

GEOLOGY

AND

THE BIBLE.

A Reply to Dr. Lambart,

BY

W. W. COLLINS.

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*A REPLY TO DR. LAMBART*

By W. W. COLLINS.

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MR. CHAIRMAN, LADIES AND GENTLEMEN,—I feel extremely sorry that Dr. Lambart should have fallen ill at this season of the year; and this feeling of sorrow is increased inasmuch as no one would have been more happy than myself to have him among my audience this evening to listen to what I have to say, and that I might be open to a full and fair criticism. Being, as I think I may claim to be, an earnest seeker after truth, and attacking as I do that which I believe to be untrue, I feel that truth has nothing whatever to fear in its conflict with error. Let us state our ideas fearlessly and openly, not stooping in debate to attempt to gain a position for ourselves by ungenerous attacks upon the character or the position of those whom we may oppose. Such a position I would wish to maintain during my lecture this evening, and I would if I could in justice to myself and the cause I represent dismiss at once from my mind everything approaching a personal character, but I am bound to say how absolutely I object to the style of debating adopted by Dr. Lambart when replying to the lecture of Mrs. Besant on "The Flood"—a reply, remember, coming as this did two years after Mrs. Besant's lecture, when the facts and the arguments based upon them would by many be quite forgotten. Under such circumstances a man should be at least just to an opponent. But perhaps it may be that two years ago Dr. Lambart was unacquainted with geology and has since then been studying the science; if this be so then there is some explanation for the extremely illogical geology contained in his lectures—(loud

cheers)—errors into which surely no man would fall who had more than a two years' acquaintance with the subject.

Of the many conflicting opinions held to-day all cannot be true, and the truth can only be obtained by bringing these conflicting opinions into contact with each other. As Milton well said, we must "Let truth and error grapple. Who ever knew truth put to the worse in a free and open encounter?" All I want is a fair field and no favor, for great is the truth and truth must prevail. If Dr. Lambart intended to reply to Mrs. Besant, why did he not only wait two years after her lecture was delivered, but reply to her in her absence? Why did he not attack her when she delivered her lecture, and not leave it to a time when she should be unable to defend herself from his ungenerous and undignified insinuations. Dr. Lambart surely forgot that he was replying to a lady when in this ungentlemanly manner he attacked her behind her back, classing her among those shallow pates in science who, unable to go to the roots of things, satisfy themselves with mere "surface skimming," knowing as he ought to have known, that in controversy Mrs. Besant always took her own part with characteristic honesty, while in the scientific examinations she had passed she had succeeded in maintaining that high reputation for ability—a reputation perhaps unequalled by any other lady in the United Kingdom; nay, in the whole world. (Applause.) When a man strikes a man behind his back he is a coward, when a man strikes a woman he is worse than a coward, but when he strikes a lady behind her back he is a blackguard. Now, whether Dr. Lambart has done this you must judge, and I shall perhaps be taunted with saying this behind his back. Well I had rather he had been present, I should have said just what I have said, and I must leave you to draw your own conclusions. (Cheers.)

Now, friends, I want, as far as I am able, to place before you as true a picture of geological science as it is possible to do in the time at my command, and then to ask you to place side by side scientific facts and scriptural statements, and then ask yourselves which

you are going to believe. With me it is simply a question of truth and error, and I want your conclusions to be drawn entirely from their respective merits. (Cheers.) If the Bible is true, if it is the revealed word of God, it will be sure to stand in spite of anything man can say or do. If the Bible is a human production it may in the end be found to be in error, in which case it will not agree with the truths of scientific teachers. The Bible commences with a very off-handed—shall I say?—account of the origin of things. It carries us back to the beginning—whenever that may have been—and of this beginning of things it gives us two separate and contradictory accounts. These two contradictory accounts are contained in the first and second chapters of Genesis. Now, I will ask, can any reasonable thinking man read these two accounts and believe them both in spite of their contradictions? Surely no unbiassed mind can conclude that they are both true. You cannot believe two statements to be true if they contradict each other. We must go to the examination of these questions with unbiassed minds. We must draw our own conclusions, and not allow others to draw them for us. I want you first to notice that when God in the beginning created the heavens and the earth, that the earth is described as being “without form and void.” Now surely if anything were created at all it must have had some form and must too have occupied some space. To speak of something as neither occupying space nor having form, is to deny its existence, and is utter nonsense. In the first chapter of Genesis we are told that God divided the light from the darkness, showing a total scientific misconception, and ushered in the first day. On the second day he divided the waters, showing that the author of this story was under the impression that light and darkness were entities which could be operated upon just as the substance water could. After this, God separated the water from the land, ordered the earth to bring forth the grass, the herb and the fruit-bearing trees—all this before he made the sun, without whose light and heat these living organisms could not exist. He made the sun

