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*A SKETCH OF THE EXISTING RELATIONS BETWEEN SCRIPTURE AND SCIENCE. By GEORGE WARINGTON, Esq., F.C.S., Author of the Actonian Prize Essay, 1865; The Historic Character of the Pentateuch Vindicated, By a Layman, &c.*

THE purpose of the present paper is purely historical. To analyze in detail the various points at issue, or supposed to be at issue, between Scripture and Science; to examine fully, and weigh carefully, the evidence adduced on either side, and so pass judgment fairly and impartially between them, would require both more time than can possibly be allowed to a single paper, and especially far more learning and far deeper research than the writer has at his command. It has been thought, however, that a brief historical outline of the present state of the case, the relations, hostile or otherwise, permanent or passing, which actually exist between Scripture and Science, would form a useful and fitting introduction to that fuller and more particular investigation of the several points in detail, which it is one of the objects of the VICTORIA INSTITUTE to promote. To furnish some such general outline of actual facts, then, without in any way discussing their character or pronouncing upon their worth, is the aim of the present paper.

And to this end it will be convenient to divide the subject into four groups:—

1st. The objections brought against Scripture on the ground of incorrect and misleading descriptions of natural objects and phenomena.

2nd. The objections brought against the Scripture record of certain historical events, on the ground of further information touching these same events, or inconsistent with them, which Science has elucidated.

3rd. The objections brought against a particular class of occurrences narrated in Scripture, Miracles, on the ground of their incongruity with scientific principles.

4th. The objections brought against the dogmatic teaching of Scripture on the ground of its inconsistency with the facts of Nature.

The charges thus urged against Scripture in the name of Science may be briefly summed up, then, as follows:—1st. It is scientifically inaccurate. 2nd. It is historically untrue.

3rd. It is philosophically incredible. 4th. It is theologically erroneous. These it is proposed to review in order; noticing under each head, first, the various forms under which the charge is made, and second, the different lines of defence which the advocates of Scripture are accustomed to adopt, in order to repel the charge or mitigate its force. The kind and amount of agreement, or disagreement, thought on various hands to exist between Scripture and Science, will thus become apparent, and some useful information, it is hoped, be derived as to the extent and nature of the investigations required to set the question at rest.

I. First, then, of the charge of *scientific inaccuracy* in the Scriptural descriptions of natural objects and phenomena. This is founded chiefly upon the language of Scripture in matters of Astronomy, Meteorology, and Natural History. Scripture, it is said, plainly speaks of this earth as the centre of the universe, for whose benefit sun, moon, and stars were created, whose concerns are of paramount or sole importance. It describes the earth as firmly and immovably fixed, established on foundations, and built up with pillars, while about it all the celestial bodies move in their courses. It speaks of heaven as a solid crystal ceiling, having above it vast accumulations of water, to which exit is given now and then by the opening of its windows. It encourages and confirms the notion that the moon has a hurtful influence when shining brightly by night. In one and all of which particulars Science has demonstrated that Scripture is inaccurate, untrue, misleading. Or, to take another set of examples, Scripture represents the ant as storing up food in summer, and sets it before us as an example of wisdom and providence on this very account. It speaks of the ostrich as cruel, and carelessly forsaking its eggs. It distinctly includes the hare and the coney among animals which chew the cud. In every one of which statements, again, careful observation and scientific research have proved beyond a doubt that Scripture is incorrect. Surely, then, if this be so, it must be conceded that the charge in question is well-founded, and Scripture is *scientifically inaccurate*.

Now, to this charge, thus supported, three several replies have been given. In the first place, inasmuch as every one of these alleged scientific errors was at one time or other actually held by expositors of Scripture, and strenuously supported by them on Scriptural grounds, it was but natural that the first impulse should be to deny the facts, and so retort the charge of inaccuracy upon Science. The views attacked were admitted by this school to be fair representa-

tions of Scriptural teaching. The point contested was the right or power of Science to say aught against them. This mode of answer may be regarded as now, however, in several of the instances named entirely obsolete, at least among those who know anything of Science. The advocates of Scripture have been obliged, in dealing with these, to take up other ground.

In the second place, then, not a few of them have passed unhesitatingly to the opposite extreme. These doctrines and observations of Science are, no doubt, they say, most true; but then they are not really inconsistent with Scripture; Scripture properly interpreted teaches precisely the same thing. Make due allowances for poetical and metaphorical expressions, and the employment of simple, every-day phrases descriptive of natural appearances, which are used unhesitatingly by the most scientific still, and the two are found to be, in truth, perfectly at one. Then, enamoured with the prospect thus opened, the upholders of this view have launched forth boldly into general interpretation, and shown, or endeavoured to show, how every allusion to Nature in Scripture is not only harmonious with Science, but, in fact, anticipative of it; how the profoundest truths, which Science has only just revealed, lie there embedded in all their purity and force, needing nothing but impartial and keen-sighted exposition to bring them to light. According to this school, then, Scripture, though not, perhaps, intended primarily to teach Science, is yet scientifically accurate in essence everywhere; the discord between them is only apparent, not real.

But at this a third class gravely shake their heads in ominous doubt. Granted, say they, that, when fairly viewed, many of the objections of Science on this head are unfounded, and that Scripture is not really committed to some of these views which were formerly connected with it, and which Science has overthrown; yet surely there are other of the objections, and especially those referring to Natural History, which cannot be thus answered, at least without a strain upon the plain words of Scripture for which we have no sufficient warrant. Is it not safer, then, to concede that in these, at all events, the allegation is well founded; and rest on our defence rather on this: that such trivial errors have nothing whatever to do with the real worth of Scripture; that scientific accuracy being in no way necessary to the end designed to be attained by Scripture, so on these matters its human writers were left to speak in their ordinary language, and in accordance with the prevalent ideas of their time?

Such are the three lines of reply adopted by advocates of

Scripture in answer to the charge of scientific inaccuracy; the first, as will be seen, admitting the foundation of the charge to the full, but retorting the inference upon the assailant; the second denying the foundation, by modifying the interpretation of Scripture so as to make it harmonize with Science; the third admitting in part both foundation and inference, but regarding the latter as trivial and unimportant.

II. We pass now to the second and far more important group, of objections levelled against certain *historical events* recorded in Scripture, on the ground of further information touching these events, or inconsistent with them, which Science is said to have elucidated. This charge is founded, with very slight exception, upon the contradiction asserted to exist between the statements of the first *eleven chapters* of the book of Genesis and the conclusions of scientific research, more especially in the departments of Geology, Anthropology, Ethnology, and Natural History. It will be convenient, therefore, to review the objections under this head in the order which their connection with these chapters of Genesis naturally suggests.

The Cosmogony, or history of creation contained in Gen. i. ii. 4, furnishes the scientific objector, then, with the following charges:—1st, and chiefly, a stupendous discrepance in regard to *time*; Genesis teaching that the whole work of creation, in respect both to heaven and earth, was performed in the short space of six days; Geology proving incontestibly that it must have occupied a succession of ages altogether surpassing human powers to measure or conceive. 2nd. It is urged, that not only is there this fundamental and insuperable discord between them in regard to time, but there are also certain notable errors in Genesis as to the *order* of creation; in particular, the late position assigned to the creation of the sun, moon, and stars, as subsequent to that of the earth, of light, of the dry land, and of vegetation; also the precedence of plants before fishes and reptiles; both which, it is asserted, are contrary to the plain teaching of Science. Then, 3rd, it is objected, that Genesis is wrong in regard to *manner*, since it speaks of the creation of living things as taking place in single defined groups, consisting (we must suppose) of all the species ever existing belonging to that group; whereas Geology shows us that living things have made their appearance on the earth very gradually, one kind dying out and being superseded by others, and this many times over through enormous periods utterly unlike one another, those living beings which now inhabit the earth being no more than the last group of a long, nay, almost infinite, series. Lastly, some

scientific objectors further add that Genesis is erroneous also in *principle*, inasmuch as it clearly describes the creation of distinct species, and especially asserts most strongly the radical dissimilarity of man from other animals; while Science is ever more and more tending to the conclusion that species are the result, not of creation, but of natural development, variation, and selection; that man is no exception to this, but is, after all, no more than a developed, educated, or selected ape.

To these objections against the Scripture cosmogony, the most diverse replies have been given, according to the taste, prejudice, or predilection of the replicant. They may be classified, however, roughly into the same three groups as those noticed under the first head.

