

333.—Professor Huxley.—HON. JOHN COLLIER.

Huntington's S. S. 1860

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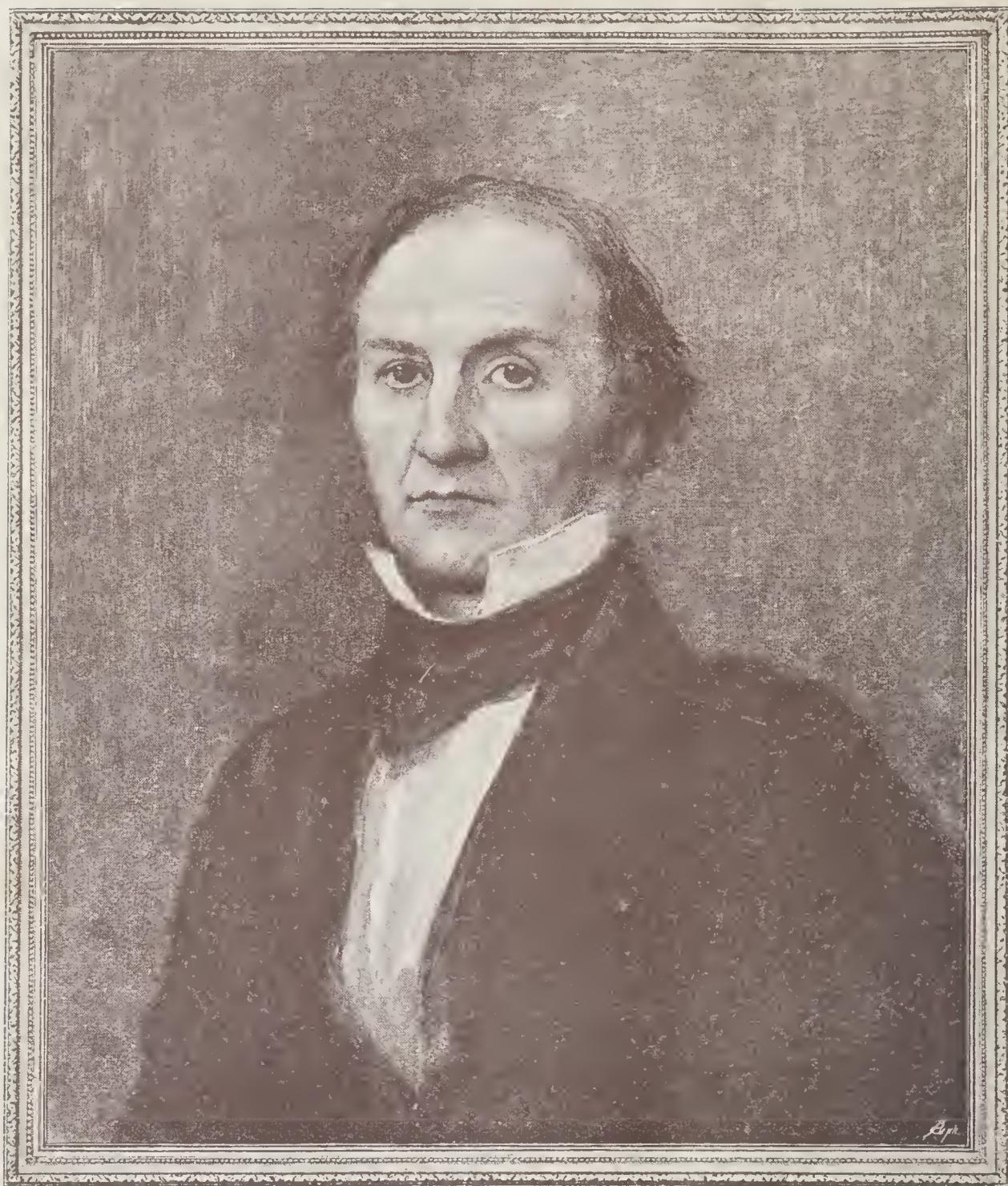
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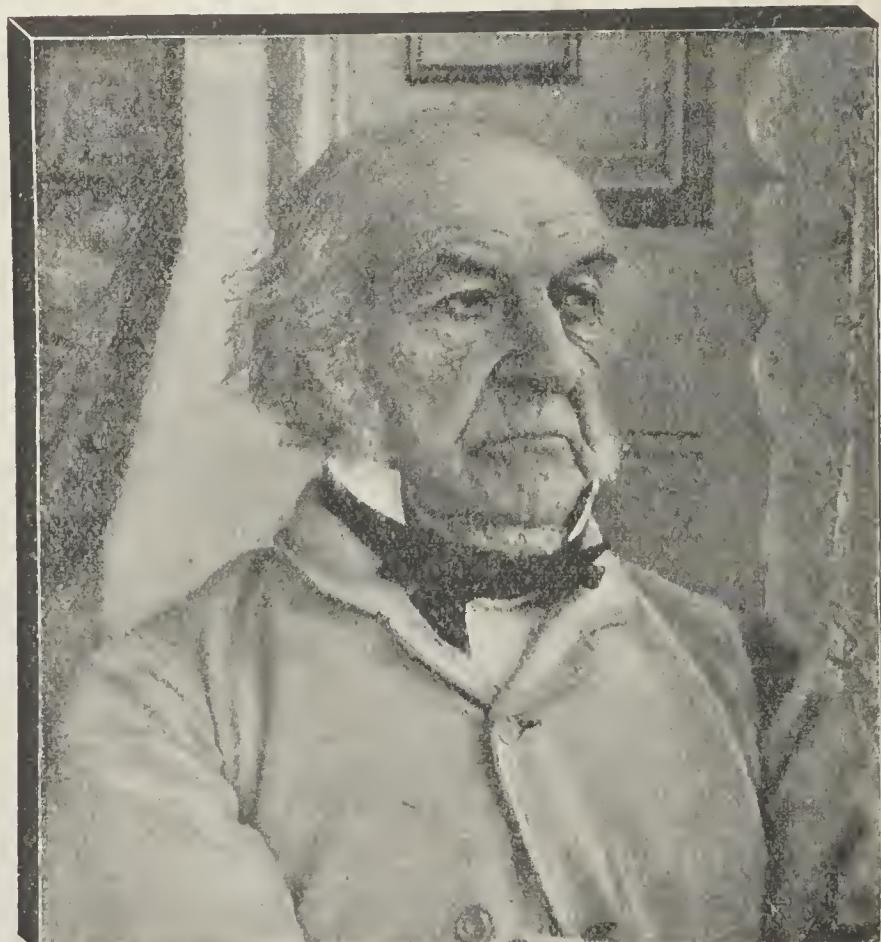


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MR. W. E. GLADSTONE



BORN 29TH DEC. 1809

DIED 19TH MAY 1898

THE
NINETEENTH
CENTURY.

