

SCIENCE AND THE BIBLE

ANTAGONISTIC.

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THE study of science, and its relation to Biblical records, should be both interesting and instructive. Science is defined as being an investigation into the phenomena of existence, and the best application of the lessons derived thereby to the requirements of life. Science may be further described as meaning facts reduced to a system; not a fixed, cramped, and exclusive system, but one which expands with the acquirement of additional knowledge. It has been urged that we can have no complete system of science. To some extent this is true; for no science is perfect, if by perfection is meant that all that is knowable is known. But the discoveries that have been made, and the scientific truths that have been brought to light, are sufficient to show the fallacy of many Biblical teachings. For instance, so far as man has investigated the statements of the Bible, and the lessons of science, their antagonism to each other has become apparent. This is recognised by some professing Christians, hence they assert that the Bible does not pretend to teach science. Such a statement, however, is unfortunate for the orthodox position, inasmuch that the Bible, which is supposed to contain all that is necessary for mankind, ought to inculcate that which has proved the greatest benefit to their general improvement. The national and individual condition of society would be lamentable indeed without the advantages of science. For Christians, therefore, to assert that the Bible ignores science, is to charge their God with being neglectful of the principal wants and requirements of mankind. A book which professes to have been written under divine inspiration for the guidance and instruction of the human race, should not only teach science, but should expound its truths in such a concise and practical manner, that while harmonising with the facts of nature, it should also commend itself to the judgment and intellect of the humblest of the land. But there can be no doubt that the Bible does refer to scientific subjects, only, unfortunately, in so doing, it exhibits its shortcomings by stating the very

opposite to what is correct. Surely when, and how, man was made, the phenomena of the solar system, and how diseases and death entered the world, are scientific questions. These, with other similar subjects, are dwelt upon in the Bible, and a reference to its statements thereon will show that science and the Bible are not on the most friendly terms. This may be expected from the history and nature of the book. It was evidently written at a remote period, by persons who possessed little or no scientific knowledge, and its teachings are alleged to be fixed for all time and all people. Progress is thus, so far, practically ignored. No matter what subsequent ages may reveal, upon the Christian hypothesis, the Biblical statements must be adhered to. This places the book in direct opposition to science, and dangerous to the development of an advancing civilisation. No book whose teachings are stationary can accord with modern wants and aspirations. That which in the days of Moses might have been considered right, and in accordance with the laws of nature, science has since proved to be incorrect, and what Christ taught as natural laws, subsequent experience has shown to be in opposition to scientific discoveries. Science and the Bible, therefore, differ widely—the one being progressive, and the other stationary.

Science has stamped its valuable impress on the history of the world. By its aid man is enabled to explore hitherto unknown regions ; by its aid we can descend into the depths of the earth, and discover truths which destroy theological errors that have too long held captive the human mind ; by its aid we can not only avert many of the diseases to which "flesh is heir to," but can even bid the messenger of death pause in its gloomy and desolating march. Science has conferred its manifold benefits upon the king and the peasant, the weak and the strong, the healthy and the decrepit. It has transformed nations from a state of barbarism to partial civilisation, and stimulated man to emancipate himself from the curse of degrading superstitions. That which was hid from the gaze of the ancient world has, by the magic wand of science, been exhibited to us in all its pleasing aspects. To-day, though separated by the broad and swelling ocean, we can in a few moments of time communicate with our Atlantic friends by that cable which connects nation with nation. By the mighty propelling power of steam we can, in a comparatively brief period, penetrate the very length and breadth of the land. As the