First, we have those who deny the contradictory assertions of Science as untrue. The time, order, manner, and principle of creation, according to these, were, in fact, exactly as Genesis represents; the objections of Science are false and unfounded. The fossil remains on which geologists lay stress are either pure illusions, or the results of the Deluge; the formation of rocks was carried on in a manner and at a speed wholly unlike anything observable at the present day, if, indeed, they were not at once created just as they are, without any process of formation at all; the inferences deduced from the position and order of strata are hazardous and presumptuous; the supposed natural origin of species little, if at all, short of atheistic blasphemy. As in the former case, it is to be noted that this line of answer, at first the most prevalent and popular, is now in regard to the most important objections in question, those, viz., of time and manner, pretty well given up; the intrinsic weakness and uncertainty of the other two (those of order and principle) allowing it there, however, full action still. But with respect to the time and manner of creation, the advocates of Scripture now generally adopt the second line of answer before indicated,—that, namely, of denying the contradiction by modifying the interpretation of Scripture.

This group of replicants is a very large one, and may conveniently be again subdivided into three. The *first* of these subdivisions consists of those who hold that the narrative of Gen. i. is a full, proper, and scientifically accurate account of the creation of the earth, the days spoken of being, not literal days of twenty-four hours each, but vast periods of indefinite duration, corresponding, and meant to correspond, to the periods disclosed by Geology. Some maintain this view by a larger and more comprehensive, but still simple scheme of interpretation, by which the narrative becomes a kind of pictorial

or symbolical representation of the reality, couched in the language of appearances, and so in some respects partial and inadequate, but still, so far as it goes, in perfect accordance with Science. Others, unsatisfied with this, seek by new renderings of the Hebrew text to make the narrative do still more, and not only agree with Science, but anticipate Science, speak in scientific terms, and reveal their own peculiar cosmogonic theories without flaw or difference. Others, proceeding on the same track, but still more daring, reject altogether the received manner of even reading Hebrew, regard the sacred language as a sealed casket of which the key has long been lost, discover the key in their own knowledge of the analogies of language, and of course unlock a hidden treasure of cosmogonic lore which had hitherto lain concealed within. The *second* subdivision of this group consists of those who hold that the days of Genesis are literal days, and assign the ages of Geology to a period between the original creation of the heavens and the earth spoken of in the first verse, and the state of darkness and desolation described in the second. Even these, however, are not by any means agreed among themselves, some regarding the chaos, and subsequent development of order and life, as referring to one particular part only of the earth's surface, a part, as it happens, of which geologists at present know very little; others regarding them as coextensive with the entire globe. Then, as the *third* subdivision, there are yet others who adopt a sort of middle course, agreeing with the first in regarding the six-days' work as descriptive of the whole history of creation, yet refusing with the second to view these days as *intended* to be looked upon as representatives of six gigantic periods. According to these, the cosmogony of Genesis is a poetical sketch of the order and method of creation, cast into the parabolic form of a week's work for the religious instruction of the unscientific people for whom it was primarily intended; accordant, therefore, with Science in its essential principles and broader outlines, but involving of necessity more or less discrepancy in detail and outward form, and in particular being altogether inadequate to convey a scientific view in regard to time, which was regarded as of little importance for the particular purposes in view.

The third main group of replicants—those who concede the contradiction alleged to exist between Scripture and Science but deny its importance—adopt a line not altogether unlike that last described, differing, however, in this: that they ignore or deny the fundamental scientific accuracy which the former lay special stress upon, and ascribe the peculiarities of the nar-

rative rather to the influence of tradition, or the fancy of the writer, than to any real knowledge of the true state of the case. According to these, also, religious instruction was the great object of the cosmogony; and this remaining true, even when the form in which it was conveyed has been proved to be false, the surrender of the latter is a matter of little consequence.

The next section of Genesis to be considered is that containing the history of the Fall. This is said to involve the following contradictions:—1st, in respect to the entrance of suffering and death; Genesis regarding these as the result of the fall of man; Geology teaching plainly that they had existed ages before, and had, in fact, been the rule of creation throughout all time. 2nd, in respect to the curse on the serpent; Genesis describing its crawling habit as the punishment awarded for its crime in tempting Eve; Anatomy and Physiology proving that, on the contrary, it is the inevitable result of its organization; and Geology showing that serpents always had crawled about as at present, hundreds of thousands of years before Adam could have lived upon the earth. 3rd, in respect to the curse on the ground; Genesis regarding the productions of thorns, thistles, &c., as the penalty of Adam's transgression; Science teaching that they are but the normal growth of the ground existing in full vigour for ages previous.

To these objections we have, as before, three several groups of answerers:—

First, those who deny the allegations of Science, who believe that physical suffering and death did come into the world through the Fall, and had not existed there previously; that serpents did then for the first time begin to crawl upon the ground; that thorns and thistles did then for the first time spring up.

Then, second, there are those who admit the allegations, but deny the contradiction. Some seek to explain the difficulties by limiting the suffering and death spoken of to man; by regarding the curse upon the serpent as metaphorical, purporting disgrace and defeat to the spiritual tempter, not physical degradation to the agent; and viewing the production of thorns, &c., either as a greater and more abundant production than heretofore, or as a new thing merely by contrast with the previous experience of Adam in the garden of Eden. Some prefer to get over the second objection by a new rendering of the Hebrew, regarding the tempter as an ourang-outang, or some other species of ape, rather than a serpent; while others, again, interpret the whole narrative as an allegory, written to explain in pictorial and symbolical form the origin

and consequences of human sin, whose expressions must not, therefore, be taken literally.

Thirdly, there are those who admit the contradictions alleged, at least in part, but deny their importance. These also adopt a kind of allegorical interpretation; not, however, like the last mentioned, as the method intended by the writer to be employed, but merely as *our* method of extracting the kernel of truth from that which the writer, guided either by tradition or his own fancy, regarded as true throughout.

The history of the Deluge recorded in Gen. vi.-viii. furnishes the next ground of objection; the Scripture narrative, it is urged, plainly describing a strictly universal flood, which Science as distinctly disproves; 1st, by the phenomena observable in regard to certain volcanic hills in the south of France; 2nd, by the impossibility of the collection and redistribution of all existing species of animals from all parts of the earth; 3rd, by the utter insufficiency of the ark described to accommodate all these, and various difficulties connected with their preservation. Other minor objections of similar character are also urged, which need not be detailed at length.

The answers to these alleged contradictions fall into the same three groups as before:—

First of all, we have those which maintain the view of a universal deluge, by denying the force of the objections; which speak of the evidence derived from the volcanic hills of France as delusive and unsound, and get over the other difficulties by a plentiful assumption of miracles, either in the way of a supernatural gathering and preservation of the animals in question, or of a new creation of large numbers of fresh species in various places after the Deluge. Many new and original scientific theories as to the causes and manner of operation of the flood, harmonizing with its universality, also find ready currency among the controversialists of this school.

Then, Second, we have those answers which concede the justice of the scientific objections, but elude their force by modifying the interpretation of Scripture. These maintain the view that the deluge was only partial, being caused by the depression of the land in one particular portion of the earth's surface; a part, again, as it happens, of which geologists as yet know very little. The majority of these answers still uphold the universality as regards man; a few concede its partiality in this respect also.

While, Thirdly, there are yet other answers which admit the objections altogether, but deny their importance. According to these, the actual deluge was no doubt partial, as respects both animals and man, but was regarded by the writer of the

narrative as universal; whose account is hence fairly open to the scientific objections raised against it, which cannot, however, touch the fundamental spiritual truths which lie within it.

The next class of objections are those concerning Scriptural Ethnology, suggested by the account of the descendants of Noah in Gen. x., and that of the confusion of tongues in the former part of Gen. xi. Here it is urged,—1st, that Scripture is wrong in certain details, as especially the assignment of the Canaanites and Chaldeans to a Hamite origin, whom Philology teaches were Semites; and other similar instances. 2nd, that Scripture is wrong also in its fundamental view, representing the existing diversity of languages as brought about by supernatural interference, instead of as the inevitable result of natural causes. To which, 3rd, some also add a still graver charge, involved, indeed, in previous sections, but most conveniently considered here, that Scripture errs in speaking of all tribes and nations as descended from a common parentage.

