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I. THE PENTATEUCHAL STORY OF CREATION.

IN the opening portion of the Book of Genesis we have a history of creation which claims to be a direct revelation from God. Geology aims to give us a history of creation gathered from a careful study of the structure of the earth itself, especially the study of its fossils—those “medals of creation,” as they have been aptly termed—in which many things respecting the order of creation are written for our learning.

These two histories ought to be in perfect harmony the one with the other. The books of revelation and of nature, where they cover the same ground, ought to agree. And yet, as a matter of fact, and as these two records are often interpreted, so great is their apparent discrepancy as to lead Prof. Huxley to write:

“My belief is, and long has been, that the Pentateuchal story of creation is simply a myth. I suppose it to be a hypothesis respecting the origin of the universe which some ancient thinker found himself able to reconcile with his knowledge of the nature of things, and therefore assumed to be true. As such I hold it to be not only an interesting, but a venerable monument of a stage in the mental progress of mankind, . . . and to possess neither more nor less scientific importance than the cosmogonies of the Egyptians and Babylonians.”—*Order of Creation*, page 147.

Such discrepancies as are alleged in this case are, I believe, apparent, not real, and may be owing either to a misinterpretation of the Pentateuchal story of creation, or to a misreading of the

“rock-record” by the geologist. Those to which Prof. Huxley refers in the article from which the above quotation is made, and on which he bases his rejection of “the Pentateuchal story,” are, if I mistake not, owing largely to his misinterpretation of that story—a misinterpretation growing out of his failure to pay proper attention to the difference in character of the two histories.

1. Genesis is a part of Scripture, written for the purpose of teaching the true religion, and, in so far as it is historical, it belongs to what we are accustomed to call, distinctively, sacred history. Geology is a human science, and the history of creation which it gives us originates with man, is man’s reading of the “rock-records” of the earth, and hence belongs to the category of secular or profane history. The difference between these two kinds of history we may learn by comparing Mosheim’s “Ecclesiastical History” with Gibbon’s “Decline and Fall of the Roman Empire.” They cover the same ground, they are histories of the same peoples during the same centuries, and hence both record many of the same events; *e. g.*, the conversion of the Emperor Constantine, and the removal of the capital from Rome to Constantinople. But they have been written with different ends in view; the difference we indicate by the terms sacred and secular, or ecclesiastical and civil, and hence each very properly records events of which the other takes no notice. Mosheim tells us of the introduction of christianity into Gaul under the ministry of Pothinus, whilst Gibbon does not even mention Pothinus’ name; and Gibbon gives a graphic description of Julian’s night-passage of the Tigris in the face of the enemy, and his utter defeat of the Persians, whilst Mosheim has not a word on the subject. This is just as it ought to be, and no one for a moment imagines any discrepancy between the two histories on this account.

2. A second fact, which should never be lost sight of in comparing the Pentateuchal account of creation with that of geology, is the exceeding brevity of the former. Dana’s “Geological Story Briefly Told” is the best short summary of geological science I know of, and forms a volume of two hundred and sixty-three pages, whilst Moses’ whole account of creation would not make two of those pages; indeed, would not occupy as much space as the “table of

contents" of Dana's book. For this reason Moses' statements must be general in their character, avoiding all detail, and he must confine himself rigidly to such facts as properly belong to a sacred history of creation.

3. The history of creation contained in Genesis claims to be a direct revelation from God—when and to whom made we do not know—an *errorless* record of which was secured by the inspiration of Moses. Now, the Scriptures tell us that inspired prophets often very imperfectly understood the revelations made through them. (1 Pet. i. 10, 11.) In the highest sense of the expression, God God and not the prophet is the author of the communication, not only as to its substance, but even as to the very words which the Holy Ghost has taught him to use. (1 Cor. ii. 13.) For this reason it is evidently improper to make Moses' understanding of the record he was inspired to write, or the knowledge of nature possessed in Moses' day, our standard for interpreting this portion of Genesis, as some have seemed disposed to do.

4. The Scriptures were intended for all men, "the common people" as well as scholars, and are therefore written in the language of common life, a language in which things are spoken of as they appear. The astronomer, in his intercourse with his fellow men, speaks of the sun's rising and setting, though he well knows that the motion of the sun is apparent, and not real. The physicist speaks of the dew falling, though he knows that each drop is formed by condensation at the point at which it appears. This peculiarity of the language of Scripture was first pointed out by Galileo, when defending the Copernican system of astronomy against the charge of contradicting the plain testimony of the Word of God, and though controverted for a time, is now accepted as beyond question by all thoughtful men.

Bearing these facts in mind, turn we now to an examination of the Pentateuchal history of creation. For reasons which will appear in the course of the examination, I shall divide the record into three parts, viz.: (1), The introduction (Gen. i. 1); (2), The history down to the creation of man (Gen. i. 2-25); and (3), The creation of man, male and female (Gen. i. 26-31, and ii. 1-7, 18-25).

PART I.—THE INTRODUCTION.

I. "In the beginning God created the heaven and the earth."
(Gen. i. 1.)

There is no single word in the Hebrew language equivalent to our English word *universe*. The phrase, "the heaven and the earth," is the nearest equivalent to it, and is here doubtless used to signify the whole material system of which our earth forms a part; the sun, the planets and their satellites, and the fixed stars with all that belongs to them. The eminent Jewish commentators, Aben Ezra and Maimonides, concur with learned christian writers in so understanding it.