late Prince Albert said in 1855 : " No human pursuits make any material progress until science is brought to bear upon them.....Look at the transformation which has gone on around us since the laws of gravitation, electricity, magnetism, and the expansive power of heat have become known to us. It has altered the whole state of existence—one might say, the whole face of the globe. We owe this to science, and to science alone." While contemplating the glorious achievements thus won, it is saddening to remember how their progress has been retarded. In ages long gone, never we hope to return, whenever a scientific truth was manifested, it was sought to be crushed, or its infantine purity was corrupted, either by despotic blindness or ignorant misrepresentation. The history of science has been one continual conflict with religious fanaticism and priestly intolerance. Too frequently its usefulness has been impaired, and its exponents have been tortured, and made to deny the evidences of their own senses. Perhaps from a theological standpoint we could not expect aught else. A study of the histories of Bible believers will scarcely justify the supposition that they would assist in those discoveries which show the errors of their faith. There have been but few revelations of any magnitude, in any important branch of science, but what have exhibited the fallacy of Bible records. The antiquity of man has been proved to be considerably greater than Moses alleges ; geology has demonstrated that the world existed thousands of years anterior to the Jewish account; the Christian theory that all mankind descended from one primeval pair is now given up as unreliable ; the astronomy of the Bible has long been exploded; the universal flood mentioned in Genesis finds no scientific supporters ; the possession of devils by the human body, as believed in by Christ, is regarded as an exploded superstition ; the teaching of the New Testament that the world, and its contents, are to be destroyed by fire, has but few believers; a burning hell for the "wicked souls of the departed," is deemed too revolting and absurd to be regarded as more than a fiction. In every field the "sacred writings" appear the very antithesis of science. Fortunately, truth has so far triumphed, that notwithstanding all opposition, science is now appreciated, and existence is regulated by its laws. The Bible but *nominally* exists, and its teachings are supplanted by those of a higher and a more practical nature.

In demonstrating the difference that exists between the

Bible and science, the supposed creation of the world and the origin of man are the first subjects that suggest themselves for consideration. Accepting the chronology of the Hebrew records, there is but little difficulty in ascertaining how long man has been on the earth. For instance, in Genesis, we read that when Adam was 130 years old his son Seth was born; when Seth was 105, Enos was born; when Enos was 90, Cainan was born; when Cainan was 70, Mahalaleel was born; when Mahalaleel was 65, Jared was born; when Jared was 162, Enoch was born; when Enoch was 65, Methusaleh was born; when Methusaleh was 187, Lamech was born; when Lamech was 182, Noah was born. Adding these dates up, we have from the birth of Adam to that of Noah, 1056 years; 600 years after this, the flood appears, making from the creation of man to the flood, 1,656 years. Then reckoning from the flood to the birth of Christ, 2501, and from Christ to the present time, 1874, we have a total of 6031 years since man first appeared on the earth. Now in Exodus xx. it is said that "in six days the Lord made heaven and earth, the sea and all that in them is," and in Genesis i. we read that "God created man on the sixth day." Thus, it is asserted, man was made six days after the creation of the heavens and earth began. Is not this adequate proof that the Bible teaches that the world and man have existed only a little over six thousand years? This was really admitted by the Rev. G. Rawlinson, Professor at Oxford, who, in his recent lecture on "The Alleged Historical Difficulties of the Old and New Testament," delivered for the Christian Evidence Society, said:—"The first difficulty, really historical, which meets us when we open the volume of Scripture, is the shortness of the time into which all history is (or at any rate appears to be) compressed by the chronological statements, especially those of Genesis. The exodus of the Jews is fixed by many considerations to about the fifteenth or sixteenth century before our era. The period between the flood and the exodus, according to the numbers of our English version, but a very little exceeds a thousand years. Consequently, it has been usual to regard Scripture as authoritatively laying it down that all mankind sprang from a single pair within twenty-five or twenty-six centuries of the Christian era; and, therefore, that all history, and not only so, but all the changes by which the various races of men were formed, by which languages developed into their numerous and

diverse types, by which civilisation and art emerged and gradually perfected themselves, are shut up within the narrow space of 2,500 or 2,600 years before the birth of our Lord. Now, this time is said, with reason, to be quite insufficient. Egypt and Babylonia have histories, as settled kingdoms, which reach back (according to the most moderate of modern critical historians) to about the time at which the numbers of our English Bible place the deluge. Considerable diversities of language can be proved to have existed at that date; markedly different physical types appear not much subsequently; civilisation in Egypt has, about the pyramid period, which few now place later than B.C. 2450, an advanced character; the arts exist in the shape in which they were known in the country at its most flourishing period. Clearly, a considerable space is wanted anterior to the pyramid age, for the gradual development of Egyptian life into the condition which the monuments show to have been then reached. This space the numbers of our English Bible do not allow."