The first and third of these objections are at present too much disputed among scientific men themselves for theological opponents to trouble themselves much concerning them, and they are hence generally met in the spirit of the first general group of answers:—your Science is incorrect. In respect to the second objection, however, there are some who prefer to concede the apparently natural origin of languages by altering their interpretation of the Biblical history of Babel. While there are yet others who on all three points are prepared, if necessary, to admit the objections as valid, but deny their importance.

Lastly, the genealogical lists of Gen. v. and xi., defining the interval of time between Adam and Abraham, afford the objector one more weighty charge yet. The Hebrew Scriptures, it is said, by these lists require us to place the creation of man as somewhat less than 6,000 years ago, whereas the evidence derived from the geological position of his implements and bones, and his demonstrated contemporaneousness with animals long extinct, confirmed by the length of time which ethnologists and philologists assert to be necessary for the development of races and languages, goes to prove that he must have existed on the earth for a vastly longer period.

The majority of theological advocates adopt here the first mode of answer, and deny the validity of the scientific argument; some by representing the implements in question as purely natural productions, the human bones as merely

accidentally mingled with those of extinct animals; others preferring to regard both implements and bones as belonging to a race of extinct apes, NOT men; others regarding both indeed as human, but intentionally buried in the places where they are found, in much later times; others admitting the contemporaneousness of the implements and bones with the formations and other remains in connection with which they are found, but contesting the antiquity assigned to these by geologists. The confirmatory arguments from Ethnology and Philology are commonly met by this class of replicants by reference to miraculous agency, or occasionally by the elaboration of counter-evidence.

Under the second head three modes of answer have been adopted. First, it is urged that the Scriptural chronology refers only to the descendants from Adam, while at the same time hints are dropped, and indications given, of another class of men, inferior in character, and stretching back into much earlier times, to whom, no doubt, these implements and bones are to be ascribed. Secondly, stress is laid upon the divergences in these genealogies between the Hebrew text and the Samaritan, the Septuagint version, and the statements of Josephus; some adopting the longer chronology deducible from the last two, some regarding the whole question as in consequence hopelessly uncertain. Thirdly, it is pointed out that each of these genealogies contains exactly *ten* generations,—a number which may perhaps have been regarded as having a mystical significance, to obtain which some of the actual links in the chain were omitted, and so the chronology shortened unnaturally.

Lastly, there are yet other defenders of Scripture who give up the genealogies altogether, regarding them as mere traditions, having no bearing upon spiritual truth, or, at all events, none which is in any way affected by supposing them to be corrupt and defective in their chronological aspect.

III. We pass on now to the third group of objections; those, namely, which are brought against Scripture *miracles*, on the ground of their inconsistency with scientific principles. Particular facts bearing on the miraculous events recorded in Scripture the objector does not here in general produce, or need to produce; his charge refers to the whole class *as a class*, and is based upon the widest of all the inductive conclusions which Science has elucidated—the absolute and unalterable uniformity of the laws of Nature. Here, therefore, we have no longer to deal with detailed interpretations, as in the two former groups, but with general views and principles. The objection in question presents itself in two forms, so different in character

and complexion that it will be advisable to consider them, with their respective answers, quite apart.

The first form of the objection, then, avowedly ignores all considerations of Theology whatever, and deals with the matter on purely naturalistic and physical grounds. Scientific investigation, it is said, plainly shows that every department of Nature is under the control of laws the most exact and inexorable, and, so far as our knowledge can reach, has ever been and must ever be so. The whole course of Nature is a chain of antecedents and consequents bound together by a necessary and absolutely certain connection, entirely beyond the reach of interruption or alteration; every event that happens in Nature is the inevitable result of the laws and properties of matter and force, which can neither be violated, modified, or suspended; and beyond these laws and properties Nature knows no other rule; they are alone and supreme. To assert, therefore, that an event, or series of events, occurred which are contrary to this uniformity, which are not the result of these laws and properties, but opposed to them and incompatible with them, is to assert the occurrence of an impossibility, and is simply absurd.

The answer to this form of the objection is commonly a *reductio ad absurdum*. Plainly and on the surface it denies the existence of God; that is, of a personal Being ruling Nature, possessed of a proper spiritual existence, unlimited supremacy, and WILL. It involves, therefore, either atheism or, which is the same thing in other words, materialistic pantheism. And its consequent absurdity may thus be easily demonstrated. But further; it is said, push the argument home, and it involves also the denial of all spiritual existence whatever. It is certain that man has the power of modifying at his will the course of external Nature, causing things to happen which would not have happened but for his influence and interference. If, then, the principle be sound that every event in Nature is the result solely and absolutely of physical laws and causes, it follows manifestly that this will of man is itself also but a physical cause; that its apparent freedom is purely delusive, it being in reality as rigidly and passively the subject of law as any other cause; that, in fact, he has no more real intelligence or independence than a calculating machine or an automaton. From this barren and repulsive materialistic fatalism most objectors may be expected to shrink instinctively; and, of course, the admission once made, that there are spiritual existences independent of physical law, yet capable of influencing Nature, and the argument for the *impossibility* of miracles from their involving such non-physical agency falls to the ground.

The commoner form of objection, however, evades this answer by adopting a different ground of attack. Granted, it is said, that there is a true personal God, having full and supreme power over Nature, and therefore *able* to suspend, modify, or act independently of, its laws; yet is it *credible* that He should do so? Are not these laws the proper expressions of His Will, ordained and created by Himself with a full knowledge beforehand of the results that must arise from their action; so created as exactly to accomplish the ends which He had in mind and no others, so created also as to be sufficient to accomplish these ends without further extraneous aid or interference? Is not the uniformity of Nature, in fact, the inevitable consequence of the unchangeableness of God, to suppose an alteration in which is hence to suppose a change of mind in God, which is incredible? Man, indeed, may be constantly interfering with Nature; but is not this because Nature is independent of him, and so does not always fit in of itself with his designs, because also his knowledge of it is limited, and his will concerning it variable? Does not, then, the ascription of such interference to God also really imply that he is subject to the like imperfections, that Nature is independent of Him, that His knowledge is limited, and His will variable? While, yet further, have we not in the observed fact of the undeviating uniformity of Nature, and the absolute supremacy of physical laws, even in cases where *we* should have thought a slight alteration would have been productive of immense good, a proof that human reason is altogether incompetent to comprehend the purpose of this iron rule of law, but must be content to receive it simply as a fact, which, however apparently fraught with evils here and there, is certainly in accordance with God's Will, and not, therefore, lightly to be set aside on any grounds of fancied expediency?

To this objection, thus set forth, there are, as before, three distinct lines of reply:—

First, there are those who deny the scientific premiss of the objection, that Nature is thus inexorably uniform and subject to law. According to some, this premiss is unsound, because, after all, the idea of uniformity is merely the impression which a more or less extended experience of past uniformity has made upon the imagination, whereby we instinctively conclude that it will continue for the future, and, in fact, always; which kind of instinctive conclusion has been proved, however, over and over again, to be in particular cases fallacious and misleading, and therefore may be so in the present case also. This answer, pushed to its extremest limit, puts the improbability of a miracle on exactly the same footing as the impro-

bability of any other non-habitual event,—the mere number of chances *à priori* against its occurrence,—an improbability which entirely vanishes on the production of any ordinarily credible testimony. Stated more cautiously, the miracle is ranked with events new and strange, wonders inexplicable and improbable, alike after their occurrence as before, and therefore requiring more than ordinary evidence on its behalf, but still involving nothing intrinsically incredible. Others, again, attack the scientific premiss on the ground that the laws and causes referred to are purely hypothetical, mere possible explanations which Science has devised, which may, however, just as likely be erroneous, and on which it is illogical, therefore, to build any argument of moment. How do we know that there may not be other and truer explanations, equally accordant with natural phenomena, and not inconsistent with miracles?

