behind their backs. We thought that it was a miracle such as the world had never before seen, and we hastened home to tell all about it. Then we were told that our miracle could be easily explained by the effect of the radiation of light. All the objects in nature, we were told, send forth rays like the sun, and reflect in every direction the rays of white or coloured light which they receive from that great luminary. Each leaf of a cherry-tree, for example, reflects green rays, which it is constantly sending forth in all directions, while the cherry itself is like a small sun of red rays, which it reflects on all sides; each jonquil is a sun of yellow rays, each lily a sun of white rays. Thus, among all the millions of rays that were darting in all directions from every part of the

college-yards, a few found their way through the small hole in the class-room, and there crossing each other, each formed a small pencil of coloured light, and depicted the scene I have described. This is exactly what is called the *Camera Obscura;* and, to make us understand it better, we were shown some of the small cameras used by artists, in which, in order to have more light and more correctness in the picture, they make the hole much larger, and take care to put into it a convex glass, which collects the rays of light and makes them all fall distinctly on a certain fixed point.

Dear children, any of you may easily see this, since the discovery of photography, if you go to any photographic artist and ask him to show you his camera. If you can persuade your mother, or any one else who may be with you, to sit down opposite the glass of the camera, and then look at the other side of the instrument, under the cloth with which the artist covers it, you will see the rays of light reflected from the person of your mother or your friend depicted on the glass in the camera, and you will see every feature painted there with perfect truth and exactness

Thus we may see the work of the wonderful rays of light in the very act of reflection.

But now, will you believe what I have still to tell you on this subject—that your own eye is only a perfect camera obscura? Yes, it is a very small dark chamber, at the back of which all the objects that pass before you are depicted on a small white network, about half an inch in diameter, called the *retina.* The pupil of your eye is like the small hole in the door through which the rays of light pass, the crystalline lens of your eye is like the convex glass of the instrument, and the retina of your eye is like the ground glass of the camera, or like the white door on which the picture I saw was depicted. Therefore, when you see me here before you, it is not really me whom you see; it is only my picture, my daguerreotype, depicted by the reflected rays of light on the retina of your own eyes. When a mother smiles to her child and delights to look at him, it is not really him whom she sees or to whom she smiles,—it is to his lovely little picture painted within her eye by these marvellous rays of light

Would you like to have a proof of what I have told you? Then go to a butcher and ask him to sell you the eye of an ox. If you fix this eye properly in a dark place, but so as to allow the sun's rays to pass through it, and if you take care to fix up a sheet of white paper at a short distance behind the eye, you will see the landscape before the eye depicted on this sheet of paper.

Such a wonderful instrument is our eye, and such is the wonderful work of the rays of light within it. There is a world of beauty and grandeur beyond what my words can describe in this marvellous instrument alone.

Suppose that we were all to go now to the top of the Tower of Bessinge. We might thence see the city of Geneva on the south-west, with the spires of St. Peter's and the Fort of l'Ecluse. On the north we should see our beautiful lake as far as Coppet; and on the west, the smiling villas on the opposite bank, and the declivities sloping to the foot of Mount Jura. Thus our view would extend over a space of about 130 square miles. Who could reckon how many millions of millions of objects are reflecting rays of light all

around us? Who could tell how many millions of millions of radiations send their little branches of rays to the top of the Tower of Bessinge, where these countless millions of rays, like fine lines, enter the pupil of our eye, and there cross each other, and form a picture on our retina? And remark that while myriads of rays, reflected from myriads of objects, cross each other in myriads of different directions, each ray keeps its own straight line and passes through the crowds of others in perfect order; and that if there were thousands of spectators covering all the hill of Bessinge, if there were millions more in the air in balloons, all the multitude, not excepting the least child present, would receive each into the pupil of his eye as many rays as to form a perfect picture of the same objects. And if we were to change our places on the top of the tower, we should see the same objects still, by means of other rays entering our eyes instead of the first. Consider the very small space of the retina where so many pictures are reflected. It is scarcely six *lines* in size. Yet how clearly and exactly does it present to us the magnificent picture of the city, the lake,

the fields, and mountains! A landscape covering a space of 130 square miles is painted by the rays of light on a space only half an inch in size! And what is still more astonishing; while I stand on the summit of the tower, my eye may follow the progress of the steamboat on her voyage, say, for example, for half an hour, from Geneva to Versoix. This passage of five miles occupies about a third of the whole landscape, and therefore in the retina of my eye it occupies about the third of half an inch, or a space of two lines; and suppose that the boat is sixty-six feet in length, or about the eightieth part of a mile, then it will only occupy the space of the two hundredth part of a line on my retina. Yet my eye can follow its progress during its voyage of five miles in the space of half an hour. What would people say of a painter who could draw all this great landscape distinctly, with all its minute details, and all its colours, on a bit of paper the size of a farthing? Yet this work, which would be impossible to all the powers of art, is accomplished every day by the rays of light, in millions of millions of men, women, and chil-

dren. Nay, more; it is accomplished in the eye of a sparrow, or of a swallow, as it flies swiftly through the air, and in the keen eye of the eagle which soars above the clouds.

Ah, dear children, let us adore the power of Him who created light at first, and who lighted up the great luminaries on the fourth day to give light to our earth. Let us observe the glory of God in the works which he has made.

I have still another remark to make on the subject contained in the verses for to-day, and it is this: The great luminaries were not only appointed to give light,—they had another purpose to serve. They were intended to provide a useful help to man, in the development of his mental powers and the regulation of his daily life, when, called into being at a later period, he should inhabit the earth. It was the will of God that man should be able to measure and to reckon time, that he might learn its value and regulate his employment of it. And for this purpose what do you think he did? He placed in the heavens a most magnificent and perfect clock, which tells the hours, the days, the weeks, the months, the

seasons, and the years,—a clock which no one ever winds up, but which yet goes constantly, and never goes wrong. Look again at the words of your verse: "And God said, Let there be lights in the firmament of the heaven, to divide the day from the night." But was it only to divide the day from the night, necessary as this certainly is to regulate man's work and his repose? No, this was not all; for he adds, "And let them be for signs, and for seasons, and for days, and years."

You now understand, my friends, that this is the great clock of the world. The dial-plate of this clock is the blue vault of heaven over our heads,—a vault spangled with stars at night, brilliant with light by day,—a vault whose edges, rounded like the edge of a watch, rest on the horizon of our mountains here at Geneva, while far out at sea the whole great dial-plate may be seen, the dome of the sky seeming to rest on the wide circle of the ocean. And what think you are the hands of this magnificent dial-plate? God has placed on it two, the greater and the lesser. Both are ever shining, both are ever moving. They are never either too early or too late. The

greater is the great light which rules the day, and which, while it seems to turn above our heads from east to west across the celestial vault, rising each morning over the Alps, and setting each evening over the Jura, seems to move at the same time on the great dial-plate of the heavens in a contrary direction, that is to say, from the west to the east, or from the Jura towards the Alps, advancing every day the length of twice its own breadth. And the lesser hand of the clock is the lesser light which rules the night, which progresses also in the same direction with the sun, but twelve times faster, advancing each day from twenty-four to twenty-five times its own breadth, and thus turning round the dial-plate in a single month. Thus, for example, if you look this evening at the moon as she sets behind the Jura, and if you carefully observe what stars are hidden behind her disk, to-morrow you will see her again set behind the same mountain, but three-quarters of an hour later, because she has in the meantime moved towards the east twenty-four times her own breadth; and then she will cover stars much nearer the Alps, so that twenty-four moons

might be placed in the sky between the place that she will occupy to-morrow and the one she occupies to-day.

How admirable is all this, my friends! The moon, by her four quarters, which last each a little more than seven days, measures for us the weeks and the months. The sun, by his apparent path in the sky, measures our seasons and our years, whilst by his apparent daily rotation through the vault of heaven over our heads, he measures for us the days and the hours; and this he does so correctly, that the best watchmakers in Geneva regulate all their watches by his place at noon; and from the most ancient times men have measured upon sun-dials the regular movement of the shadow.

You have all seen sun-dials in our gardens, and on the walls of our country churches. They are very ancient, for you may remember that they existed at Jerusalem in the time of Ahaz, where there was one on the king's palace,—about 730 years before the time of our Lord Jesus Christ.*

I should like you all to remember, my dear

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* Isa. xxxviii. 8; 2 Kings xx. 11.

young friends, how necessary to man was this means of measuring and regulating his time. It was no small advantage for him to have ever before his eyes this great clock of the heavens, to teach him to measure his days and hours ;—to remind him of the hours set apart for prayer ; of the return of his daily task and his nightly and weekly rest; and to warn him of the rapid flight of years and of the shortness of his brief life. Unless time had been marked, and divided, and measured for him in this heavenly dial-plate, man would have forgotten how it was speeding away, and his life might, very possibly, have flitted by almost unmarked, like a useless dream.

When the famous Baron de Trenck came out of his dark dungeon in Magdeburg, where he could not distinguish night from day, and in which the king of Prussia had kept him imprisoned for ten years, he imagined that he had been in it for a much shorter period, because he had no means of marking how the time had passed, and he had seen no new events, and had had even few thoughts: his astonishment was extreme when he was told how many years had thus passed away like a painful dream

The savages of North America, after their fatiguing hunting parties, and warlike expeditions, pass whole weeks and months in amusement and repose, without once thinking that they are wasting or losing anything that is valuable. It has been well said that the progress of a people in civilization may be estimated by their regard for time,—their care in measuring and valuing it. If that be true even of a half-savage people, how much more must it be true of a Christian nation! Ah, how much ought a Christian to value his time, if he means to be a faithful steward, since his hours belong not to himself, but to his gracious Master, who has redeemed him at so great a price; and since he knows that he must give an account of it at last. He remembers ever that life is short, and that *now* is the accepted time, *now* is the day of salvation." How many times does he send up to heaven the prayer of Moses: "O Lord, so teach us to number our days, that we may apply our hearts unto wisdom!" (Ps. xc. 12.) How many times also does he look at the clock of the heavens, as the Psalmist did, that he may remember the hours of prayer

David says : "My voice shalt thou hear in the morning, O Lord; in the morning will I direct my prayer unto thee, and will look up" —"Evening, and morning, and at noon, will I cry aloud; and he shall hear my voice"—"I prevented the dawning of the morning, and cried unto thee. Seven times a day do I praise thee" (Ps. v. 3; lv. 17; cxix. 147, 164). Daniel "kneeled upon his knees three times a day, and prayed, and gave thanks" (Dan. vi. 10).

What, then, are the feelings of a young girl whose heart has been changed by grace, or of a youth who has become a real Christian? Ah! when they remember the exhortation of St. Paul, "Redeem the time," they are ready to exclaim, 'O my God, I have much time to redeem. I lost much before I knew thee. I have even lost much since I learned to know thee! I have lost much in speaking idle words, in doing evil actions, in thinking evil thoughts. I have lost many even of the hours in which I appeared to be serving thee;—in prayer, when my heart prayed not; in thy worship, when my mind was distracted and carried away with foolish

thoughts; in reading and hearing thy word, when I listened not, and heeded not what was read. O my Saviour, I pray thee to help me by thy grace to redeem this infinitely valuable time, that I may be approved of thee in the day when thou shalt come with clouds to judge the world. O grant that the marvellous clock which thou hast set in the heavens may be the means of reminding me, as it did the ancient Israelites, of the daily hours of prayer.'

Each morning, at sunrise, the ancient Israelites were commanded to sacrifice a lamb, as a type of the "Lamb of God who taketh away the sin of the world" (John i. 29). At each sunset a lamb was again sacrificed; at each return of the sun at the spring equinox, another lamb was offered—the passover lamb; at each return of the autumnal equinox the feast of trumpets took place; at each new moon there was an appointed feast, and each quarter of the moon had its holy Sabbath.