The Hebrew word here rendered "create" does not always mean "to make out of nothing;" indeed, in so far as I know, there is no word in any language which has invariably such a meaning. But that it has that meaning here is evident from the whole subsequent context, as well as from the express teaching of Scripture in Heb. xi. 3: "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."

"In the beginning," *i. e.*, when the heaven and the earth began to exist. Intending to teach the eternity of the Word, John writes, with evident reference to the use of the expression here, "In the beginning was the Word" (Jno. i. 1); *i. e.*, when the heaven and the earth began to be, the Word was already in existence.

II. In this brief introductory declaration, "In the beginning God created the heaven and the earth," we are taught: (1), the existence of God, in refutation of Atheism; (2), the existence of one, and but one, God, in refutation of Polytheism; (3), the creation of matter by God, in refutation of a common postulate of Materialism; and (4), the existence of God apart from and prior to the universe in all its parts, in refutation of Pantheism. Considering the Scriptures as the word of God, intended to teach the true religion, they contain no weightier sentence than this, and we can conceive of none which would form a more appropriate introduction to a sacred history of creation.

III. The testimony of science, in so far as it is competent to

speak at all respecting the matter, is in perfect harmony with this declaration of Moses. On the main point presented, Prof. Huxley writes:

“It appears to me that the scientific investigator is wholly incompetent to say anything at all about the first origin of the material universe. The whole power of his organon vanishes when he steps beyond the chain of natural causes and effects.”—*Order of Creation*, p. 153.

1. That the universe had a beginning, however, as Moses affirms, science unequivocally testifies. Prof. Tait writes:

“All portions of our science,” *i. e.*, physics, “and especially that beautiful one, the dissipation of energy, point unanimously to a beginning; to a state of things incapable of being derived by present laws of tangible matter and its energies from any conceivable previous arrangement.”—*Recent Advance in Physical Science*, p. 26.

And Prof. Langley, speaking of the sun, the great central body of the system to which our earth belongs, writes:

“We may say, with something like awe at the meaning to which science points, that the whole past of the sun cannot have been over eighteen millions of years, and its whole future radiation cannot last so much more. Its probable life is covered by about thirty million years.”—*The Century Magazine for December*, 1884.

2. The universe is not the product of chance. Astronomy testifies to a wonderful order pervading the universe, mathematical in its accuracy in so far as the bodies astronomy has to deal with are concerned. Zoölogy and botany testify to an equally wonderful order prevailing throughout the kingdom of organic nature, a wonderful adaptation of living creatures to their environments, and of the parts and organs of these living creatures to their functions, utterly inconsistent with their being the product of chance. Respecting the very atoms of which all bodies are believed to be made up, Sir John Herschel remarks: “They possess all the characteristics of manufactured articles.”

PART II.—THE HISTORY DOWN TO THE CREATION OF MAN.

In his history Moses divides the time occupied by God in his work of creation into days. Before entering upon the particular examination of the portion of the history now before us, let us fix, if we can, the sense in which he uses that word.

The Imperial Dictionary gives us, as definitions of the English word day: (1), That part of the time of the earth's revolution on its axis in which its surface is presented to the sun; (2), the whole time or period of one revolution of the earth on its axis, or twenty-four hours, called the natural day; (3), time specified; any period of time distinguished from other time; age. The Hebrew word יום here rendered day, is used in Scripture in all three of these senses. Instances of its use in the last-mentioned sense we have in Ps. xc. 8-10: "As in the day of temptation in the wilderness: when your fathers tempted me, proved me, and saw my work. Forty years long was I grieved with this generation,"—where "the day" was a period of forty years, characterized by Israel's temptation of God; and in Zechariah xiii. 1: "In that day there shall be a fountain opened to the house of David and to the inhabitants of Jerusalem, for sin and for uncleanness,"—where "that day" covers the whole period of the christian dispensation, characterized by the free offer of salvation made to all men. And in this very account of creation, Moses unquestionably uses it in this sense when he writes: "These are the generations of the heavens and of the earth when they were created, in the day that the Lord God made the earth and the heavens" (Gen. ii. 4), where "the day" covers the whole period occupied by God in his work of creation, the whole age or era of creation, previously spoken of as made up of six days.

In attempting to determine in which of the two last-mentioned senses, for the record itself excludes the first-mentioned, excepting in verse 5, "And God called the light Day, and the darkness he called Night," Moses uses the word when he writes, "And there was evening and there was morning, one day—a second day," etc., I would ask the reader's attention to the following considerations:

1. If by age or era we mean a portion of time distinguishable from other time by something characteristic of it, and this is the sense in which geologists use these terms when they speak of "the age of mammals," "the carboniferous era," then Moses' days, whatever may have been their length, were ages or eras in the proper sense of those terms, as every one of them is characterized by some peculiar work.

2. Failing to take proper account of the poetical character of David's words, "For he spake and it was done; he commanded and it stood fast" (Ps. xxxiii. 9), and conceiving of creation as an instantaneous act, as the older commentators did, it is not surprising that they, without exception, understood the word day to mean a period of twenty-four hours. But, conceiving of the creation of which Moses tells us as a work, made up of many acts, and extending over six days, whatever the length of those days may have been, and considering the stupendous character of that work—nothing less than the creation of a world—it seems to me more reasonable to understand the days he speaks of to be periods of longer duration than twenty-four hours.

