

WOOD'S
BIBLE ANIMALS.

A DESCRIPTION OF THE
HABITS, STRUCTURE, AND USES OF EVERY LIVING
CREATURE MENTIONED IN THE SCRIPTURES,
FROM THE APE TO THE CORAL;

AND

EXPLAINING ALL THOSE PASSAGES IN THE OLD AND NEW
TESTAMENTS IN WHICH REFERENCE IS MADE TO
BEAST, BIRD, REPTILE, FISH, OR INSECT.

Illustrated with over One Hundred New Designs,

BY KEYL, WOOD, AND E. A. SMITH;

ENGRAVED BY G. PEARSON.

BY THE

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Author of "Homes Without Hands," "Common Objects of the Sea-Shore and Country,"
"The Illustrated Natural History," "Strange Dwellings," "Insects at Home," Etc.

TO WHICH ARE ADDED ARTICLES

ON EVOLUTION,

By REV. JAMES McCOSH, D.D.,

President of Princeton College,

AND

RESEARCH AND TRAVEL IN BIBLE LANDS,

By REV. DANIEL MARCH, D.D.

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PREFACE TO THE AMERICAN EDITION.

THE author of "Bible Animals" has long been known in England and America as a learned and accurate as well as popular writer in various departments of natural history. He has the happy faculty of making the results of dry scientific study and painstaking observation interesting and instructive to all classes of readers. He throws himself into his work with that quiet and genial enthusiasm which awakens sympathy and inspires confidence. He does not mingle so much of romance with sober reality as to leave little distinction between the facts of science and the pleasantries of fiction; nor is he so tied to detail and definition that the reader gets nothing but the bare skeleton when he would see the grace and action of the living body.

Mr. Wood writes about birds and beasts as if he knew them and liked them, and so he makes his readers like them too. He speaks so truly and kindly of his dumb friends and companions of the fields and woods that they would certainly vote him many thanks if they had learned our habit of meeting in public assembly and repaying our benefactors with resolutions.

In the present work—a new and enlarged edition of which is now offered to the American public—the author has brought out all the resources of his mature and cultivated powers. It has been the more congenial to him, and he has made it the more interesting to others, because the subject touches more closely upon the line of his sacred convictions and his professional studies. In his vivid representations he makes ministers and missionaries of the birds of the air, the beasts of the field and the fish of the sea. He shows how closely the Bible is in harmony with the great work of creation which in the beginning was pronounced very good. He gives the habits and the history of every living creature named in the sacred Scriptures, and he makes the whole world of animated nature stand forth to interpret and to adorn the divine word.

In this work the Bible is made to appear not as a dry treatise or a dull compound of theories and propositions, but as a living book, thoroughly in sympathy with all the interests and occupations of the living world. It takes us back from this hard-working, matter-of-fact age to the early time when men learned lessons of faith from the birds

of the air and the lilies of the field, and they had the less need of trained choirs and cultivated music in worship, because the mountains and the hills broke forth before them into singing, and all the trees of the field clapped their hands.

This work combines the best results of both scientific and popular instruction. The lion and the bear, the wolf and the fox, the leviathan and the unicorn, the eagle and the sparrow, do most to illustrate the Bible when they appear in their true character and their habits and history are best understood. The critic will find little in the book to condemn; the common people will read it gladly. It is well worthy of a place in every house beside the sacred book which it honors and expounds.

The work is enriched with illustrations, all of which are taken from real life, and many are drawn with great spirit and power. "The Ostrich and its Hunters," "Dogs prowling at Night," "Oxen bearing the Yoke," "Camels and their Burdens," "Sheep and the Shepherd," "The River Horse," "The Wild Ass," and many others, will repay a careful study. The accuracy and skill and taste displayed in these illustrations make them a commentary and a natural history combined.

The present edition is provided with an index of texts explained, and the original index has been very much enlarged, to adapt it to general use. The vexed question of evolution comes up just now in connection with all studies and discussions in natural history. And the publishers believe themselves to have added a fitting and valuable appendix to the work in the clear and elaborate article on this subject written expressly for this edition by Rev. Dr. McCosh. All intelligent readers must agree in the opinion that the learned doctor has been remarkably successful in the attempt to treat so abstruse and complicated a theme in the most condensed and popular form. The closing article upon "Travel and Research in the Bible Lands" is furnished by Rev. Dr. March, who has visited the countries of which he speaks, and who has given especial attention to researches now going on in connection with the Palestine Exploration Society. The publishers are confident that in issuing the volume in its present form they are supplying all students of the sacred Scriptures with an important and acceptable addition to the materials for the illustration of the divine word.

ON EVOLUTION.

IN these days every educated man and woman talks of development, of evolution and of Darwinism. Many are anxious to know what they are, whether they are established by scientific evidence, and what is their moral and religious tendency. In this paper, without entering into minute scientific details, I am to give a plain account of this new theory addressed to those who have not leisure or opportunity to study the numerous and very complicated discussions on this subject; and then I am to present the religious aspects of the doctrine.

It is evident that evolution runs through all nature: one thing comes out of another. Every object on the earth at this moment, say rain-drop, flake of snow, rock, crystal, jewel, has been formed out of pre-existing materials; and when it has fulfilled its purpose and disappeared, it is not annihilated; its elements still exist and have to appear in a new form. It is believed by men of science that the sun, earth and planets may have been fashioned out of an original floating matter or star dust. The plant proceeds from the seed, the oak is the development of the acorn. Animals are the offspring of parents, and proceed from a germ. This is known to all, and is acknowledged by all. Some are carrying the doctrine much farther. They are discovering development in national wealth and in national occurrences. The Reformation in the sixteenth century, the English Revolution of 1688, the American war of Independence, the French Revolution of 1790, all grew out of the circumstances in which the countries were placed, out of the abuses that existed, and the state of feeling abroad. There is evolution even in the advance of science; thus the discovery of the circulation of the blood revolutionized the whole of anatomy; and it is expected that this theory of development is to be followed by a whole host of scientific consequences. The doctrine shows that there is a continuity in nature—that the present is the child of the past and the parent of the future.

The Scriptures teach a doctrine of evolution. "The earth was without form and void" (Gen. i. 2), and the forms of land, atmosphere and sea came out of it. "And God said let the earth bring forth grass, and the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself after his kind" (v. 11). So in regard to animals, "the waters brought forth abundantly after their kind, and every winged fowl after his kind;" and then "the living creature after his kind, cattle and creeping thing and beast of the earth after his kind" (vs. 21, 24). Of man's body it is said, "The Lord God formed man of the dust of the ground" (ii. 7). In a remarkable passage, of which we may not yet see the full significance, "My substance was not hid from thee, when I was made in secret and curiously wrought in the lowest parts of the earth, thine eyes did see my substance yet being unperfect and in thy book all my members were written, which in continuance were fashioned when as yet there was none of them" (Ps. cxxxix. 15, 16).

But is there nothing but development? Are objects produced in this way and in no other? That is the question for discussion. In answering it we have to insist, in the first place, that development implies a previous matter out of which the thing is developed. This matter must have properties which make it to act and evolve things out of itself. All but atheists acknowledge that this matter has been created by God. The development proceeds in so orderly and in so beneficent a manner that it seems to give evidence of the existence of a wise and good God.