That the Biblical assumptions are contradicted by science is beyond all doubt. Turning to the great book of nature, and reading the geological lessons inscribed therein, we find, in the words of Babbage, that "the mass of evidence which combines to prove the great antiquity of the earth itself is so irresistible and so unshaken by any opposing facts, that none but those who are alike incapable of observing the facts and appreciating the reasoning can for a moment conceive the present state of its surface to have been the result of only 6,000 years of existence. Those observers and philosophers, who have spent their lives in the study of geology, have arrived at the conclusion that there exists irresistible evidence that the date of the earth's first formation is far anterior to the epoch supposed to be assigned to it by Moses; and it is now admitted by all competent persons that the formation even of those strata which are nearest the surface must have occupied vast periods, probably millions of years, in arriving at their present state." In reply to this, it is urged by Bible believers that a long period elapsed between the time referred to in the 1st and 2nd verses of Genesis, and that the creation spoken of in the first two chapters of that book was only a re-adaptation of the chaos of a previous world. If this were so, how is it no allusion is made to animals or plants as being in existence before the time referred to by Moses? Is it

not said by this writer that light was created on the first of the six days, and the sun on the fourth? Admit this correct, and then, previous to that time, there was no light nor heat, a condition of existence which science pronounces an impossibility. Besides, have not geological investigations discovered that the remains of animals and plants found in the strata correspond with species now existing on the earth, indicating thereby that no new creation took place 6,000 years ago?

It is also equally conclusive that man existed upon the earth long anterior to the time fixed by Moses. Professor Huxley writes: "Sufficient grounds exist for the assumption, that man co-existed with the animals found in the diluvium, and many a barbarous race may, before all historical time, have disappeared together with the animals of the ancient world." Sir Charles Lyell supports the statement, that "North America was peopled more than a thousand centuries ago by the human race." Dr. Bennett Dowler claims for a human skeleton discovered in the delta of the Mississippi no less than 57,600 years. Baron Bunsen claims an antiquity for the human race of at least 20,000 years prior to the Christian era, and traces in Egypt a double Empire of hereditary kings to 5413 B.C. "It is now generally conceded," observe Nott and Gliddon, "that there exists no data by which we can approximate the date of man's first appearance upon earth; and, for aught we yet know, it may be thousands or millions of years beyond our reach. The spurious systems of Archbishop Usher on the Hebrew text, and of Dr. Hales on the Septuagint, being entirely broken down, we turn, unshackled by prejudice, to the monumental records of Egypt as our best guide. Even these soon lose themselves, not in the primitive state of man, but in his middle, or perhaps modern, ages; for the Egyptian Empire first presents itself to view, about 4,000 years before Christ, as that of a mighty nation, in full tide of civilisation, and surrounded by other realms and races already emerging from the barbarous stage..... These authorities, in support of the extreme age of the geological era to which man belongs, though startling to the unscientific, are not simply the opinions of a few; but such conclusions are substantially adopted by the leading geologists everywhere. And, although antiquity so extreme for man's existence on earth may shock some pre-conceived opinions, it is none the less certain that the rapid

accumulation of new facts is fast familiarising the minds of the scientific world to this conviction. The monuments of Egypt have already carried us far beyond all chronologies heretofore adopted ; and when these barriers are once overleaped, it is in vain for us to attempt to approximate even the epoch of man's creation. This conclusion is not based merely on the researches of such archæologists as Lepsius, Bunsen, Birch, De Longpérier, Humboldt, &c., but on those of also strictly orthodox writers, Kenrick, Hincks, Osburn, and, we may add, of all theologians who have really mastered the monuments of Egypt. Nor do these monuments reveal to us only a single race at this early epoch, in full tide of civilisation, but they exhibit faithful portraits of the same African and Asiatic races, in all their diversity, which hold intercourse with Egypt at the present day.....In short, we know that in the days of the earliest Pharaohs, the Delta, as it now exists, was covered with ancient cities, and filled with a dense population, whose civilisation must have required a period going back far beyond any date that has yet been assigned to the deluge of Noah, or even to the creation of the world."

The Bible and science also disagree as to the time occupied in the so-called creation of the world. According to the 1st chapter of Genesis, this creation was accomplished in six days, and this theory is confirmed by the words of the Decalogue as given in Exodus xx. 11. Mr. Prialx says "that in reviewing this creation we are struck by its division into days. These days, though several of them are undetermined by any revolution of the earth round the sun, were, nevertheless, no doubt, meant and understood to be natural days of twenty-four hours each." Dr. Chalmers and Dr. Pye Smith represent the creation recorded in Genesis as begun and completed in six natural days, but as cut off from a previously-existing creation by a chaotic period. Geologists, on the contrary, declare that the various early strata of the earth have occupied enormous periods of time during their formation, and that even in the vegetable and animal kingdoms the extinction and creation of species have been, and are, the result of a slow and gradual change in the organic world. Now, what is the theological explanation of this antagonism between the Bible and geology? Why, it is said that the days mentioned by Moses were not natural days of twenty-four hours, but long periods of thousands of years. The objections to