and moon and set them in the firmament. On the fifth day he made the waters to bring forth every moving creature that hath life, fowls and great whales. And the earth was made to bring forth all kinds of cattle and creeping things. Then on the sixth day God created man in his own image, together with woman. In the language of the Bible, "male and female created he them, giving them dominion over every other living thing. And on the seventh day God rested." The omnipotent was tired, the eternal wanted repose. In the second chapter of Genesis we find quite a different story. Though we read in the first chapter that the earth brought forth plants of every kind before the creation of man, yet in the second chapter we are informed that plants and herbs did not grow because there was no man to till the soil. In the first chapter the animals are created before man, in the second afterwards. In the first chapter man and woman are created together, in the second enough time elapses after the creation of Adam for the creating by God of all the beasts, and for the naming of them by Adam, after which Eve is created to be a helpmate for Adam, the all-knowing and all-wise having found out that it "was not good for man to be alone." (Cheers.)

Now, friends, both these stories cannot be true. They not only differ from each other, but they differ from the fifth chapter of Genesis, where we are told that God made man in his own likeness, male and female created he them and called *their* name Adam—I suppose Mr. and Mrs. Adam—(laughter)—but if they did not thus contradict each other they are so crude, so childish, so stupid, that we cannot but regard them as the work of illiterate and pseudo-scientific men. So intense does the stupidity of these stories appear in the light of modern science, that that any should be found believing them seem beyond comprehension.

Besides this account of the origin of the world, together with its living forms, both animal and vegetal, as presented in the Bible, we have another account written not by man but by—shall I say—the world itself. Our geologists have laid before us page after

page, as it were, of the history of this world, a history indelibly written by the finger of nature on the rocks themselves. This is the greatest, the grandest history that could possibly be produced, for the rocks cannot lie, cannot be accused of wishing to deceive. A book, on the contrary, may lie, and may have been written by fallible men who erred in their statements or who had some advantage to gain by wilfully deceiving. Read this history of the world, written by the world itself, and compare it with the history written, or claiming to be written, with the aid of "divine revelation." Then if you can make these two accounts agree, if you can reconcile the one with the other, then all I can say is that your power of reconciliation, like the wisdom of Almighty God, surpasseth all comprehension. Now all I ask is that you shall read these histories carefully, read them without bias, and decide for yourselves which is to be believed, for I am sure you cannot accept both. The six days' creation story, the chronological order of the creation of animal and vegetal forms, including man, find no counterpart in the geologic records, and no amount of intellectual legerdemain can convert the biblical story into a scientific account. Not only is the time altogether inadequate, but the manner and order of their appearance is, as I shall show, absolutely contradicted by modern science. The difficulty as to time has been recognised at last, even by our opponents. No thanks, however, are due to them for the admission. As long as they could they held tenaciously to the Bible account, and not until compelled by scientific progress did they venture to pull up their courage and modify the crude ideas they had so long held. For centuries science was practically prohibited and its advancement made next to an impossibility; discoverers and teachers were prosecuted and persecuted even to death itself; while even of late years no epithet has been deemed too vile to hurl at the devoted scientist who has had the courage to give to the world the result of his own researches. And yet, forsooth, we are blandly asked to believe that science and the Bible are perfectly at one if we read both aright—and with faith! To make the Bible and

science agree, we must make science absolutely unscientific, and the Bible must be construed so as to advance ideas which are at once seen to be entirely opposed to the ideas evidently held by its unknown authors.