3. The creation-work of God on the sixth day, as given us in Gen. i. 24–28, was two-fold; (1), causing "the earth to bring forth the living creature after his kind, cattle and creeping thing and beast of the earth after his kind;" and (2), "making man, male and female, in his own image." In Gen. ii. 7–25, there is a more particular account of the last-mentioned of these works; in which we are told, (1), of the making of man, as to his body, out of the dust of the ground, and then breathing into his nostrils the breath of life; (2), of God's planting a garden in Eden, and causing to grow out of the ground every tree that is pleasant to the sight and good for food, and then placing man therein to dress it and keep it; (3), of his entering into a covenant of life with man on condition of perfect obedience; (4), of his bringing every beast of the field and fowl of the air to Adam that he might name them; and when there was found no "help meet for him" among them all, (5), of his causing a deep sleep to fall upon Adam, and as he slept, of his taking one of his ribs which he made a woman, and bringing her to the man, instituting the marriage relation between them. Now, it cannot be denied that all these things might have been done in the latter half of a day of twenty-four hours; but we get, I think, a far more natural interpretation if we understand the sixth day to have been a longer period than that.

4. The seventh day is characterized (1) by God's "resting from all his work which he created and made," and (2) by God's "blessing the day and sanctifying it." The rest here spoken of is simply

rest from his work of creation, not rest from all activity; for his work of providence, *i. e.*, "his preserving and governing all his creatures and all their actions" is as truly a work of God as creation is; and this certainly continues to the present day. Of his work of providence our Lord said, "My Father worketh hitherto, and I work." (John v. 17.) Of God's "blessing the day and sanctifying, hallowing it," I remark, understanding the seventh day to be our present age, beginning with the creation of man and stretching on to the "day of judgment," God has unquestionably blessed and hallowed it, in the only sense in which time can be said to be hallowed, by the greatest of all his works, his work of redemption, and his "holy, wise, and powerful" work of providence subservient thereto. In the fourth commandment, God's example in "hallowing" the seventh day is held up to enforce a similar course of conduct on the part of man. The force and pertinency of this example do not depend upon the length of the day, but upon its relation to other days. It is not as the seventh *day*, but as the *seventh* day, it furnishes us an example. For man it may well be a period of twenty-four hours, whilst for God, to whom "a thousand years are as one day, and one day as a thousand years," (2 Peter iii. 8,) it is an age or era.

5. It is worthy of particular remark, that in Moses' history the record of each of the first six days closes with the words, "and there was evening and there was morning, one day—a second day, a third day," etc., whilst in the case of the seventh day there is no such record. From this it would seem that the seventh day had not yet closed when Moses wrote. If the days of creation were days of twenty-four hours, the seventh day must have closed long before that time; but if we understand them to be eras or ages, the seventh of these ages characterized by God's resting from his work of creation, and hallowing the age by his greater work of redemption, the day has not yet come to a close. That God will eventually resume his work of creation, and John's vision be realized, the vision in which he "saw a new heaven and a new earth; for the first heaven and the first earth were passed away," (Rev. xxi. 1,) I have no doubt; and that God's great work of redemption will have been completed when this shall occur, I think the Scrip-

tures clearly teach us. If this be so, then, and not till then, will the seventh day come to a close, and the record be made, "and there was evening and there was morning," a seventh day.

For all these reasons, reasons which present themselves on a careful examination of the record, my conclusion is that the word day in Moses' history of creation is to be understood in the sense of an age or era—a long period of time, how long I cannot pretend to say, distinguished from other time by something characteristic of it. The geologist, giving us the history of creation as he has learned it from the study of the rock-records of the earth, divides that history into eras in no way discrepant with those so distinctly marked in the Pentateuchal story.

I. Turning now to a particular examination of the portion of Moses' history I have designated as Part II., I shall make use of the New Version, as confessedly more accurate than the old.

1. "And the earth was waste and void; and darkness was upon the face of the deep; and the Spirit of God moved upon [was brooding upon, marginal] 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 there was evening and there was morning, one day." (Vs. 2-5.)

We have here the earth—not the universe, but the earth "individualized," to use the language of science—in a chaotic condition, in darkness, and the Spirit of God brooding upon this chaos, *i. e.*, beginning to evoke organization and life in the mass; as a fowl, by brooding upon her eggs, accomplishes that result. Then, God is represented as saying, "Let there be light." It is not said that then God made or created light, but that he said, "Let there be light," *i. e.*, let light be, visibly, sensibly. And he "divided the light from the darkness." The introduction of light upon the hitherto dark surface of the chaotic earth, and that in such a way that day and night should alternate with one another, is the characteristic work of the first day.

2. "And God said, Let there be a firmament [expanse, marginal] in the midst of the waters, and let it divide the waters from the waters. And God made the firmament, and divided the wa-

ters which were under the firmament from the waters which were above the firmament; and it was so. And God called the firmament heaven. And there was evening and there was morning, a second day." (Vs. 6-8.)