And may not the God who created matter at first interpose to introduce new powers and new agents? In particular, must there not be a creative act when plants appear, and when animals appear? The ancients were not agreed on this point, and their opinions were not of any value on the one side or the other, as they made no scientific investigation. Augustine, one of the greatest of the Fathers of the Church, thought that animals might come out of the slime of the earth, without any parentage—always, he would add, by the power of God. But among scientific men in modern times, the accepted doctrine was that all plants came from a seed, all animals from a parentage. They knew that varieties were produced by circumstances, but they held that species were fixed. They allowed that climate, modes of life and training could produce different breeds of horses, but they maintained that the horse, as a horse, could proceed only from the horse.

But there arose from time to time naturalists who denied the accepted doctrine. De Maillet, at the beginning of last century, maintained that animals originally formed in the waters which covered the world were transferred to the land when it emerged, and there suited themselves to their new positions and improved by external circumstances. Lamarck (A. D. 1801) started the theory that there was an inherent principle of improvement in plants and animals, and that external conditions working on this produced gradually variations of species, which gave rise to new species, genera and orders. A great stir was made by the publication of "The Vestiges of the Natural History of Creation" (1844), in which it was ingeniously argued that creation, as he called it, took place according to law, and in particular that a prolongation of the time of the development in the womb may give rise to a higher type. The work, not being scientific, did not meet with much acceptance with naturalists. But universal attention was called to the subject when in 1858 Charles Darwin, a distinguished naturalist and a very careful observer, published his work "Origin of Species by means of Natural Selection, or the Preservation of Favored Races in the Struggle for Life." The title indicates the nature of the process by which species are supposed to be generated. Certain individuals, by exertion or otherwise, get a peculiarity which suits them better to their position. These survive, while others perish, and the peculiarity becomes hereditary, and goes down to their offspring. A struggle ensues, the strongest race prevails, and as a result of the whole there is an advance in the forms of plants and animals. Let this go on, by small augmentations at a time, for millions of years or ages, and it is able to produce all the species and all the genera now on the earth.

I would now state as clearly and as briefly as I can the arguments for and against the Development Theory.

1. Looking to the flora and fauna now upon the earth, we find them distinguished by a unity of plan. For instance, the fins of fishes, the wings of birds, the fore feet of reptiles and of mammals, all correspond to each other, and this when they are made to fulfill very different functions. It can be shown that the venation of leaves, the branches of trees, and the whole tree, take very much the same form. There are affinities between the lichen covering the bare rock and the oak shooting up toward the sky; between the polyp confined to one spot in a pool and the lion ranging

through the forest. Now, we are impelled to seek for a cause of this. It can be explained by supposing that the whole proceeded from a single germ or a few germs, which germ or germs may have risen under favorable conditions out of favorably disposed inorganic matter.

2. There has been a gradual advance in the geological ages from lower to higher forms. There have been breaks, as might have been expected, in the series; still, upon the whole, there has been progress from the first animal discovered, the unshapely *Eozoon Canadense*, up to the highest mammal. We are impelled to seek for a cause, and in doing so we are obliged to suppose, either that there is a tendency in the very organism itself to rise to higher states, or that there is an elevation by a happy start or by a succession of immeasurably small additions, the gain being handed down from parent to child; and as those who are without the advantage disappear, and those who have it multiply, a new and better race becomes settled. A hill, we may suppose, is covered with evergreens; a severe frost comes and destroys nine-tenths, and these the weaker of them; only the stronger live, and these spread and shed their seed, and in due time the whole hill is adorned with stronger and healthier trees. This may enable us to understand what has taken place in the geological ages. As new and trying circumstances arise there is a struggle for existence; the unfit disappear and the fit survive, and there is progress upon the whole through the long ages that have run their course.

3. We can experiment on this subject, and exhibit the changes produced both on plants and animals by artificial means. "It was the study of domesticated animals," says Prof. Asa Gray of Cambridge, "that suggested the theory." Mr. Darwin has taken great pains to observe the variations produced on animals by domestication, and on some of the more important plants by cultivation, and has published a work in two volumes "On the Variation of Animals and Plants under Domestication." He shows that animated beings are affected by shelter, by protection from exposure, by climate, by food. He has been particularly successful in dealing with pigeons, showing that numerous and very diverse forms have all proceeded from one known source. His argument is that in these changes, produced by domestic care and made hereditary, we have an experimental exemplification of the way in which variations and new races have been produced in the geological ages.

4. There is a correspondence between the progress of animals in the geological ages and the growth of the individual, as revealed by embryology. "The chick in the egg assumes in succession the aspect of a fish, a snake, a bird of low degree, and finally the similitude of its parent. Even man possesses, at an early period, the branchial apertures of the fish, and assumes in succession the aspect of a seal, a quadruped, a monkey and a human being."¹ All this seems to prove—it is not easy to tell how—that the higher animals have passed through the lower forms before they have reached their present organization.

5. It was seen from the very starting of the theory that it must, in the end, be applied to the genesis of man. Many persons otherwise favorable shrunk from this extension. But in 1870, Darwin in his "Descent of Man," boldly declared that man was descended from some lower form, and has shown that the brutes and man have many common qualities, not only in their bodily structure, but in their mental instincts and faculties, such as their social attachments, curiosity, memory; and he reaches the conclusion, "There can consequently hardly be a doubt that man is an offshoot from the old world Simian stem, and that under a genealogical point of view he must be classed with the Catarhine division." (Part I. c. vi.) As man agrees with anthropomorphous apes "not only in those characters which he possesses in common with the whole Catarhine group, but in other peculiar characters, such as the absence of a tail and of callosities and in general appearance, we may infer that some ancient member of the anthropomorphous sub-group gave birth to man." Mr. Darwin can carry our genealogy still farther back: "Man is descended from a hairy quadruped, furnished with a tail and pointed ears, probably arboreal in its habits, and an inhabitant of the old world," and would be classed amongst the Quadrumana.² "The Quadrumana and all the higher mammals are probably derived from an ancient marsupial animal, and this through a long line of diversified forms either from some reptile-

¹ Winchell on "The Doctrine of Evolution," p. 29.

² The Quadrumana or monkeys are subdivided into the Platyrrhina, with nostrils placed far apart and prehensile tails; and Catarhina, with nostrils close together and non-prehensile tails. The former are confined to South America, the latter are found extensively in the old world. The highest section of the monkeys, the anthropomorphous apes, belong to Catarhine division.

like or some amphibian-like creature, and this again from some fish-like animal. In the dim obscurity of the past we can see that the early progenitor of all the vertebrata must have been an aquatic animal with the two sexes united in the same individual, and with the most important organs of the body (such as the brain and heart) imperfectly developed. This animal seems to have been more like the larvæ of our existing marine Ascidians than any other form known.”¹ (Part II. c. xii.)

To illustrate these points we have had an immense number and variety of cases collected by Mr. Darwin and other naturalists, and detailed in books, in journals and the reports of scientific societies. It may be stated generally that there is no dispute as to the facts, which are admitted on all hands. The discussion turns round the theory advanced to account for them. I am now to state the considerations urged on the other side.