Merely ceremonial observances have passed away, and sacrifices have ceased since the coming of the great Antitype,—he who "once

offered up himself" for us (Heb. vii. 27); yet still prayer is as needful as ever,—it is the breath and life of our souls; and still the clock in the heavens never fails to remind us of the passing hours. In the evening when you see the great luminary setting gloriously behind the highest summit of Mont Blanc, then say, 'Ah, here is a call to evening prayer! O my God, thou hast mercifully given me another day. Grant that I may so live that when I shall see this glorious sun set for the last time, I may be enabled to say to thee, "Father, into thy hands I commend my spirit: thou hast redeemed me, O Lord God of truth"' (Luke xxiii. 46; Ps. xxxi. 5). And at night when you see the moon moving in silence amid the stars, think of our Lord Jesus suffering for you in the garden of Gethsemane, under the light of the full moon;—think of his agony, but think also of his return in the clouds of heaven; for you know not when that will be, whether "at even, or at midnight, or at cock-crowing, or in the morning." And when in the freshness of a fine summer morning you see the sun appearing above the horizon. and awaking all nature, then say

with the Psalmist: "Awake, my soul; awake, psaltery and harp; I myself will awake early. I will praise thee, O Lord" (Ps. lvii. 8, 9; cviii. 2).

"Awake, my soul, and with the sun
Thy daily course of duty run;
Shake off dull sloth, and joyful rise
To pay thy morning sacrifice."

Or say, 'O my Lord and my God, I pray thee be thou my light, my sun. Thou who art the Light of the world, the Sun of righteousness, whose rays give life and health to the soul, O come, I pray thee, and shine into my soul, to sanctify it by kindling in it the fire of divine love.'

The next lesson will be from the 20th to the 25th verse of the first chapter of Genesis.

CHAPTER IX.

WONDERS OF THE ANIMAL CREATION.

"And God said, Let the waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven. And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that it was good. And God blessed them, saying, Be fruitful, and multiply, and fill the waters in the seas, and let fowl multiply in the earth. And the evening and the morning were the fifth day. And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so. And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that it was good."—GEN. i. 20–25

I RECEIVED this week an anonymous letter on the subject of one of our lessons; for which I thank the author, although I do not know him. He reproves me for having said that plants have life. "To attribute life to plants," he says, "is to overthrow at once revelation science, and philosophy."

He is deceived as to revelation, as, on the contrary, it speaks of the *death* of plants (Jude 12), and consequently attributes life to them. And he is equally deceived with respect to science and philosophy. I might cite many authorities, but I shall select only three, and I

shall choose them from the Institute of France (the Academy of Science).

A short time ago, in an article written for the *Revue des Deux Mondes,* the learned Babinet thus writes, on what he calls *vegetable life* and *animal life:* "As well in the animal as in the vegetable kingdom, it would be necessary for us to know *what life is;* but this is a subject about which we are completely ignorant."

The man who might be most fitly chosen to represent both science and philosophy, is undoubtedly the great Cuvier, and he uses the same language.

Lastly, I quote a passage from the interesting work of M. Quatrefages, entitled "Rambles of a Naturalist." "Let us be careful," he says, "in this investigation, not to separate plants from animals; for in these two kingdoms of nature, inert matter, after being vivified by life, rises to a state of organization under the control of the same laws."

But let us return to our verses for to-day. We have now got the length of the works of the fifth and sixth days. With the blessing of God, I intend to try to explain them to

you in two ways, according to geology, and according to the Bible; which, you will find, both tell the same story, and help to explain each other.

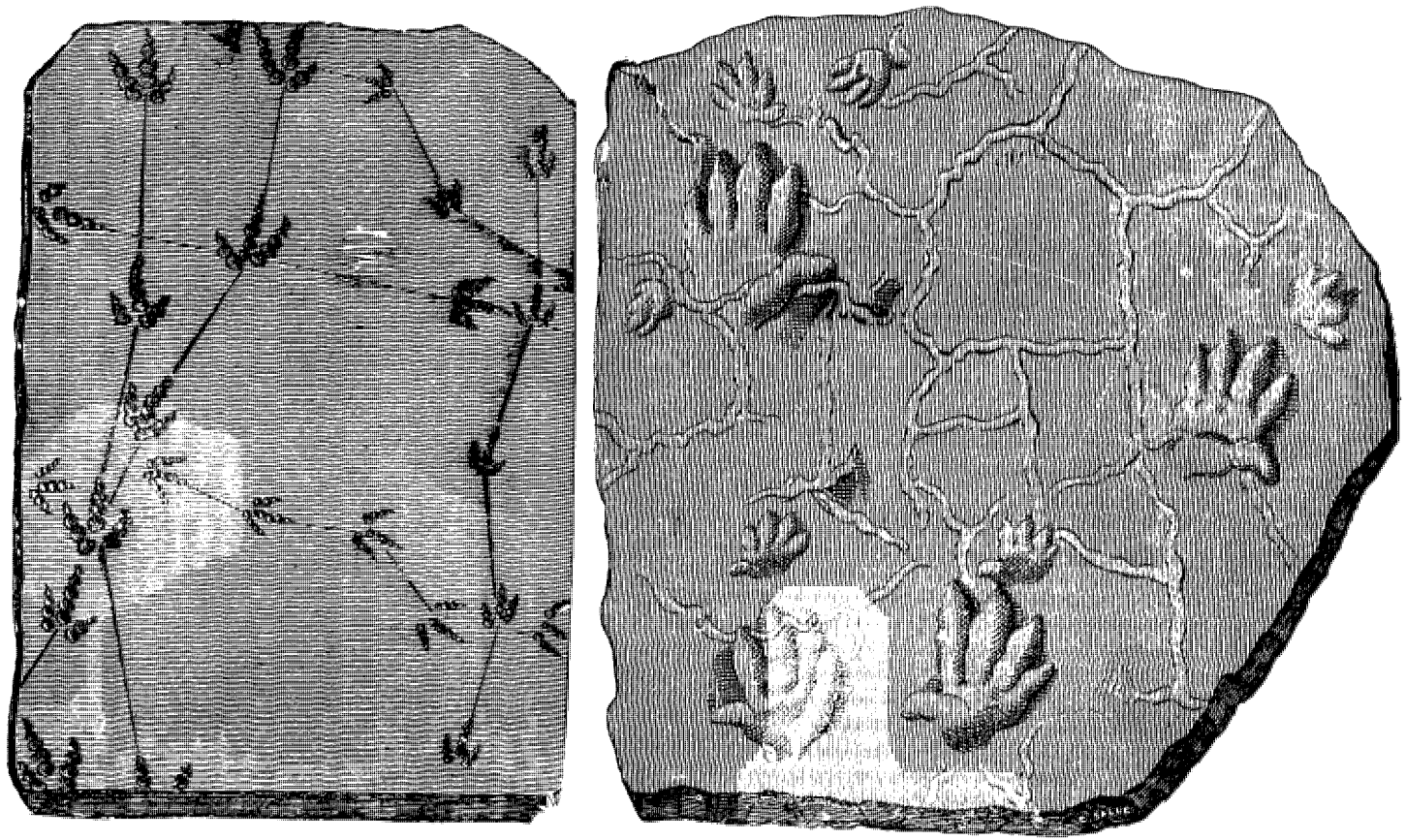
There are two ways in which we may become acquainted with the history of Nineveh, the ancient capital of the Assyrian empire. The first way is by reading its history in the works of the historians who have related it; the second is by going to the spot to search among its ruins, as Mr. Layard has been doing for more than twelve years. There he has found not only the magnificent palaces of Nineveh, —"that exceeding great city of three days' journey,"—but also the well-known Bible names of Sennacherib, Shalmaneser, and many others; and even their portraits, painted and sculptured during their own lives; their wars, their feasts, their hunting parties, their victories, their ceremonies,—all depicted on the walls; and their archives and records, written and engraved on tablets of brick. Well, dear children, as there are thus two ways of knowing the history of Nineveh, so in like manner there are two ways of knowing the history of the creation of our earth.

The first and the most certain way is to read about it in the Bible; but the second, and perhaps the more striking, is to search for it below the surface of the earth itself, and to study its ruins; for among these, most astonishing and instructive discoveries are to be made, as I shall soon show you.

For nearly one hundred years geologists have been studying the history of the earth's crust in this way, as I told you before, when I mentioned to you MM. de Luc and de Saussure. You remember, doubtless, how many times already I have shown you with what exactness their discoveries confirm the boldest assertions of the narrative of Moses about the work of the first four days,—assertions which the learned men of former times refused to believe, and even derided. Well, my friends, the opinions of all have changed since then, and I should like to explain this subject more fully to you, with the hope of making you reverence and admire, more than ever, the precious pages of Genesis, which never change.

In our last lesson we stopped at the time of the fourth day's work.

How beautiful our earth then was! The



FOOT PRINTS ON THE ROCKS.

great luminary of the heavens had risen for the first time on the fields and plains, brilliant with all the new-born beauty of nature, —on the forests, meadows, and streams. The earth was then a paradise of verdure, the garden of gardens in its first fresh beauty. But this lovely garden was as yet, after all, only an uninhabited desert.

In vain did the sun rise above the mountains in unclouded splendour; in vain did the moon, during those clear starry nights, move in beauty through the vault of heaven,—there were none on earth to admire it,—there was no living person to glorify God. The mountains were settled,—the dry land had appeared; the waters were gathered together into oceans and seas; the clouds drew up their stores of water, and dispersed them again where they were required; the earth was adorned and ready, completely furnished and stored with food,—the palace was prepared and ornamented, decorated with garlands and carpeted with flowers: but the king had not yet come to it; all had been made ready and stored up for his use, but he was not yet formed from the dust of the ground.

What a wonderful work of creation was the work of those two days! and how many things I might tell you about all the curious living creatures that were called into being on the fifth day,—the great sea monsters and all the living things that swarm in the waters, and the birds and all the insects which fly in the air,—from the whale to the smallest fish, from the eagle to the feeble fly!

How many things I might tell you, also, about the animals created on the sixth day, —about all that walk or creep on the earth, from the elephant and rhinoceros to the snail!

I know but little on this great subject, yet if I were to tell you even the little that I know,—were it only, for instance, about an ant,—about the heart, the blood, and the veins of a little mouse,—about the wings, the trunk, and the eyes of a fly, or about its little feet, which are formed to enable it to walk on the ceiling with its head downward,—the account even of these few things would occupy the time of our lessons for a year.

I shall only tell you, in order to give you some idea of the numbers of the smallest creatures, that Professor Ehrenberg has discovered

that tripoli (the hard substance used by watch-makers to polish precious stones) is entirely composed of the carapaces or shells of the gallionella, a creature so small that he reckoned that there are 41,000 millions of them in one cubic inch of the tripoli of Billin.* I may tell you, also, that there are other creatures so small that there are thousands of them in a single drop of water; and yet their small organs are as well fitted for their sphere of life as those of the great whale. And to give you some idea of the size of the whale, I may tell you that if I could place one upright beside the highest tower of the Church of St. Peter, do not fancy that you could see its head by climbing to the roof of the church, for the head of the whale would rise twice higher than the spire; so that, in order to examine it, we would need to place these towers one above the other, because the tower of our church is only about 100 feet in height, while, according to the

* "The infinitely minute silicious shields of the diatomaceœ," says M. de Quatrefages, "have offered a firmer resistance against the revolutions of our globe than the gigantic skeletons of the antediluvian monsters,—organisms so microscopically minute, that the point of a needle might at one touch crush hundreds of them, although their remains here combined to form entire rocks and extensive geological strata, known and worked for ages under the name of tripoli."

account given by Lacépède, whales have been found more than 300 feet in length.

But I shall refrain from saying more about living creatures at present, because I wish to speak to you about the wonders which learned men have lately found in the rocks of our earth. I shall only say, to give you some idea how numerous they are, that Dr. Dick tells us there are at least 4,000 kinds of fish, and 3,000 kinds of birds still existing, besides 1,600 species now extinct, which, according to Professor Agassiz, have been found in the heart of the rocks. There are 600 kinds of quadrupeds, and 700 kinds of reptiles still in existence, together with 44,000 kinds of visible and millions of invisible insects, besides those which are extinct.