No. CV.—NOVEMBER 1885.

DAWN OF CREATION AND OF WORSHIP.

REPLY TO DR. RÉVILLE.

AMONG recent works on the origin and history of religions by distinguished authors, a somewhat conspicuous place may be awarded to the *Prolégomènes de l'Histoire des Religions*, by Dr. Réville, Professor in the College of France, and Hibbert Lecturer in 1884. The volume has been translated into English by Mr. Squire, and the translation¹ comes forth with all the advantage, and it is great, which can be conferred by an Introduction from the pen of Professor Max Müller. It appears, if I may presume to speak of it, to be characterised, among other merits, by marked ingenuity and acuteness, breadth of field, great felicity of phrase, evident candour of intention, and abundant courtesy.

Whether its contents are properly placed as *prolegomena* may at once be questioned; for surely the proper office of *prolegomena* is to present preliminaries, and not results. Such is not, however, the aim of this work. It starts from assuming the subjective origin of all religions, which are viewed as so many answers to the call of a strong human appetite for that kind of food, and are examined as the several varieties of one and the same species. The conclusions of opposing inquirers, however, are not left to be confuted by a collection of facts and testimonies drawn from historical investigation, but are thrust out of the way beforehand in the preface (for, after all, *prolegomena*

¹ In his *Prolegomena to the History of Religions*. My references throughout are to the translation by Mr. Squire (Williams & Norgate, 1884).

can be nothing but a less homely phrase for a preface). These inquirers are so many pretenders, who have obstructed the passage of the rightful heir to his throne, and they are to be put summarily out of the way, as disturbers of the public peace. The method pursued appears to be not to allow the facts and arguments to dispose of them, but to condemn them before the cause is heard. I do not know how to reconcile this method with Dr. Réville's declaration that he aims (p. vi) at proceeding in a 'strictly scientific spirit.' It might be held that such a spirit required the regular presentation of the evidence before the delivery of the verdict upon it. In any case I venture to observe that these are not truly *prolegomena*, but *epilegomena* to a History of Religions not yet placed before us.

The first enemy whom Dr. Réville despatches is M. de Bonald, as the champion of the doctrine that 'in the very beginning of the human race the creative power revealed to the first men by supernatural means the essential principles of religious truth,' together with 'language and even the art of writing' (pp. 35, 36).

In passing, Dr. Réville observes that 'the religious schools, which maintain the truth of a primitive revelation, are guided by a very evident theological interest' (*ibid.*); the Protestant, to fortify the authority of the Bible; and the Roman Catholic, to prop the infallibility of the Church.

It is doubtless true that the doctrine of a primitive revelation tends to fortify the authority of religion. But is it not equally true, and equally obvious, that the denial of a primitive revelation tends to undermine it? and, if so, might it not be retorted upon the school of Dr. Réville that the schools which deny a primitive revelation are guided by a very evident anti-theological interest?

Against this antagonist Dr. Réville observes, *inter alia* (p. 37), that an appeal to the supernatural is *per se* inadmissible; that a divine revelation, containing the sublime doctrines of the purest inspiration, given to man at an age indefinitely remote, and in a state of 'absolute ignorance,' is 'infinitely hard' to imagine; that it is not favoured by analogy; and that it contradicts all that we know of prehistoric man (p. 40). Thus far it might perhaps be contended in reply, (1) that the preliminary objection to the supernatural is a pure *petitio principii*, and wholly repugnant to 'scientific method'; (2) that it is not inconceivable that revelation might be indefinitely graduated, as well as human knowledge and condition; (3) that it is in no way repugnant to analogy, if the greatest master of analogy, Bishop Butler,² may be heard upon the subject; and (4) that our earliest information about the races from which we are least remote, Aryan, Semitic, Accadian, or Egyptian, offers no contradiction and no obstacle to the idea of their having received, or inherited, portions of some knowledge divinely revealed.

² *Analogy*, P. II. ch. ii. § 2.

But I do not now enter upon these topics, as I have a more immediate and defined concern with the work of Dr. Réville.

It only came within the last few months to my knowledge that, at a period when my cares and labours of a distinct order were much too absorbing to allow of any attention to archæological history, Dr. Réville had done me the honour to select me as the representative of those writers who find warrant for the assertion of a primitive revelation in the testimony of the Holy Scriptures.

This is a distinction which I do not at all deserve; first, because Dr. Réville might have placed in the field champions much more competent and learned³ than myself; secondly, because I have never attempted to give the proof of such a warrant. I have never written *ex professo* on the subject of it; but it is true that in a work published nearly thirty years ago, when destructive criticism was less advanced than it now is, I assumed it as a thing generally received, at least in this country. Upon some of the points, which group themselves round that assumption, my views, like those of many other inquirers, have been stated more crudely at an early, and more maturely at more than one later period. I admit that variation or development imposes a hardship upon critics, notwithstanding all their desire to be just; especially, may I say, upon such critics as, traversing ground of almost boundless extent, can hardly, except in the rarest cases, be minutely and closely acquainted with every portion of it.

I also admit to Dr. Réville, and indeed I contend by his side, that in an historical inquiry the authority of Scripture cannot be alleged in proof of the existence of a primitive revelation. So to allege it is a preliminary assumption of the supernatural, and is in my view a manifest departure from the laws of ‘scientific’ procedure: as palpable a departure, may I venture to say? as that preliminary exclusion of the supernatural which I have already presumed to notice. My own offence, if it be one, was of another character; and was committed in the early days of Homeric study, when my eyes perhaps were dazzled with the amazing richness and variety of the results which reward all close investigation of the text of Homer, so that objects were blurred for a time in my view, which soon came to stand more clear before me.