1. It is admitted that there are no facts—that there is not even a single fact—directly proving the doctrine. We have no experience of one species being transmuted into another. We do not see it taking place before our eyes. There is no trace of it in the historical ages. The vines found depicted in the tombs of Egypt, and the animals on the monuments, are of the same species as those now on the earth. History goes back three or four thousand years, but gives no record of a new species of plant or animal appearing. If thousands of years cannot create a new creature, it may be doubted if millions can. The geological ages do show us new species appearing ever and anon, but disclose no evidence of their being derived from the species previously existing. Mr. Darwin has ingeniously constructed a long chain of descent from the ascidian to man, but he has not been able to catch one species changing into another at any one point.

2. Darwinism is at best an hypothesis. Hypotheses are introduced in science to explain facts. They are to be propounded under very stringent restrictions. They are to be admitted only when they explain the facts. There must be no facts inconsistent with them. When an hypothesis explains the facts generally, it may be admitted that there is some truth in it; but even then it may not be the whole truth; it may require to be supple-

¹ The Ascidians are a low order of the “shell fishes” or molluscs. They are like two necked leather flasks, and are fixed on rocks. They somewhat resemble the *Amphioxus* or lowest fish.

mented by some other considerations, and to take a form which entirely changes its bearing, scientific and religious. Tried by such tests, Darwinism is seen to be encompassed with many difficulties, and cannot be regarded as established. It certainly does not account for the whole phenomena, and there are facts inconsistent with it. There may be truth in it, and yet it may require to be greatly modified.

3. It does not account for the whole of the facts. It can offer no explanation of the origin of the matter out of which animated beings are formed. In order to start, Mr. Darwin is obliged to postulate three or four germs, or at least one germ, created by God; the admission is candid, and shows that in the last resort we have to call in something higher than evolution—in short, we have to call in God. The younger advocates of the theory are not satisfied with this admission. Dr. Tyndall, in his Belfast address, opposes as strongly the creation of a few forms as of a multitude. Prof. Bastian imagines that he has been able to produce animated life out of inanimate; but scientific men, including Prof. Huxley, set no value on his experiments. All our higher naturalists allow that there is no evidence at this present time of there being now, or of there ever having been, spontaneous generation. Some are cherishing the idea that there may have been life in the original matter, and continuing dormant for millions of years, till it came forth in animals under favorable conditions. We see to what far-fetches these scientific men are obliged to resort, to support an hypothesis of which it may be said that, instead of explaining things, it needs farther hypotheses to bear it up. Not satisfied with all this, Mr. Herbert Spencer and Dr. Tyndall are obliged to fall back on an "inscrutable power" to account for the whole, for the origination, the continuance and the subsistence of all phenomena. Theists feel that they have a much stronger as well as a more comfortable ground when they rest all things on God, and reverently inquire into his mode of procedure, and what place natural selection may have in it.

4. Mr. Darwin seems quite aware that evolution cannot explain everything. He is obliged to call in not only original germs created by God, but in his later works pangenesis, to continue the life. Every living creature is supposed by him to possess innumerable minute atoms, named "gemmules," which are generated in every part of the body, are constantly moving and have the power

of reproduction, and, in particular, are collected in the generative organs, coming thither from every part of the body. "These almost infinitely numerous and minute gemmules must be included in each bud, ovule, spermatozoon and pollen grain." ("Animals and Plants under Domestication," vol. ii. 366.) It is not pretended that there is any proof of this; it is an hypothesis brought in to support an hypothesis. A structure which needs such abutments is not so simple and sufficient as it seems to superficial observers to be.

5. It is admitted that there is a common plan running through the whole vegetable and the whole animal kingdom; but it does not follow that it is produced by natural selection, by the struggle for existence and by heredity. The unity and the beneficence of the plan show that it is the product of intelligence; plan, adaptation and harmony seem to be indications of mind. The unity of nature is a proof of the operation of a divine arrangement. In fulfillment of his purpose it is conceivable that God may act in one or other of two ways. Even as he created matter at first, he may, when the fit time comes, create plants and animals, or new species of plants and animals; or he may carry on the whole by a secondary agency. Man may be able, by a long process of laborious investigation, to find out what this agency is in whole, or more probably only in part. Part of it may be the struggle for existence and the law of heredity; but it does not follow that this is the whole: "No man can find out the work that God maketh, from the beginning to the end."

6. There are many breaks in the succession. Geology, and it alone—not history—shows us new species appearing, but discloses no ancestors from whom they could have been derived. But then it is said that, as the geological record is very imperfect, we may yet discover the intermediate links. To this all I have to reply is that, should these cast up, we must provide a place for them. But for the present we must suit our hypothesis to the facts; and the facts show wide gaps in the succession. Hæckel would derive higher plants from algæ or sea-weeds. "Nothing could more curiously contradict actual facts. Algæ were apparently in the Silurian neither more nor less elevated than in the modern seas, and those forms of vegetable life which may seem to bridge over the space between them and the land plants in the modern period are wanting in the older geological periods, while

land plants seem to start at once into being in the guise of club mosses, a group by no means of low standing. Our oldest land plants thus represent one of the highest types of that cryptogamous series to which they belong, and, moreover, are better developed examples of that type than those now existing. We may say, if we please, that all the connecting links have been lost; but this is begging the whole question, since nothing but the existence of such links could render the hypothesis of derivation possible." The same eminent palæontologist assures us that "there are forms of life in the Silurian which cannot be traced to the Cambrian, and which relate to new and even prospective conditions which the unaided powers of the animals of the earlier period could not have provided for."¹ Some eminent American geologists favor the theory that, instead of an unbroken series, there is once and again the sudden and abrupt introduction of new species—they cannot tell how, the rapid elevation of them till they reach their highest capacity, when they remain stationary for a long period, and in the end decay and disappear.

7. No argument drawn from changes produced by domestication can admit of a legitimate explanatory application to cases in which everything must be done by unaided natural agency. By artificial means man may produce changes which would never take place spontaneously; and then it may be urged, and cannot be contradicted, that domestication has never produced a new species, either of plant or animal. The supposed new species thus originated have, when carefully investigated, turned out to be new varieties.

8. All artificially produced varieties tend to return to their original state. The garden flower when neglected always tends to go back to the condition in which it was in the meadow or on the mountain. Domestic animals, cast out from human habitations and allowed to run wild, will, as they consort together, become like what they were before they were brought under human care.

9. Species can be made to cross, but then the offspring is not prolific—at least does not continue to be so. The crossing of the horse and ass gives us a very useful animal, the mule; but mules do not propagate their kind, and so cannot give us a new race.

¹ Dawson's "The Story of the Earth and Man," pp. 77, 79. It is proper to mention that in the Geological History of the Earth, the Silurian rocks succeed the Cambrian.

10. These two last circumstances seem to show that there is such a thing as fixed orders, genera and species both in the animal and vegetable kingdoms. It is acknowledged that there are fixed species—if we may adapt the term—in the mineral kingdom, such as the sixty-four elementary bodies. No one has been able to transmute metals into each other, say to transmute iron into gold. So, from whatever cause, there seem to be impassable divisions in the animal kingdom, as the grand division vertebrate and invertebrate, and the subdivision of the lower animals, the Protozoa, the Radiata (Cœlenterata), the Mollusca and the Annulosa. These fixed types give us the unity amid the variety, the stability amidst the mutability, by which our world is characterized.