But let us return to the subject of our verses. Before going further I should like you to remark particularly three things mentioned in these verses :—

First, That the animals both of the sea and of the land are mentioned as having "life." This is not said of the plants, though they too had life, because the life of the animals is very different from the life of plants ;—it is a much

higher life. Animals think and feel, which plants do not; and in this consists the great difference between them.

Observe in the second place, that when God said, "Let the earth bring forth grass and herb"—"Let the waters bring forth abundantly"—"Let the earth bring forth the living creature,"—these words do not mean that the earth and the sea could produce them of themselves. Undoubtedly not. You will see that it is said at the 21st and 25th verses, "*God created* great whales, and every living creature that moveth, which the waters brought forth abundantly;" and that "God made the beast of the earth," &c. It was a *creation;* for if the power of God could create them of nothing, he could also create them from other things, if such were his will. He spoke, and the waters brought forth fish and birds, and the earth brought forth beasts, and God himself gave them life. Perhaps it might be to remind us of this important truth, that our Lord Jesus Christ, when he gave sight to a man born blind, used the dust of the earth —"He spat on the ground, and made clay of the spittle; and he anointed the eyes of the

blind man with the clay." He may have meant to make us understand by this that his all-powerful word can give wonder-working power even to the very dust of the earth; and that at the last day he has only to speak and command the earth to give up the dead, and so raise us all again to life, even from the dust of the tomb.

Remark in the third place, that Moses, after relating the creation of the plants, the first organized things, divides all the other creatures which were made before man into two great classes—those of the fifth and those of the sixth day. The first sprang from the waters; the waters brought them forth abundantly, but "God created them," says Moses—fishes, birds, winged insects, and all that move in the water. The second sprang from the earth, but "God made" them also, we are told—every "beast of the earth, and cattle, and every thing that creepeth upon the earth."

Remember, therefore, that, according to the account given in the Bible, there were three great successive periods of the creation of organized beings—three periods called days, the length of which we do not know, and sepa-

rated from each other by evenings, or times of darkness, the length of which we do not know. First period, herbs and trees; second period, sea creatures and flying creatures; third period, animals which walk or creep upon the earth.

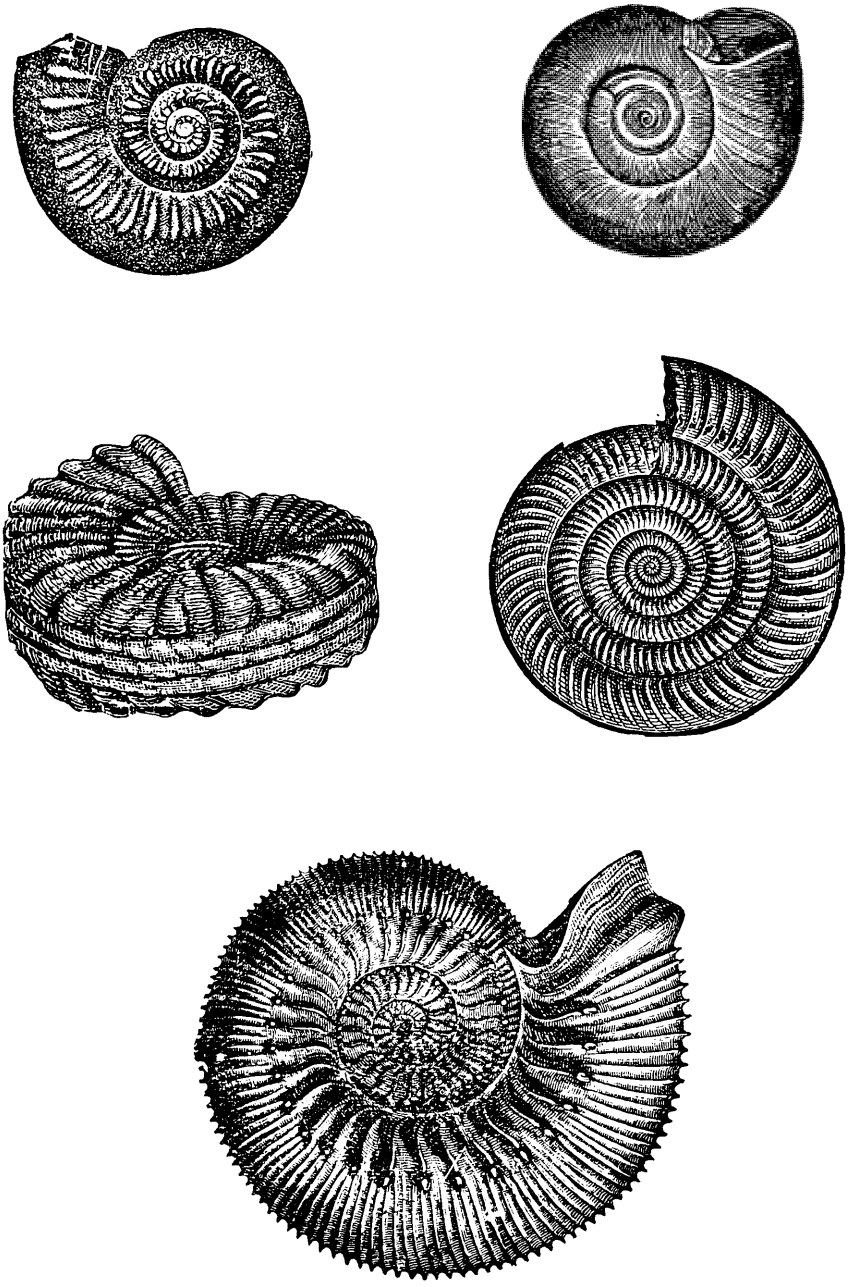
Well, dear children, I am now going to tell you, in as few words as possible, what traces have been found of these three great periods—these successions of creatures; and these same facts in the discoveries made by geologists. You will see, from what I have got to say, that, for eighty years, scientific men have been learning to read more and more distinctly the records written in characters of marble in the mountains and rocks within the crust of the earth.

But first I must tell you of a discovery made by a very dear friend whom I have lost, the excellent Dr. Prévost, a learned anatomist of Geneva. He often mentioned it to me as affording a remarkable testimony to the word of God. It helps to explain the words of the 20th verse. We may perhaps wonder that two such apparently different kinds of creatures as fishes and birds should be classed to-

gether. Who among us would have thought of such an arrangement? But, dear children, scientific men have discovered, on examination, that there are very close resemblances between them in their anatomical structure and in some other things. Both spring from eggs; and while the one class—the birds—swim in the air with wings, the other—the fishes—fly in the water with fins. And besides these points of resemblance, the discovery made by Dr. Prévost, which astonished himself and interested the learned world very much, was this, that the globules of the blood of fishes and birds are seen to be the same, when closely examined, and do not at all resemble the globules of the blood of those animals which sprang from the earth on the sixth day.

Let us now go on to the discoveries of geologists. The fathers of this science, as I have already told you, were two learned Genevese; and, at a later period, a Prussian from the mines of Freyberg, named Werner.

Of all the countries of Europe, Switzerland is perhaps the one where geology may be best studied, because of the many convulsions and upheavings to which our mountains have



AMMONITES.

been subjected. If you ever go into the Canton of Berne, my children, to see that magnificent mountain, the Jungfrau, 13,700 feet in height, remember to ask some one to point out to you, on the north side of it, the marvellous changes and subversions which have taken place there since the period of the work of the fifth day.

In my youth I delighted in scrambling among the mountains, in climbing the steep sides of the Jura, the Salève, the Môle, the Brezon, and wandering among the more distant chains of Switzerland and Savoy. And I remember with what delight I first heard the strange fact, that in the deep ravines, and among the rocks of these mountains, sea-shells were to be found changed into stone. The *cornua ammonis*, for example, some of which are as large as a carriage wheel, had been taken out of the solid rock. And what seemed still more wonderful was, that in the heart of the rock there might also be found a fish petrified, or turned into stone; the form of its mouth, its eyes, its fins, of all its parts, was distinctly visible; its scales might have been counted; and if it had been cut open and polished, its

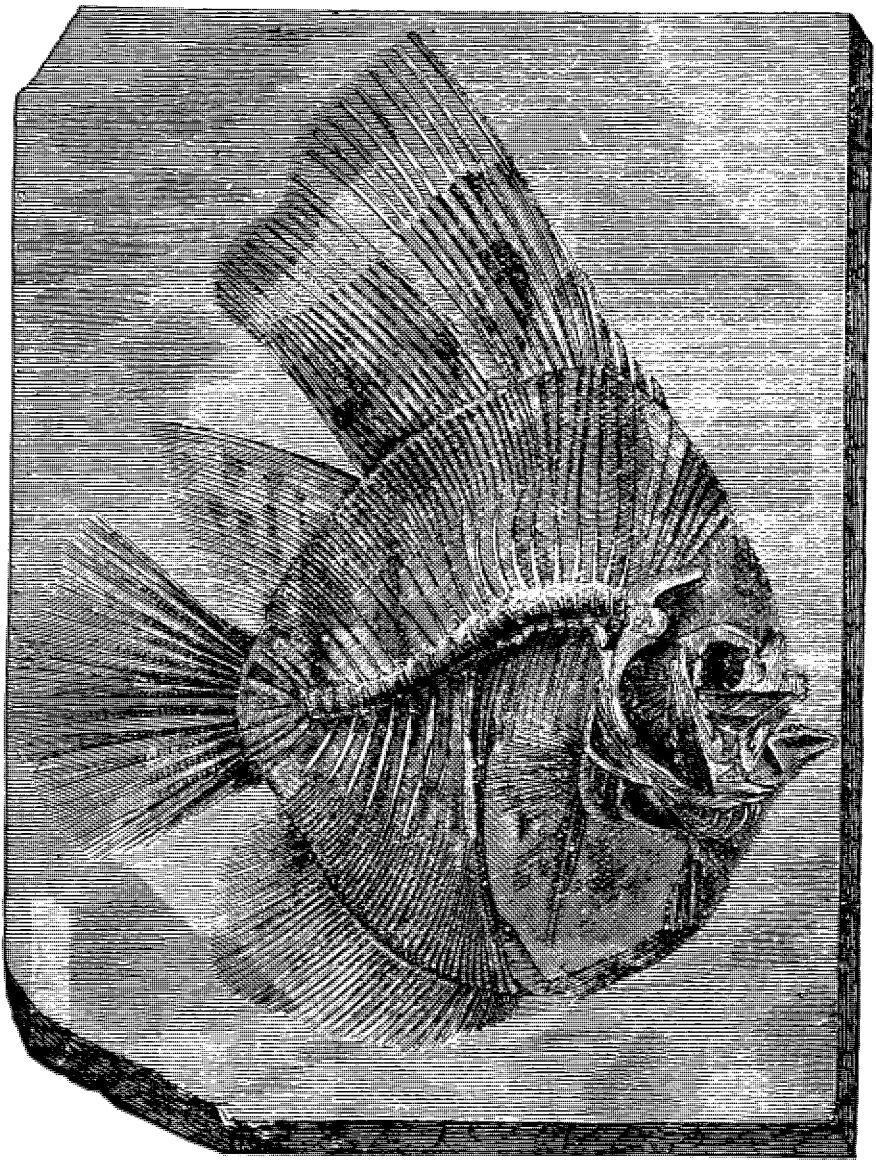
inward structure might have been studied and examined, as an anatomist would examine the body of a creature lately dead.

We liked to make collections of these strange remains of former times; and sometimes the peasants in the neighbourhood brought us sharks' teeth taken out of the rock, as sharp and polished as when they were in the mouth of the living creature.

There are mountains not far from Geneva where these petrified animals have been found in heaps piled up one above another. For example, the Ormonds, that magnificent wall of rocks which raises its snowy head from the smiling valley below to a height 9,000 feet above the level of the sea, was called the Diablerets by the ancient inhabitants of the country; because, not knowing how to account for the great number of petrified animals found among the rocks, they ignorantly fancied that it must have been the work of the devil.*

For eighty years geologists have been studying these extraordinary facts, and the result

* In French *Diable*, hence Diablerets.