I had better perhaps state at once what my contention really is. It is, first, that many important pictures drawn, and indications given, in the Homeric poems supply evidence that cannot be confuted not only of an ideal but of an historical relationship to the Hebrew traditions, (1) and mainly, as they are recorded in the Book of Genesis; (2) as less authentically to be gathered from the later Hebrew learning; and (3) as illustrated from extraneous sources. Secondly, any attempt

³ I will only name one of the most recent, Dr. Reusch, the author of *Bibel und Natur* (Bonn, 1876).

to expound the Olympian mythology of Homer by simple reference to a solar theory, or even to Nature worship in a larger sense, is simply a plea for a verdict against the evidence. It is also true that I have an unshaken belief in a Divine Revelation, not resting on assumption, but made obligatory upon me by reason. But I hold the last of these convictions entirely apart from the others, and I derived the first and second not from preconception, of which I had not a grain, but from the poems themselves, as purely as I derived my knowledge of the Peloponnesian War from Thucydides or his interpreters.

The great importance of this contention I do not deny. I have produced in its favour a great mass of evidence, which, as far as I have seen, there has been no serious endeavour, if indeed any endeavour, to repel. Dr. Réville observes that my views have been subjected to 'very profound criticism' by Sir G. Cox in his learned work on Aryan mythology (p. 41). That is indeed a very able criticism; but it is addressed entirely to the statements of my earliest Homeric work.⁴ Now, apart from the question whether those statements have been rightly understood (which I cannot admit), that which he attacks is beyond and outside of the proposition which I have given above. Sir G. Cox has not attempted to decide the question whether there was a primitive revelation, or whether it may be traced in Homer. And I may say that I am myself so little satisfied with the precise form, in which my general conclusions were originally clothed, that I have not reprinted and shall not reprint the work, which has become very rare, only appearing now and then in some catalogue, and at a high price. When there are representatives living and awake, why disturb the ashes of the dead? In later works, reaching from 1865 to 1875,⁵ I have confessed to the modification of my results, and have stated the case in terms which appear to me, using the common phrase, to be those yielded by the legitimate study of comparative religion. But why should those, who think it a sound method of comparative religion to match together the Vedas, the Norse legends, and the Egyptian remains, think it to be no process of comparative religion to bring together, not vaguely and loosely, but in searching detail, certain traditions of the Book of Genesis and those recorded in the Homeric poems, and to argue that their resemblances may afford proof of a common origin, without any anticipatory assumption as to what that origin may be?

It will hardly excite surprise, after what has now been written, when I say I am unable to accept as mine any one of the propositions which Dr. Réville (pp. 41-2) affiliates to me. (1) I do not hold that there was a 'systematic' or wilful corruption of a primitive

⁴ *Studies on Homer and the Homeric Age*, 3 vols. Oxford, 1858.

⁵ *Address to the University of Edinburgh* (Murray, 1865); *Jurentus Mundi* (Macmillan, 1868); *Primer of Homer* (Macmillan, 1878); especially see Preface to *Jurentus Mundi*, p. 1.

religion. (2) I do not hold that all the mythologies are due to any such corruption systematic or otherwise. (3) I do not hold that no part of them sprang out of the deification of natural facts. (4) I do not hold that the ideas conveyed in the Book of Genesis, or in any Hebrew tradition, were developed in the form of dogma, as is said by Sir G. Cox,⁶ or in 'six great doctrines' as is conceived by Dr. Réville; and (5) I am so far from ever having held that there was 'a primitive orthodoxy' revealed to the first men (p. 43) that I have carefully from the first referred not to developed doctrine, but to rudimentary indications of what are now developed and established truths. So that, although Dr. Réville asks me for proof, I decline to supply proofs of what I disbelieve. What I have supplied proofs of is the appearance in the Poems of a number of traits, incongruous in various degrees with their immediate environment, but having such marked and characteristic resemblances to the Hebrew tradition as to require of us, in the character of rational inquirers, the admission of a common origin, just as the markings, which we sometimes notice upon the coats of horses and donkeys, are held to require the admission of their relationship to the zebra.

It thus appears that Dr. Réville has discharged his pistol in the air, for my Homeric propositions involve no assumption as to a revelation contained in the Book of Genesis, while he has not *ex professo* contested my statements of an historical relationship between some traditions of that book and those of the Homeric poems. But I will now briefly examine (1) the manner in which Dr. Réville handles the Book of Genesis, and (2) the manner in which he undertakes, by way of specimen, to construe the mythology of Homer, and enlist it, by comparison, in the support of his system of interpretation. And first with the first-named of these two subjects.

Entering a protest against assigning to the Book 'a dictatorial authority,' that is, I presume, against its containing a Divine revelation to anybody, he passes on to examine its contents. It contains, he says, scientific errors, of which (p. 42, n.) he specifies three. His charges are that (1) it speaks of the heaven as a solid vault; (2) it places the creation of the stars after that of the earth, and so places them solely for its use; (3) it introduces the vegetable kingdom before that kingdom could be subjected to the action of solar light. All these condemnations are quietly enunciated in a note, as if they were subject to no dispute. Let us see.

As to the first: if our scholars are right in their judgment, just made known to the world by the recent revision of the Old Testament, the 'firmament' is, in the Hebrew original,⁷ *not* a solid vault, but an expanse. As to the second (*a*) it is *not* said in the sacred text that the stars were made solely for the use of the earth; (*b*) it is true

⁶ *Aryan Mythology*, vol. i. p. 15.

⁷ The στερέωμα of the Septuagint is construed in conformity with the Hebrew.

that no other use is mentioned. But we must here inquire what was the purpose of the narrative? Not to rear cosmic philosophers, but to furnish ordinary men with some idea of what the Creator had done in the way of providing for them a home, and giving them a place in nature. The advantage afforded by the stars to them is named alone, they having no interest in any other purpose for which the stars may exist.

The assertion that the stars are stated to have been 'created' after the earth is more serious. But here it becomes necessary first of all to notice the recital in this part of the indictment. In the language of Dr. Réville, the Book speaks of the creation of the stars after the formation of the earth. Now, curiously enough, the Book says nothing either of the 'formation' of the earth, or of the 'creation' of the stars. It says in its first line that 'in the beginning God created the heaven and the earth.' It says further on,⁸ 'He made the stars also.' Can it be urged that this is a fanciful distinction between creating on the one hand and making, forming, or fashioning on the other? Dante did not think so, for, speaking of the Divine Will, he says:—

Ciò ch' Ella cria, e che Natura face.⁹

Luther did not think so, for he uses *schuf* in the first verse, and *machte* in the sixteenth. The English Translators and their Revisers did not think so, for they use the words 'created' and 'made' in the two passages respectively. The main question, however, is what did the author of the Book think, and what did he intend to convey? The LXX drew no distinction, probably for the simple reason that, as the idea of creation proper was not familiar to the Greeks, their language conveyed no word better than *poiein* to express it, which is also the proper word for fashioning or making. But the Hebrew, it seems, had the distinction, and by the writer of Genesis i. it has been strictly, to Dr. Réville I might almost say scientifically, followed. He uses the word 'created' on the three grand occasions (1) of the beginning of the mighty work (v. 1); (2) of the beginning of animal life (v. 21) 'And God created great whales,' and every living creature that peoples the waters; (3) of the yet more important beginning of rational and spiritual life; 'so God created man in his own image' (v. 27). In every other instance, the simple command is recited, or a word implying less than creation is employed.