11. Astronomy does not allow sufficient time to geologists to generate all vegetable and animal life by means of natural law. Evolutionists require an enormous time to perform their work; they talk of millions and hundred of millions of years. They need it, in order by small gradations, to bring protoplasm up to the mammal, the ascidian up to man. But our earth formed out of the primary matter has been thrown off at a date which can be approximately determined, and this, according to Sir W. Thomson, can amount to only a few millions of years—a period not sufficient for the evolutionist theory. I do not set much value on this argument, for I do not believe we can calculate the earth's age with anything like accuracy; but the calculation of Sir W. Thomson has more solid data to go on than the speculations of evolutionists, and we may allow the one to counteract the other.

12. If there be difficulties in showing how one species of plant or animal can be derived from another, these are immeasurably increased when we would produce man from the brutes. Mr. Alfred Russel Wallace, who started the theory of natural selection contemporaneously with Darwin, draws back at this point. He urges a number of very powerful objections. (See "Natural Selection.") There is the size of the skull. "We have seen that the average cranial capacity of the lowest savages is probably not less than five-sixths of that of the highest civilized races, while the brain of the anthropoid apes scarcely amounts to one-third of that of man, in both cases taking the average; or the proportions may be more clearly represented by the following figures: anthropoid apes, ten; savages, twenty-six; civilized man, thirty-two." He emphatically urges that savages have a brain capacity not required

by their wants, and which could not have been produced by their wants in the struggles of life. Mr. Wallace cannot understand how man if derived from the brutes should ever have lost the hairy covering on his back so necessary to protect from cold and exposures of various kinds, till his higher intelligence enabled him to do so otherwise. This starts the general difficulty: in respect of his power of sheltering or defending himself from physical evil, man is helpless compared with the highest of the lower animals; and how did it come that he was able to continue while his mental powers were growing? Mr. Darwin is obliged to admit that there is not now on the face of the earth, and that there has not been found in the geological ages, an animal from which man could have directly sprung.

But the physiological differences are not after all the decisive dividing lines between man and the lower animals. His grand distinction is to be found in his mental and moral qualities. There are such qualities to be found in all men, and in no brutes. You may detect them in the germ or in the norm, in the human infant and in the savage. The teacher draws them out in the child, and they are capable of indefinite growth. The missionary tries to rouse them in the savage, and partially succeeds. No one attempts to do this with even the noblest of the brute creatures, such as the elephant, the horse or the dog. Man can perceive the essential distinction between truth and error, between good and evil. He can form lofty abstract and general ideas, carry on long processes of reasoning, as in mathematics, construct far-reaching sciences, such as arithmetic, geometry, physics, astronomy, geology, psychology and ethics. He can look back into the past and forward into the future; gathering wisdom from experience, he can devise plans which are fitted to accomplish very distant ends; he can construct governments and set up political institutions. He dwells on lofty ideas of space and time and infinity. He believes in God, he worships God and hopes for an immortality. In his bodily organization he may be connected with the lower animals, but in his spiritual nature he is formed in the very image of God.

Looking to these considerations and combining them, the conclusion forced upon us is that the Darwinian theory as a whole is not proven, and that it will need to be greatly modified, limited and enlarged before it is entitled to command our assent.

There is an idea that these late discoveries in science may over-

throw religion, natural or revealed. Some are glorying in this as relieving them from all religious restraints. Some are under deep apprehensions that they may thereby be deprived of their fixed faith and their encouraging hopes. What, it may be asked, is the feeling which the truth-loving Christian should cherish? What the attitude he should take? Let him accept the truths of science, so far as they are established; but let him not be captivated by theories which go far beyond the facts, and which may require to be modified and corrected before they are conformed to the reality of things. Let him not in the mean time give up his faith in God's Word, which has such strong evidence in its favor, historical, moral and experimental, and which has stood firm amid so many revolutions of science, which gives us a glimpse of the progressive work of creation three thousand years before geology was thought of, and uttered general predictions, as for instance regarding the scattering of the Jews, the rise of popery and its fall—predictions which are being fulfilled before our eyes. There may be times when there seems to be a contradiction between science and religion, more frequently when we cannot see the reconciling link, just as there are times when we cannot see the consistency between two parts of a good man's conduct, or between the statements of two witnesses, both truthful. In these latter cases we wait for further light; let us do the same when at any time there is a seeming incongruity between Genesis and geology, between God's word and God's works. The following is something like the picture which would rise before the intelligent Christian as he looks to the acknowledged truths of science on the one hand and the teachings of God's word on the other; in which it will be observed that there is a most wonderful correspondence between the two, as we gaze on which we find that the microscopical differences disappear.

I invite you into a temple in which are symbols and inscriptions fitted to instruct us as to the true character and history of our world. That temple is not made by human hands, but by Him who created the heavens and the earth. It is larger, grander, and yet simpler, than the rock-cut temples of India, than the columnar vistas of Egypt, than the cathedrals raised by the piety of the Middle Ages. Some of the great passes in the Alps, Andes and Himalayas bear some likeness to it in length and height, but they are bare and sterile, whereas this is covered on both sides with

figures full of meaning. At the grand entrance are two forms which arrest the attention. The one on the right consists of two tables of stone, representing law—moral and natural. The one on the left is an altar, with flowers and fruit on it, and a bleeding lamb. Here the vista bursts on our view, and extends on till the sides are lost in the dim distance; but at the farthest end is an object which no distance can lessen—the Rock of ages, with a throne set on it which cannot be moved, and the Ancient of Days seated on it, and in the midst “a Lamb as it had been slain;” and midway between the entrance and the end is a cross lifted up and a meek sufferer stretched upon it, but with a halo round his head, and above him, spanning the arch, a rainbow formed by the refraction of the pure white light, which streams from Him who dwelleth in light that is inaccessible to mortal eyes and full of glory. On each side of this extended gallery are symbolic figures, and these grow out of each other, and carry on a continued history from the past into the future onward into eternity. The great limners of the world are busily employed in drawing the pictures in this palace of the great King. I am to engage you for a little while in looking at them and reading the inscriptions.

1. *The Religious Side.*—They have been written “at sundry times and in divers parts” by holy men as they were moved by the Holy Ghost. The first inscription that meets our eye is “In the beginning” (ἐν ἀρχῇ)—the word used by the old Greek philosophers when they were inquiring after the origin and principle of all things. How far back into the remote this carries us we cannot tell, but then “God created the heavens and the earth.” We then see a brooding darkness, but it is a cloud of seeds from which the worlds are formed. “The earth was without form and void,” but the wind of the Spirit blows upon it, and a voice is heard, “Let there be light,” and light appears, and henceforth there is systematic order: there is development in order or order in development, and at the close of each day or period God declares “all things to be very good.” As yet there is no sun or moon; but there is rotating evening and morning, and the evening and the morning constitute the first day—we know not of what length, for the clock of time is not yet set up, and the word day often means epoch in Scripture. In the second day there is the rising of the aërial and the sinking of the fluid. In the third day the sea is divided from the land; on the same day life appears, and has a

developing power in it. "for the earth brought forth grass, and herb yielding seed after his kind, whose seed is in itself after his kind." On the fourth two solid lights appear, and become the rulers and dividers of time. When the fifth day rises out of the night, we see the waters bringing forth the swarming creatures, and we have fishes and fowls, with moving creatures and sea monsters, all with a power of evolution, for the waters bring forth after their kind, and every winged fowl after his kind, and are enjoined to multiply and fill the waters in the sea and the earth. A sixth day dawns, and we see reptiles and beasts, all after their kind; and in this epoch appears a nobler creature made after the image of God, and with the command to be fruitful and multiply and replenish the earth. This was the special work of Elohim, the one God with a plural nature, who, on finishing the creation, leaves the living creatures to develop by the powers with which he has endowed them.