The translation of the Hebrew עֲרֹמָתַי here by the English word firmament is now universally admitted to be an erroneous translation. It is copied from the Septuagint στερέωμα, and the Vulgate *firmamentum*, both of which words convey the idea of something solid. This is probably one of those errors of translation which must be traced to the mistaken science of the day when the Septuagint and Vulgate versions were made; a science which taught that the heavenly bodies were all fixed in crystal spheres. The proper translation is that given in the margin of the New Version, "expanse." God's separating between the waters on the surface of the earth and those suspended in the upper air, separating the one from the other just as the clouds are separated from the ocean and seas, by a clear expanse, was the characteristic work of the second day.

3. "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 put forth grass, herb yielding seed, and fruit tree bearing fruit after its kind, wherein is the seed thereof, upon the earth; and it was so. And the earth brought forth grass, herb yielding seed after its kind, and tree bearing fruit, wherein is the seed thereof, after its kind; and God saw that it was good. And there was evening and there was morning, 'a third day.'" (Vs. 9-13.)

The work characteristic of the third day was: (1.) God's causing the dry land to emerge from the waters, which up to this time had covered the whole surface of the earth, and then (2.) causing the earth to put forth grass, herbs, and trees; *i. e.*, plants of the three great classes in which the ancients arranged terrestrial vegetation. Dr. Clarke, in his comments on this passage, remarks: "Fruit-trees are not to be understood here in the restricted sense in which the term is used among us; it signifies all trees, not only

those which bear fruit which may be applied to the use of men and cattle, but also those which had the power of propagating themselves by seed." In Ezekiel xvii. 23, the cedar is mentioned as a fruit-bearing tree. From the fact that God is here represented as addressing his command to the earth—the earth as a whole, and not to some particular part of it—it seems fair to infer that this original vegetable covering of the land was an abundant one; the era, an era of luxuriant vegetation. Here, as Prof. Huxley has pointed out, Moses speaks of land-plants alone. Neither here nor elsewhere does he say a word about algæ, the vegetation peculiar to the sea. These may have been made long before this, while the waters yet covered the whole surface of the earth; and, if geological research should prove that such was the fact, no discrepancy with Moses' history of creation would be established thereby.

4. "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 the 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 there was evening and there was morning, a fourth day." (Vs. 14–19.)

The characteristic work of the fourth day is God's causing the sun, moon and stars to be, *i. e.*, visibly, sensibly to be, in the heavens, and to begin their appointed task of ruling over the day and the night; causing the change in the seasons, and marking the passage of days and years. Moses does not say that God created the sun, moon and stars on this fourth day. He has already said in verse 1: "In the beginning God created the heaven and the earth," which, as we have seen, is the record of their creation; but, using the language of common life, which speaks of things as they appear to the senses, he says, "Let there be lights in the firmament of the heaven," *i. e.*, let them now appear,

“and let them be for signs and for seasons, and for days and years.”

5. “And God said, Let the waters bring forth abundantly [swarm with swarms, marginal] the moving creature that hath life, and let fowl fly above the earth in the open firmament of heaven. And God created the great sea-monsters, and every living creature that moveth, which the waters brought forth abundantly, after their kinds, and every winged fowl after its 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 there was evening and there was morning, a fifth day.” (Vs. 20–23.)

The Hebrew עוף, here rendered fowl, means literally “flyers,” and is of much wider signification than our English word fowl, and includes insects, *e. g.*, the locust, and flying mammals, *e. g.*, the bat. (Lev. xi. 19, 20.) Moses does not say that God first created these sea-creatures and flyers on this fifth day. Indeed, his language, “Let the waters swarm with swarms” of them, would suggest the idea that they were first created long before. What he does say, and all that he says when his language is strictly construed, is that on this fifth day there was a wonderful development of this portion of the animal kingdom. Should geological research establish the fact, as I think it has already done, that there were fishes and flyers long before this, there would be no discrepancy between Moses’ account and geology established thereby. What Moses affirms respecting the fifth day is, that the characteristic feature of the creation-work of the day was a grand development of these classes of creatures; that the era was, emphatically, the era of great sea-monsters and flyers.

6. “And God said, Let the earth bring forth the living creature after its kind, cattle and creeping thing, and beast of the earth after its kind; and it was so. And God made the beast of the earth after its kind, and the cattle after their kind, and everything that creepeth upon the ground after its kind; and God saw that it was good” (vs. 24, 25). Then follows an account of the creation of man, a work of this sixth day also.

When Moses writes, “And God said, Let the earth bring forth

the living creature after its kind, cattle and creeping thing, and beast of the earth after its kind," for reasons already given in studying the record of God's work on the third and fifth days, I understand him to teach simply that the sixth day was characterized by a special development of the classes of cattle, creeping things and wild beasts. The "creeping things" here mentioned are not reptiles, as the English reader would naturally suppose, but, "as they are grouped with the larger herbivorous cattle and the larger beasts of prey, it is probable that the term refers to the class of smaller land animals whose bodies are brought by means of short legs into close proximity to the earth."—*Bush on Genesis*. In Leviticus xi. 29, the weasel and the mouse are particularly mentioned as creeping things. If so, the three classes of animals here spoken of were all mammals, and this first part of the sixth day was, in the language of science, the age of mammals; and this Moses tells us immediately preceded the creation of man.

II. All these facts, thus stated by Moses, properly belong to a sacred history of creation; and the importance of the religious lessons they teach is abundantly illustrated in the subsequent history of our race. With the mass of mankind, idolatry is the form of false religion which has most widely supplanted the true.