FOSSIL FISH.

has been, that they have found animals of the same kind all over the world, in rocks of a similar kind to those of the Jura. These contain sea-shells, fish, lizards, winged insects, immense monsters, and a kind of very large bat; but never either the remains of man or of any of the terrestrial animals,—no cattle or horses, no stags, elephants, lions, or tigers.

What, think you, have they concluded from this? They have inferred from it this simple fact, that the rocks of the Jura, and those which resemble them, are more recent than the time of the fish, but older than the time of terrestrial animals, such as lions or cattle, and older also than man. Is it not very evident that it was impossible for fish to get into the rocks of the Jura after they were formed; but that, on the contrary, the great mountains, such as the Jura, the Salève, the Môle, and the Voirons, must have been formed beneath the waters after the time of the creation of fish, when the sea deposited a calcareous and clayey mud; and this mud, having fallen round all these poor animals and killed them, became afterwards changed into hard rock by the combined influence of heat and enormous pressure,—or, as I

told you before, by the united work of the water and the fire?

These are very evident inferences, my children, but these are not all; geologists have searched further. They have examined, in different countries, the rocks that are placed under the rocks like those of the Jura, and they have also examined those that are found placed above them. What have they discovered?

Under the rocks of the Jura they have found extensive layers or beds of very hard white sandstone, or grit-stone, formed of a kind of silicious sand, agglomerated and pressed together by water; and amongst this they have found traces and petrified parts of bamboos, enormous palm-trees, and reeds so gigantic as to be almost like tall trees. Lower still, they have found beds of hard red sandstone, very *ferruginous*, or full of iron; and in this they have met with the valuable and wonderful layers of coal, the remains of the immense old forests which once covered all the surface of the earth.

Shells and a few kinds of fish are found among these, but not the smallest bone belong-

ing to man,—and not a bone of any of the terrestrial animals. These carboniferous (or coaly) rocks, separated by rocks of other kinds that the waters have deposited over them in succession, sometimes form, in America, a collection of beds or layers 10,000 feet in thickness.

Still lower, what have they found? Below the rocks which they have named *silurian*, in which there are also found a very great number of trees and a few shells, they have at last reached layers or strata of clayey and granitic rocks, in which they cannot find any remains whatever, either of marine animals, or reptiles, or fish, or coral, or even of trees and plants.

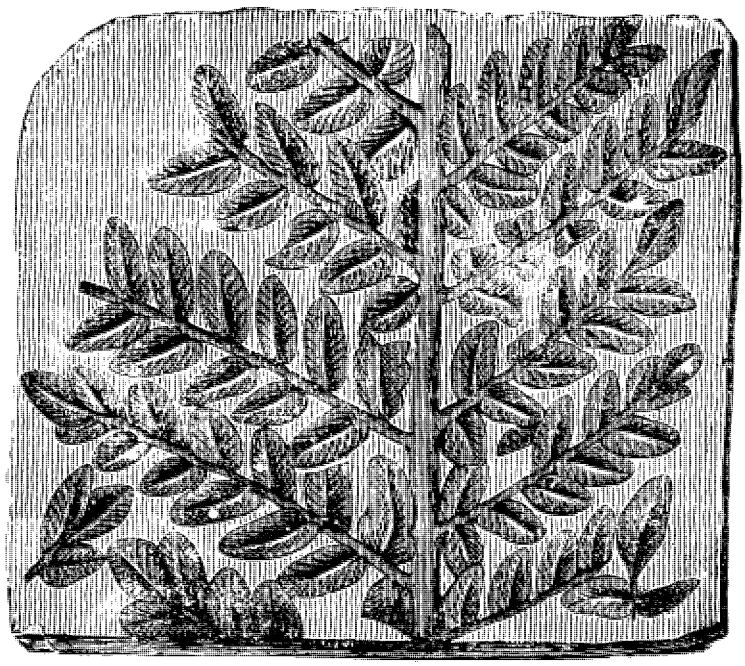
What, think you, have they concluded from this? I shall read to you what the learned Buckland says on this subject. He quotes from the celebrated Cuvier, who says, in his preliminary discourse (vol. i. p. 9), "What is most astonishing, yet at the same time most certain, is, that LIFE HAS NOT ALWAYS EXISTED ON THE GLOBE; and, moreover, that it is easy for an observer to discover the point from which life begins to deposit her productions."

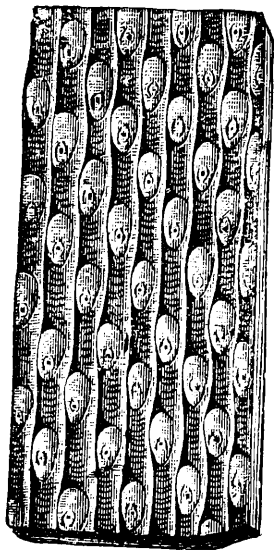
Yet even this is not all. For, after having examined all the rocks lower than the Jura, lower than the coal measures, lower than the silurian, and having reached the rocks which were formed before life began on the earth, geologists had still to examine the layers or strata placed higher than those like the Jura, —for example, the plaster beds of Paris, and the layers of chalk, often of immense thickness, which are to be met with in Poland, Pomerania, and Normandy, and also in England.

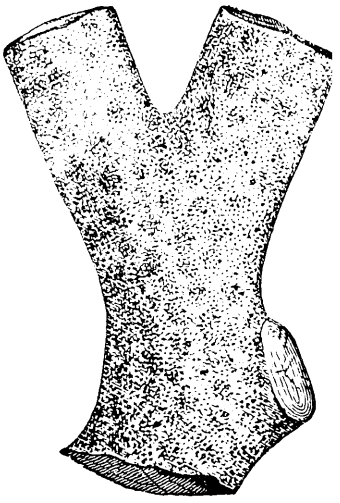
They have done this, and what have they found? There, for the first time, they have seen in the rocks the mammiferæ and terrestrial animals (oxen, horses, bears, tigers, elephants), such as are never found in the rocks of the Jura; and also enormous unknown animals, first described by Cuvier, which you can only see in museums, and whose pictures I shall show you at the end of the lecture. But they have found no remains of man among them.

Well, once more I ask, What have the geologists concluded from these discoveries?

1st. They have concluded that, as the Bible







PLANTS IN THE COAL MEASURES

tells us, life has not always existed on the earth, and that the earnest observer may remark the very point from which it began. Life, then, began by a miracle; that is to say, by a direct intervention of creative power, contrary to what are commonly called "the laws of nature," or rather, before the existence of these laws.

2d. They have concluded that, as the Bible tells us, man is the youngest and last created of all the organized beings that the almighty God has placed on this earth.

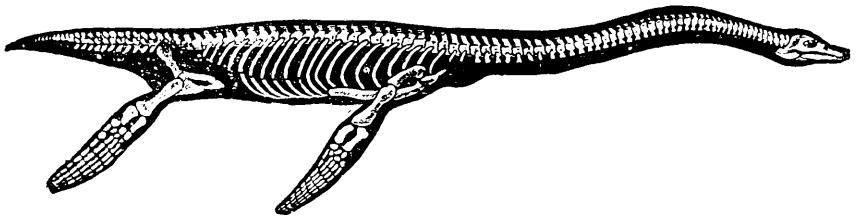
3d. They have concluded that, as the Bible tells us, all the terrestrial animals, the large mammiferæ,—the elephants, the horses, the cattle, the rhinoceri,—are among the later creations which appeared on the earth before the creation of man.

4th and lastly: All geologists agree with the Bible in maintaining that the grand scale of geological fossiliferous periods is naturally divided into three great parts, which they have named Primary, Secondary, and Tertiary.

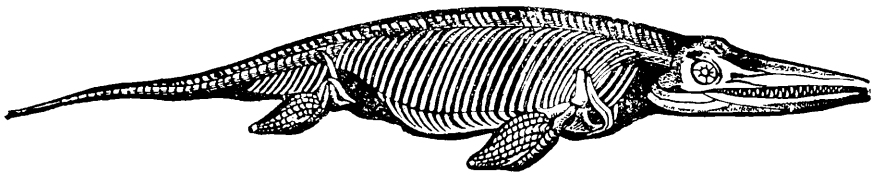
All are agreed, says the celebrated geologist, Hugh Miller, that what chiefly distinguishes the first of these three fossiliferous periods is not its shells or its fishes, though it possesses

a few, but its "gorgeous flora." "It was emphatically the period of plants, 'of herbs yielding seed after their kind.' In no other age did the world ever witness such a flora; the youth of the earth was peculiarly a green and umbrageous youth,—a youth of dusk and tangled forests, of huge pines and stately araucarians, of the reed-like calamite, the tall tree-fern, the sculptured sigillaria." "Of this extraordinary age of plants we have our cheerful remembrancers and witnesses in the flames that roar in our chimneys when we pile up the winter fire,—in the brilliant gas that lightens our houses and streets,—in the glowing furnaces that smelt our metals and give moving power to our ponderous engines,—in the long dusky trains that, with shriek and snort, speed dart-like athwart our landscapes,—and in the great cloud-enveloped vessels that darken our friths and rivers, and rush in foam over ocean and sea.'

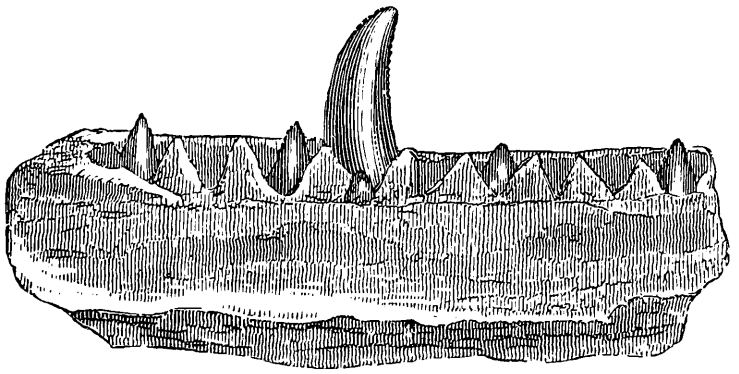
Coal mines, the remains of primeval forests, form the riches and the strength of a nation. In England alone, according to Buckland, coals do, by means of machinery, as much work as 400 millions of men could do by hand.



PLESIOSAURUS.



ICHTHYOSAURUS, OR FISH LIZARD.



JAW OF THE MEGALOSAURUS, OR GREAT LIZARD.

FOSSIL REPTILES.

The conspicuous or characteristic feature of the secondary period, says Hugh Miller, is not its plants, though it possessed, like the earlier age, herbs and plants. "But the grand existences of the age, the existences in which it excelled every other creation earlier or later, were its huge creeping things, its enormous monsters of the deep, its gigantic birds. It was peculiarly the age of egg-bearing animals, winged and wingless." It was a time of "whale-like reptiles of the sea, crocodiles rivalling the elephant in height," and "numerous birds, some of them of gigantic size."

"The tertiary period had also its prominent class of existences. Its flora seems to have been no more conspicuous than that of the present time; its reptiles occupy a very subordinate place; but its beasts of the field were by far the most wonderfully developed, both in size and number, that ever appeared upon earth. Its mammoths and its mastodons, its rhinoceri and its hippopotami, its enormous dinotherium and colossal megatherium, greatly more than equalled in bulk the hugest mammals of the present time, and vastly exceeded them in number. The remains of one of its

elephants are still so abundant amid the frozen wastes of Siberia, that what have been not inappropriately termed 'ivory quarries,' have been wrought among their bones for more than a hundred years. Truly this tertiary age, the third and last of the great geologic periods, was peculiarly the age of great beasts of the earth after their kind, and of cattle after their kind."

If you visit large museums, dear children, you will see these wonderful creatures. Learned men, both in England and France, have carefully arranged their successive halls according to these three divisions. This is the arrangement in the British Museum, which is one of the wonders of the world.