From this very marked mode of use, it is surely plain that a marked distinction of sense was intended by the sacred writer. I will not attempt a definition of the distinction further than this, that the one phrase points more to calling into a separate or individual existence, the other more to shaping and fashioning the conditions of that existence; the one to *quid*, the other to *quale*. Our Earth, created in v. 1, undergoes structural change, different arrangement of material,

⁸ Gen. i. 16.

⁹ *Paradiso*, iii. 87.

in v. 9. After this, and in the fourth day, comes not the original creation, but the location in the firmament, of the sun and the moon. Of their ‘creation’ nothing particular has been said; for no use, palpable to man, was associated with it before their perfect equipment. Does it not seem allowable to suppose that in the ‘heavens’¹⁰ (v. 1), of which after the first outset we hear no more, were included the heavenly bodies? In any case what is afterwards conveyed is not the calling into existence of the sun and moon, but the assignment to them of a certain place and orbit respectively, with a light-giving power. Is there the smallest inconsistency in a statement which places the emergence of our land, and its separation from the sea, and the commencement of vegetable life, before the final and full concentration of light upon the sun, and its reflection on the moon and the planets? In the gradual severance of other elements, would not the severance of the luminous body, or force, be gradual also? And why, let me ask of Dr. Réville, as there would plainly be light diffused before there was light concentrated, why may not that light diffused have been sufficient for the purposes of vegetation? There was soil, there was atmosphere, there was moisture, there was light. What more could be required? Need we go beyond our constant experience to be aware that the process of vegetation, though it may be suspended, is not arrested, when, through the presence of cloud and vapour, the sun’s globe becomes to us invisible? The same observations apply to the light of the planets; while as to the other stars, such as were then perceptible to the human eye, we know nothing. The planets, being luminous bodies only through the action of the sun, could not be luminous until such a degree of light, or of light-force, was accumulated upon or in the sun, as to make them luminous, instead of being

silent as the moon,
When she deserts the night
Hid in her vacant interlunar cave.¹¹

Is it not then the fact, thus far, that the impeachment of the Book has fallen to the ground? There remains to add only one remark, the propriety of which is, I think, indisputable. Easy comprehension and impressive force are the objects to be aimed at in a composition at once popular and summary; but these cannot always be had without some departure from accurate classification, and the order of minute detail. It seems much more easy to justify the language of the opening verses of Genesis than, for example, the convenient usage by which we affirm that the sun rises, or mounts above the horizon, and sets, or descends

¹⁰ In our translation, and in the recent Revision, the singular is used. But we are assured that the Hebrew word is plural (Bishop of Winchester on Genesis i. 1 in the Speaker’s Bible). If so taken, we have the creation, visible to us, treated conjointly in verses 1–5, distributively in verses 6–19; surely a most orderly arrangement.

¹¹ *Samson Agonistes.*

below it, when we know perfectly well that he does neither the one nor the other. As to the third charge of scientific error, that the vegetable kingdom appeared before it could be subjected to the action of solar light, it has been virtually disposed of. If the light now appropriated to the sun alone was gradually gathering towards and round him, why may it not have performed its proper office in contributing to vegetation when once the necessary degree of severance between solid and fluid, between wet and dry, had been effected? And this is just what had been described in the formation of the firmament, and the separation of land from sea.

More singular still seems to be the next observation offered by Dr. Réville in his compound labour to satisfy his readers, first, that there is no revelation in Genesis, and secondly that, if there be, it is one which has no serious or relevant meaning. He comes to the remarkable expression in v. 26, ‘Let us make man in our own image.’ There has, it appears, been much difference of opinion even among the Jews on the meaning of this verse. The Almighty addresses, as some think, His own powers; as others think, the angels; others, the earth; other writers, especially, as it appears, Germans, have understood this to be a plural of dignity, after the manner of kings. Others, of the rationalising school, conceive the word Elohim to be a relic of polytheism. The ancient Christian interpreters,¹² from the Apostle Barnabas onwards, find in these words an indication of a plurality in the Divine Unity. Dr. Réville (p. 43) holds that this is ‘simply the royal plural used in Hebrew as in many other languages,’ or else, ‘and more probably,’ that it is an appeal to the Bené Elohim or angels. But is not this latter meaning a direct assault upon the supreme truth of the Unity of God? If he chooses the former, from whence does he derive his knowledge that this ‘royal plural’ was used in Hebrew? Will the royal plural account for (Gen. iii. 22) ‘when the man is become as one of us?’ and would George the Second, if saying of Charles Edward ‘the man is become as one of us,’ have intended to convey a singular or a plural meaning? Can we disprove the assertion of Bishop Harold Browne, that this plurality of dignity is unknown to the language of Scripture? And further, if we make the violent assumption that the Christian Church with its one voice is wrong and Dr. Réville right, and that the words were not meant to convey the idea of plurality, yet, if they have been such as to lead all Christendom to see in them this idea through 1800 years, how can he be sure that they did not convey a like signification to the earliest hearers or readers of the Book of Genesis?

The rest of Dr. Réville’s criticism is directed rather to the significance or propriety, than to the truth, of the record. It is not necessary to follow his remarks in detail, but it will help the reader to judge

¹² On this expression, I refer again to the commentary of Bishop Harold Browne. Bishop Mant supplies an interesting list of testimonies.

how far even a perfectly upright member of the scientific and comparative school can indulge an unconscious bias, if notice be taken in a single instance of his method of comparing. He compares together the two parts of the prediction that the seed of the woman shall bruise the head of the serpent, and that the serpent shall bruise the heel of the seed of the woman (iii. 15); and he conceives the head and the heel to be so much upon a par in their relation to the faculties and the vitality of a man that he can find here nothing to indicate which shall get the better, or, in his own words, ‘on which side shall be the final victory’ (p. 45). St. Paul seems to have taken a different view when he wrote, ‘the God of peace shall bruise Satan under your feet shortly’ (Rom. xvi. 20).