this assumption are numerous. The Mosaic periods were divided into two parts—one of light, and the other of darkness. If, therefore, the day in Genesis meant a thousand years of light, the night represented the same period of darkness. Moreover, it is declared by Moses that God rested the seventh day, so that upon the hypothesis that the day was a thousand years we have the admission that for ten hundred years the universe continued its course without the aid of God. But, says Dr. Sexton, in his "Concessions of Theology to Science," "the greatest objection, and one which is insurmountable to the understanding the term day in the first chapter of Genesis as a long period, and therefore the six days as including all the ages that have passed away, during which those innumerable species of plants and animals have made their appearance on our earth whose remains are embedded in the rocks; will be found in the fact that the order of creation is not the same in the two cases. According to geology, there is a gradual progression from the lowest to the highest, plants and animals running *pari passu* side by side, the simplest being found in the early rocks, and the most complex in those more recently formed. In Genesis, on the other hand, the whole of the vegetable kingdom makes its appearance in one epoch, all the inhabitants of the waters in another—the two separated from each other by a long period, in which nothing was created but the sun—and the land animals in a third. Moreover, the organisms created in the last epoch include animals as low as creeping things, and as high as man, which certainly does not accord with the facts disclosed by geology; and whales, which are mammals, and therefore considerably high in the scale of existence, are represented as having made their appearance with the fishes, and long before the creeping things, which is also contrary to fact. The sun too does not exist till the epoch after the creation of plants, so that an enormous vegetation—such as the immense forests which form the present coal-beds—must have flourished in the absence of the rays of sunlight, which is a perfect impossibility. Nor is the difficulty got over by the theory that light had been previously formed, and that therefore the sun was not requisite, since the actinic part of the sun's rays is equally as indispensable to vegetation as the luminous portion that we call light."

The Bible account of the material from which man was made differs from the facts discovered by scientific investi-

gation. According to Genesis, man was made from the dust of the earth; chemical analysis, on the other hand, has proved dust does not contain the elements found in the human organisation. The late Dr. Herapath, of Bristol, wrote thus boldly upon this subject:—"From our days of boyhood it has been most assiduously taught us that 'that man was made out of the dust of the earth;' and, 'as dust thou art, so to dust thou shalt return.' Now, this opinion if literally true, would necessitate the existence of alumina as one of the elements of organised structure, for no soil or earthy material capable of being employed by agriculturists, can be found without alumina existing largely in its constitution, and clay cannot be found without it. Therefore, chemistry as loudly protests against accepting the Mosaic record in a strictly literal sense, as geology, geography, astronomy, or any other of the physical sciences so absurdly dogmatised upon weekly from the pulpits, by those who have neglected the study of true science, but still profess to teach us that which is beyond all knowledge. That man is not made out of the dust of the earth, but from organised material or vegetable matter, properly digested and assimilated by other organised beings, chemical science everywhere proves to us incontestably." Prof. Carpenter asserts that two-thirds of the human body by weight is water. Such a proportion of this fluid certainly cannot be found in dust. The principal elementary substances to be found in our bodies are oxygen, hydrogen, nitrogen, and carbon; these are absent from dust, except a trifling modicum of oxygen. Silicon, which is observable in dust, can scarcely be recognised in the human body. The Lamaic creed supposes man is the production of water. Prialx suggests had the writer of Genesis adopted this theory, he would have been somewhat nearer the truth.

Moses alleges that mankind have descended from one pair, named Adam and Eve. To indicate the fallacy of this, it is only necessary to refer to the fact, so unmistakably proved, that man and woman were on the earth thousands of years before the time of Adam and Eve. "The theory," remarks Gliddon, "that all nations are made of one blood, is entirely exploded." Besides, if it were correct that all mankind emanated from the "transgressors in the Garden of Eden," it would be right to expect that the nearer we could trace back to the original stock, the less diversity of race distinction characteristics would be found. Such, however, is not the case. "We know," observe Nott and Gliddon, "of