1. In its earliest, purest condition, idolatry took the form of a worship of the heavenly bodies, especially of the sun and moon. To guard man against such idolatry as this, Moses tell us that all these heavenly bodies are the work of God's hands, and have been set by him in the heavens to give light upon the earth, to effect the change in the seasons and to mark the passage of time, not to be worshipped. Like man himself they are all God's creatures; man's ministers, not his lords.

2. A grosser form of idolatry, which has always succeeded the purer, is that in which man takes as his gods sea-monsters and birds of the air and beasts of the field. The crocodile, the ibis and the ox were all worshipped by the Egyptians, the most highly civilized nation on the face of the earth in Moses' day.

3. A still lower form of idolatry is that reproved by Isaiah in his words: "He heweth him down cedars, and taketh the cypress and the oak. . . . He burneth part thereof in the fire;

with part thereof he eateth flesh; he roasteth roast, and is satisfied; yea, he warmeth himself and saith, Aha, I am warm, I have seen the fire. And the residue thereof he maketh a god, even his graven image. He falleth down unto it, and prayeth unto it, and saith, Deliver me, for thou art my god." (Isa. xlv. 16, 10.) All this must have been known unto the God of Moses whose revelation this history of creation is; and intending it to furnish a refutation of idolatry in all its forms, it tells of God's creation of the cedar, the cypress and the oak; the sea-monsters, the birds and the beasts; and further, it tells us that when God made man in his own image, he gave him "dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." God made man their master, not them his.

A further religious use of this narrative is well expressed in the words of Hon. Mr. Gladstone:

"For the Adamic race, recent on the earth, and young in faculties, it has a natural and highly moral purpose in conveying to their minds a lively sense of the wise and loving care with which the Almighty Father, who demanded much at their hands, had beforehand given them much, in the providential adaptation of the world to be their dwelling-place, and of the created orders to their use and rule."—*Order of Creation*, p. 83.

Calling to mind the principle already laid down, that the Scriptures, being inspired of God, often use "words and phrases which, without suggesting puzzling enigmas, yet contain in themselves ample space for the demands of growing human knowledge," let the reader turn to Moses' record of God's work on the third day; his calling forth from the earth a wonderfully abundant vegetation—the carboniferous era of the geologist, as we must regard it—and he will see how appropriate such a record is to a sacred history of creation, if such record is intended to awaken in man gratitude to God his Creator. How clearly God's fatherly care for man appears in the fact that long ages before man was ready to use it, he laid up in the bowels of the earth the immense deposits of coal, now first beginning to be utilized, and so important a factor in our modern civilization.

III. Turn we now to an examination of the question, Is there any discrepancy between the statements of this sacred history of

creation, and the secular or profane history which the geologist has learned from his study of the "rock-records" of the earth?

This second part of the Mosaic record covers the same ground with geology. Both relate events belonging to the same period of the earth's history; though, because of the different purposes with which they have been written, not necessarily all the same events. In general, the two records are obviously in harmony. More especially is this the case in so far as organic nature is concerned; and it is just here that geological science is most certain of its facts and most thoroughly established in its propositions. But, passing from this general to a more particular examination of the Mosaic record, I ask the reader's attention to the following facts, viz.:

1. After stating that "in the beginning God created the heaven and the earth," Moses tells us, in verse 2, that "the earth was waste and void, and darkness was upon the face of the deep." This chaotic condition was that of the earth when God began the work described in the subsequent portions of this history. Whether it was its condition when first brought into being, or long ages intervened between "the beginning" of verse 1, and the condition of things described in verse 2, Moses does not tell us. Basil, Origen, Theodoret and Augustine believed that ages come in between verses 1 and 2, of which Moses says not a word. Should the nebular hypothesis, now in favor with many scientists, come to be established as scientific truth, there would be nothing in this at variance with Moses' history. The period which this hypothesis covers would be the period which comes in between verses 1 and 2. In verse 2, Moses begins with the earth completely "individualized," and no longer a part of any nebula.

2. The word chaos has long been in use among geologists, but with a very indefinite meaning. Recent discoveries, embodied in what is popularly styled "the New Astronomy," now, for the first time, enable us to understand what the true nature of chaos is. The sun and moon are bodies belonging to the same system with our earth, and the spectroscope has disclosed to us the fact that the sun, at least, is made up very much of the same elementary substances as the earth; and further, by means of the spectroscope and improved telescope, we learn that the sun is now in a condition

of chaos through the operation of intense heat. The earth bears many unmistakable marks of having once been in the condition in which the sun now is. And the moon also, according to the "New Astronomy," was once in this same condition. The sun, because of its immense mass—more than a million of times that of the earth—has thus far cooled comparatively little, although constantly radiating its heat into space. The moon, many thousand times smaller than the earth, has become completely solidified by cooling; whilst the earth, intermediate in mass between the sun and moon, occupies an intermediate position in temperature also. Taking now the present chaotic condition of the sun as the type of what was once the condition of the earth, we can attach a definite meaning to the word chaos as used by the geologist.