Another vision joins on, and we have, not Elohim, but the Lord Jehovah, the lawgiver, the covenant-maker; and we have exhibited to us the relation in which man stands to him. Man is represented as formed out of the dust of the ground, but with a divine breath breathed into him; he is put under law, with a promise of life and a threatening of death. We now come to the most mysterious of all the records. A tempter, indicating an earlier fall, suddenly intrudes, and he uses the beast of the field and the lower passions as his instruments; and henceforth man exhibits devilish propensities of pride and rebellion, on the one hand, and animal propensities of appetite and lust on the other; and there is sin propagating itself, actual sin developing from original sin as a seed, and man driven into a world where are thorns and thistles; and the multiplication of the race is with sorrow, and man has to earn his bread with the sweat of his face, and his body has to return to the dust from which it was taken.

There now appears a figure with an inscription containing the whole history of mankind in epitome. You see a Being possessed evidently of superhuman power, but with a truly human nature, having his heel bitten by a serpent, on whose head he sets his foot and crushes it for ever. The attached writing is, "I will put enmity between thee and the woman, and between thy seed and her seed; it shall bruise thy head, and thou shalt bruise his heel." Henceforth there are two seeds, and each develops after its kind,

and they contend, and must contend, till the good gains the victory. A seed—not seeds, as of many, but seed, as of one—is developed from the woman, but by a heavenly power, the Holy Ghost, who brought form out of the formless at creation; and this personage is represented as suffering, as having his heel bruised, and in his suffering destroying the power of evil. Henceforth our world is a scene of contest. Man is warring with the unwilling soil, with privation, disappointment, loss, disease and death; one man contending with another because of conflicting interests and passions; one race and nation fighting with another; and a large portion of human history is a history of war. To restrain excessive wickedness the earth is visited with a flood—as geologists tell us it had often been before—but animal pairs are preserved to continue the races, and the rainbow is made to give assurance to the terrified fathers that waters will no more cover the earth. The purpose of God is fulfilled in the scattering of men; but the people, wherever they go, propagate the evil, and change the incorruptible God into an image made like to corruptible man, and “to birds and four-footed beasts, and creeping things.” To preserve a seed who may know the truth, a special man and a special seed is set apart. Out of this seed comes the father both of history and poetry, who, in language of unsurpassed simplicity and grandeur, has described creation, and written the inflexible law in the granite of Sinai, and, himself a prophet, spoken of a greater Prophet to come. Their greatest poet, himself a great warrior, portrays the contest between the good and the evil going on in the world in warlike imagery; and feeling that he himself is not the man to build the spiritual temple, because his hands have been imbrued in blood, points ever to a King who “in his majesty rides prosperously because of truth, meekness and righteousness.” There follows a succession of prophets, each with his vision and his parable; and the grandest of them, whose sentences flow like a river descending from the heights of heaven to water the plains of earth, speaks of him as wounded, bruised, dying and in the grave, but seeing the fruit of the travail of his soul, and extending his dominion till it covers the whole earth as the waters do the channel of the sea. Contemporaneous with these we have typical personages—prophets, priests and kings—with their faces shining with light as they look forward to One suspended on the cross, and beyond to the throne of God. In the middle of the ages that great Person appears, passing through

suffering to conquest, fighting with sin and subduing it, connecting heaven and earth as by a ladder, and as a rainbow spanning the world.

Beyond the central figure a new life appears. God comes forth as creator the first time since he rested after creating the heavens and the earth. Just as in the prehistoric ages there had appeared a plant life, and an animal life, and an intellectual life, and a moral life, so now we have a spiritual life: it is the dispensation of the Spirit. Those who have sat for ages in darkness now see a great light. A new people come forth, not dwelling in a separate locality, but scattered among all people, like salt to preserve, like seed to propagate, the life all over the world. With that spiritual life come other forms of good, such as art, and civilization, and widening comforts, and the cultivation of the intellect, and the refining of the feelings. But the soil has still to be ploughed and harrowed in order to yield seed and fruit; the spiritual forces have to meet and overcome obstacles; and every good cause before it succeeds has to produce a martyr, out of whose ashes a new life proceeds. Not only so, but there is a contest in every heart; "the flesh lusteth against the spirit, and the spirit against the flesh, and these are contrary the one to the other." The cause moves on, as the light comes from the sun in vibrations, as the tides come up upon the land—advancing and receding, but on the whole advancing. In the last symbolic book we hear a succession of trumpets sounding to call men to the battle, and see vials poured out to destroy the seeds of evil and purify the atmosphere. Many pass to and fro, and knowledge is increased; agencies for good are multiplied, and the kingdom extends till it spreads over the whole earth, which has rest for a thousand years—we may suppose a day for a year. Beyond this the vision becomes dim from the distance, but we see the old adversary loosed for a little while, and the earth burned with fire, and the dazzling bright throne of judgment set up, and the God-man upon it, and every one giving an account of the deeds done in the body, whether they have been good or whether they have been evil; and then a separation, these descending by their own weight into their own place of blackness, and those carried up to heaven by their attraction to God, where they join in the song, "Salvation to our God that sitteth on the throne, and to the Lamb."

2. *The Scientific Side.*—Here, as on the other side, we have a

body of men busily employed in drawing figures and carving inscriptions, all to throw light on the past and present of our world. They are left to their native powers, and have to work by observation; they are not kept from error by any special guidance, and much that they write is laid in colors which fade, or in false colors which require to be blotted out by those who come after. Still much remains, and shall remain for ever, chiseled in the rock and never to be effaced, and this is growing and accumulating.

We have, first, lawgivers, who, finding that men are prone to evil, have proclaimed laws more or less perfect to secure obedience. Then there are moralists, from Socrates downward, inscribing on that wall what they have found written on their hearts, and which they regard, if only they read it aright, as a transcript of the holy nature and the supreme will of God. Alongside of them you may notice the broad-browed philosophers, from Plato and Aristotle onward, speculating on fate and chance, and the relation of the universe to God, and demonstrating that man's soul has a conscious unity and personality of which it can never be deprived. The next group consists of historians who have given us lively narratives of the great deeds of our world, of the sacrifices which men have made for kindred and for country, but who have also to record enormous crimes, political feuds and wars which have deluged the earth with blood. Next and more influential are those who express popular feeling, and have told what this world of men and women is, and have enshrined their thoughts in verse, that they may be caught more easily and remembered longer. Let us notice the topics of which they treat. The oldest of them, never surpassed for natural strength, has sung of the wrath of Achilles, and the evil thus wrought. Another, full of grace, has sung of arms, and of a hero fleeing from a burning city, and crossing a stormy sea to found an empire. In a later age we see one who, though blind, has seen farther than other men, and has painted demoniacal pride—Paradise Lost and Paradise Regained. Another hand has taken the lyre, and, with old Horace and modern songsters and satirists, has delineated the loves and hatreds, the hopes and disappointments, the joys and sorrows, the aspirations and foibles, which agitate men's bosoms. A third class, led by our high-browed dramatist, have exhibited on a stage what they believe to be the swaying motives of rich and poor, and have let us into the secrets of the working of ambition, passion, jealousy, pride,

vanity, envy, revenge, caprice, fear, despair. The poet of the common people, in describing their joys, often sensual and mad, comes to the conclusion that "man is made to mourn." Romancers of these late years are taking up the same work, and are spinning tales which exhibit the strength and weakness of our nature—yearning affections, blighted hopes, cruel betrayals—illustrated by seduction and murder. All of these artists describe this earth as a strangely mixed scene, with hills and hollows, with lakes sleeping in visible repose or rent by storms, with peaceful valleys and terrible gullies, with streams flowing gently and then pouring over fearful cataracts, with an ocean now inviting us to repose on its bosom, and anon tossing off men and vessels like seaweed.