Then, Secondly, there are those who admit the scientific premiss, but deny the inference; who admit that Nature is uniform and subject to law, but deny that miracles are therefore incredible; for, say they, miracles have to do with something which is beyond and above physical nature,—the soul of man. Man, it is argued, has put himself out of harmony with Nature; his free-will, acting in opposition to the will of God, has produced discord and rebellion where was meant to be concord and subjection; and the course of Nature being thus disturbed in its relation to man, it is plainly by no means improbable, but rather probable, that in God's dealings with man He should find it necessary to modify that course in other respects also. In particular, it is urged, man has by this evil action of his free-will put himself out of communion with God, to a great extent silenced the revelation of God existing in his own conscience, and blinded his eyes to that discoverable in Nature. For his recovery and reformation there is needed, therefore, other and clearer revelation than these two, to which his attention shall be attracted, and his submission secured, by evidence of God's action and presence other than that existent in Nature or himself; in a word, by miracles. However incredible, then, a miracle may be, viewed merely in itself, as a part of the course of Nature; it is perfectly credible, nay, probable, when viewed in connection with its purpose, as having respect to one who is out of harmony with Nature, and whom the uniformity of Nature has ceased to affect as an evidence of God's existence. So far the advocates who adopt this line of answer are pretty well agreed, differing only in form or mode of statement; but here two notable differences between them come into view. In the first place, there is a difference as to the *character* of miracles. Some, who

look chiefly at the impression produced by miracles on man, and regard the order of Nature as created by God indeed, but now practically independent of Him, speaking of miracles as *higher* manifestations of His presence, because proofs of His supremacy over Nature. Others, on the contrary, who look rather at the Divine attribute of unchangeableness, and regard the order of Nature as the true and proper expression of His living presence, speaking of them as *lower* manifestations, condescensions, in which God has stooped to act for awhile after the imperfect manner of man, as elsewhere to adopt man's language and man's form, that man might learn to recognize Him the easier and better. Then, in the second place, there is a difference as to the *agency* involved in miracles. Some regarding them as wrought by God directly, without the intervention of natural forces or laws. Others regarding them as wrought through the instrumentality of these, merely specially controlled and adjusted for the particular end in view.

But, Thirdly, there are yet others who admit both the premiss and inference of the objection, but deny their importance. According to these, it is quite true that no miracles properly so called ever happened or could happen; but still events happened which were *thought* to be miraculous, impressions were created on the mind which were *believed* to be produced by miracles, and by these certain spiritual ends were attained. What matter, then, if we reject the means, so long as we preserve the end? What matter if that which men of old regarded as a miraculous act of God, we regard as purely natural, so long as we both recognize God's hand there? What matter if we reject the miraculous evidence of doctrines, on account of which men of old believed in them, so long as we hold the doctrines themselves? Why trouble about the particular channel through which truth comes, so long as both are drinking of the same fountain-head?

IV. We now pass to consider the fourth and last group of objections; those, namely, which are brought against the dogmatic teaching of Scripture on the ground of its inconsistency with the facts of Nature. Some of these, as, for example, the pre-eminence which Scripture assigns to man in the history of the world, and the assertion that all things were created and are still actively superintended by a personal God, who has the power of dispensing with, and controuling, natural laws, have been already touched upon. Of the rest, two only need here receive especial mention, as the most notorious and oftenest urged. In the first place, then, it is objected that Scripture represents the whole of creation as "very good," the product of unmixed beneficence; whereas, in fact, Nature is full

of things which are not good in any proper sense of the word, as, for instance, the preying of one set of creatures upon another; the ferocity and malignant cruelty of certain animals; the occurrence of earthquakes, hurricanes, droughts, &c.; the existence of deserts, inhospitable climes, and such-like. In the second place, it is objected that, on the contrary, the whole of Nature, man included, are so perfectly in accordance with law and goodness properly conceived, that the Scriptural notions of the fall of man, and the present subjection of creation to vanity (*i.e.*, apparent imperfection and purposelessness), are incredible and untrue.

Of course these two objections are mutually contradictory, and might safely be left to settle the matter under dispute between themselves, without theological interference. The importance of the questions raised has caused, however, the adoption of a more active course, with again the usual diversity of opinion and method. Thus, some deny the first objection *in toto*, and maintain that Nature is still in all respects "very good," the only exception being fallen man. Others admit this objection, but deny that it applies to Scripture, arguing that the expressions in question refer to the world before the Fall, and regarding all evils existing in Nature now as the results of the Fall. Others, taking a middle course, allow a certain element of truth in both objections, but deny their extremes. According to these, the world is indeed, in one aspect, full of imperfection, albeit in another full of tokens of perfection; and this just because it is in a transition state, is slowly growing into completeness and beauty, and, like all God's works of this kind, does so through much apparent, and for the time being real, imperfection and evil. It is only when looked back upon in its entirety from the stand-point of its accomplished end, say these, that it can be expected to appear reasonable and good in every item. Meanwhile, sufficient evidence of present goodness is given to furnish a firm foundation, both for confidence as to the present, and hope as to the future.

In drawing this sketch of the existing relations between Scripture and Science to a close, two notes of explanation must be added to prevent misunderstanding concerning it. 1st. It is by no means to be regarded as complete, either as concerns the objections or the answers; several of the less notorious and important of the former having been omitted for the sake of brevity, while in respect to the latter an immense number of minute diversities and shades of difference have been passed over without notice, to avoid having to enter too much into details. 2nd. In gathering up the answers under the first three

heads into corresponding and symmetrical groups, it is in no way intended to imply that the answerers themselves may be arranged in the same way, it frequently happening that, even in the case of a single objection, part of the answer actually rendered belongs to one group and part to another. The grouping has respect solely to the matter and spirit of the answers, not at all to the method of the answerers. It is partly on this account, and partly for other reasons sufficiently apparent, that in no case have the names of the parties holding them been attached to either objections or answers.

But now, these being the facts of the case, what are we to learn from them? The first impression which a review like that just completed makes upon the mind is probably in most cases a pleasing one. It is pleasant to know that so many and seemingly insuperable objections have called forth so varied and powerful a list of answers; and the conclusion may, and no doubt will, be drawn by many that, with such a host of defenders, the assault of Science upon Scripture cannot but be triumphantly repelled. A deeper view, however, raises feelings of a very different kind. True, the defenders of Scripture are numerous and zealous, but they are a motley and discordant set, at war among themselves as fiercely as with the enemy,—to a great extent mutually destructive; a large proportion of them, therefore, certainly in the wrong in the defence they make, and so a source of weakness rather than strength. It behoves the advocates of Scripture to consider this well. We hear much now-a-days of the contradictory hypotheses of Science, of the constant flux of opinions in the scientific world, of the evil of hasty assumptions and biased interpretations of phenomena, and the consequent futility of objections founded upon such a basis; and no doubt there is much truth and justice in all this. But it were well for all such criticizers of Science first of all to look at home. Are there no contradictory hypotheses among the defenders of Scripture? Is there no flux of opinion in orthodox views? Are there no hasty assumptions, no biased interpretations, which theological advocates are guilty of? Ay, truly, and that to a far greater degree, and of a kind far more inexcusable. Does the gradual unfolding of new facts cause scientific theories to be perpetually changing, and allow for the time being of the existence of many conflicting hypotheses? Well, be it remembered that every one of these theories and hypotheses has its advocates and representatives also among the defenders of Scripture; while over and above these there are a large number of fresh theories held by such, founded on fancies and not facts. It may be said, however, that to expect scientific unity among

theologians is unreasonable; it is not their proper subject, nor can they give to it the amount of study which it needs. If this be so, surely it were better if they left it alone; but, passing this by, at least then we may ask, and reasonably, for theological unity.

Alas for the cause, here is, if possible, even greater discordance than in matters of Science. Take the case of Biblical exegesis. Here is a book, written in plain and simple style, which has been in the hands of theologians complete for nigh 1800 years, and on which they have bestowed the most unremitting study; where no new facts can ever be rising up to disconcert past conclusions; where, therefore, if anywhere, unanimity would seem to be inevitable, and diversity of opinion be most inexplicable and criminal, and yet in so simple a matter as whether, in this book, the word "day" always means a period of twenty-four hours, or whether certain phrases in a straightforward narrative necessarily denote universality or not,—in such simple matters as these the world of theologians is at open war with itself. Verily, if they dwell in such extremely friable residences themselves, they should beware how they throw stones at their neighbours. But even this is not the worst. One would have thought that, however much interpretations might differ, at least when it came to questions of principle and fundamental doctrine, theologians would be at one. But no; much as they have read and studied their Bible, much as they have written about it, they have not been able even to settle the prime question in the entire controversy:—what is the real issue at stake? Some tell us that, if the objections of Science are carried home, the Divine authority of Scripture is at an end, some that it is merely rendered a little more doubtful, some that it is not touched in the least. Certainly there is no discord among men of Science that can be compared to this.