3. According to the "New Astronomy," the sun consists of (1,) a solid or quasi-solid central mass, intensely heated, but kept in a solid state by the immense pressure of its atmosphere; (2,) an atmosphere, many thousands of miles in thickness, composed largely of vaporized iron, zinc, calcium and other metals. This atmosphere is commonly spoken of as the sun's photosphere, because the immediate source of the light it sends to the earth; and (3,) what is called the chromosphere, a kind of second atmosphere, consisting entirely of free hydrogen, thousands of miles in thickness, and often shooting out mountain masses on its surface to an immense distance. All this has been learned by direct observation. These are facts of science, and not mere hypotheses. Through spectroscopic analysis I know that vaporized iron enters largely into the composition of the sun's atmosphere, as certainly as I do, through ordinary chemical analysis, that oxygen enters into the composition of the atmosphere of the earth.

4. Starting with the earth in the condition in which the sun now is, what must be the series of changes it will undergo as it cools, according to the well ascertained physical laws which govern all such cooling bodies? The first effect of cooling would be the precipitation of the vaporized metals and other heavy bodies upon its solid surface, and this in the condition of oxides, where the metal had such an affinity for oxygen, as iron and calcium have; and then, the disappearance of the chromosphere, through the combination of its hydrogen with oxygen in the formation of water. At

first, this water would be in the condition of vapor; and our earth would present the appearance of a solid sphere wrapped in an immense cloud of watery vapor. This, if I mistake not, was just the condition of our earth when Moses resumes his narrative in the words, "And the earth was waste and void," *i. e.*, without living plant or animal of any kind upon it, "and darkness was upon the face of the deep." (1.) As the cooling proceeded, the dense mass of vapor would thin out, so that it would be possible for light from the sun to penetrate to the more solid mass; and, in consequence of the revolution of the earth upon its axis, along with the entrance of light would come the alternation of day and night, as Moses describes it in verses 4, 5. (2.) To this would succeed, as the cooling went on, a condensation of a portion of the watery vapor in a liquid form upon the surface of the solid central mass, and a separation between it and the portion which would still remain suspended above it, just such a separation as now exists, and as Moses describes in verses 6-8. (3.) Then, as the cooling proceeded yet further, because of the contraction of the solidified crust of the earth, more rapidly than of the heated mass within, that crust would be rent and upheaved, so that the land would emerge from beneath the waters, and a division between the dry land and the sea would be effected. (See verses 9, 10.) After this, and not until then, would the sun, moon and stars appear in the heavens, and begin their work of distinctly marking the passage of days and years, as stated in verses 14-19.

5. Of organic nature, Moses tells us, that there was, first, a great outburst of vegetable life on the earth, a gigantic growth of land plants; and that this gigantic vegetation followed immediately upon, and was in part cotemporary with, the separation of land and water; for so I understand his representing these two works as both occurring on the same creative day. Then, second, that God caused the waters to swarm with swarms of sea monsters, and the air with birds (flyers); and, after this of an outburst of mammal life upon the land, "of cattle, and wild beasts and creeping things." Now, what are these three eras in the creation of organic nature but "the carboniferous era," the age of gigantic sauria and monstrous birds (flyers), including the pterodactyles, and the age of mammals, of the geologist. In Moses' record these ages are the

same in number, and they occur in the same order they do in the record of geology.

6. On one point which the Mosaic record decides definitely, geology does not give so decided an answer, viz.: that the carboniferous era preceded the distinct appearance of the sun in the heavens. And yet, all that geology does say is favorable to Moses' decision. The leading classes of plants which make up the mass of the coal of the carboniferous era are mosses, ferns and gigantic lepidodendra, plants which to-day flourish in a damp atmosphere and in the shade, and are dwarfed, if not killed, by direct sunshine. And in addition to this, the numerous seams of coal, separated by seams of slate, and even sandstone, in these older coal-fields, tell of frequent subsidence and emergence of the land during their formation: just the condition of things we would expect to find, when the land was being separated from the water.

7. That the warm waters of the primeval ocean, before the land emerged, contained algæ (sea-weeds), and some of the lower forms of animals, *e. g.*, the eozoon, polyps and radiates, is, I think, pretty clearly established. That there were certain kinds of fish in the sea, and flyers such as insects in the air, before and throughout the carboniferous era, I have no doubt. But in all this I see nothing at variance with the Mosaic record. Of the creation of all these creatures we are told in Genesis ii. 1, and yet more definitely in Exodus xx. 11; "In six days the Lord made heaven and earth, the sea and all that in them is," but of the exact time of their creation we are told nothing. In a history of creation written for the purpose with which Moses wrote, why should he mention them? In so brief a history, how could he mention them? That sauria, and birds and mammals—air-breathing animals—could not have lived upon the land, or in the air, before the gigantic vegetation of the carboniferous era had purified the atmosphere by decomposing the vast quantity of carbonic acid it must have contained, fixing its carbon, and giving back its oxygen, no scientist will question; and this all that Moses' history fairly implies.

PART III.—THE CREATION OF MAN, MALE AND FEMALE.

"And the Lord 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. And 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. . . . And God saw everything that he had made, and behold it was very good. And there was evening and there was morning, the sixth day." (Gen. i. 26-31.) Such is the general account which Moses gives us of the creation of man. In chapter ii., as a part of the sad story of the introduction of sin into our world, he gives us certain other particulars, in his words, "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul [literally, a creature of life or living creature.] . . . And the Lord God caused a deep sleep to fall upon the man, and he slept; and he took one of his ribs, and closed up the flesh instead thereof; and the rib which the Lord God took from the man, made he a woman, and brought her unto the man. And the man said, This is now bone of my bone, and flesh of my flesh; she shall be called woman, because she was taken out of man. Therefore shall a man leave his father and his mother, and shall cleave unto his wife; and they shall be one flesh." (Gen. ii. 7, 21-24.)