But let us specially look at the grand truths inscribed by the expounders of science, as you see them there with their instruments for weighing and measuring, and their laborious calculations. On the religious side everything was ascribed to God, proceeding orderly: "Thou hast established the earth and it abideth. They continue this day according to thine ordinances; for all are thy servants." A somewhat different but not inconsistent view is given of the same objects on the scientific side, where everything is ascribed to what is called Law, which, however, when properly understood, implies a lawgiver. So these men, consciously or unconsciously, are unfolding to our view the plan of the great Creator. On this side of the hall of science you see inscribed, first, mathematical figures, such as squares, triangles, circles, spirals and other sections of the cone, and it turns out that these regulate the forms and movements of objects in the heavens and in the earth, and are made to do so by a God who, as Plato says, geometrizes. Then you see science investigating inanimate nature, and showing that all the physical forces are modifications of one and the same force. Now it is seeking to discover the order and progression of animated beings, of plants and animals. It has shown that there are geological epochs: first an azoic period; then plants, marine and terrestrial; then the lower creatures with animal life; then fishes, fowls, reptiles, quadrupeds; and, finally, man.

In looking at these phenomena, men discover everywhere development or evolution. It appears in inanimate nature—in suns, planets and moons being evolved out of an original matter, in a way which implies that the earth is older than the sun, and must

have existed for ages, and had light shining upon it before the sun took his solid form. It is a characteristic of organized beings to produce others after their kind. Those who view development in the proper light see in it only a form or manifestation of law. Gravitation is a law of contemporaneous nature extending over all bodies simultaneously—over sun, moon and stars the most remote. Development is a law of successive nature, and secures a connection between the past and the present, and I may add the future, securing a unity, and it may be a progression, from age to age. It is merely an exhibition of order running through successive ages, as the other is of order running through coexisting objects.

But at this point difficulties and disputes arise. Is development so restricted that the plant or animal produces an offspring only after its kind, the lichen producing only the lichen, and the lily only the lily, and the oak only the oak, and the worm only the worm, and the bee only the bee, and the horse only the horse? Or may not development be so extended as to imply, in new circumstances and under new conditions, a modification of kinds—that is, new species—and an advance from age to age from lower to higher forms? Some maintain that there is no power in nature to change species, and that when a new species appears it must be by an immediate fiat of God acting independently of all natural agents. Others hold that there may be powers in nature—religious men say conferred by God—which gradually raise species into higher forms by aggregation and selection. I am not sure that religion has any interest in holding absolutely by the one side or other of this question, which it is for scientific men to settle. I am not sure that religion is entitled to insist that every species of insect has been created by a special fiat of God, with no secondary agent employed.

But in prosecuting these investigations science comes to walls of adamant, which will not fall down at its command, and which, if it tries to break through, will only prostrate it, and cause it to exhibit its weakness before the world. (1) It cannot develop without a matter to develop from, and it cannot tell where this original matter came from. This matter must have properties: what are these properties? and whence? The impression left by the statement of some is that if we only had this original matter, everything else could be accounted for by evolution. But (2) we cannot, apart from a designing mind, account for that combina-

tion, that organization of agencies—mechanical, electrical, chemical, vital—which produces development. (3) It cannot say how animal sensation or feeling came in. (4) It cannot tell when or how instinct came in, how or when intelligence appeared, and affection and pity and love, and the discernment of good and evil. (5) In particular, it cannot render any account of the production of man's higher endowments, his powers of abstracting, generalizing and reasoning, from the individual objects presented to him, of discovering necessary truth, and the obligation of virtue. Science has not found these in the star-dust, nor were they in the ascidian, the fish, the monkey: how, then, did man get them, or, rather, whence came man as possessed of them? Science, at all these places, comes to chasms which it cannot fill up. It has no facts whatever to support its theories, and is obliged to acknowledge that it has none; and as to the hypotheses which it calls in, they do not even seem to explain the essential facts, the appearance of new powers or agencies not known to be at work before.

But meanwhile, and as it is poring into these things, it is obliged to look at a set of phenomena unknown to or overlooked by the older physicists and naturalists—has, as it looks to animated beings, come in view of a conflict of which it can give no account, and of a manifest evil. It speaks of worlds coming out of star-dust, of worlds shattered into fragments and their materials scattered into space; and in regard to our earth, of upheavals, of sinking of land, and the submergence of all living beings on it; of floods, of denudations, of volcanoes, of icebergs, and long periods of shivering cold. All these might not be evils, but then it speaks of what is and must be an evil—of the existence of pain. When living beings appear, it cannot tell how, it is obliged to speak of a struggle for existence, the stronger devouring the weaker, and innumerable diseases preying on the animal frame, of individuals dying, and races perishing from want of sustenance or amid overwhelming convulsions. When man appears, it cannot tell how, but on a scene evidently prepared for him, he carries the seeds of disease in his very person, and he has to suffer pain of body and torture of mind. Around him are storms to destroy and disappointments crossing his path, and within are selfishness and craving lusts and repinings and passions, which war against each other, and war against the soul.

True, there are in all these objects law and order and benefi-

cence, obvious and pressing itself on the notice. Forces, blind in themselves, are made by their combination to produce the most perfect mathematical figures. Beauty appears everywhere—in sky and earth, in planet and plant. Every organ of the animal frame is good in itself, and liable to accomplish its evident purpose. There is order in star and sun and earth, but order coming out of disorder. It is beauty in flowers, in young man and maiden, coming out of dust and returning to dust; we see it in that foliage, so beautiful even when it is fading; does not the father feel it when he commits the body of his son to the grave, “dust to dust, ashes to ashes”? Man has high aspirations, but it is only to feel how far he falls beneath them. All these are facts—quite as much so as the movement of the planets in elliptic orbits, as the laws of development in the vegetable and animal kingdoms. The proudest thinkers, as they are brought face to face with these facts, are obliged to acknowledge that they cannot discover a final cause in many of the most common agents of nature; as, for instance, in the derangement to which every organ of the frame is liable, and in the parasites which dwell in and feed on the bodies of all our noblest animals. The microscope shows us how exquisitely they are formed, but all to inflict the more excruciating pain. We may apologize for some of these things, but we cannot explain them, for instance, the existence of incurable sorrow and madness. Physiologists know that the organs of the body—the eye, the stomach, the liver, the brain—might have been so constructed as not to be liable to disease and pain, to which they are exposed, not by accident, but by their very nature and structure. Combined science, as it looks into the future, is obliged to tell us that the world and all that is therein shall first have its heat exhausted, and then, in the disintegration, shall be burned with fire; and what is to be the new order of things which is to issue out of this elemental fire it cannot tell.