What, then, is to be done? It is said, that, to get rid of the changeableness and unsoundness of Science, we must cast theories and prejudices on one side, and give ourselves to a closer and more impartial investigation of facts. Very good; and precisely so must we do, only to a far greater extent, to get rid of the changeableness and unsoundness of our theological defence. It is not enough for the advocate of Scripture to scrutinize severely the facts and conclusions of Science; he has need to do so indeed, but much more has he need to scrutinize the assertions and arguments of current theology and exegesis. It will not do for him in these matters, even so much as in those, to trust to his own notions, or the notions of this writer or that writer; he must set himself earnestly to

search for facts, resolutely resolve to base his interpretation of Scripture on facts, and nothing else,—facts weighed with rigour, and reasoned on with strict impartiality. So in like manner with his view of the authority and character of Scripture, to base this, not on his ideas of what it *ought* to be, but on what facts warrant him in believing that it *is*. Of course such investigation requires the expenditure of much laborious study, the possession of a calm and carefully-suspended judgment, the submission to much misunderstanding, obloquy, and reproach; but there is no royal road to truth, and the lovers of truth must not begrudge the toil and pain involved in its acquirement. To such investigation, then, such discarding of theories, such laying aside of prejudices, such keen and unbiased search for truth, whatever it may be, and wherever found, let the members of the VICTORIA INSTITUTE devote themselves, heart and soul, and assuredly some steps will be taken to the final peaceful settlement of this unhappy controversy.

THE CHAIRMAN.—The pleasing duty of proposing a vote of thanks to Mr. Warrington, for his very able and comprehensive paper, devolves upon me. I think it a most suitable inauguration of the regular proceedings of the Society, as it reviews the whole question of the existing relations between Scripture and Science. Some may consider the mode of treatment is somewhat indefinite, as the author has set forth no views of his own, but has contented himself with a *résumé* of both sides of the controversy. He has set forth very clearly the objections urged against Scripture, and the answers to them hitherto published, without himself drawing any conclusions. Such a mode of treating the subject most convincingly illustrates the value of such a Society as the Victoria Institute. If the supposed discrepancies between Science and Scripture are to be removed, we must not look so much to individual answerers, as to the agency of a society which seeks to unite men distinguished for an acquaintance with the various branches of science and those skilled in theology. Such men meeting together from time to time, freely to discuss the controverted questions, will be most likely to indicate the proper answers to be made to the objectors. To the mere scholar unacquainted with science, as well as the great mass of people who have neither the time nor the ability to investigate these important questions for themselves, the work undertaken by the Victoria Institute will be of the greatest importance; and I have no doubt it will be well performed. It has been suggested that the paper just read to a certain extent invites discussion; I shall therefore be glad to hear any observations which any gentleman may be disposed to make upon it.

Mr. ROBERT BAXTER.—I think the paper just read is evidently one upon which Mr. Warrington has bestowed great pains, and shown in its production very great ability. (Hear, hear.) He has dealt with his subject in a very

comprehensive manner ; and his classification of the objections raised against the truth of the Scriptures and the answers which they had received, was calculated to bring the whole matter clearly before the mind. But at the same time I think the discussion opened by Mr. Warington is not by any means satisfactory, unless it is further pursued. In the shape in which it comes before us on this occasion, it seems to be merely the beginning of a discussion upon the questions under consideration, and is a paper which ought not to appear in its present shape in the publications of this Society and not until the arguments have been sufficiently pursued. I am sure we are all deeply indebted to Mr. Warington (hear, hear) ; but at the same time I think the value of the paper would be greatly enhanced if the author would pursue the subject further, so as to enable those who read it to know to what conclusions his inquiries tended. (Hear, hear.) I would respectfully suggest that the paper should for the present be withheld ; and would say in conclusion that it affords me very great pleasure to second the vote of thanks which has been proposed by the Chairman. (Hear, hear.)

Mr. REDDIE.—I agree in many respects with Mr. Baxter's remarks ; but I must observe that Mr. Warington could scarcely have argued out the numerous questions he had necessarily touched upon, in giving a sketch of the various alleged contradictions between Scripture and Science. Thoroughly to discuss these questions would in fact be our work probably for years to come ; and it would require a whole series of papers, to enable us to settle even a tithe of the points to which Mr. Warington had referred. In my opinion, however, it might be advantageous if he would add, by way of notes, some indication of who are the authors of the various opinions, whether scientific or theoretical, which he had quoted, that we might know more definitely what they had advanced, and the grounds upon which they held their views. It had been a matter of much anxiety to those who originated this Society, to have it clearly defined what we were going to do, and what we were not going to do ; and it may be considered as settled, that we ought not to enter upon what are strictly questions of scriptural exegesis. Such were rather matters for theologians, and not subjects for discussion at these meetings. There is one remark near the conclusion of Mr. Warington's paper which I must notice. He observes that such a review as he had given us was calculated to produce a pleasing impression on the mind ! Now I venture to think it must rather have an opposite effect. Mr. Warington had, no doubt, carved out our work for us, and had shown that the task we had undertaken was no light one. But it appears to me that it is very unsatisfactory, either that there should be so many contradictions in "Science," or so many contradictory "interpretations" of Scripture. I would wish, however, to call the attention of the author of the paper to the fact, that differences in the interpretation of Scripture existed long before any attacks were made upon it in the name of Science ; and I cannot agree with Mr. Warington in thinking either that the Bible is so very easy a book to understand, or that a different understanding of obscure passages is so very inexcusable or blameworthy. We must remember that, besides not having the *origines* of Scripture at all,

there may be errors in translation or transcription, and modes of expression unusual to us as moderns reading the oldest book in the world. What we wish to do, by means of the Victoria Institute, is to reduce to some extent the causes of such differences. We wish to get rid of, or at least to lessen, those arising from what we believe to be unwarranted attacks made upon the Bible on scientific grounds; but it is no part of our programme to go into minute questions of Scriptural exegesis, as to the precise meaning of passages about which theologians themselves did not agree. At present I can attempt no more than to allude to a few of the alleged scientific objections to Scripture. Now, although a good deal had been heard from Dr. Colenso and the authors of the *Essays and Reviews*, besides others, of such objections, I am not aware that any one among these authors had committed himself to the extraordinary statement Mr. Warrington gives, that the earth, according to the Scriptures, is "built up with pillars." I should therefore like to know who has ever really said so. I am aware there is a verse in the 75th Psalm to this effect: "The earth is weak and all the inhabitants thereof; I bear up the pillars of it;" but I never heard that any Jew or Christian had deduced from this, either that Scripture taught that the earth was literally supported upon pillars, or that the Psalmist held them up! The text, in fact (as a mere glance at the context would show), relates entirely to the moral government of the world. We all know, of course, of the heathen fable of the earth being borne by Atlas on his back, but Scripture is totally innocent of all such nonsense; while in it we find the expression, that "God hangs the earth upon nothing." Mr. C. W. Goodwin, indeed, in his notorious Essay on the Mosaic Cosmogony, had referred to a verse of Scripture in which he fancied the world was alluded to as fixed, because of the words "the world cannot or shall not be moved." That is found both in the 93rd and 96th Psalms; but it must be remembered that in the 99th Psalm, the words "let the earth be moved" also occur, which passage in the Prayer-book version is translated "be the earth never so quiet;" and the Hebrew word translated "world" in all these places is *tevel* (not *arets*), and obviously refers to the world of people, and not to the earth or the physical world at all.\* If rightly interpreted, according to the context and their obvious sense even in English, it would be readily seen that they were allusions to the fixedness or disturbance of the moral laws of the world, and had nothing to do with any physical theories of the earth or cosmos. But there is really no question of interpretation, properly speaking, involved in such simple passages, otherwise

\* By reference merely to the English Bible it will be seen, from the heading, that when it was translated, long before these scientific difficulties were invented, the 93rd Psalm was considered as relating to "The majesty, power, and holiness of Christ's kingdom," and not to the physical world. In the 96th Psalm, also, the context is so plain, that no schoolboy ought to mistake its meaning:—

"O worship the Lord in the beauty of holiness: fear before Him all the earth.