Moreover ‘our author’ (in Dr. Réville’s phrase) is censured because he ‘takes special care to point out’ (p. 44) ‘that the first pair are as yet strangers to the most elementary notions of morality,’ inasmuch as they are unclothed, yet without shame; nay, even, as he feelingly says, ‘without the least shame.’ In what the morality of the first pair consisted, this is hardly the place to discuss. But let us suppose for a moment that their morality was simply the morality of a little child, the undeveloped morality of obedience, without distinctly formed conceptions of an ethical or abstract standard. Is it not plain that their feelings would have been exactly what the Book describes (Gen. ii. 25), and yet that in their loving obedience to their Father and Creator they would certainly have had a germ, let me say an opening bud, of morality? But this proposition, taken alone, by no means does justice to the case. Dr. Réville would probably put aside with indifference or contempt all that depends upon the dogma of the Fall. And yet there can be no more rational idea, no idea more palpably sustained, whether by philosophy or by experience. Namely this idea: that the commission of sin, that is the act of deliberately breaking a known law of duty, injures the nature and composition of the being who commits it. It injures that nature in deranging it, in altering the proportion of its parts and powers, in introducing an inward disorder and rebellion of the lower against the higher, too mournfully corresponding with that disorder and rebellion produced without, as towards God, of which the first sin was the fountain head. Such is, I believe, the language of Christian theology, and in particular of St. Augustine, one of its prime masters. On this matter I apprehend that Dr. Réville, when judging the author of Genesis, judges him without regard to his fundamental ideas and aims, one of which was to convey that before sinning man was a being morally and physically balanced, and nobly pure in every faculty; and that, by and from his sinning, the sense of shame found a proper and necessary place in a nature which before was only open to the sense of duty and of reverence.

One further observation only. Dr. Réville seems to ‘score one’

when he finds (Gen. iv. 26) that Seth had a son, and that ‘then began men to call on the name of the Lord;’ ‘but not,’ he adds, ‘as the result of a recorded revelation.’ Here at last he has found, or seemed to find, the beginning of religion, and that beginning subjective, not revealed. So hastily, from the first aspect of the text, does he gather a verbal advantage, which, upon the slightest inquiry, would have disappeared, like dew in the morning sun. He assumes the rendering of a text which has been the subject of every kind of question and dispute, the only thing apparently agreed on being that his interpretation is wholly excluded. Upon a disputed original, and a disputed interpretation of the disputed original, he finds a signification in flat contradiction to the whole of the former narrative, to Elohist and Jehovah alike; which narrative, if it represents anything, represents a continuity of active reciprocal relation between God and man both before and after the transgression. Not to mention differences of translation, which essentially change the meaning of the words, the text itself is given by the double authority of the Samaritan Pentateuch¹³ and of the Septuagint in the singular number, which of itself wholly destroys the construction of Dr. Réville. I do not enter upon the difficult question of conflicting authorities: but I urge that it is unsafe to build an important conclusion upon a seriously controverted reading.¹⁴

There is nothing, then, in the criticisms of Dr. Réville but what rather tends to confirm than to impair the old-fashioned belief that there is a revelation in the Book of Genesis. With his argument outside this proposition I have not dealt. I make no assumption as to what is termed a verbal inspiration, and of course, in admitting the variety, I give up the absolute integrity of the text. Upon the presumable age of the book and its compilation I do not enter—not even to contest the opinion which brings it down below the age of Solomon—beyond observing that in every page it appears from internal evidence to belong to a remote antiquity. There is here no question of the chronology, or of the date of man, or of knowledge or ignorance in the primitive man; or whether the element of parable enters into any portion of the narrative; or whether every statement of fact contained in the text of the Book, can now be made good. It is enough for my present purpose to point to the cosmogony, and the fourfold succession of the living organisms, as entirely harmonising, according to present knowledge, with belief in a revelation, and as presenting to the rejector of that belief a problem, which demands solution at his hands, and which he has not yet been able to solve.

¹³ See Bishop of Winchester's *Commentary*.

¹⁴ This perplexed question is discussed, in a sense adverse to the Septuagint, by the critic of the recent Revision, in the *Quarterly Review* for October, No. 322. The Revisers of the Old Testament state (Preface, p. vi) that in a few cases of extreme difficulty they have set aside the Massoretic Text in favour of a reading from one of the Ancient Versions.

Whether this revelation was conveyed to the ancestors of the whole human race who have at the time or since existed, I do not know, and the Scriptures do not appear to me to make the affirmation, even if they do not convey certain indications which favour a contrary opinion. Again, whether it contains the whole of the knowledge specially vouchsafed to the parents of the Noachian races, may be very doubtful; though of course great caution must be exercised in regard to the particulars of any primæval tradition not derived from the text of the earliest among the sacred Books. I have thus far confined myself to rebutting objections. But I will now add some positive considerations which appear to me to sustain the ancient, and as I am persuaded impregnable, belief of Christians and of Jews concerning the inspiration of the Book. I offer them as one wholly destitute of that kind of knowledge which carries authority, and who speaks derivatively as best he can, after listening to teachers of repute and such as practise rational methods.

I understand the stages of the majestic process described in the Book of Genesis to be in general outline as follows:—

1. The point of departure is the formless mass, created by God, out of which the earth was shaped and constituted a thing of individual existence (verses 1, 2).

2. The detachment and collection of light, leaving in darkness as it proceeded the still chaotic mass from which it was detached (verses 3–5). The narrative assigning a space of time to each process appears to show that each was gradual, not instantaneous.

3. The detachment of light from darkness is followed by the detachment of wet from dry, and of solid from liquid, in the firmament, and on the face of the earth. Each of these operations occupies a ‘day;’ and the conditions of vegetable life, as known to us by experience, being now provided, the order of the vegetable kingdom had begun (verses 6–13).

4. Next comes the presentation to us of the heavenly bodies, sun, moon, and stars, in their final forms, when the completion of the process of light-collection and concentration in the sun, and the due clearing of the intervening spaces, had enabled the central orb to illuminate us both with direct and with reflected light (verses 14–19).