no archæologist of respectable authority at the present day, who will aver that the races now found throughout the valley of the Nile, and scattered over a considerable portion of Asia, were not as distinctly and broadly contrasted at least 3,500 years ago as at this moment. The Egyptians, Canaanites, Nubians, Tartars, Negroes, Arabs, and other types, are as faithfully delineated on the monuments of the seventeenth and eighteenth dynasties, as if the paintings had been executed by an artist of our present age. Hence, nothing short of a miracle could have evolved all the multifarious Caucasian forms out of one primitive stock; because the Canaanites, the Arabs, the Tartars, and the Egyptians were absolutely as distinct from each other in primeval times as they are now; just as they all were then from co-existent Negroes. Such a miracle, indeed, has been invented, and dogmatically defended; but it is a bare postulate, and positively refuted by scientific facts. If then the teachings of science be true, there must have been many centres of creation, even for Caucasian races, instead of one centre for all the types of humanity." Dr. Samuel Morton states "that recent discoveries in Egypt prove beyond all question that the Caucasian and the Negro races were as perfectly distinct in that country upwards of 3,000 years ago as they are now. If then the difference which we find existing between the Negro and the Caucasian has been produced by external causes, such change must have been effected according to Bible chronology in about 1000 years. This theory is decidedly contradicted by science and experience."

Another Bible doctrine which clashes with science is, that "by one man sin entered into the world, and death by sin;" that is, that through the supposed disobedience of Adam, death was introduced as a punishment for the alleged offence. In the first place, death, so far from being a punishment, is to many "a consummation devoutly to be wished." Epictetus wrote: "It would be a curse upon ears of corn not to be reaped, and we ought to know that it would be a curse upon man not to die." Are there not thousands who suffer a life-long state of physical pain, who have not the strength or opportunity to obtain sufficient food to satisfy the wants of nature? To such persons as these would not death be indeed a welcome messenger? Besides, upon the Christian hypothesis, how can death possibly be a punishment? To be ushered into realms of

bliss, and there to enjoy everlasting happiness, instead of remaining in this "vale of tears," ought certainly to be accepted by the Christian as an improvement upon his condition. But this theory of Adam being the cause of the introduction of death, involves a few difficulties. If death had not been introduced, could the world contain its ever-increasing inhabitants? And would it have been capable of producing provisions sufficient to support such an immense multitude? Suppose the serpent had not played its "little game," could a man that had no knowledge of swimming have fallen into the water without the chance of being drowned? Or could a person have remained in a furnace and not be burnt to death? Or if he were in a coal-mine during an explosion, would he escape unhurt? Further, did the lower animals incur death through the act of Adam? If yes, did Christ give them immortality? Because we read, "As in Adam all died, so in Christ shall all be made alive." If, however, they did not incur death, it may be asked why one of their kind took a prominent part in what is termed "the fall of man?" The fact is, by our nature we must cease to live. Death is a necessity, regardless of what Adam did or did not, and man cannot but experience it while he is what he is. Change is an universal law of existence, and we are no exception to that law. As soon as we enter upon the stage of life we become subject to that change until we progress to a given point; then our organisation begins to lose its vitality, and we slowly but surely exhaust life's power, and death ensues as certain as a fire will cease to burn when no longer supplied with fuel. This condition of things has always existed so far as science can discover. But the Bible says no; before Adam's "transgression" death was not a necessary consequence of life. Here, then, are antagonistic statements. Which is reliable? If Adam were constituted similar to us, he must have been liable to death. If, on the contrary, his organisation were of an entirely different structure, how could he have been our first parent? Children do not differ in kind from those who give them birth. So unscientific does this Biblical doctrine appear even to many well-informed clergymen that they have ceased to regard it as a literal fact. They view it as figurative language or Hebrew poetry; and it requires no great prophetic power to foretell that, when science sheds its light more fully among mankind, facts will take the place of the Bible, and the truths

of nature will supplant the teachings of an ancient and misleading theology.

Modern researches have unmistakeably established the fact that between science and the Mosaic account of the flood there is an absolute antagonism. The Bible states that less than five thousand years ago, God discovered "that the wickedness of man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually." Not two thousand years before this, so the book relates, God had made man pure and morally upright; had given him the advantage of divine superintendence, and subsequently the edification of the preaching of Noah. These precautions, however, did not, according to the Hebrew narrative, prevent mankind degenerating so rapidly that the Lord repented "that he had made man, and it grieved him at his heart." God possessed, it is said, infinite power, wisdom, and goodness, yet he either could not, or would not, devise a plan of reformation for the human race, but resolved instead upon wholesale destruction, and so drowned them all, except one family. This was a terrible resolve, opposed to every sentiment of justice and every feeling of benevolence. No being with a spark of humanity in his nature would be guilty of voluntarily exposing millions of creatures, men, women, and children, to the agonies and struggles of a watery grave. Surely an omnipotent God could have found other means to correct the work of his own hands without bringing "a flood of waters upon the earth, to destroy all flesh, wherein is the breath of life, from under heaven." Besides, as a remedy and warning, the cold water process proved a failure. The people are reported as being no better after the deluge than they were before. Even Noah, upon whom God bestowed his preserving care, was not made moral by the experiment, for on landing from his excursion he immediately became intoxicated, acted indecently, and indulged in a tyrant's curse at the expense of an unoffending posterity.