"Say among the heathen, that the Lord reigneth; the world also shall be established that it shall not be moved: He shall judge the people righteously."

they would not come properly within our consideration. When we have criticised and carefully examined the supposed teachings of science, and have shown that the objections to Scripture resting upon them are without foundation, it will be time enough to discuss, if then necessary, the exegetical question. Besides, the statement as to the earth being built up literally with pillars is one which I cannot conceive any man would gravely adopt ; and, if not, there is really nothing for us, as a scientific society, to examine with reference to that notion. It is also well known that Mr. Goodwin had committed a great blunder in alluding to the Bible as teaching that the firmament is something fixed and solid. He had overlooked even the marginal reading in our English Bibles, where the word (translated "firmament" in the text) is rendered "expansion." It may also be considered as an interesting fact that Sir Matthew Hale, in his work on *The Origin of Mankind* (written about 200 years ago), had specially noticed this rendering of the Hebrew word *rakia*, or *rakah*, as properly meaning "expansion." Moreover, leaving out everything like critical exegesis or interpretation, we must remember that in another verse of *Genesis* we have the "open firmament of Heaven" spoken of, in which the birds were to fly ; and this precludes all idea of anything solid having been intended by the use of the word "firmament." Only the sense of an open expanse (*expansionem*, as in the Vulgate), is consistent with the plain and obvious meaning of the Scripture narrative. The idea of the crystalline spheres was purely heathen, and among them it was a *quasi*-scientific notion ; but it is an idea for which no sanction whatever could be found in the Bible. It is, however, somewhat remarkable that modern science has actually revived this notion. In the latest Blue Book published under the auspices of the late Admiral Fitzroy, there is a quotation from the late Sir John Lubbock, F.R.S., which I beg leave to read. Admiral Fitzroy says :—"Poisson, in his 'Treatise on Heat,' assumed the excessive cold of space has a condensing effect on air, causing it to become viscous ; and a very eminent mathematician [Sir John Lubbock] lately wrote to me, saying that he inclined to a similar view, if not to a belief in its actual *congelation* !" "*Frozen air* around our atmosphere !" exclaims Admiral Fitzroy ; so we find here the old and exploded scientific notion of crystalline solid spheres again revived in our day, and not repudiated even by such an authority as the lamented Admiral Fitzroy. There are a series of other questions alluded to in the paper which I do not think could ever come within the investigations of this Society. For instance, the allusion to the serpent and the temptation in Eden. There is really no question as to the present adaptability of the serpent to crawling ; and I never heard of any one who held, that for a long period before the fall of Adam, there was a race of serpents who naturally walked and talked. (Laughter.) It was out of the question to think of testing the record of the supernatural state of things in Eden—when God himself is spoken of as "walking in the garden," and talking with man—by any scientific investigation of the things in nature now. But it must be remembered that in the Scriptural story, taking it as it is, there is no warrant for the imagined long periods before man's fall, which have

been mixed up in the paper with this question about the serpent. Besides, the words "upon thy belly shalt thou go" might perhaps be as truly rendered "as upon thy belly thou goest, so dust shalt thou eat all the days of thy life," meaning (like the cognate scriptural phrase, "thine enemies shall lick the dust,") that the serpent would ever after be abhorred of mankind, as we know is the fact. But this is rather again matter of exegesis than a question for us to deal with. Then with respect to the hare and the coney : it is not at all certain that these are the animals alluded to in the original Hebrew. Neither is it quite certain that the hare does not chew the cud, though now it would not be classed with the "ruminant animals," according to modern definition, having four stomachs. These nice modern definitions, now recognized, were, of course, not invented when Moses wrote. I remember an analogous circumstance, also, which will illustrate what I mean. In a paper read before the Royal Society a year or two ago, Mr. Flower accused Professor Owen of being ignorant of some nice distinction as to the parts of a monkey's brain, and founded his accusation upon a quotation from a work of the learned Professor upon Zoological classification, where certainly the distinction in question was not noticed. But Professor Owen gave an unanswerable reply to that accusation, by explaining that in a work on Zoology he had not thought it necessary to allude to so minute a particular, and by referring to another work of his, published thirty-seven years before (and from which Mr. Flower had himself quoted), in which the distinction in question was plainly recognized. Now, we could not look for nice distinctions of a technical or scientific kind—and still less for modern distinctions—in the brief allusions to such things in Scripture. There could be no question that the hare would not by us be classed among the "ruminant animals," as now defined. But I am not at all sure that, nevertheless, the hare may not chew the cud. At all events, we are not certain that it is the hare which is alluded to ; and this is really a question of exegesis. It had been stated by Mr. Warrington that many of the objections, whether scientific or otherwise against Scripture, had been given up—

Mr. WARRINGTON.—I never stated that any objections of science had been given up ; but that particular lines of defence are now no longer adopted.

Mr. REDDIE.—That answers my argument just as well. I wish to call attention to the fact that, although the paper purports to deal with "the existing relations between Scripture and Science," it also notices objections, or answers, now given up. But there is one scientific objection, so-called, to which Mr. Warrington makes no allusion in his paper, although, only a few years ago, it was, I may say, put forward as the grand and principal scientific objection to the Mosaic Cosmogony. I allude to the nebular theory of Laplace. It is one of those scientific hypotheses with which Mr. Warrington is very well acquainted ; for, though he may not have adopted it as actually true, he has made full use of it in his well-known *Actonian Prize Essay*, as at least a probable hypothesis. Its omission from his paper now, is, therefore, the best proof of its having been quite "given up," in his opinion, as a scientific objection to Scripture. Now, according to that theory, the world originally

started from out of a blazing fire-mist. Yet, what could be more absurd than that an intense heat, with which life was totally incompatible, should be made the hypothetical beginning of all life! Some had, no doubt, adopted the nebular hypothesis who were not atheists; and they might have no difficulty in afterwards supposing that life might be, notwithstanding, produced by the Deity. But Laplace himself and others, who excluded God from their thoughts, put this forth as a "natural" origin of the world. Let us, then, contrast this theory with the analogous belief of Christians, that the world would be hereafter destroyed by fire. The one theory begins the world, the other ends it, with fire. But the Christians don't profess to prove this as science. With us it is a matter of faith. We find it revealed in Scripture; and with us it is a perfectly rational belief, as it is based upon faith in the power of God to re-create the world so destroyed. Not so, with the atheistical theory of the origin of the world from fire, and without supernatural power. There is no sense in which that could be adopted by any reasonable being. I think, if we were told who were the authors of some of the extraordinary views brought out in Mr. Warington's paper, it would be of great service for our future discussions. Adverting to the notion derived from Scripture as to the earth being "the centre of the universe, for whose benefit sun, moon and stars were created," I may observe that the late Dr. Whewell, in his essay *On the Plurality of Worlds*, has argued that, if the earth be not the literal centre of our system on the Copernican hypothesis, it is, at all events, the centre of life and of interest on the Christian theory. But there have been a great many changes in astronomical science since Copernicus wrote. New facts are being every day discovered; and it would be our duty to investigate and see whether our old theories were consistent with this increased knowledge of the facts of Nature. The world offers to us the same wide field for inquiry as it did to Copernicus or Kepler; and the only object we ought to have in view is to arrive at the truth, whether it accords with current theories or not. (Hear, hear.)

DR. GLADSTONE.—As discussion has been invited by the Chairman, I would ask permission to say a few words, not so much upon the paper which has been read as upon the speeches which followed it. As to the paper itself, I may say I agreed with every word of it. I think it is exactly the kind of paper with which the proceedings of the Society should be opened. What we require at the outset is an outline of the present state of the relations between Scripture and Science, which would enable us to understand the nature of the work which was before us, rather than a paper which would attempt to settle the questions upon which issue is taken, and upon which, if we were to discuss them, we should be likely very soon to get at loggerheads. (Hear, hear.) One thing with regard to the paper with which I have been struck is its comprehensiveness; and yet the subject is more comprehensive still. When Mr. Warington was speaking of the various objections advanced against the Scriptures, and the replies which had been given, a great many occurred to me which are not mentioned in the paper. But, of course, Mr. Warington, in grouping together the various objections and answers, was