5. So far, we have been busy only with the adjustment of material agencies. We now arrive at the dawn of animated being; and a great transition seems to be marked as a kind of recommencement of the work, for the name of creation is again introduced. God created

- (a) The water-population;
- (b) The air-population.

And they receive His benediction (verses 20–23).

- 6. Pursuing this regular progression from the lower to the higher,

from the simple to the complex, the text now gives us the work of the sixth 'day,' which supplies the land-population, air and water having already been supplied. But in it there is a sub-division, and the transition from (*c*) animal to (*d*) man, like the transition from inanimate to animate, is again marked as a great occasion, a kind of recommencement. For this purpose the word 'create' is a third time employed. 'God created man in His own image,' and once more He gave benediction to this the final work of His hands, and endowed our race with its high dominion over what lived and what did not live (verses 24-31).

I do not dwell on the cessation of the Almighty from the creating and (ii. 1) 'finishing' work, which is the 'rest' and marks the seventh 'day,' because it introduces another order of considerations. But glancing back at the narrative which now forms the first chapter, I offer perhaps a prejudiced, and in any case no more than a passing, remark. If we view it as popular narrative, it is singularly vivid, forcible, and effective; if we take it as poem, it is indeed sublime. No wonder if it became classical and reappeared in the glorious devotions of the Hebrew people,¹⁵ pursuing, in a great degree, the same order of topics as in the Book of Genesis.

But the question is not here of a lofty poem, or a skilfully constructed narrative: it is whether natural science, in the patient exercise of its high calling to examine facts, finds that the works of God cry out against what we have fondly believed to be His Word, and tell another tale; or whether, in this nineteenth century of Christian progress, it substantially echoes back the majestic sound which, before it existed as a pursuit, went forth into all lands.

First, looking largely at the latter portion of the narrative, which describes the creation of living organisms, and waiving details, on some of which (as in verse 24) the Septuagint seems to vary from the Hebrew, there is a grand fourfold division, set forth in an orderly succession of times as follows: on the fifth day

1. The water-population;
 2. The air-population;
- and, on the sixth day,
3. The land-population of animals;
 4. The land-population consummated in man.

Now this same four-fold order is understood to have been so affirmed in our time by natural science, that it may be taken as a demonstrated conclusion and established fact. Then, I ask, how came Moses, or, not to cavil on the word, how came the author of the first chapter of Genesis, to know that order, to possess knowledge which natural science has only within the present century for the first time dug out of the bowels of the earth? It is surely impossible to avoid the conclusion, first, that either this writer was gifted with faculties

¹⁵ Ps. civ. 2-20, cxxxvi. 5-9, and the Song of the Three Children in verses 57-60.

passing all human experience, or else his knowledge was divine. The first branch of the alternative is truly nominal and unreal. We know the sphere within which human inquiry toils. We know the heights to which the intuitions of genius may soar. We know that in certain cases genius anticipates science ; as Homer, for example, in his account of the conflict of the four winds in sea-storms. But even in these anticipations, marvellous, and, so to speak, imperial as they are, genius cannot escape from one inexorable law. It must have materials of sense or experience to work with, and a $\pi\sigma\hat{\nu}\ \sigma\tau\hat{\omega}$ from whence to take its flight ; and genius can no more tell, apart from some at least of the results attained by inquiry, what are the contents of the crust of the earth, than it could square the circle, or annihilate a fact.¹⁶

So stands the plea for a revelation of truth from God, a plea only to be met by questioning its possibility ; that is, as Dr. Salmon¹⁷ has observed with great force in a recent work, by suggesting that a Being, able to make man, is unable to communicate with the creature He has made. If, on the other hand, the objector confine himself to a merely negative position, and cast the burden of proof on those who believe in revelation, it is obvious to reply by a reference to the actual constitution of things. Had that constitution been normal or morally undisturbed, it might have been held that revelation as an *adminiculum*, an addition to our natural faculties, would itself have been a disturbance. But the disturbance has in truth been created in the other scale of the balance by departure from the Supreme Will, by the introduction of sin ; and revelation, as a special remedy for a special evil, is a contribution towards symmetry, and towards restoration of the original equilibrium.

Thus far only the fourfold succession of living orders has been noticed. But among the persons of very high authority in natural science quoted by Dr. Reusch,¹⁸ who held the general accordance of the Mosaic cosmogony with the results of modern inquiry, are Cuvier and Sir John Herschel.^X The words of Cuvier show he conceived that ‘every day’ fresh confirmation from the purely human source accrued to the credit of Scripture. And since his day, for he cannot now be called a recent authority, this opinion appears to have received some remarkable illustrations.

Half a century ago, Dr. Whewell¹⁹ discussed, under the name of the nebular hypothesis, that theory of rotation which had been indicated by Herschel, and more largely taught by La Place, as the

¹⁶ In conversation with Miss Burney (*Diary*, i. 576), Johnson, using language which sounds more disparaging than it really is, declares that ‘Genius is nothing more than knowing the use of tools ; but then there must be tools for it to use.’

¹⁷ *Introduction to the New Testament*, p. ix. Murray, 1885.

¹⁸ *Bibel und Natur*, pp. 2, 63. The words of Cuvier are : ‘Moyses hat uns eine Kosmogonie hinterlassen, deren Genauigkeit mit jedem Tage in einer bewunderungswürdigern Weise bestätigt ist.’ The declaration of Sir John Herschel was in 1864.

¹⁹ Whewell’s *Astronomy and General Physics*, 1834, p. 181 seqq.

^X see letter of Sir J. Herschell’s son in the *Athenaeum* of Feb. 6. 1886.

probable method through which the solar system has taken its form. Carefully abstaining, at that early date, from a formal judgment on the hypothesis, he appears to discuss it with favour; and he shows that this hypothesis, which assumes 'a beginning of the present state of things,'²⁰ is in no way adverse to the Mosaic cosmogony. The theory has received marked support from opposite quarters. In the *Vestiges of Creation* it is frankly adopted; the very curious experiment of Professor Plateau is detailed at length on its behalf;²¹ and the author considers, with La Place, that the zodiacal light, on which Humboldt in his *Kosmos* has dwelt at large, may be a remnant of the luminous atmosphere originally diffused around the sun. Dr. McCaul, in his very able argument on the Mosaic Record, quotes²² Humboldt, Pfaff, and Mädler—a famous German astronomer—as adhering to it. It appears on the whole to be in possession of the field; and McCaul observes²³ that, 'had it been devised for the express purpose of removing the supposed difficulties of the Mosaic record, it could hardly have been more to the purpose.' Even if we conceive, with Dr. Réville, that the 'creation,' the first gift of separate existences, to the planets is declared to have been subsequent to that of the earth, there seems to be no known law which excludes such a supposition, especially with respect to the larger and more distant of their number. These, it is to be noticed, are of great rarity as compared with the earth. Why should it be declared impossible that they should have taken a longer time in condensation, like in this point to the comets, which still continue in a state of excessive rarity? Want of space forbids me to enter into further explanation; but it requires much more serious efforts and objections than those of Dr. Réville to confute the statement that the extension of knowledge and of inquiry has confirmed the Mosaic record.