I should like to tell you about an interesting scene which took place during the Great Exhibition in London, one day when Hugh Miller, one of the most learned geologists of our day, chanced to be in the gallery of the British Museum. He relates it himself.

Numerous visitors from all parts of the kingdom had come to London to see the Great Exhibition. A group of intelligent mechanics, fresh from some manufacturing town of the midland counties, were sauntering on through

its chambers, immediately before Mr. Miller. They stood amazed before the great dragons of the second period. Amongst others they saw the plesiosaurus with its frightful jaws, its teeth polished and brilliant like those of the crocodile, the orbits of its eyes a foot in diameter, its fins like those of a fish, and its neck like that of a boa constrictor. "Ah, sir," said they to Mr. Miller, "what kind of great beasts are these?" He replied, "These are the sea monsters and the creeping things of the second great period of organic existence." This reply satisfied the mechanics. Perhaps some of them remembered at that moment the 20th and 24th verses of the chapter we have been studying.

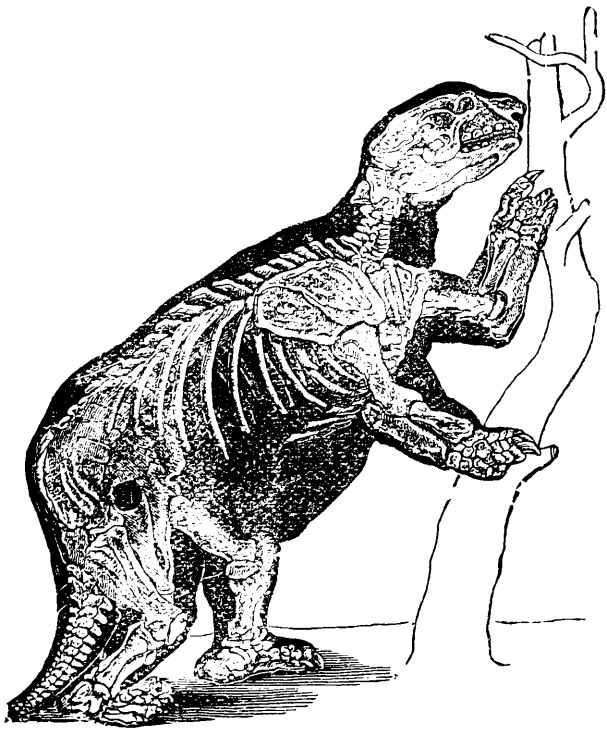
They passed on and entered the apartment where the animals of the third period were placed. And there, before the enormous mammals, the mechanics again stood in wonder, and turned to inquire. Mr. Miller said, "These are the huge beasts of the earth and the cattle of the third great period of organic existence." The mechanics again seemed satisfied. "And, of course," adds Mr. Miller, "had I met them in the first chamber of the suite, and had they questioned me respecting the organisms with

which it is occupied, I would have told them that they were the remains of the herbs and trees of the first great period of organic existence."

Thus these intelligent workmen, although uninstructed in science, were at first sight struck with the great features of resemblance between the discoveries of science and the teaching of the Holy Scriptures.

I must not conclude these short remarks, my friends, without telling you that there are still many difficulties in the details of this subject, which we do not as yet perfectly understand, but which will in time be certainly cleared up, as all former difficulties have been.

For instance, one of the principal difficulties is, that shells and fish have been found among the coal measures; which would seem to indicate that the *first* forests have not yet been found. Perhaps the cause of this is, that the coals we now use may have been formed during the convulsions of the evening that began the fifth day, and perhaps the remains of the primitive forests may have been consumed and entirely destroyed by the united action of the fire and of the water among the



GIGANTIC SLOTH.

(PLEISTOCENE.)

first deposits with which they were covered. Science on all these subjects is yet uncertain,—it is only yet being formed; but we have already seen its discoveries preceded in so many points by the light of Scripture, that we can have no doubt that in time it will be so well understood, that all its more recent observations will be in accordance with Scripture truth, like those that have gone before.

Before concluding, let us repeat, in few words, some of the great facts of creation with respect to which Science has already borne witness to the truth of the Scriptures. Some of these relate to points which must at first sight have appeared most strange and incredible. I shall mention only twenty:—

I. Science has been obliged at last to agree with the Bible in saying that the earth is round—a truth which the learned men of this world long denied.

II. That the earth, as it is written in the Bible, "is hung upon nothing" (Job xxvi. 7), —a truth of which learned men were long ignorant.

III. That the earth has been created out of nothing at a very remote time in the ages that

are past—a truth which Science long rejected, believing matter eternal.

IV That light existed, and caused the plants to live, long before the sun was lighted up to be the light of the world—a truth which Science long regarded as an absurdity or an impossibility.

V. That the crust of the earth rests on the interior fire—a truth only very lately discovered.

VI. That, nevertheless, this crust was long covered by the waters, and rose out of the waters—a truth which Science formerly derided.

VII. That the highest mountains on our globe have been thrown up by the power of the fire—a truth which Science has only been able to see in very recent times.

VIII. That the earth is wrapped round with an atmosphere, and that the air has weight—truths which have been known to science only since the time of Galileo.

IX. That the atmosphere is charged with a very great work, in separating the waters below from the waters above—a truth which has been admired and wondered at since the calculations of Arago.

X. That the rivers go down by the valleys to the sea, which is never filled, and that they go up again to the places whence they came.

XI. That the winds go in circuits and return in their circuits, as Colonel Reid has been endeavouring to prove only very lately.

XII. That the stars of heaven are infinite in number, like the sand of the sea-shore for multitude, although the human eye can only distinguish about 1,000, and the ancient astronomers believed that there were no more than 1,022.

XIII. That the stars are not gods, as the wisest and most religious of the ancient philosophers believed them to be, but material things created by God.

XIV. That the stars have no influence over the destinies of men or nations—although in all former times, and even in the comparatively modern courts of Charles V. and of the Valois in France, princes, great men, and people alike believed in magic, and consulted the stars.

XV. That the sky is not a solid vault, as the ancients believed—a mistake which caused the translators of the Old Testament, both Greek

and Latin, to call it "*firmament*," according to their own notions of science; whereas the word "*firmament*" does not give a correct translation of the original Hebrew word, which means "*expanse*,"—an admirably chosen and expressive word.

XVI. That the plants were created on the earth long before man.

XVII. That the animals of the sea and of the air were created long before those of the earth.

XVIII. That the birds are the contemporaries of the fishes and other marine animals.

XIX. That the animals and the plants have both had a beginning, and that there was a time when neither the one nor the other were in existence.

XX. That man, notwithstanding his own pretensions in all ages, and the frequent assertions of unbelievers, has existed only a comparatively short time on the earth, having been created long after the plants, after the birds, after the marine animals, after the insects, after the reptiles, and after all the terrestrial animals.

Science, you see, is but a child when com-

pared with the Scriptures. What are we to learn from this? Let us adore God, my friends; let us adore him as his wisdom and his glory are shown in his magnificent works; but, above all, let us adore him for the most precious gift of his holy word. And when human Science in our day ventures to oppose her latest notions to the holy Scriptures, let us listen attentively to all she says, but let us always remember, at the same time, that for thirty centuries she has never ceased to raise similar objections, as to other points not less important, with respect to which she has been successively obliged to confess her mistakes.

The subject of the next lesson will be the 26th, 27th, and 28th verses of the first chapter of Genesis.

CHAPTER X.

THE CREATION OF MAN IN THE IMAGE OF GOD.

"And God said, Let us make man in our image, after our likeness; and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his own image: in the image of God created he him; male and female created he them. And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it; and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth."—GEN. i. 26–28.

WE have now reached the last period of the work of creation, when God made man,—the last and the most wonderful of all his works.

The palace was finished, all was ready, all was perfect, for God himself had looked on it, and he saw that it was "very good." And now the happy king is to appear for whom all these glorious things have been prepared. Can you fancy what he was like, this first man—your father and mine? Imagine his feelings (who could describe them?) when he saw himself for the first time on this beautiful earth, among all the wonderful works of his God. What a sublime moment in the history of our

world, when all creation saw the appearance on our planet of the first Adam, its king and its priest; who, at a later period, was to give place to the second Adam, the Lord from heaven, who was to make manifest to the Church all the glorious perfections of holiness, wisdom, and divine mercy!—"to the intent," says St. Paul, "that now unto the principalities and powers in heavenly places might be known by the Church the manifold wisdom of God, according to the eternal purpose which he purposed in Christ Jesus our Lord (Eph. iii. 10, 11).

The first Adam was placed by God on the earth in a state of felicity and innocence; he was crowned with glory and honour; all things were put under him; God gave him dominion over all the works of his hands; and, what was the most glorious distinction of all, he made him in his own image and after his own likeness.

O my friends, let us ask God to help us to understand the glory and felicity of our first father, when he rose pure and perfect from God's creating hand, that we may the better understand also from what a height we have

fallen. For this knowledge is very necessary for all of us: we must know how deeply we have fallen, that we may flee to Jesus, to the second Adam, the Son of man and the Son of God, who, in the fulness of time, came to our earth, to restore us,—to deliver us from death, and to bestow upon us immortal life.

Let us return to our verses.

Verse 26: "*And God said, Let us make man in our image, after our likeness,*" &c.

Remark these words well, dear children. See how distinctly the Scripture declares to us, in the very first chapter, the unity of the human race.

All nations now on the earth, from the snows of Lapland and Labrador to the burning plains of Africa and the most distant isles of the sea,—black skins, red skins, yellow skins, white skins,—all the generations of men who have lived and died on the earth for fifty-eight centuries, are alike descended from one man, Adam, who was created on the sixth day, after the image of God.

I enumerated to you in our last lesson twenty subjects with respect to which modern Science has been obliged to give glory to

the Book of God,—even, in some instances, after she had imprudently ventured to suppose that it could be wrong, and had attempted to obscure its assertions. I might have many more such instances to give you, if I were to go from the material facts of the creation to those which relate to the history of man; for it is peculiarly on this subject that the Bible speaks to us, with a wisdom far beyond all human wisdom; and it is in its teachings on this subject that we are especially called upon to acknowledge the superiority, or rather the divinity of its language.

Ancient Science refused to believe that all men had sprung from one and the same father She taught that there were nations of monsters on the earth, and she imagined that generic and fundamental differences existed in the structure of the different races of men. But she has now been obliged to confess that all the discoveries of geography, as well as those of science, testify to the historical, physiological, and moral unity of all the families of men.

Ancient Learning believed our humanity as old as the world itself. She told us marvellous stories of pretended nations wonderfully

civilized, who reckoned back their history through myriads of years. But she has now been obliged to acknowledge as an undoubted fact, that the origin of the human race is of very modern date. When you are older you may read a beautiful essay by Cuvier, on "The Revolutions of the Globe," in which that great naturalist, who has been called "the Aristotle of the nineteenth century," proves, even without the evidence of the Bible, that man has existed only a few thousand years on the earth.

Ancient Science, and all the old systems of philosophy, had imagined that the human race must be for ever divided, by the variety of the climates of different countries, the diversity of its religions, its hatreds and prejudices, its wars and its progress in different directions. No merely human philosophy had ever been able to invent or even to imagine a future for man in which the whole human race might be united in the "knowledge of the Lord," and in which all mankind might be invited to be reconciled to their God. This is the peculiar glory of the Holy Bible.

Listen to what it tells us even in the Book

of Genesis, so many years older than any other book; listen to its words in the very page which is the subject of our present lesson; listen to the words of the prophets; listen to the voice of the Psalmist; in a word, hear the united testimony of the Old Testament and of the New, and you will find that everywhere the views which the Bible gives of man, his identity of race and his glorious future, are as wide and far-extending as the world itself.

In the 26th verse of the chapter, which we have just read, the Scripture presents to us man *created in the image of God*, destined to people and to rule over the earth, and to glorify his Creator on it. And after man had fallen, the Bible shows him to us as he is,—lost, wicked, and rebellious against God. The Bible says, "By one man sin entered into the world, and death by sin; and so death passed upon all men, for that all have sinned"—"There is none righteous, no, not one"—"All have sinned, and come short of the glory of God"—all are "by nature the children of wrath," and "all the world has become guilty before God" (Rom. v. 12; iii. 10, 23; Eph. ii. 3; Rom. iii. 19).