My object, however, is not to dwell upon the inhuman character of the flood, but rather to show that the account in Genesis is utterly contrary to the result of modern investigations and the revelations of science. This fact has become so palpable that leading theologians, with a view to save the credit of the Bible story, are driven to assert that the Noachian flood was only partial. Were this assertion correct, the Bible would be in error, inasmuch as it clearly

teaches the universality of the deluge, as shown by the following extracts from Genesis, vi. and vii. : "And the Lord said, I will destroy man, whom I have created, from the face of the earth ; both man and beast, and the creeping thing, and the fowls of the air ; for it repenteth me that I have made them." "And, behold, I, even I, do bring a flood of waters upon the earth, to destroy all flesh, wherein is the breath of life, from under heaven ; and everything that is in the earth shall die." "Every living substance that I have made will I destroy from off the face of the earth." "And all flesh died that moved upon the earth, both of fowl, and of cattle, and of beast, and of every creeping thing that creepeth upon the earth, and every man. All in whose nostrils was the breath of life, of all that was in the dry land, died. And every living substance was destroyed which was upon the face of the ground, both man, and cattle, and the creeping things, and the fowl of the heaven ; and they were destroyed from the earth ; and Noah only remained alive, and they that were with him in the ark." Bishop Colenso says that the flood described in Genesis, whether it be regarded as a universal or a partial deluge, is equally incredible and impossible. And the Rev. Paxton Hood, in his work "The Villages of the Bible," remarks: "I am aware that Dr. Pye Smith and some other distinguished scholars have doubted the universality of the deluge.....I need not refer more at length to this matter than to say it seems quite unphilosophical to maintain the possibility of such a partial flood ; this seems to me even more astonishing than the universal." Professor Hitchcock observes: "I am willing to acknowledge that the language of the Bible on this subject, seems at first view to teach the universality of the flood unequivocally." Upon the supposition that the flood was partial, it would be interesting to know what prevented the water from finding its level? Moreover, where was the necessity of drowning the innocent portion of the local inhabitants? It cannot reasonably be supposed that no pure-minded women and guiltless children were to be found. Besides, it was folly building the ark and collecting the animals if this partial hypothesis were true ; as Noah and his family, together with "two of every sort," could have emigrated to those parts which the deluge was not to visit.

Some of the objections to the Mosaic account of the flood may be thus stated :—

1. *Geological.* The study of this science proves to demonstration that the present diluvian deposits found in the earth are the result of time going back far beyond the Noachian period. The evolutions in sea and on land, that for ages have been progressing, and are still in process, evidently extend in their connection to the pre-Adamite antiquity. "This conclusion," says the Rev. Alfred Barry, M.A., "is the more undoubted, because so many leading geologists, Buckland, Sedgwick, &c., who once referred the 'diluvium' to the one period of the historic deluge, have now publicly withdrawn that opinion." Hugh Miller, in his "Testimony of the Rocks," says: "In various parts of the world, such as Auvergne, in Central France, and along the flanks of Etna, there are cones of long extinct or long slumbering volcanoes, which, though of at least triple the antiquity of the Noachian deluge, and though composed of the ordinary incoherent materials, exhibit no marks of denudation. According to the calculations of Sir Charles Lyell, no devastating flood could have passed over the forest zone of Etna during the last twelve thousand years." Alluding to the remains to be found in certain provinces of France, Kalisch, in his *Genesis*, observes: "Distinct mineral formations, and an abundance of petrified vegetable and animal life bespeak an epoch far anterior to the present condition of our planet..... That extraordinary region contains rocks, consisting of laminated formations of silicious deposits; one of the rocks is sixty feet in thickness; and a moderate calculation shows that at least 18,000 years were required to produce that single pile. All these formations, therefore, are far more remote than the date of the Noachian flood; *they show not the slightest trace of having been affected or disturbed by any general deluge*; their progress has been slow, but uninterrupted." Thus geology irrefragably demonstrates that, while the earth has been subject to many floods, it has never been visited by one as described in the Bible.