The "six days" of creation we are now meekly told really signify "six epochs." Yes, six indefinite epochs of unknown duration, for "a day with the Lord is as a thousand years and a thousand years is as a day." Geology, however, knows nothing of these "six epochs"—they are altogether inadequate to account for geologic phenomena. Besides, is it not most palpably evident that the "six days" of the Bible were really six days of ordinary duration? The days of the author of the first chapter were undoubtedly six ordinary days; the story itself forbids any other interpretation. Again, do we not get a further confirmation of this view when we read the commandment as given in the 20th chapter of Exodus, "in six days the Lord made heaven and earth, the sea, and all that in them is, and rested the seventh day: wherefore the Lord blessed the seventh day, and hallowed it"? Here the Bible distinctly reaffirms the "six-days" story, and it is idle to pretend that six epochs were meant. Nay, we know that these ideas would never have been advanced had it not been that something must be done, done quickly, however desperate, to bridge the gap which geology had created. With the internal peculiarities of the Bible stories I have nothing to do at present, though the picture of omnipotence resting must have been a scene worthy the Gods themselves. We will proceed at once to unroll the earth's historic scroll, and decipher the characters legibly written on those most lasting tablets, the rocks themselves.

When we come to deal with the subject of geology, we are at once brought face to face, as it were, with those mighty changes which in their totality constitute nature's operations—changes vast of past epochs, changes equally taking place at the present time, changes periodical, and continuous; for nature knows no rest not even one day, much less one epoch in seven.

Now these changes, gradual, almost imperceptible, as

they are, and which never strike us as producing any great modification in the configuration of the earth, are the very changes which have produced all the phenomena of past geologic epochs. As we go back through the world's history we discover evidences of changes vast, stupendous ; but these changes, great as they appear, are simply the result of what I would describe as accumulations of infinitesimal changes, changes similar to those taking place all around us. Though everything appears fixed, nothing is still : the "everlasting rocks" and "changeless seas" are ever exchanging places. There is nothing like idleness in nature. Every breath of air, every beam of light, every tiny rain-drop, effectually does its work. And what is this work ? It is the great work of disintegration. Just as when a building is in course of erection the stone of which it is being constructed has to be obtained from a distance, thus giving employment to those who quarry and to those who convey the stone, so in nature there are agents ever at work, removing these rocks from one situation to another. There are atmospheric agents ; there are chemical agents ; there are mechanical and marine agents, all doing their work, trying, as it were, to continually lower the surface of the land. Under the influences of frost, rain, river and sea-waves, the land is constantly wearing away. Everywhere the work of these agencies may be seen, though of course the effects produced will be much greater in some places than in others, owing to the position and nature of the substances acted upon. The waves may beat against the granitic rocks of Orme's Head for centuries and produce but little result—the work is so slow. The limestone rocks of the Durham coast and the sand-stones of Devonshire are, however, rapidly succumbing to the constant action of the waves of the German Ocean and the English Channel respectively.

Taking our own country, if you travel along the East coast the encroachment of the sea upon the land is seen to be taking place at a very rapid rate—so much so, that we are apt to doubt whether it be true that "Britannia rules the waves." From Bridlington to Spurn on the Yorkshire Coast, the waves erode something like



two and a half yards annually, and the sea has encroached more than three miles since the time of the Romans. Many villages have entirely gone, and over where they once stood the waves now roll majestically. The church tower at Eccles may still be seen peeping above the sand on the sea-shore, for the waves are perfectly impartial in their action: they are no respecters of churches. What is now the small village of Dunwich on the Suffolk coast was once a seaport, but the sea has here encroached several miles within historic times. Where are now the Goodwin Sands was once the main land, so that at least on the East coast "wave action" is at once apparent. To make up for the advance upon the East coast the sea appears to be slowly retiring from the West, as witness the great stretches of sand at Rhyl, Southport, Lytham and other places. In some districts green fields now flourish where at one time the largest of ships might have floated; and from these facts we learn to understand that great geological induction that the relative positions of land and water are constantly changing.