Now this is, in fact, the sum of what science has been able to say about our world: Our cosmos rises out of dust, is formed into beautiful shapes by warring powers, becomes order and progressive order, and ends in dissolving heat. Our earth comes out of a cloud and ends in a conflagration. The highest being, as he enters it, makes known his presence by a cry, and ends his march through it in the grave. Surely in all this, while there is much in the evident order and beneficence to elevate, there is not a little to awe

and to humble us. The profoundest thinkers feel that they have come here to an unknown power behind and beneath all, and are impelled under a choking feeling to cry out, like the dying Goethe, for light, and for windows to be opened to let it in.

Meanwhile, that other and higher law, the moral law—the law written on the heart—has something very important to utter, and it pronounces it in the name of God, the law-giver. It affirms of itself that it is unbending as stone, and yet finds that man has broken it. It points emphatically to a judgment to come—it cannot say where or when, but certain to come—as certain as that there is a law, an eternal law, and a God to guard it. The scene closes with each one placed before that bar to give an account of the deeds done in the body, whether they have been good, or whether they have been evil; and there it leaves him, in the midst of the conflagration of worlds, with undying matter taking new shapes, and a soul—certainly as undying as that matter—ready to be consigned to its own place of light or of darkness.

3. *The Reconciliation.*—Having taken a cursory glance at each of the sides of this rock-cut gallery, let us now look back upon the two. We see in a general way that there is a correspondence between them. In both we have moral law set forth—in the one by the conscience, in the other by the commands and prohibitions in Eden, by the tables of stone on Mount Sinai, and by the Sermon on the Mount in the New Testament. But there is this important difference: the one tells us that the law has been broken, and in proof points to the wickedness in the world, and the guilty remorse which agitates men's bosoms, but reveals no way by which the sin can be forgiven; whereas the other, while it declares that sin has been committed, clearly makes known a way by which the sinner may be reconciled to God. Both reveal order in the world—the one as appointed by God; the other as discovered by man. In both we have progression in the divine workmanship, and the order, as Dr. Guyot has shown, is very much the same.¹ The Bible says that after man was made God rested from creation, and Dr. Dana assures us that since man appeared geology does not disclose a single new species of plant or animal. It is surely a curious circumstance that this picture of the formation of our earth was drawn upward of three thousand years before geology

¹ See Evangelical Alliance Conference, 1873, p. 276. See also Dawson's "Nature and the Bible," Lect. III.

started, and has continued unchanged amid the shiftings of science. The inspired record tells us, what anthropology confirms, that man has a twofold nature—a body formed out of the dust of the ground, and a spirit after the image of God breathed into him. Nor is there any contradiction as to chronology. For, first, geology has no clock to tell us the time—what it reveals is not absolute, but relative. It tells us that a certain epoch must have been before another epoch; but its deductions are very uncertain as to how far back any one epoch—say the glacial epoch—carries us. These uncertainties have been increased by the discoveries lately made by Dr. Wyville Thomson and Dr. Carpenter of creatures now living in the deep seas which geologists, if they had found them as fossils, would at once have ascribed to a much earlier epoch. And as to Scripture, it contains no inspired chronology of early history; what passes as such is drawn out of Bible genealogies by fallible men, and drawn out of imperfect data, for Jewish scholars tell us that these genealogies were never understood as being complete; and the genealogies, when summed up, give us, in the Hebrew text, 1656 years between the Creation and the Flood, whereas the Septuagint gives us 2262 years, and the Samaritan text only 1307 years.

At this stage the scriptural record opens a new and strange phenomenon to appear in the universe of God: it furnishes a glimpse of an early rebellion; for one comes on the scene to tempt the first human pair. At the corresponding period science gives intimations of a struggle in which we see warring elements, and a gradual evolution of planets and satellites, the sun consolidated into a centre, and capable of being seen from the earth; and when living beings appear—science cannot tell how—we find animals devouring one another, the strong, with their terrible fangs and jaws, prevailing; the weak disappearing through disease and death, accompanied with brute passion and pain. History and biography come in to tell us how much of human activity has been spent in feuds among individual families and nations. Poetry, and at a later date romance, take up the theme, and they delineate the hopes and fears and passions of our nature, and our bosoms beat responsive to their descriptions. We feel that the Scriptures speak profoundly and truly when they say: “For the earnest expectation of the creature (or creation) waiteth for the manifestation of the sons of God. For the creature was made subject to vanity,

not willingly, but by reason of him who hath subjected the same in hope. Because the creature itself also shall be delivered from the bondage of corruption into the glorious liberty of the children of God, for we know that the whole creation (creature) groaneth in pain together until now" (Rom. viii. 19, 22). The same apostle describes the internal struggle (Rom. vii. 14, 20): "To will is present with me; but how to perform that which is good I find not."

Our world is not what some describe it. It is not what the rationalist would have it—a peaceful landscape, with nothing but order and beauty. It forces upon our observation scenes which the expounders of natural theology and your Unitarians, who, discarding inspiration, would fall back on natural religion, are unwilling to look at; and the opponents of religion, natural and revealed, are right when they say that it is difficult or impossible to discover final cause in everything—in the liability of every member of the body to disease, in pain often amounting to anguish, in sorrow which refuses to be comforted, in despair issuing in suicide. The last of the great series of German speculators, who began with Leibnitz and was continued by Kant and Hegel, terminated with Schopenhauer and Hartmann, who have dwelt on the natural evils of terrible power and prevalence found everywhere in the world; and the speculative philosophy which began with optimism has ended with pessimism, audaciously avowed and gaining not a few followers. The great living speculator of England, belonging to a very different school—to that of observation—maintains that this world gives evidence of nothing beyond itself, except a great unknown out of which all things have come. Nor is our world what the sentimentalist dreams of, all sunshine and hope—all gratification and gayety. We live in a world where "day and night alternate;" where the evening and the morning constitute the first day, and the second day, and so on; where every man goes accompanied with his shadow, which he cannot leave behind nor overleap; and every one, sooner or later, will have to taste of bereavements, ingratitude, ill usage, and carries within him a fire of fear, lust and envy, ready to burst into a conflagration and burn up the soul, as fire is to burn up our world. Look now at this picture and now at that, and say whether they do not answer as face answereth to face in a glass, differing from each other only as one twin brother differeth from another.