2. *The Scarcity of Water.* The account says: "And the waters prevailed exceedingly upon the earth, and all the high hills that were under the whole heavens were covered." Further, "the mountains were covered." Now, the height of Mount Ararat is put down at 17,000 feet; the quantity of water, therefore, required to cover this mountain would be, in the estimation of Dr. Pye Smith, Professor Hitchcock, and many other eminent writers, eight

times greater than what *already* existed. Was it supplied? If so, whence did it come?

3. *The Size of the Ark.* This vessel is alleged to have been not more than 450 feet long, 75 feet broad, and 45 feet high; yet it is said to have held not only Noah and his family, but "two of every living thing of all flesh." According to Hugh Miller, there are 1,658 known species of mammalia, 6,266 of birds, 642 of reptiles, and 550,000 of insects. Is it credible that so small a vessel as the Ark is described to have been could have furnished accommodation for this vast congregation? Space, too, must have been provided for food for the occupants of the Ark. Under such crowded conditions how did ventilation obtain? The atmosphere must have been fatal, at least, to the existence of some forms of life. And whence was obtained the food to sustain for so long a period the carnivorous and the herbivorous animals—the swallows, ant-eaters, spiders, and flies? There is a little difficulty also about the light. There were, it appears, three stories in the Ark, and but one window. Now, where was the window positioned? In the upper story? Possibly, then, the dwellers in the other two stories of the Ark were in the dark, where many of those have since been who have relied on the Bible instead of profiting by the lessons of science.

4. *The Collection of Animals.* The difficulties attending the narrative of collecting the live stock into one happy family are thus aptly put by Mr. T. R. R. Stebbing, M.A.: "To achieve it he [Noah] must have gone in person, or sent expeditions, to Australia for the kangaroo and the wombat, to the frozen North for the Polar bear, to Africa for the gorilla and the chimpanzee; the hippopotamus of the Nile, the elk, the bison, the dodo, the apteryx, the emeu, and the cassowary must have been brought together by vast efforts from distant quarters..... Sheep, game, caterpillars, beasts of prey, snails, eagles, fleas, and titmice must all have their share of attention. Unusual pains must be employed to secure them uninjured. They must be fed and cared for during a journey, perhaps, of thousands of miles, till they reach the ark; they must be hindered from devouring one another while the search is continued for rats, and bats, and vipers, and toads, and scorpions, and other animals which a patriarch, specially singled out as just and upright, and a lover of peace, would naturally wish

and naturally be selected to transmit as a boon to his favoured descendants."

5. *Atmospheric and Botanical.* The Bible assures us that, after the waters began to subside, the inhabitants of the Ark existed for nearly eight months in a temperature "3,000 feet above the region of perpetual snow." It surely will not be contended that this statement harmonises with science any more than the record of an olive tree retaining its life after being under the pressure of several tons' weight of water for nearly three-quarters of a year. Colenso says: "The difficulty, that so long an immersion in deep water would kill the olive, had, no doubt, never occurred to the writer, who may have observed that trees survived ordinary partial floods, and inferred that they would just as well be able to sustain the deluge to which his imagination subjected them." Kalisch observes: "It is agreed by all botanical authorities, that, though partial inundations of rivers do not long or materially change the vegetation of a region, the infusion of great quantities of salt water destroys it entirely for long periods. But the earth produced the olive and the vine immediately after the cessation of the Deluge."

In addition to the discrepancies between the Bible and science above pointed out, the following may be mentioned. The Bible teaches that mankind has degenerated from a state of perfection; science, on the contrary, indicates that the career of man has been progressive, and that each age, profiting by experience, has been superior to its predecessor. The Bible affirms that at a certain command the sun and moon stood still; science declares that such an event could never have happened. The Bible asserts that all the kingdoms of the world were exhibited from a certain high mountain; geography teaches that there are many parts of the world totally invisible from any one elevation. The Bible says that an iron axe floated on the surface of the water; experience proves this to be impossible. The Bible alleges that the earth and all things therein will ultimately be destroyed by fire; scientific facts are against the truth of such an allegation. Thus it is seen that the Bible and science are so antagonistic that any attempt to harmonise them is hopeless.

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