But besides wave agency we must note briefly the amount of work done by streams and rivers. The waves may modify the coast, but the streams and rivers modify the land far inwards and equally assist in bringing about the relative changes of place of land and water. The river Ganges, in India, is, perhaps, the swiftest river that flows; and it has been computed that the amount of mud which is carried down by this one river and deposited in the Indian Ocean could not be carried by less than 2,000 ships sailing every day, each ship carrying 1,400 tons of mud. Thus you see this river tearing down the land and gradually filling up the ocean—land and water changing places. In the Mediterranean Sea an immense delta has been formed from the mud brought down by the river Nile, and this low, flat land is gradually increasing both in elevation and extent at the same slow rate at which it has always advanced. Probably the amount of elevation does not amount to more than five or six inches per century, and since, in some places these mud deposits are known to be more than 60 feet in depth,

I must leave you to judge how vast a period of time must be required for their deposition at the rate of only five inches per century. From remains of pottery, human bones, and burnt bricks, dug up from considerable depths of this "Nile mud," it is evident that human beings inhabited this part of the world at least thirty centuries ago. The whole of Lower Egypt owes its origin to this one river. Dr. Draper, the author of the "Conflict between Religion and Science," tells us that the coast line near the mouth of the Mississippi river, in America, has been well known for the last 300 years, and during that time it has made no perceptible advancement upon the Gulf of Mexico, but there was a time when the delta was at St. Louis, which is now more than 700 miles from the river's mouth. How long, I would ask, must we allow for the deposition of this 700 miles of land, seeing that the encroachment is of so slow a nature that 300 years does not suffice to alter the measurement? Just think of these vast changes, of the slow, gradual manner in which they have taken place, of the mighty results they have achieved, and then try to crowd all this into 6,000 years, which is about the age of this earth if the Mosaic account of things be true. But it cannot be true—the facts of nature are against it. We are now told that the Bible was never intended for a scientific book. Some get, or try to get over the difficulty by asserting that the Bible account is simply poetry, and that poetic license must be allowed for. Others again tell us that underneath the story there is a hidden spiritual significance, only revealed to those who read in faith; but the student of to-day asks which of these theories is the true one. For years, hundreds and thousands of men have been hounded down, persecuted to death, tortured on the rack, imprisoned in the dungeon and burned at the stake, for doubting a story of the true meaning of which none are agreed at the present time. Why did they torture first and find out their mistake afterwards? Why did they burn Bruno first and then discover that the Bible is only poetry and was never intended to be used as a scientific book? Such, friends, is the consistency of the human mind when warped

and distorted by the withering influences of supernatural religion.

I must now ask you to consider briefly the nature and order of those rocks which to the geologist form so important a feature of the earth's surface—the stratified rocks. These rocks have all been produced by the agency of water acting in the manner I have described. These stratified rocks occur, as the word "strata" (from the Latin *stratum*, a bed) would suggest, in regular layers, and could they be piled up bed upon bed in the regular order of their depositions, they would form a mass of stratified matter of from eighteen to twenty miles in thickness. These rocks are divided into three great classes—viz., the Palæozoic, the Mesozoic and the Cainozoic. These words simply denote ancient, middle and recent organic forms, and so to avoid the difficulties of geologic nomenclature, we will use the simple names of primary, secondary and tertiary rocks. Now each of these three classes is made up of various groups of strata, these groups being related to each other, generally speaking, both as to their lithological character and their fossil contents. Altogether there are something like twelve of these groups, to which the following names have been given:—(1) the Laurentian, Cambrian, Silurian, Devonian, Carboniferous and Permian. (2) Triassic, Jurassic and Cretaceous. (3) Eocene, Miocene and Pliocene. Now all of these strata beds, from the oldest to the most recent, contain remains imbedded within them of those creatures which inhabited the earth during the time of their deposition in river, lake or ocean. These remains are called fossils, and they reveal to us the true history of the animal and the vegetal forms which have through bygone milleniums inhabited this world. In the oldest rocks these remains are of so indefinite a nature that for a long time our ablest geologists were really puzzled as to their true character. The most ancient of all fossils occurs, of course, in the Laurentian rocks,\* and to this fossil Dr. Dawson gave the name of Eozoon

\* For a full exposition of the fossil contents of the strata groups, from the Laurentian upwards, see articles in *Progress*, January and February numbers, 1885, by W. W. C.