I. That this portion of the Mosaic record is to be understood as neither parable nor myth, but a piece of plain history, a record of facts, is placed beyond all doubt by the way in which it is subsequently referred to in the Scriptures. Thus, Paul writes: "For the man is not of the woman; but the woman of the man. Neither was the man created for the woman; but the woman for the man." (1 Cor. xi. 8, 9.) And our Lord says, "Have ye not read, that he which made them in the beginning made them male and female, and said, For this cause shall a man leave father and mother, and shall cleave to his wife; and they twain shall be one flesh? Wherefore they are no more twain, but one flesh. What therefore God hath joined together, let not man put asunder." (Matt. xix. 5, 6.)

In this history of the creation of man the following particulars

are clearly set forth, viz.: (1,) That man was the last made of God's creatures, his making finishing the work of creation in so far as our earth is concerned. (2,) That he was made in the very "image and likeness of God," and to him was given "dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." (3,) That, departing from the course pursued in the case of the lower animals, God made but one human pair. In the language of Moses—and in this the language of Scripture is the language of science—God made "man, male and female," thus securing for man, in all coming time, a perfect race-unity. (4,) That God made man and woman separately; the man first, as to his body, "of the dust of the ground;" the woman afterwards, as to her body, from the rib of the man; that thus there might be established between them a peculiarly intimate relation, expressed by Adam in his words, "This is now bone of my bone and flesh of my flesh."

II. Do these facts properly belong to a sacred history of creation? In attempting to answer this question, I would ask the reader to notice (1,) That, without the account which Moses gives us of man's creation "in the image and likeness" of God, we could not understand the Scripture explanation of the great problem which confronts us the moment we turn to the study of man's present condition and his present relation to God his Creator; a problem expressed by Rousseau in his words, "Our humanity is deeply tainted with some sore and irrecoverable disease." (2,) The unity of the human race is a fundamental fact in the philosophy of the plan of salvation made known to us in Paul's words, "As by the offence of one judgment came upon all men to condemnation, even so, by the righteousness of one, the free gift came upon all men unto justification of life. For as by one man's disobedience many were made sinners, so by the obedience of one shall many be made righteous." (Rom. v. 18-19.) (3,) "Marriage was ordained for the mutual help of husband and wife; for the increase of mankind with a legitimate issue, and of the church with a holy seed; and for preventing uncleanness." (*Confession of Faith*, Chap. xxiv.) And one of the precepts of the moral law, as written by the finger of God upon tables of stone, is a prohibition of all disregard of its sacred obligations. Hence the church

has always recognized the religious character of marriage. A record, then, of the fact that in the creation of man and woman God gave a solemn sanction to the marriage relation, is an appropriate part of a sacred history of creation.

III. What has science to say on these several points presented in this portion of the Mosaic record?

1. As to man's being the last made of God's creatures, "The evidence of geology has always been that among all the creatures which have in succession been formed to live upon the earth and enjoy it, man is the latest born. This great fact is still the fundamental truth in the history of creation. . . . So far as we yet know, no new form of life has been created since the highest form was made."—*Argyll's Primeval Man*, p. 113.

It is further worthy of remark that Moses makes the outburst of mammal life upon the earth and the creation of man two separate works of creation wrought on the same (the sixth) day. Interpreting this as I have interpreted a similar record of the work on the third day, it would indicate that these two works were in part cotemporary, *i. e.*, in the language of geology, that the closing portion of the age of mammals overlapped the earlier part of the age of man. On this point Dr. Southall writes:

"The mammoth was in Siberia down to the inauguration of that cold climate characteristic of that region. This was *after* the glacial period in Europe, probably at the close of the glacial period in Sweden and Scotland. When France and England were occupied by the cave-man, Siberia was enjoying, at least the middle and southern portion of it, a comparatively temperate climate, and was inhabited by a bronze-using people, who were skilful workers in that metal; the mammoth, the rhinoceros, and the megaceros ranging in its forests."—*Recent Origin of Man*, p. 518.

2. Moses tells us that man was made "in the image and likeness" of God, and to him was given "dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." On this point Prof. Dana writes:

"In the appearance of man, the system of life, in progress through the ages, reached its completion, and the animal structure its highest perfection. Another higher is not within the range of our conception. For the vertebrate type, which began during the paleozoic, in the prone or horizontal fish, becomes erect in man, and thus completes, as Agassiz has observed, the possible changes in the series to its last term. An erect body and an erect forehead admit of no step beyond. But besides this, man's whole structure declares his intellectual and spiritual nature. His forelimbs are not organs of locomotion, as they are in all other mammalians;

they have passed from the *locomotive* to the *cephalic* series, being made to subserve the purposes of the head; and this transfer is in accordance with a grand law of nature, which is the basis of grade and development. The cephalization of the animal has been the goal of all progress; and in man we mark its highest possible triumph."—*Dana's Geology*, p. 578.

3. The unity of the human race, long and keenly debated, must now be considered a settled matter in science. Prof. Huxley writes:

"I cannot see any good ground, or even any tenable sort of evidence, for believing that there is more than one species of man."—*Origin of Species*, Lecture V.