obliged to omit much. Thus he had touched very lightly on the question of the uniformity of God's mode of action in this world, and the efficacy of prayer. With reference to the suggestion of Mr. Baxter that, on the publication of the paper, Mr. Warington should enter more minutely into the subject, and argue out the various questions to which he referred, it appears to me that it is objectionable, principally on the ground that it is clearly impossible. What did Mr. Baxter want? Was it the answers which the essayist considered satisfactory? If so, I think Mr. Warington would decline to point them out. Was it, then, the answers which the Council might consider satisfactory, or the members? I think that, among the Council, Mr. Baxter would find the representatives of the three great classes of replicants to which Mr. Warington referred; and that, if they undertook to point out the answers which ought to be given to the scientific objections urged against the Scriptures, it would result in an internecine war. My friend, Mr. Reddie, has also expressed a wish that the authors of the several objections and replies should be named. I confess that I rather admired Mr. Warington for having omitted all names. I am afraid we are all too apt in this world to be led by public opinion and the weight of great names; and I think, therefore, that, with respect to the objections to Scripture, and the replies which they had received, it is far better in this Institute to have as little to do with names as possible. I think it is sufficient for us that the objections have been raised; and it will be our duty, without inquiring the names of the authors, to show that they have no solid foundation. Allusion has been made by Mr. Reddie to the Serpent. I am inclined to believe I could convince him that there is a little more written about the Serpent than he seemed to think. While Mr. Reddie was speaking upon the subject there was recalled to my mind a picture which I have at home of a great dragon which walked the earth at first on four feet; a second view of it showed that it had dropped its two front legs; and in a third view it appeared as crawling on its belly along the ground. (Laughter.)

MR. REDDIE.—I should be inclined to ask who was the author of that strange picture. (Hear.)

DR. GLADSTONE.—He was a man very eminent in science in his time, and he lived about one hundred and fifty years ago. (Hear, hear.) It is not, however, my intention to occupy the meeting with any lengthened remarks. I think it is most important that we should consider all those questions which have been raised by Mr. Warington. I hope to see a still larger scientific element introduced into the Society, and that it may also include within its ranks a large number of men distinguished in theology and literature, who would especially attend to the exegetical part of the work, and to the interpretation of the various passages of Scripture which were supposed to come into collision with the discoveries of Science. I do not look with any doubt as to the result; for I am convinced that the Word of God will continue to show itself impregnable, by withstanding every attack that may be made upon it. (Hear, hear.)

REV. DUNBAR HEATH.—As I am not a member of the Institute, I feel

some delicacy in rising to address the meeting, but it has been intimated to me that I should be at liberty to make a few remarks upon the paper, and I shall do so with the permission of the Chairman. Speaking as an outsider, I would merely state what my opinion is with regard to the objects of the Society. I do not know how you will get on with the task which you have undertaken ; but I may be allowed to say that, in my opinion, the question of the interpretation to be put upon the Scriptures should not be excluded from your discussions. From what was stated by the essayist it appears that a great deal of latitude is allowed to orthodox Christians with regard to this question. Few of them are found to agree as to the interpretation which ought to be put upon different parts of the Scripture, and many of them rejected altogether a great deal of its obvious meaning. It strikes me, however, that the real difficulty connected with the question of interpretation is not so much the apparent contradictions between Scripture and Science, as the contradictions in the Scriptural narrative itself—

MR. REDDIE rose to order.—That question does not come within the scope of the objects of the Victoria Institute. And now we are not assembled to discuss the principles of the Society, but to discuss the paper which has been read.

MR. HEATH.—I was merely expressing my views upon the subject, but I will not enter into any discussion which does not come properly before the meeting. I will not, therefore, occupy you with any further remarks.

MR. PERCY BUNTING.—I cannot pretend to any special scientific knowledge ; but I am, nevertheless, very glad to be able to join in the vote of thanks which has been proposed to the author of the paper. I think that in laying before the members a plain statement of the various questions which would come under their consideration, without leading them to any fixed conclusions, or bringing before them the conclusions which he may have arrived at himself, Mr. Warrington has done all he undertook to do, and has contributed a really valuable paper to the publications of the Society. I only wish that, in the future papers which may be read, those questions which have been touched upon by Mr. Warrington could be taken up systematically and discussed in the order in which he has arranged them. I do not know whether the Council have at hand a sufficient number of men ready to undertake that duty ; but, if they have, it would be very desirable if this suggestion were carried out. Our best thanks are due to Mr. Warrington for the way in which he has brought the whole subject before us, and has grouped together the various objections against the Scripture, and the answers which they have drawn forth. I confess, however, that several of the topics discussed in the paper appear to me to involve questions of exegesis. I do not exactly see how we can get out of the difficulties in which we are placed if we exclude the exegetical question. Whether the animal mentioned in Leviticus is the hare or not, or whether the Hebrew word does not mean some other animal, appear to me to be distinctly questions of exegesis. It appears to me that the Society

should not be confined merely to particular departments of Science, but that it must allow discussions upon every question which affects the truth of revelation, and be prepared to take up all questions of that character exactly at the point where they have been left off by other societies, and determine, if it can, how far the conclusions to which they are supposed to tend conflict with Scripture. All the other learned societies decline to entertain the question of interpretation. It must be taken up by some one, and I think it is especially the work of this Society. It will be our duty when an apparent contradiction is pointed out in Scripture to deal with it. We have plenty of theologians amongst us, and must not shrink from the difficulty of the task.

THE CHAIRMAN.—I am sure the vote of thanks to Mr. Warrington will be readily concurred in by the meeting. It would be quite impossible to discuss such an extensive subject in detail. There is one point, however, in which I would differ from our Honorary Secretary, and that is with respect to the question of exegesis. I do not see how we can exclude it from our discussions. We have not only to determine whether an objection is really scientific; but, if so, whether it is contrary to a fair interpretation of the Word of God. I have used the phrase *really scientific* advisedly, because nothing can be more vague than the application of the word scientific. We shall have to determine what is and what is not scientific. By real science I mean that which is established by perfect demonstration, not that based merely upon hypothesis. When we arrive at the real science, we shall then have to determine whether it is contrary to the Word of God. This can only be done by a fair appeal to the original language of the Scriptures. As an illustration of what I mean, I would only refer to the ant laying up a store of food in summer, and the hare chewing the cud, brought forward by Mr. Warrington. He adduced these as two instances in which the Scriptures were objected to as scientifically inaccurate, and stated that the defenders of the Scriptures had been obliged to take other ground than that of maintaining their accuracy. Now here I am prepared to join issue. First with respect to the Ant. Scientific naturalists, with great boldness, have declared that Solomon was mistaken as to the habits of the ant;—that it does not lay up a winter store like the bee; that he mistook the pupa of the ant for grains of wheat (a pardonable error), and that on this account he stated what was not scientifically accurate. Now, I might be disposed to question whether the matter could be determined by the negative kind of evidence used by our naturalists. The various tribes of ants differ as much in their instincts as do the various tribes of the bee. And he must be a bold man who would predicate, from what he knew of one tribe, what might be the strange instincts of another. I might venture to ask the naturalist, what he knew of the instincts of the ant in Palestine? But I need not confine myself to mere conjecture that Solomon was scientifically correct; for what was lately considered highly improbable by the naturalist, becomes by the advance of the study of Natural History probable in the highest degree. I can appeal on this subject to the high authority of Mr. Darwin as a naturalist. That gentleman