Canadense. This creature is a Foraminifer, and belongs to the lowest sub-kingdom of animals, the Protozoa. From the Laurentian rocks upwards the fossils increase in number and develop in form and complexity, until at last, in the most recent deposits, they culminate by revealing to us the highest of all animal forms—man himself.

In the Bible stories we are told that on the fifth day of creation God made the fowls that fly above the earth, together with great whales and every living thing that moveth in the waters. And on the sixth day he created all creeping things and all beasts of the field, and concluded the day's work with making man in his own image. Now, not only is it absolutely impossible to reconcile this story with the one contained in Genesis the second, but both are entirely at variance with the geologic record. From the rocks we learn the true life-history of the world's fauna and flora. Species have evolved slowly, imperceptibly; the gradual changes in the inorganic world have produced corresponding changes in the world organic. Sudden changes, cataclysmic changes, kill; slow, gradual changes modify. The geologic order of animal appearance is just what the evolutionist would expect to find it. The first fossil remains are those of invertebrate creatures. After a vast lapse of time the fishes, the lowest of the vertebrates (back-boned) appear, these anon being followed by reptiles, birds, beasts, and finally man.

When we note the great thickness of the rock masses, some of them such as the Laurentian, being more than 30,000 feet in thickness, we naturally ask ourselves what vast æons of time must have been required for their deposition and for their solidification; and again, what untold millions of ages must be required to account for the British strata alone, which, if superposed in chronological order, would reach an aggregate thickness of nearly twenty miles. How altogether inadequate the Bible theory is, in the face of these facts, becomes painfully apparent. Let us be honest to the truth—the world itself cannot lie; a book may.

The finding of marine shells inland, together with

occurrence of sand, gravel and mud accumulation, sometimes at high elevations, was for some considerable time thought to bear witness to the Noachian deluge. Indeed, Dr. Lambart has himself advanced similar ideas in two of his lectures, and they form his only attempt at scientific argument. Dr. Lambart is the only man I know of who, pretending to a knowledge of geology, would attempt to account for these things in this manner, who would try to show that they have been brought about by the agency of a deluge. Science shows us that many thousands of years ago, not only this country, but the whole continent of Europe, was covered by ice and snow. This is known as the glacial period. At this time the climate of England was similar to that which now obtains within the arctic circle, and it is probable that the arctic circles are really remnants of this glacial age. An examination of the boulder stones, the drifts, sands, clays and gravels of this period, proves at once the nature of the agencies which have been at work. Whenever the drift rests on hard rock (say granite) its surface is smoothed and striated. In the Snowdon valleys, where several of these drifts occur, the rocks are all smoothed, polished, rounded and striated. The scratches always run parallel to the direction of the valley, and have undoubtedly been caused by the action of some hard substance which at some time or other filled the valley, dragging forcibly through it, scratching, grinding and polishing in its passage. Are these things the effect of a flood? No! the explanation is altogether inadequate. The boulder stones, which are found in various parts of the country, fragments as they are of rocks hundreds of miles away from where they now lie—are these the work of a flood? The fossil remains of species similar to those now existing only in the ice-bound regions of the far North—Can these be attributed to the deluge? No; everything bespeaks an arctic climate, arctic inhabitants, arctic causes and effects; and here we get an explanation of the phenomena attributed to the flood.

We know that high up in the mountains of arctic climes, glaciers are formed. These rivers of ice,

moving slowly at the rate of not more than 400 feet a year, gradually descend into the valley. The valley becomes filled with this frozen mass. As it slowly moves along, it scrapes the mountain sides, smoothing and polishing the rocks: it gathers on its edges loose stones, earth and blocks, which fall from the cliffs above; the gathered load is carried until under the genial influences of the sun's warmth the glacier melts and the burden is deposited many miles from its original position. Glacial action in frozen regions is still doing exactly the same work, thus witnessing to the truth of the inductions of geology.