But now, hear the promise of a Redeemer made to man immediately after the Fall, recorded in this very book of Genesis, and repeated many times afterwards in still clearer words. He was to be the Saviour of "the whole world;" in him "all nations of the earth were to be blessed;" "all the ends of the earth were to see the salvation of God;" "the earth was to be filled with the knowledge of the Lord, as the waters cover the sea" (Gen. iii. 15; xxii. 18; Isa. xlv. 22; lii. 10; xi. 9; Hab. ii. 14).

"Go ye into all the world," was the command of the Redeemer himself, "and preach the gospel to every creature. He that believeth, and is baptized, shall be saved; but he that believeth not shall be damned" (Mark xvi. 15, 16).

Consider, my children, what a wonderful book your Bible is. It is not like the books written by men,—a book for a single nation, a single race; it is a book for the whole world, and for all the races of men in all ages; it is the book of the poor Indians as well as of the Swiss; it is the book of the Greenlanders and the Negroes as well as of the English and

the Americans; it is the history of mankind; it is the "good tidings of great joy for all people;" it is the revelation of the love of God, who "so loved the world that he gave his only-begotten Son, that whosoever believeth in him should not perish, but have everlasting life" (John iii. 16).

But now observe, my children,—To whom was this wonderful book for ages intrusted,—a book which contains the message of reconciliation from God to a guilty world?

Ah! how wonderfully the answer to this question proves its inspiration! Its first five books were written by Moses, who had been taught in the schools of idolatrous Egypt. It was confided to the Jews, the most bigoted of all nations, the most completely imbued with national prejudices, the most jealous of their peculiar privileges, and the most unwilling to share them with others,—a people not one of the least of whom would even eat with a man belonging to another nation! Yet this very people were chosen to proclaim the good news for all the ends of the earth! This very people sung the calling of the Gentiles in their divinely inspired Psalms in the

Temple of Solomon 250 years before the old city of Rome was built! "God be merciful unto us, and bless us, and cause his face to shine upon us," were the words of their song. And the choir replied, "That thy way may be known upon earth, thy saving health among *all nations*. Let the people praise thee, O God; let all the people praise thee. O let the nations be glad, and sing for joy: for thou shalt judge the people righteously, and govern the nations upon earth. Let the people praise thee, O God; let all the people praise thee. Then shall the earth yield her increase; and God, even our own God, shall bless us. God shall bless us; and all the ends of the earth shall fear him." (Ps. lxvii.)

Have you remarked, dear friends, the wonderful contrast between the psalm and the singers? Have you understood why God, who committed the sacred oracles to the Jews, charged them with the office of preserving and transmitting to us promises and declarations so *anti-jewish*,—I mean so entirely opposed to all their national prejudices,—promises and prophecies so large and so gracious, about a glorious future, when all nations should be

reconciled to God and worship him alike? Declarations such as these are not to be met with in the literature of any people, either of ancient or modern times, unless where they have been taken from the Book of revelation. They are so full of mercy, so worthy of God, that we must at once see that they came from himself; and we are constrained to confess that such glorious thoughts could never have come into the mind of any human being, especially at the time when they were written, unless they had been inspired by God.

What should this teach us? Does it not prove to us the inspiration of the holy Book of God, the divine origin of these sublime and wonderful promises? And does it not also teach us the inestimable value of the holy Scriptures—the happiness of those who possess them—the obligation laid on each of us to love them, to prize them as a precious treasure, and to study them diligently with prayer and thankfulness, as the words of our God to us?

But let us go on to the next verses (ver. 26, 27). I did not intend to return to the subject of geology, but on reading these verses again, two more facts have occurred

to me which I should wish still to mention; and I have a picture to show you, which will give you a better idea than words alone can do of the recent discoveries of geologists. You will see a representation of what has been revealed to us written on the rocks of the earth, and you will once more observe the wonderful harmony between the revelations made to us in the Book of Nature and in the Book of Holy Scripture.

"And God said, Let us make man . . . . so God created man."

You see that man was the last of God's great works. Geologists have of late years studied the position of the various rocks so carefully, that they can tell with a great degree of certainty which are the oldest, and which the most recent. You know that when antiquarians search among the ruins of an old city, they often find coins under the foundation-stones of the various buildings, which had been put there, as is frequently the custom still, when those houses were built. By means of these coins, even a child who could read the dates could tell how old the various buildings are. Well, dear children, it is in some-

thing of the same way that geologists know the age of the rocks; for when God created them, he caused some of each of his successive creations to be imbedded in the very heart of the different kinds of rock, so that geologists can tell what is the comparative age of the various strata, or layers, by the nature of the fossils which they find in them. But remember well that they all agree in saying that, as Moses has told us, man is much the most recent of all God's creatures.

There are now two Bible facts which I wish you to observe before beginning to speak to you of the creation of man.

Remark in the 26th verse that there was no *evening*, no revolution, no period of darkness immediately before the creation of man. You have seen that there were *evenings* between all the preceding great works of creation,—between that of the light on the first and that of the air on the second day; between that of the air and that of the dry land and the plants on the third day; between each of the creations of the plants, of the great lights, and of the creatures which sprang from the waters, on the fourth and fifth days; and be-

tween the creation of the creatures which sprang from the waters and those brought forth by the earth on the sixth day. But then, on the contrary, there is no *evening* between the creation of the terrestrial animals and of man; and you may also observe, that in the verses which follow our text the Scripture does not speak of any *evening* as taking place between the sixth and the seventh days.

Why, you may ask, do I tell you to remark this? It is because this fact corresponds so wonderfully with the discoveries lately made by Sir Charles Lyell in the tertiary rocks: and at the same time it answers an objection made to me on the subject of one of our former lessons, and it gives us another testimony from science to the truth of the Scripture history of creation.

The following was the objection stated to me:—"Sir," said the objector, "do you not know that Lyell has discovered that between all the species of plants and animals now on earth, and those which were extinct long before the appearance of man, there is an uninterrupted succession; that both of these lived on the earth at the same time; that

there has been no chaos, no interruption, no darkness, no violent destruction, none of those great revolutions which took place before the formation of the secondary rocks and of the primary rocks, of the Jurassic rocks, of the carboniferous rocks, of the silurian rocks?"

Well, you see that this is just what is indicated in Scripture; for, according to the account of Moses, there was no *evening* between the creations of the sixth day and the creation of man, which terminated it; and no *evening* followed before the seventh day.

"But, sir," continued he, "according to your own account, those *evenings* which are enumerated by Moses, and those great periods of convulsion and revolution to which all geologists testify, must necessarily have destroyed all the early works of creation—must have destroyed the great forests of the old world—must have destroyed the marine animals—must have destroyed the 1,650 kinds of fossil fish which Agassiz has counted—must have destroyed the old shells and the terrestrial animals,—so that most of the species formerly living, which are found buried in the rocks, are not the same as the species now

existing. You cannot, therefore, be justified in saying, as you do, that the discoveries of geology correspond with the history of creation as related by Moses; for the species of animals which are shown to us in museums are not the same as those now to be seen in our woods and lakes,—the old species of animals have perished, and are almost all extinct. There is no question here about the recital of the creation in Genesis."

To all this, dear children, my answer is easy;—it is, that those who raise a difficulty such as this, have never observed the second of the Bible facts to which I have now to direct your attention,—a very simple fact, which answers the objection made at once,—namely, that during the six great days or periods of creation which preceded the appearance of man on the earth, God *never ceased* to create. He did not rest from his work; he created, and continued constantly creating, till the seventh day. He *began* the creation of plants on the third day, they were then called into being for the first time; but you must not therefore suppose that he created no more of them either on the fourth, or the fifth, or

the sixth day. He *began* the creation of marine animals on the fifth day; but you are not therefore to think that he created no more of them after the evening which began the sixth day, and which destroyed them,—the *evening* when the Jurassic mountains were formed—the Salève, the Dole, the Môle, and the Diablerets. It seems very certain that he did. During the six days, we are told that God never ceased to create. He might create more of the same kinds of plants and the same kinds of animals as at first, but he also continued to create new families of plants and new kinds of animals in great numbers. All that the Bible tells us is, that he *began* to create the plants on the third day; he *began* to create marine animals and birds on the fifth day; he *began* to create terrestrial animals on the sixth day, and continued constantly creating, till last of all he formed man, the king of creation, destined for immortality.

Remark particularly the words of the second verse of the second chapter of Genesis: "And *on the seventh day God ended his work* which he had made, and he rested on the seventh day from all his work which he had made."

The Hebrew word translated "*rested*" means "to cease from;" to rest from creating means to cease to create. I might prove this to you by many quotations, but it is enough to refer you to what St. Paul says of these verses in the 10th verse of the 4th chapter of his Epistle to the Hebrews: "For he that is entered into his rest, he also hath ceased from his own works, as God did from his."

God never ceased to create till the seventh day. Therefore, until after man was made God never ceased to create new kinds of plants, new kinds of fishes and birds, new kinds of terrestrial animals.

Let us now return to our verses.

Verse 26: "And God said, Let us make man."

The importance of the great work to be done is revealed to us in the wonderful words, "Let US make man!" How solemn and mysterious they are! for we are to understand here by *us*, the three glorious persons of the Holy Trinity taking counsel together about this great work. It is the most excellent work of creation; it is that for which all the others have been made; it is that in which the Lord God is more especially to manifest

his glory to the whole universe; it is the creation of a race whom angels will rejoice to serve, from among whom God will choose a peculiar people to give to his Son, whom the Son will save, in whom the Holy Spirit will dwell. Ah, well may we say with St. Paul, "Without controversy, great is the mystery of godliness: God was manifest in the flesh, justified in the Spirit, seen of angels, preached unto the Gentiles, believed on in the world, received up into glory" (1 Tim. iii. 16).

Is it not a most wonderful mystery that the second person of the glorious Trinity—"the Word, who was in the beginning with God, and who was God"—the Word, "who made all things, and without whom was not anything made that was made"—so humbled himself as to become a man, four thousand years after man was created? He lived the life of a man, passed through death as a man, ascended to heaven in the form of man, and so will return at the last day, to sit on the throne of God, and to judge the quick and the dead.

Well, my friends, thoughts such as these ought to make you feel what a grand and sublime moment it was in the history of crea-

tion when God placed the first man on the earth. You see that he speaks of this work in different words from those used respecting his other works. He does not say, "Let man appear," as he had said, "Let there be light," "Let there be a sun," "Let there be a sea;" he does not say, "Let the earth bring forth man," as he had said of the plants and animals, "Let the earth bring forth grass," "Let the earth bring forth the living creature." No; he says, "Let us make man in our image."

It is God himself who considers and speaks to himself, who enters into a solemn and mysterious consultation with his own eternal wisdom; or rather, it is the Holy Trinity in council,—it is the Father, Son, and Holy Spirit united in the creation of man, as well as united in his salvation.

Remark well the expression, dear children, "Let *us* make man in *our* image." Here the sacred text, which in some other places ascribes the work of creation sometimes to the Father, sometimes to the Son, explains to us, in a clear and distinct way, that more than one divine person has concurred in the design of man's creation, and that he who speaks addresses himself

to another person, or persons. And thus, you see, that from the very beginning of the Bible the doctrine of the Trinity is declared to us.

This extraordinary and mysterious language, by which God is represented as taking counsel with himself, is never used in Scripture except when it relates to what God intends to do with respect to man. (See Gen. i. 26; ii. 18; iii. 22; vi. 3; xi. 7; Exod. xiii. 17; Isa. vi. 8.)