All that science has demonstrated, all that theism has argued, of the order, of the final cause and benevolent purpose in the world is true, and cannot be set aside. Every natural law—mechanical, chemical and vital—is good. Every organ of the body, when free from disease, is good. There is certainly the most exquisite adaptation in the eye, however we may account for its formation, and for the numerous diseases which seize upon it. Agassiz has shown, by an induction of facts reaching over the whole history of the animal kingdom, that there is plan in the succession of organic life. “It has the correspondence of connected plan. It is just that kind of resemblance in the parts—so much and no more—as always characterizes intellectual work proceeding from the same source. It has that freedom of manifestation, that independence, which characterizes the work of mind, as compared with the work of law. Sometimes in looking at the epos of organic life in its totality, carried on with such care and variety, and even playfulness of expression, one is reminded of the great conception of the poet or musician, where the undertone of the fundamental harmony is heard beneath all the diversity of rhythm or song.” All this is true, but all this is not all the truth. What the older scientific men did not see; what Newton did not see as he looked to the perfect order of the heavens; what Cuvier did not see, when he dwelt so fondly on the teleology seen in every part of the animal structure; what Paley did not see, when he pointed out the design in every bone, in every joint and muscle; what Chalmers did not see, when in his asotruomical discourses he sought to reconcile the perfection of the heavens with the need of God’s providing a Saviour for men,—has been forced on our notice, as naturalists have been searching into animal life, with its struggles and its sufferings. There *is* order in our world, but it is order subordinating conflicting powers. There is goodness, but goodness overcoming evil. There is progression, but progression like that of the ship on the ocean, amid winds and waves. There is the certainty of peace, but after a battle and a victory. There may be seen everywhere an overruling power in bringing good out of evil; so that Schopenhauer, in noticing the evil, has noticed only a part, and this only a subordinate part, of the whole; and this to be ultimately swallowed up.

While they have seen the phenomenon, these men have not known what to make of it. It is useless to tell the younger nat-

uralists that there is no truth in the doctrine of development, for they know that there is truth, which is not to be set aside by denunciation. Religious philosophers might be more profitably employed in showing them the religious aspects of the doctrine of development; and some would be grateful to any who would help them to keep their old faith in God and the Bible with their new faith in science. But we must at the same time point out the necessary limits of the doctrine, and rebuke those unwise because conceited men who, when they have made a few observations in one department of physical nature, being commonly profoundly ignorant of every other—particularly of mental and moral science—imagine that they can explain everything by the one law of evolution. But there is a large and important body of facts which these hypotheses cannot cover. Development implies an original matter with high endowments. Whence the original matter? It is acknowledged, by its most eminent expounder, that evolution cannot account for the first appearance of life. Greatly to the disappointment of some of his followers, Darwin is obliged to postulate three or four germs of life created by God. To explain the continuance of life, he is obliged to call in a pangenesis, or universal life, which is just a vague phrase for that inexplicable thing, life, and life is just a mode of God's action. Plants, the first life that appeared, have no sensation. How did sensation come in? Whence animal instinct? Whence affection—the affection of a mother for her offspring, of a patriot for his country, of a Christian for his Saviour? Whence intelligence? Whence discernment of duty as imperative? It is felt by all students of mental science that Darwin is weak when he seeks to account for these high ideas and sentiments. Careful, as being so trained, in noticing the minutest peculiarities of plants and animals, and acquainted as he has made himself with the appetites and habits of animals, he seems utterly incapable of understanding man's higher capacities and noble aspirations, of seeing how much is involved in consciousness, in personal identity, in necessary truth, in unbending rectitude; he explains them only by overlooking their essential peculiarities. It is allowed that geology does not show an unbroken descent of the lower animals from the higher; on the contrary, it is ever coming to breaks, and, in the case of a number of tribes of the lower animals, the more highly organized forms appear first, and are followed by a degeneracy. It is acknowledged that in the histori-

cal ages we do not see such new endowments coming in by natural law—the plant becoming animal, or the monkey becoming man. That matter should of itself develop into thought is a position which neither observation nor reason sanctions. Science gives no countenance to it. Common sense turns away from it. Philosophy declares that this would be an effect without a cause adequate to produce it.

But these inquiries have brought us face to face with a remarkable body of facts. The known effects in the world—the order, beauty and beneficence—point to the nature and character of their cause; and this not an unknown God, as Herbert Spencer maintains, but a known God. “The invisible things of God from the creation of the world are clearly seen, being understood from the things that are made, even his eternal power and Godhead.” But in the very midst of the good there is evil: the good is shown in removing the evil, in relieving suffering, in solacing sorrow and conquering sin. Evil, properly speaking, cannot appear till there are animated beings, and as soon as sentient life appears there is pain, which is an evil. It does look as if in the midst of arrangements contrived with infinite skill there is some derangement. It may turn out that the Bible doctrine, so much ridiculed in the present day, of there being a Satan, an adversary, opposed to God and good, has a deep foundation in the nature of things, even as it has a confirmation in our experience without and within us, where we find that when we would do good evil is present with us. The old Persians had a glimpse of the truth, probably derived from a perverted tradition, and confirmed by felt experience, when they placed in the universe a power opposed to God; but they misunderstood the truth when they made that power coeval and co-equal with God; and the old Book, which some are regarding as antiquated, may be telling the exact truth when it tells us that sin is a rebellion to be subdued, and in the end everlastingly cast out. How curious, should it turn out that these scientific inquirers, so laboriously digging in the earth, have, all unknown to themselves, come upon the missing link which is partially to reconcile natural and revealed religion! Our English Titan is right when he says that at the basis of all phenomena we come to something unknown and unknowable. He would erect an altar to the unknown God, and Professor Huxley would have the worship paid there to be

chiefly of the silent sort. But a Jew, born at Tarsus, no mean city in Greek philosophy, and brought up at the feet of Gamaliel, but subdued, on the road to Damascus, by a greater Teacher than any in Greece or Jewry, told the men of Athens, who had erected an altar to the unknown God, "Whom ye ignorantly worship, him I declare unto you." It does look as if later science had come in view of the darkness brooding on the face of the deep without knowing of the wind of the Spirit which is to dispel it, and divide the evil from the good, and issue in a spiritual creation, of which the first or natural creation was but a type.

We do not as yet see all things reconciled between these two sides—the side of Scripture and the side of science. But we see enough to satisfy us that the two correspond. It is the same world, seen under different aspects. We see in both the most skillful arrangement; we are told in both of some derangement. Both reveal a known God; both bring us to an unknown source of evil. But with the sameness there is a difference. The relation is not one of identity, but of correspondence; like that of the earth to the concave sky by which it is canopied; like that of the movement of the dial on earth to that of the sun in heaven. On this side is a wail from the deepest heart of the sufferer; on that side there is consolation from the deepest heart of a comforter. On the one side is a cry like that of the young bird when it feels that it has wandered from its dam; on the other, a call like that of a mother bird, as you may hear her in the evening, to bring her wandering ones under her wings. You may notice on that side a bier, with a corpse laid out upon it of a youth, the only son of his mother, and she a widow; on that other side the same picture, but with one touching the bier, and the dead arises and is in the embraces of his mother. On this side you see a sepulchre, and all men in the end consigned to it, and none coming out of it; on the other side you see the great stone rolled away, and hear a voice: "He is not here; he is risen." The grand reconciliation is effected by that central figure standing in the middle of the ages, by Him who has "made peace through the blood of his cross, by Him to reconcile all things unto himself, by Him, I say, whether they be things on earth or things in heaven."

We have been able to take only a very cursory glance at the inscriptions on the wall of this temple. It is the aim of all learning,

sacred and secular, to enable us to read and comprehend them. The superscription over the central figure was in letters of Greek and Latin and Hebrew, that the people of all countries may read it, and that we may proclaim it in every language. In the great contest going on without and within, every man must be on the one side or the other ; let us see that we be on the right side.