read an abstract before the Linnaean Society, in 1861, of a paper by Dr. Lincecum, describing what he calls the "Agricultural Ant." This ant is a native of Texas. Not only does it lay up a store of seed, but it cultivates it. It plants a crop of peculiar grass in a circular space round its mound. It prepares the ground, sows the seed, weeds the crop, harvests it when ripe, carefully winnowing the grain, and then stores it up for use. The grain is a kind of miniature rice. In wet weather the stores get damp, and the grain becomes liable to sprout, but the ants take advantage of the first fine day to bring out the damp and damaged grain, expose it to the sun till it is dry, then they carry it back and pack away all the sound seeds, leaving those that had sprouted to waste. I quote the abstract of this paper from Wood's *Homes without Hands*. Now, I would venture to remind you that we have here the observations of a scientific naturalist founded upon twelve years' careful watching of the habits of this species of ant. Ignorant as we confessedly are of the Natural History of Palestine, I think no naturalist will be forced by his science now to maintain that Solomon was necessarily ignorant of the habits of the animal he described. So much for the ant. The case of the hare chewing the cud gives me a still better illustration of the method of dealing with these controversies. Dr. Colenso has lately given great prominence to this subject, asserting that, if Moses as a lawgiver made a scientific blunder with respect to the hare, he could not be inspired. Now, this is one of those questions in which I think we may invoke the aid of exegesis. Does Moses assert that the hare chews the cud? Is it certain that our translators have correctly interpreted the word used by Moses as the hare? Now, to go no farther back than the Septuagint translation of the Old Testament, made some two or three centuries before Christ by Alexandrine Jews, I think we may there discover a proof that at that period there was considerable doubt as to the identity of the animal spoken of by Moses. The Hebrew word *Arnebeth*, which our translators interpret the hare, occurs but twice in the Old Testament: Lev. xi. 6, and Deut. xiv. 7. In both these texts the *Arnebeth* is associated with two other animals as forbidden food, the camel, and one called in Hebrew the *Shaphan*, because, though they chew the cud, they divide not the hoof. Now, the *Shaphan* our translators have construed as the coney, or rabbit, while many of the copies of the Septuagint read the *χοιρογρόλλιος*, or hedgehog. Beside these two passages of Scripture, we find the *Shaphan* mentioned in two other places, in Psalm civ. 18, and in Proverbs xxx. 26. Now, that there was great uncertainty with regard to the Septuagint translation of the word *Shaphan*, we find proof in the fact of the various readings of that translation. While many copies of the Septuagint give us *χοιρογρόλλιος*, others render the word *Shaphan* by *λαγών*, a hare. Still further, to show the uncertainty as to the translation of the words *Arnebeth* and *Shaphan*, the Greek renderings of these words are interchanged in the various readings of the Septuagint. While the Septuagint, therefore, throws considerable doubt on its own renderings of the words *Arnebeth* and *Shaphan*, comparative philology gives little or no aid to our researches. From exegetical considerations alone,

therefore, we might protest against any charge of scientific inaccuracy being brought against the Old Testament Scriptures, where the rendering of the Hebrew name of the animal in question was evidently doubtful, long before Natural History was cultivated as a science. Supposing, however, we admit, for the sake of argument, that the *Arnebeth* is the hare, can we still maintain that the hare does not chew the cud? Since the hare makes a motion like chewing the cud, it has been supposed that Moses made the mistake that the hare did chew the cud, while in reality it does not. Has this been demonstrated? Naturalists have found it convenient, in forming an artificial arrangement of animals, to constitute a class called the *Ruminantia*. All these animals have four stomachs, and all chew the cud. This is one of the best marked divisions of animals naturalists have devised. The camel, though presenting some anomalies when compared with the other Ruminantia, belongs to this class. But does it follow that all animals which have not four stomachs do not chew the cud; do not, in other words, regurgitate their food habitually, for the purpose of completing its mastication? I think not. Indeed, I am prepared to bring proof to the contrary. I have already referred to the word *Shaphan*, translated in our version of the Bible *coney*. If I refer to the article *Coney* in "Smith's Dictionary of the Bible," I find the writer of the article showing that, in all probability, the animal corresponding to the Hebrew word is the *Hyrax Syriacus*, an animal abundant in Syria, and corresponding in all its habits to the Scriptural description of the *Shaphan*, except chewing the cud. Now I can adduce undesigned testimony to the fact that the *Hyrax* does chew the cud, though it does not belong to the order *ruminantia*. The *Hyrax* is a most puzzling creature to the scientific naturalist; he hardly knows where to class it. Resembling the rabbit so closely as to be popularly called the rock rabbit,\* the naturalist classes it with the rhinoceros tribe. Mr. Hennah, as stated in the transactions of the Zoological Society of London, shot many of the Cape *Hyrax* in the Cape of Good Hope. He found that the stomachs of those he shot were always much distended with food scarcely masticated. Moreover, he tamed a couple of these little creatures, and he makes this assertion: "I have also heard it chewing its food by night, when everything has been quiet, and after going into its sleeping apartment." We have also the authority of Cuvier for maintaining that the Cape *Hyrax* is of the same species as the *Hyrax Syriacus*. Surely, then, we have undesigned testimony to the fact, that an animal not belonging to the order *ruminantia* regurgitates imperfectly-masticated food for the purpose of completely masticating it. But we can refer to human ruminants. If you take up most works on physiology you will find an article on human rumination. The cases of individuals posses-

\* This popular name for the *Hyrax* is most important, in connection with the two passages of Scripture in which the "coney" is partially described. For instance, in the *Psalms* (civ. 18), we have, "The high hills are a refuge for the wild goats, and the rocks for the conies;" and in *Proverbs* (xxx. 26), "The conies are but a feeble folk, yet make they their houses in the rocks." The conies referred to in these passages are evidently "rock rabbits;" and, if so, this almost settles the question.

sing and habitually exercising this power are by no means rare. It is attested by some of the greatest physiologists. We cannot ask the ox or the sheep whether rumination is a voluntary or involuntary action, but we may the human ruminant. This, therefore, is a question on which we may appeal from the mere systematic naturalist—who tries to discover anatomical considerations for the convenient and systematic classification of animals—to the physiologist and the careful observer of nature. The physiologist admits that animals not of the order ruminantia do chew the cud. A careful observer who tamed the Hyrax found that it did chew the cud. Cowper, the poet, kept tamed hares, and he, no incompetent observer, asserted that his hares did chew the cud. Surely we need not, therefore, feel ourselves obliged to condemn the writings of Moses as scientifically inaccurate, even though we should admit that *arnebeth* is rightly translated the hare. The question of exegesis I think will also come forcibly before us on geological questions. Theologians have been taunted for adapting their exegesis of Scripture to suit the hypotheses of geological science, I think most unfairly. The meaning of the term translated “day” in the first chapter of Genesis was a matter of discussion among the ancient fathers of the Church on philological grounds, long before such a science as geology was thought of. An interpretation of the word “day” was taken from these theologians by some of our most eminent geological authorities, because they thought it favoured their hypotheses. Now that these hypotheses seem to be untenable, the scientific objector turns upon the defender of Scripture and asks him, why he uses an interpretation lately so strongly insisted upon by the scientific geologist. Upon this question I cannot now enter. I think now the theologian has a right, before he attempts to answer the objections urged from geology, to require the geologist to give a demonstrative proof for his assertions. I know no science more remote from an exact science than that of geology—no science the hypotheses of which are so fluctuating. Hardly a geological hypothesis now maintained is much more than ten years old. I have investigated most of the proofs formerly urged for the great antiquity of the fossiliferous strata of the earth. I have found scarcely one which has not been contradicted by more recent observations. Whatever we may say in favour of theological dogmas, we cannot permit dogmatism in the world of science. There everything must stand or fall by the test of rigid proof and demonstration. Without further trespassing on your time, I am sure you will all cordially unite with me in a vote of thanks to Mr. Warington for his interesting paper, and for the vigorous manner in which he has dealt with the question to which he has applied himself.

The vote of thanks having been carried by acclamation,

Mr. WARINGTON, in acknowledging the compliment, said—If I had closely adhered to the rules of the Society, as laid down in print, I believe the question of exegesis would not have come within the scope of the discussion; but I felt that it would be absolutely impossible to deal with the subject without some reference to exegesis. I have quoted no objection whatever against the Scriptures which I have not found in print, but I did not give

the names of any of the objectors, because, had I done so, it is ten to one that they would think themselves mis-represented, and the Society would be involved in a discussion foreign to the objects which we have in view. With respect to the observations of the Chairman, I must say that I was not aware that the scientific accuracy of the statements in the Bible with respect to the ant was still maintained, and I must so far qualify that passage in the paper. So far as I had previously heard, no one had ventured to dispute the facts as I stated them. I knew, indeed, that an attempt had been made to prove that the hare and coney were not the animals alluded to, but I was not prepared to hear it stated that the ant gathered in food for winter. The authors from whom I quoted found their objections upon a careful observation, not only of the habits of the ants in England, but in Palestine. With respect to the translation of the Septuagint, it was plain that the transcribers were aware that the hare and the coney did not chew the cud, for they inserted the word "not" in the passage, though it clearly did not belong to it, and destroyed the sense *in toto*—

The CHAIRMAN.—I confess I was not aware of that fact before.

Mr. WARINGTON.—If the chairman will examine the text\* he will find that the word "not" has been inserted. With these observations, I will only thank you for the kind attention which you have given to the paper, and I hope that it may prove in some respects beneficial to the cause which we have all at heart. (Applause.)

The CHAIRMAN then adjourned the meeting to the 18th of June.

\* Vatican MS.