One word, however, upon the 'days' of Genesis. We do not hear the authority of Scripture impeached on the ground that it assigns to the Almighty eyes and ears, hands, arms, and feet; nay, even the emotions of the human being. This being so, I am unable to understand why any disparagement to the credit of the sacred books should ensue because, to describe the order and successive stages of the Divine working, these have been distributed into 'days.' What was the thing required in order to make this great procession of acts intelligible and impressive? Surely it was to distribute the parts each into some integral division of time, having the character of something complete in itself, of a revolution, or outset and return. There are but three such divisions familiarly known to man. Of these the day was the most familiar to human perceptions; and probably on this account its figurative use is admitted to be found in prophetic texts, as, indeed, it largely pervades ancient and modern

²⁰ Whewell, *op. cit.* p. 206.

²¹ *Vestiges*, &c. pp. 11-15.

²² *Aids to Faith*, p. 210.

²³ *Ibid.*

speech. Given the object in view, which indeed can hardly be questioned, does it not appear that the ‘day,’ more definitely separated than either month or year from what precedes and what follows, was appropriately chosen for the purpose of conveying the idea of development by gradation in the process which the Book sets forth?

I now come to the last portion of my task, which is to follow Dr. Réville into his exposition of the Olympian mythology. Not, indeed, the Homeric or Greek religion alone, for he has considered the case of all religions, and disposes of them with equal facility. Of any other system than the Olympian, it would be presumption in me to speak, as I have, beyond this limit, none but the most vague and superficial knowledge. But on the Olympian system in its earliest and least adulterated, namely its Homeric, development, whether with success or not, I have freely employed a large share of such leisure as more than thirty years of my Parliamentary life, passed in freedom from the calls of office, have supplied. I hope that there is not in Dr. Réville’s treatment of other systems that slightness of texture, and that facility and rapidity of conclusion, which seem to me to mark his performances in the Olympian field.

In the main he follows what is called the solar theory. In his widest view, he embraces no more than ‘the religion of nature’ (pp. 94, 100), and he holds that all religion has sprung from the worship of objects visible and sensible.

His first essay is upon Heracles, whom I have found to be one of the most difficult and, so to speak, irreducible characters in the Olympian mythology. In the Tyrian system Heracles, as Melkart, says Dr. Réville in p. 95, is ‘a brazen god, the devourer of children, the terror of men;’ but, without any loss of identity, he becomes in the Greek system ‘the great lawgiver, the tamer of monsters, the peacemaker, the liberator.’ I am deeply impressed with the danger that lurks in these summary and easy solutions; and I will offer a few words first on the Greek Heracles generally, next on the Homeric presentation of the character.

Dr. L. Schmidt has contributed to Smith’s great Dictionary a large and careful article on Heracles; an article which may almost be called a treatise. Unlike Dr. Réville, to whom the matter is so clear, he finds himself out of his depth in attempting to deal with this highly incongruous character, which meets us at so many points, as a whole. But he perceives in the Heracles of Greece a mixture of fabulous and historic elements; and the mythical basis is not, according to him, a transplanted Melkart, but is essentially Greek.²⁴ He refers to Butt-mann’s *Mythologus* and Müller’s *Dorians* as the best treatises on the subject, ‘both of which regard the hero as a purely Greek character.’ Thus Dr. Réville appears to be in conflict with the leading authorities, whom he does not confute, but simply ignores.

²⁴ Smith’s *Diet.* ii. 400.

Homer himself may have felt the difficulty which Dr. Réville does not feel, for he presents to us, in one and the same passage, a divided Heracles. Whatever of him is not *eidolon*²⁵ dwells among the Olympian gods. This *eidolon*, however, is no mere shade, but something that sees and speaks, that mourns and threatens; no ‘lawgiver,’ or ‘peacemaker,’ or ‘liberator,’ but one from whom the other shades fly in terror, set in the place and company of sinners suffering for their sins, and presumably himself in the same predicament, as the sense of grief is assigned to him: it is in wailing that he addresses Odysseus.²⁶ Accordingly, while on earth, he is *thrasumemnon*,²⁷ *huperthumos*,²⁸ a doer of *megala erga*,²⁹ which with Homer commonly are crimes. He is profane, for he wounded Herè, the specially Achaian goddess;³⁰ and he is treacherous, for he killed Iphitos, his host, in order to carry off his horses.³¹ A mixed character, no doubt, or he would not have had Hebè for a partner; but those which I have stated are some of the difficulties which Dr. Réville quietly rides over to describe him as lawgiver, peacemaker, and liberator. But I proceed.

Nearly everything, with Dr. Réville, and, indeed, with his school, has to be pressed into the service of the solar theory; and if the evidence will not bear it, so much the worse for the evidence. Thus Ixion, tortured in the later Greek system on a wheel, which is sometimes represented as a burning wheel, is made (p. 105) to be the Sun; the luminary whose splendour and beneficence had rendered him, according to the theory, the centre of all Aryan worship. A sorry use to put him to; but let that pass. Now the occasion that supplies an Ixion and a burning wheel available for solarism—a system which prides itself above all things on its exhibiting the primitive state of things—is that Ixion had loved unlawfully the wife of Zeus. And first as to the wheel. We hear of it in Pindar;³² but as a winged not a burning wheel. This ‘solar’ feature appears, I believe, nowhere but in the latest and most defaced and adulterated mythology. Next as to the punishment. It is of a more respectable antiquity. But some heed should surely be taken of the fact that the oldest authority upon Ixion is Homer; and that Homer affords no plea for a burning or any other wheel, for according to him,³³ instead of Ixion’s loving the wife of Zeus, it was Zeus who loved the wife of Ixion.