Geology has not a single evidence to put forward in favor of the Bible story. That districts have been in the past, as they are to-day, subject to inundation, no one doubts; but these are insignificant in result and comparatively of little importance so far as geology is concerned. Besides, why should we try to reconcile our science with a story so absurd?—a story of no credit to the man who wrote it, and dishonoring to the God whom it makes the chief actor in a play repulsive to the best instincts of our common humanity? The story of the flood, of Noah and his ark, is a childish fable unworthy the acceptance of thinking people. There is no necessity for science to disprove this fable, for its absurdity is carried to so great a pitch as to literally o'er-reach itself, and the whole story falls from its own inherent stupidity. In this story we are told that God commanded Noah to take into the ark of clean beasts by sevens, male and female, and of beasts unclean by twos, in order to keep their kind alive upon the earth. Noah, however, chose to disobey God's orders, for in two distinct places we are informed that he took with him into the ark two and two of all flesh wherein is the breath of life. Now when Noah was released from the ark, we are told that he took of every clean fowl, and of every clean beast, and sacrificed upon the altar unto the Lord. If, now, only two of each kind were taken into the ark, how on earth were the species afterwards perpetuated, seeing that one of each clean kind was thus sacrificed; or what was the use of thus miraculously preserving them if only to kill them afterwards?

Again, what contemptible ideas of God these people must have had who make him, like an hungry man, delighted to smell the "sweet savor," and like an impetuous, thoughtless savage, destroying everything at a moment, and the next promising "neither will I again smite any more everything living as I have done." Truly, we who try to save God from these vile imputations must ever feel that, like an injured man, his continuous cry must be, "O save me from my friends."

The collection of all the animals into the ark and their storage, then, is a feat that has never yet been explained and never will. Not only must the polar bear and the kangaroo have been fetched from their respective habitats, but they must have been transported thither again after the flood, for the kangaroo still occupies that portion of the earth which geology assigns to him millions of years ago.

Dr. Colenso tells us that when translating the story of the flood a simple-minded native asked him, "Is all that true? Do you really believe all that happened? that all the beasts, the birds, the creeping things from hot countries and from cold, came by pairs, and were thus saved in the ark? Where did Noah gather food for them all, including the beasts of prey, and where did he store it when gathered?" And his heart answered, "Shall a man speak lies in the name of the Lord?" He dared not do so.

Dr. Lambart did not tell his audience where the water came from which covered the earth, nor where the water went to after it had accomplished its work. The water now upon the earth is, as to quantity, about the same as it has ever been, and I leave you to judge the possibility of its bathing the earth in a universal deluge. The opening of the "windows of heaven" for the water supply again exhibits the gross ignorance of the "inspired writer." Every drop of water that falls upon this world is a drop that has previously been taken up from river, ocean or lake by the evaporating power of the sun's heat. In the air this evaporised water remains until condensation takes place, when it is precipitated on to the earth in the form of rain, which supplies the springs, rivers, lakes and oceans—a constant cycle, a

perfect picture of nature, ever changing without increasing or diminishing ; no creation, no destruction—nothing except change.

My time has now expired. I have placed before you the two theories—the geological one and the biblical one—and I must again ask you to draw your own conclusions. Let your one idea, however, be to find out what is true ; be deterred by no craven fear, for only that which is true can be of lasting benefit to mankind. Instead of trying to believe stories which dishonor the God they pretend to reveal, turn your attention to the teachings of those men, our scientific leaders, who are ever placing before us the truths nature has revealed to them. These are the world's true pathfinders, the bearers of the torchlight of knowledge into the dark realms of ignorance and mystery. Search for the truth, and the truth shall make you free, for great is the truth and truth shall prevail.

Rise sun of truth, arise, in glory shine ;  
Scatter the mists of night with light divine ;  
Pierce through dark error's clouds, and let thy ray  
Reveal to toiling man glad freedom's day.