There are some foolish men, who are much to be pitied, dear children, because they are so blinded as not to wish to believe and confess that our Lord Jesus Christ is God; and who, to get rid of the force of this expression, pretend that the plural here applies to the angels, as if God were consulting with the angels. But do you not easily see how foolish this idea is? How could the angels *create* any living being? How could they assist in the wonderful and divine work of creation, which can be done by God alone? And, besides, we know that God did not create man in the image of the angels. No, certainly not; he created him "in the image of God."

There are others who, in order to explain

away this passage, pretend that God here speaks as the modern kings of the earth do, who often say, "*We* command"—"It is *our* will." What do you think of an explanation like this? Is it reasonable? Certainly not; it is absurd to suppose it. In ancient times kings never expressed themselves in this way. Such a use of the plural was unknown in the time of Moses, nor was it used by Eastern kings even at a later period. Besides, the meaning of the expression is put beyond doubt by the words of the 22d verse of the third chapter, where God says, "Behold, the man is become *as one of us.*" Did any king ever use such an expression as this,—"like one of us," to express "like me?"

And, still further, dear children, remark that our Lord Jesus Christ has put the meaning of this language beyond all doubt, by using it himself to express the union of the Father and the Son; for instance, when he says, speaking of his own divinity and addressing himself to the Father, "That they all may be one; as thou, Father, art in me, and I in thee, that they also may be one in *us*" (John xvii. 21).

Thus, then, you see God took counsel with

his own divine wisdom to make man in his image, after his likeness.

What is meant by this image of God in man,—in what does it consist? This is a question of very great importance. Let us examine it.

I. I believe that this image consists, first, in this, that the soul of man has been created to be like God—a spirit, without material substance. "God is a spirit;" the soul of man is also a spirit. Thus Solomon, speaking of man's death, says that his body, "the dust, returns to the earth as it was, and the *spirit* returns to God who gave it" (Eccles. xii. 7).

II. This image consists, in the second place, in immortality. If man had not sinned he would never have died.

III. This image consists in the gift of spiritual understanding. The plants live, the animals think, but they are not made in the image of God; because they know not God, and are not capable of knowing him. Thus it is said of a regenerated man, "that he is renewed in *knowledge*, after the image of him who created him" (Col. iii. 10).

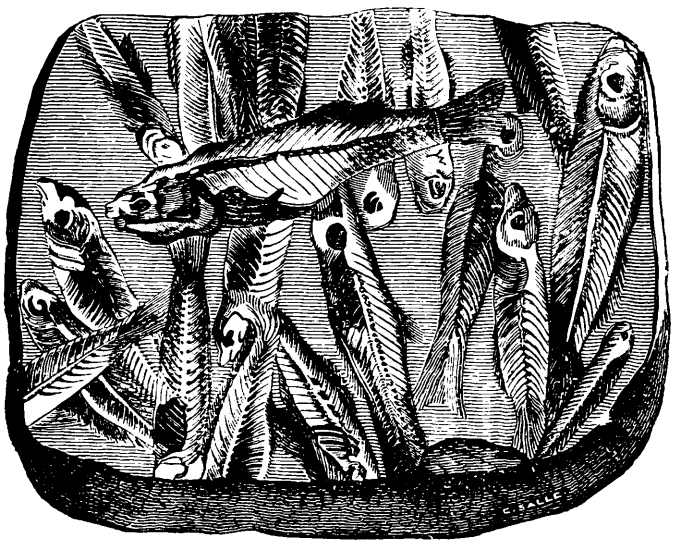
IV. This image consists in holiness,—that

is to say, in the state of our affections in which our souls love what God loves. Thus St. Paul tells us that the image of God in man, when it is reproduced in him by conversion, consists in his being "after God, created in *righteousness* and true *holiness*" (Eph. iv. 24).

V. The image of God in man consists also in dominion. This is told us very clearly in the 26th verse: "Let us make man in our image, ... and let them have *dominion*" over all the creatures. Our first parents, before they sinned, had a dominion over the creatures which it is scarcely possible for us to understand or realize. All the creatures had been put under them.

VI. This image consists in perfect happiness. God is called "the blessed" (1 Tim. vi. 15); and man, created in his image, if he had not sinned, would have enjoyed boundless and perfect happiness in Eden.

But, my dear children, where now is the image of God in us? Where is immortality?—where is holiness?—where is happiness? In our souls there are alienation from God, pollution, selfishness, malice, pride, folly;—in our bodies, weakness, pain, degradation



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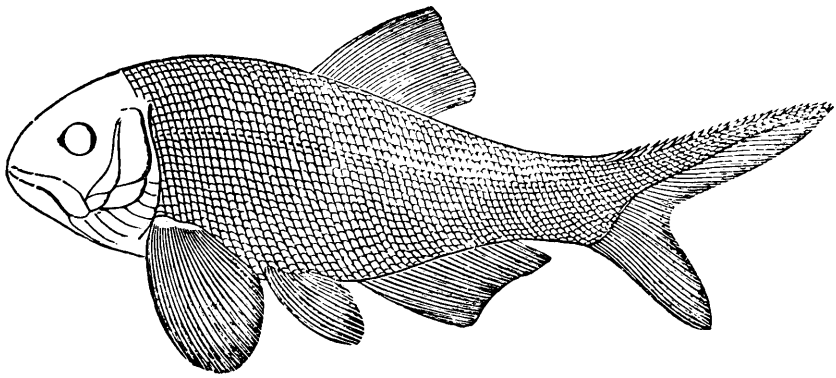

AMBLYPTERUS (CARBONIFEROUS SYSTEM).

FOSSIL FISHES.

disease,—death. We come into the world weeping; we go out of it with sighs, and groans, and agony, and often with a terrible struggle, till, exhausted with suffering, our bodies return to the earth from which they were taken, to be devoured by worms, dissolved by corruption, and changed into a handful of dust.

Ah, my friends, let us rejoice to remember that a second Adam has come to the earth. Let us pray that, as "we have borne the image of the earthly, we may also bear the image of the heavenly."

And "now unto Him that is able to keep you from falling, and to present you faultless before the presence of his glory with exceeding joy, to the only wise God our Saviour, be glory and majesty, dominion and power, both now and for ever. Amen." (Jude 24, 25).

CHAPTER XI.

THE PERFECTION OF THE WORK OF GOD.

"And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat. And to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, wherein there is life, I have given every green herb for meat: and it was so. And God saw every thing that he had made, and, behold, it was very good. And the evening and the morning were the sixth day."—GEN. i. 29–31.

HAVE you perfectly understood the explanation given of these words of the 31st verse, "And the evening and the morning were the sixth day?" Where would you place the *evening* here spoken of? At the end of the sixth day? O no; certainly not. On the contrary, it was at the beginning of it, according to the custom of the Hebrews in reckoning their days—beginning with the evening. This evening was at the end of the fifth day, that is to say, after the creation of the fish of the sea of all kinds, of marine creatures, and birds of the air.

Remember, I pray you, that it was during this *evening*, between the fifth and sixth days,

mentioned in verse 31, that the calcareous Jurassic mountains of our country were formed, and that then so many shell-fish and sea creatures were buried in the heart of these rocks.

A friend, who was present at our last lesson, told me that a few days ago he had seen two beautiful fish which had been sent from Savoy to be placed in the cabinet of a very learned professor in Geneva. And who, think you, had caught these beautiful fish? —the boatmen or fishermen of Bellerive or Belotte? No, my friends; they were got by Savoyard masons. Did they catch these fish with a line and a hook, or with a net, in the waters of the lake? No; they took them out of the heart of a rock with a hammer, on the mountain of the Voirons, where workmen were quarrying stones to build our houses!

I return to the history of the sixth day, as related in the last three verses of the chapter.

Man had just been placed in this beautiful world. He was pure and upright; perfect in health and strength; perfect in beauty both of body and mind; perfect in understanding, happiness, and innocence,—formed to enjoy God, to reflect his image, and to glorify him.

Then God spoke to him in the words of the 29th verse: "*And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat.*"

Remark here, that when God assigned to man, while still innocent, his proper food, he gave him only the fruits of the field; and it was not till after the earth had been twice cursed because of sin that he was permitted to eat the flesh of animals.

"Upon this point also," says M. de Rougemont, in his interesting "History of the Earth,"—"upon this point, as well as others, science has arrived, by long, circuitous ways, and painful study, at the very same truths which are plainly revealed to us in Genesis." "It is a question," says M. Flourens, "which has much perplexed physiologists, and which they have not yet been able to determine, what was the natural and primitive food of man. Now, thanks to comparative anatomy, it is very easy to see that man was originally neither herbivorous nor carnivorous, but frugivorous."

This is precisely what we are told in the verse we have read.

Remark, too, that God gave also vegetable food to all the birds, reptiles, and quadrupeds: Verse 30, "*And to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, wherein there is life, I have given every green herb for meat: and it was so.*"

It was not till after the curse had been brought on the earth by sin that man began to feed on the birds of the air and the beasts of the field. Before he sinned he had a dominion over the creatures, which he lost in a great measure, and which he only keeps in a degree by force and violence; but at first they did not flee from him, and he did not eat them. It was not till after the Fall, and even after the Deluge (Gen. ix. 3), that he began to feed on blood and dead bodies—that he cut off the heads and limbs of sheep to eat them—that he slaughtered oxen and skinned them, in order to devour their flesh—or that he plunged the knife into the throat of the gentle lamb and timid calf, to feed on their shoulders, their brains, their sides, or their limbs.

When God first appointed man's food, he said, "Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat" (verse 29).

Doubtless, before man sinned, the productions of the earth were richer and better than they are now, and offered a much greater variety of food and nourishment to man. Before the Fall, when God appointed the food of man, it was the herb bearing seed, and the tree bearing fruit, which were given to him. But after the Fall, God said to Adam, "Cursed is the ground for thy sake; in sorrow shalt thou eat of it all the days of thy life. Thorns, also, and thistles shall it bring forth to thee; and thou shalt eat the herb of the field." Then the nature of the soil and of its vegetable productions must have been in some way altered. Probably God greatly reduced the number of food-producing plants, and the earth brought forth instead those bearing useless thorns, and even some whose fruits or juices cause death.

At first sight it may perhaps appear to you

a small matter, the ordinance of God by which he appointed food for every living thing; but when you consider it, you will find that it is one of the greatest wonders in creation. His abundant mercy is shown in the great variety of wholesome and pleasant food which is still so graciously and plentifully supplied to man, when one single kind might have been made to sustain his life;—and even making any kind of food to sustain and support him, is a work requiring the almighty power of God.

Perhaps it may appear to you a very natural thing that corn, strawberries, cherries, grapes, figs, dates, peaches, pine-apples, and all the various and delicious fruits of our orchards and of other climates, should feed and nourish you; but think of the miracle which must be wrought in your body,—in your stomach, your lungs, your heart, your veins, your glands, your arteries, and all the various parts within you,—before these fruits, or any other food that you eat, can be prepared in your stomach, changed into a kind of milky substance, and conveyed in your veins, and passed with your blood through one of the ventricles of your heart, and thence into your lungs, to be burned and

purified there, and return again as perfect blood into the other ventricle, and thence be driven by a rapid movement into your arteries, and to the very extremities of your body, in order that it may reproduce, without your interference, your skin, your flesh, your bones, your nerves, your nails, and the thousands and thousands of the hairs of your head.

It has been reckoned, says Dr. Dick, that the heart of a man at each beat exerts a power equal to 100,000 pounds. We admire steam-engines and their astonishing strength; and yet those of the very best construction, made of the strongest materials, require to be repaired at the end of a very short time,—perhaps in a few months; whilst the heart and lungs of a child will continue to play for eighty years and more, exerting this enormous force, and will go on without stopping, day and night, whether he is awake or asleep; and all this time they are renewed and repaired without his knowledge or interference.

Have you ever thought of these things, dear children? Have you ever considered that your hearts are at this moment beating about seventy times in a minute, or 100,000 times

in a day, without your taking any trouble about the matter? Do you know that all your blood passes from fourteen to twenty times in an hour through your hearts, and through the thousand ramifications of your veins and arteries?

"Ah," exclaims Dr. Robertson, "I could not envy the state of mind of a man who, on hearing such facts as these, is not filled with wonder, and does not feel his soul lifted up in holy admiration, adoration, and praise."