And the Duke of Argyll:

"On this point, therefore, of the unity of man's origin, those who bow to the authority of the most ancient and most venerable traditions, and those who accept the most popular of modern scientific theories, are found standing on common ground and accepting the same result."—*Unity of Nature*, p. 399.

4. On the remaining point, viz.: God's making woman from the rib of man, and instituting the marriage relation, geology, from the nature of the case, can say nothing. The sacredness of the marriage relation, and so of the family, all history declares to be fundamental to civilization in its highest form, and with equal distinctness declares polygamy to be fatal to national prosperity. The marriage relation, such as Moses describes as instituted of God, is unknown among savages. It is only among the most highly civilized nations, and as the result of that civilization, that woman has recovered the rank and station which, according to Moses, God gave her in the beginning. These facts furnish a good and sufficient reason for departure from the common order of creation in the case of woman. Certainly the story is a very strange invention, if it be an invention, on the part of a "semi-barbarous Hebrew," as Prof. Huxley would have us believe that Moses was. In the circumstances of the case, "the invention is more incredible than the fact."

CONCLUSION.

1. I have now gone through with the history of creation given us in the opening portion of the Book of Genesis, continually bearing in mind the nature of that history as sacred, and not secular or profane; and guided in my interpretation of the record by the principle recognized by jurists as well as critics, that all docu-

ments must be interpreted with an especial reference to the object with which they have been written. A disregard of this plain principle of interpretation, if I mistake not, has given rise to much of the apparent discrepancy between Genesis and geology, which has perplexed christian scientists, and given occasion for such cavilling remarks, as that of Prof. Huxley, quoted at the opening of this article.

2. Respecting some of the facts stated by Moses, science has nothing to say, and this for the good and sufficient reason that they are beyond its purview—*e. g.*, the original creation of matter, and the peculiar manner in which woman was made. Of many of the facts ascertained by science, Moses says nothing for a similar reason; *e. g.*, the time at which organic life first appeared upon the earth, and the creation of the lower orders of plants and animals. This is just what, in the circumstances of the case, we have a right to expect; just what we find to be true of the Bible story throughout. In the Scripture story of Adam, we are told of his creation, his probation in Eden, and his fall—all events which must have occurred during the first years, possibly the first year, of his life; but of the remainder of that life of nine hundred and thirty years nothing is said. Of the first eighty years of Moses' life the Scriptures tell us of nothing except the wondrous providence which in his early infancy placed him in the household of Pharaoh, and then of his flight from Egypt when forty years of age. Of the histories of Egypt and Babylon and Rome the Scriptures tell us something, where those histories touch upon the history of redemption, and what they do tell us is being confirmed in a most remarkable manner by modern research; but of all the remainder of the histories of those empires they have nothing to say. Because of this, no reasonable man imagines any discrepancy between the Bible history and the histories of Manetho or Berosus or Livy.

3. In the Pentateuchal story of creation certain facts are stated, viz.: (1), the creation by God, in the beginning, of the heaven and the earth; (2), the chaotic condition of the earth when God began the work of evoking order and organization; (3), the entrance of light, and the succession of day and night before the sun could be seen; (4), the separation of the waters under the heavens from

those above it; (5), the emergence of the land from beneath the surface of the waters; (6), a gigantic outburst of vegetation upon the land; (7), the distinct appearance of the sun, moon and stars, the unveiling of nature's great clock by which the passage of time has been noted ever since; (8), an era of gigantic sea-monsters and birds (flyers); (9), an era of gigantic mammals; followed immediately by, (10), the creation of man, male and female, as the last and crowning work of creation; and then, (11), God's rest from his work of creation, a rest which continues to the present day. This is, in substance, all that Moses says, and it is all that it was appropriate for him to say in a sacred history of creation, all that it was possible for him to say in so brief a history as that he has given us. Science, especially geology, has made rapid and substantial progress in the last fifty years, and in our day for the first time is competent to testify on some of the points mentioned above; and now that its "tongue is unloosed," its testimony distinctly confirms the Pentateuchal story as summarized above in every particular; and I would ask the readers especially to notice that it is not geological theory, but well ascertained geological facts, which confirm the statements of fact made by Moses.

4. On the one point which yet remains for consideration, viz.: the claim which the Pentateuchal story of creation makes to be a revelation from God, I cannot do better than quote the words of Hon. Wm. E. Gladstone:

"How came Moses . . . to possess knowledge which natural science has only within the present century for the first time dug out of the bowels of the earth? It is surely impossible to avoid the conclusion, first, that either he was gifted with faculties passing all human experience, or else his knowledge was divine. The first branch of the alternative is truly nominal and unreal. We know the sphere within which human inquiry toils. We know the heights to which the intuitions of genius may soar. We know that in certain cases genius anticipates science; as Homer, for example, in his account of the conflict of the four winds in the sea-storm. But even in these anticipations, marvellous and, so to speak, imperial as they are, genius cannot escape from an inexorable law. It must have materials of sense and experience to work with, and a *pou sto* from which to take its flight; and genius can no more tell, apart from some at least of the results attained by inquiry, what are the contents of the crust of the earth, than it could square the circle or annihilate a fact. So stands a plea for a revelation of truth from God, a plea only to be met by questioning its possibility, that is, . . . by suggesting that a being able to make man is unable to communicate with the creature he has made."—*Order of Creation*, pp. 25, 26.

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