It is a miracle wrought by God, that any kind of food, whether leaves, seeds, fruits, or bread, should serve as food and nourishment to me at all; it is a mystery and a wonder how it is changed into a part of my body, so as to make it grow, repair it, and renew its waste: and therefore it was a work of almighty power when God appointed man's food, and said of the trees and plants, "To you it shall be for meat."

What is bread? It is a paste composed of ground corn, water, and salt, baked after it has begun to ferment. But how does it happen that the corn and the salt should nourish me? Corn, we are told, is composed of car-

bon and the two gases which form water. Now, how can carbon or charcoal nourish me? Try to eat a bit of charcoal, and you will find it like taking a mouthful of sand. Think how wonderfully these substances, of which corn is composed, must be transformed by divine power to produce the corn, and then still further changed to become a part of our bodies. Then salt is composed of two substances which separately would hurt me, and yet combined they are wholesome, and help to cause the corn and other things to nourish me. If I were to take two phials, one filled with sodium and the other with hydro-chloric acid, and if I were to mix them in a glass, they would combine and form salt at the bottom of the glass; and yet, separately, each of these phials would contain a destructive poison. If I were to swallow the hydro-chloric acid, it would burn my stomach; and if I were to pour it into the palm of my hand and hold it there, it would soon burn a hole right through my hand; and yet this dreadful poison, when combined with sodium, forms salt, which is so wholesome and so necessary for our health.

Ah, you see, dear children, that it was a

most important word that was spoken by God, when he said to man, "These things shall be to you for meat." Do you not too often take your meals without thinking of the wonderful power of God, goodness of God, and wisdom of God, which are displayed in causing the food you eat to nourish you? I pray you let it be so no more, but each time you sit down at table to take your food, remember that our Lord Jesus Christ himself never broke bread without giving thanks. Even if your food is but dry bread, you should adore God, who, by his mercy and power, causes it to nourish you. Every time you eat, never forget to pray, and try to remember the reason you have to do so. Think, 'O my God, I thank thee: it is thou who givest me food. These good things seem but little to many people, and yet thou hast made them by the very same divine power which created the heavens. O may glory, and adoration, and praise, be unto thee for all thy goodness.' Or say within yourself, 'O my God, it is thou who feedest me! My time is not my own, but thine. When my parents give food to their servants or workmen, they expect in return that those work-

people will attend to their work; and they would think them unfaithful if they were to neglect what is given them to do, or waste time which is not their own. O my God, my time and my life belong to thee.' Or, further, you may say, 'O my God, it is thou who feedest me,—me, who am a sinner,—me, who am only an ungrateful and wicked creature. Ah, I am not worthy either of the bread which I eat or of the water that I drink.'

It is thoughts such as these, dear children, which have led to the practice of fasting. When a man feels the burden of his sins very deeply, he refuses himself his ordinary food, as if to confess to God, and to say to himself, 'O my God, I do not deserve the life which thou graciously preservest to me, and restorest to me each day, while I employ the gift so ill.'

When a child, who wishes to be good, has incurred the displeasure of his parents, he weeps, he sighs, he cares not for his food; a morsel of dry bread is enough and too much for him, and he will even eat this in sorrow moistened with his tears.

I remember a good and amiable little girl

who lived here many years ago, and attended the very school which you now attend. She was a pious child, and the Lord has since taken her to her rest in heaven. Her name was Edwige,—an uncommon name here, but she had been born in Poland. She had a truly living faith : she prayed often, and was very humble in heart. One evening when her parents were receiving company, there were cakes, and such delicacies as children like, placed on the table. Edwige was as fond of such things as children usually are, but that evening when she was asked to take some, she constantly refused. Her mother observed it, and when their friends were gone she said to her, "My dear Edwige, are you ill?" "No, mamma." "Why, then, did you refuse to eat anything?" "O mamma, I will tell you. I have spent this day so ill; I have been so naughty; I felt I did not deserve what was offered to me!" and she burst into tears.

But let us return to the explanation of verse 31. I shall conclude with some remarks on these words, "*And God saw every thing that he had made, and, behold, it was very good.*"

These words do not relate only to the crea-

tion of man; they have a reference to all God's other works also. At the close of the six days' work, before the seventh day's rest, God looked at all he had made, "and, behold, it was very good." How different is it with us, dear children, and our works! If we examine the works we have done, at the close of any period,—at the end of a week, before the rest of the Sabbath,—or at the end of our lives, before the rest of the tomb; if we think of all we have done we cannot say it is very good,—ah, no, it is evil, very evil, for sin is mingled even with our best deeds.

In the preceding verses God had six times declared his work to be good. First at the end of the first day, when he created the light; a second time on the third day, when he had formed the sea and the dry land; a third time on the same day, after he had created the plants; a fourth time on the fourth day, when he had lighted the great lights of the heavens; a fifth time on the fifth day, when he had created the marine creatures and the birds; a sixth time on the first part of the sixth day, when he had created the terrestrial animals: and now once more on the sixth day

he says, still more emphatically, that every thing he had made was "*very good*,"—very good in itself, and very good also in the relation of all his works to each other, their fitness and harmony.

This leads me, dear children, to the remark with which I intend to conclude these lessons.

I have already told you that it would require years to describe to you even what is known of the wonderful works of God. It is impossible to describe many of them in the short space of these lessons; but I wish, before concluding, to call your attention to one remark, which applies equally to all the works of God, and which plainly shows that they have all been formed by infinite wisdom.

God has not only created all things beautiful and wonderful in themselves; he has fitted them all to each other. He has made them all by weight and measure; he has formed them, as it were, with a balance in his hand, in such a way that if even one of them had been but a little greater or a little less in proportion to the others, this beautiful world

would soon have fallen into ruins, and no living thing could have existed on it.

Do you wish examples of this? They are innumerable;—the only difficulty is to choose which to tell you. Let us take the air as the first example. God created the atmosphere on the second day. It has been reckoned that it surrounds the world to the height of about 50 miles above our heads. It might seem to you a very trifling matter if it were a few miles more or less in height; and yet this would make a great difference to us. If it were a few miles less in height, —as, for instance, at the top of Mont Blanc, —the barometer would stand at 16 inches, and men and animals would soon be suffocated. If, on the contrary, it were a few miles more in height, the barometer would stand at more than 47 inches; it would be insupportably hot wherever the rays of the sun could reach, and your lungs could not bear it long. You may judge of it by the Dead Sea, where the atmosphere is only a quarter of a mile higher, and where the barometer stands at 29⅔, but where the heat is excessive and the air very irritating to the

lungs, as we are told in the account of Lieutenant Lynch's Expedition. And if the atmosphere were higher still, the winds would be irresistible,—our houses and our trees would be thrown down, we should take inflammation in the lungs, and the nature of all things around us would be entirely changed.

Take another example: On the third day God formed the seas and the dry land. If the dry land were a little harder than it is we could not cultivate it,—we could neither plough nor dig. The roots of the plants could not pierce the hard soil, and they would perish. If, on the contrary, the earth were softer than it is, we should sink in the soil, as we do in a ploughed field after rain; and neither houses, trees, nor plants could be kept firm in the ground. If the water of the sea were heavier, all the fishes would be borne up to the surface, and would be unable to swim in it; and they would die as they do in the Dead Sea, whose water is only a quarter heavier than distilled water. And if the water of the sea were lighter, the fish would be too heavy to swim, and would sink down and die at the bottom. If the water

of the sea and of the lakes, which always contracts and becomes heavier as it becomes colder, did not cease to obey this law at about the fourth degree above the freezing point, the bottom of most of the seas and of all the lakes would be a mass of ice for the greater part of the year; whilst, on the other hand, by this admirable arrangement, their depths never freeze.

You may think, perhaps, that it would be a matter of indifference to us whether our globe were a little larger or a little smaller than it is, since for so many years men lived upon it in total ignorance of its size. But there is a necessary proportion between the size and weight of the earth and the strength which God has given to our limbs and muscles. If, for example, we could be conveyed to the moon, and if it were like the earth in all respects except its size, we should there weigh five times less than we do upon earth. We might bound up like grasshoppers to a great height in the air, but we should be so unsteady on our limbs that the hand of a child could throw us over. And if our earth, on the contrary, were as large as

the planet Jupiter, all other things remaining the same, each of us should feel as if we were forced to carry the weight of eleven people as heavy as ourselves. The weight of a man of 10 stone would be 110 stone, and none of us could walk or stand upright,—scarcely even move.

Ah, let us repeat what we said before,—"The work of the Lord is perfect." It is always good—"very good," such as it comes from his hand. It is the sin of the creature which changes and destroys it. Every true Christian will strive to see the hand of God, and adore his wisdom and goodness in *all* his works,—not only in his works of creation, but also in his works of providence; for these also are very good. Whatever the Lord does, whether in preserving and governing the world, or his Church, or his people,—all that he does is very good. This is the deep conviction of every true child of God. All the ways of his sovereign Lord are good and right in his eyes. Has he not received and believed the gracious promise that "*all things*," even those apparently most adverse, "work together for good to them that love God, to them who

are the called according to his purpose?" (Rom. viii. 28.) Is a Christian in affliction—is he called to mourn? Has one, for instance, seen death enter her home, and take away perhaps the best loved of the little circle there? Is another struck down by sickness and laid on a bed of suffering? Is another deprived of his worldly possessions? Yet hear what they say: "O Lord, I was dumb, I opened not my mouth; because thou didst it" (Ps. xxxix. 9). Or again: "O my God, I adore thy goodness in all thy ways, and I am ready to say, 'It is the Lord; let him do what seemeth him good'" (1 Sam. iii. 18). "The will of the Lord be done" (Acts xxi. 14.) "The Lord gave, and the Lord hath taken away; blessed be the name of the Lord" (Job i. 21).

Yes, dear children, "Our God is the Rock, his work is perfect; for all his ways are judgment: a God of truth and without iniquity, just and right is he" (Deut. xxxii. 4). St. Paul tells us, that when a man's heart is converted and turned to the Lord Jesus Christ by the quickening influence of the Holy Spirit, when he is thus "renewed in the spirit of his mind" one of the first effects of this happy

change will be, that he will not only be no longer "conformed to this world," but that the Holy Spirit will make him feel that in all the trials and afflictions he has endured, even the most dreaded and the most painful, the will of his God has been always, in all things, "good, acceptable, and perfect."

"I will extol thee, my God, O king; and I will bless thy name for ever and ever. Every day will I bless thee; and I will praise thy name for ever and ever. Great is the Lord, and greatly to be praised; and his greatness is unsearchable. One generation shall praise thy works to another, and shall declare thy mighty acts. I will speak of the glorious honour of thy majesty, and of thy wondrous works. And men shall speak of the might of thy terrible acts: and I will declare thy greatness. They shall abundantly utter the memory of thy great goodness, and shall sing of thy righteousness. The Lord is gracious, and full of compassion; slow to anger, and of great mercy. The Lord is good to all; and his tender mercies are over all his works. All thy works shall praise thee, O Lord; and thy saints shall bless thee. They shall speak of the

glory of thy kingdom, and talk of thy power; to make known to the sons of men his mighty acts, and the glorious majesty of his kingdom. Thy kingdom is an everlasting kingdom, and thy dominion endureth throughout all generations. The Lord upholdeth all that fall, and raiseth up all those that be bowed down. The eyes of all wait upon thee; and thou givest them their meat in due season. Thou openest thine hand, and satisfiest the desire of every living thing. The Lord is righteous in all his ways, and holy in all his works. The Lord is nigh unto all them that call upon him, to all that call upon him in truth. He will fulfil the desire of them that fear him: he also will hear their cry, and will save them. The Lord preserveth all them that love him: but all the wicked will he destroy. My mouth shall speak the praise of the Lord: and let all flesh bless his holy name for ever and ever.' (Ps. cxlv.)

O my God, "marvellous are thy works; and that my soul knoweth right well" (Ps. cxxxix. 14).