Errors, conveyed without testimony in a sentence, commonly require many sentences to confute them. I will not dwell on minor cases, or those purely fanciful; for mere fancies, which may be admired or the reverse, are impalpable to the clutch of argument, and thus are hardly subjects for confutation. *Paulò majora canamus.*

²⁵ *Od.* xi. 601–4.

²⁶ *Od.* xi. 605–16.

²⁷ *Od.* xi. 267.

²⁸ *Il.* xiv. 250.

²⁹ *Od.* xxi. 26.

³⁰ *Il.* v. 392.

³¹ *Od.* xxi. 26–30.

³² *Pyth.* ii. 39.

³³ *Il.* xiv. 317.

I continue to tread the field of Greek mythology, because it is the favourite sporting-ground of the exclusivists of the solar theory.

We are told (p. 80) that because waves with rounded backs may have the appearance (but query) of horses or sheep throwing themselves tumultuously upon one another, therefore ‘in maritime regions, the god of the liquid element, Poseidon or Neptune, is the breeder, protector, and trainer of horses.’ Then why is he not also the breeder, protector, and trainer of sheep? They have quite as good a maritime title; according to the fine line of Ariosto :

Muggendo van per mare i gran montoni.

I am altogether sceptical about these rounded backs of horses, which, more, it seems, than other backs, become conspicuous like a wave. The resemblance, I believe, has commonly been drawn between the horse, as regards his mane, and the foam-tipped waves, which are still sometimes called white horses. But we have here, at best, a case of a great superstructure built upon a slight foundation; when it is attempted, on the groundwork of a mere simile, having reference to a state of sea which in the Mediterranean is not the rule but the rare exception, to frame an explanation of the close, pervading, and almost profound relation of the Homeric Poseidon to the horse. Long and careful investigation has shown me that this is an ethnical relation, and a key to important parts of the ethnography of Homer. But the proof of this proposition would require an essay of itself. I will, therefore, only refer to the reason which leads Dr. Réville to construct this (let me say) castle in the air. It is because he thinks he is accounting hereby for a fact, which would indeed, if established, be a startling one, that the god of the liquid element should also be the god of the horse. We are dealing now especially with the Homeric Poseidon, for it is in Homer that the relation to the horse is developed; and the way to a true explanation is opened when we observe that the Homeric Poseidon is *not* the god of the liquid element at all.

The truth is that the Olympian and ruling gods of Homer are not elemental. Some few of them bear the marks of having been elemental in other systems; but, on admission into the Achaian heaven, they are divested of their elemental features. In the case of Poseidon, there is no sign that he ever had these elemental features. The signs are unequivocal that he had been worshipped as supreme, as the Zeus-Poseidon, by certain races and in certain, viz. in far southern, countries. Certainly he has a special relation to the sea. Once, and once only, do we hear of his having a habitation under water.³⁴ It is in *Il.* xiii. where he fetches his horses from it, to repair to the Trojan plain. He seems to have been an habitual absentee; the prototype, he might be called, of that ill-starred, ill-favoured class. We hear of him in Samothrace, on the Solyman mountains,

³⁴ *Il.* xiii. 17–31.

as visiting the Ethiopians³⁵ who worshipped him, and the reek of whose offerings he preferred at such times to the society of the Olympian gods debating on Hellenic affairs; though, when we are in the zone of the Outer Geography, we find him actually presiding in an Olympian assembly marked with foreign associations.³⁶ Now compare with this great mundane figure the true elemental gods of Homer: first Okeanos, a venerable figure, who dwells appropriately by the furthest³⁷ bound of earth, the bank of the Ocean-river, and who is not summoned³⁸ even to the great Olympian assembly of the Twentieth Book; and secondly, the greybeard of the sea, whom only from the patronymic of his Nereid daughters we know to have been called Nereus, and who, when reference is made to him and to his train, is on each occasion³⁹ to be found in one and the same place, the deep recesses of the Mediterranean waters. If Dr. Réville still doubts who was for Homer the elemental god of water, let him note the fact that while *neros* is old Greek for *wet*, *nero* is, down to this very day, the people's word for water. But, conclusive as are these considerations, their force will be most fully appreciated only by those who have closely observed that Homer's entire theurgic system is resolutely exclusive of Nature-worship, except in its lowest and most colourless orders, and that where he has to deal with a Nature-power of serious pretensions, such as the Water-god would be, he is apt to pursue a method of quiet suppression, by local banishment or otherwise, that space may be left him to play out upon his board the gorgeous and imposing figures of his theanthropic system.

As a surgeon performs the most terrible operation in a few seconds, and with unbroken calm, so does the school of Dr. Réville, at least within the Homeric precinct, marshal, label, and transmute the personages that are found there. In touching on the 'log,' by which Dr. Réville says Hera was represented for ages, she is quietly described as the 'Queen of the shining Heaven' (p. 79). For this assumption, so naïvely made, I am aware of no authority whatever among the Greeks—a somewhat formidable difficulty for others than solarists, as we are dealing with an eminently Greek conception. Euripides, a rather late authority, says,⁴⁰ she dwells among the stars, as all deities might be said, *ex officio*, to do; but gives no indication either of identity or of queenship. Etymology, stoutly disputed, may afford a refuge. Schmidt⁴¹ refers the name to the Latin *hera*; Curtius⁴² and Preller⁴³ to the Sanscrit *svar*, meaning the heaven; and Welcker,⁴⁴ with others, to what appears the more obvious form of *ɛ̄pa*, the earth. Dr. Réville, I presume, makes choice of the Sanscrit *svar*. Such etymologies, however, are, though greatly in favour

³⁵ *Od.* i. 25, 26.

³⁶ *Od.* viii. 321–66.

³⁷ *Il.* xiv. 201.

³⁸ *Il.* xx. 7.

³⁹ *Il.* i. 358; xviii. 36.

⁴⁰ Eurip. *Helena*, 109.

⁴¹ Smith's *Dict.* art. 'Hera'

⁴² *Griech. Etymol.* p. 119.

⁴³ Preller, *Griech. Mythol.* i. 121

⁴⁴ *Griech. Götterlehre*, i. 362–3.

with the solarists, most uncertain guides to Greek interpretation. The effect of trusting to them is that, if a deity has in some foreign or anterior system had a certain place or office, and if this place or office has been altered to suit the exigencies of a composite mythology, the Greek idea is totally misconceived. If we take the pre-name of the Homeric Apollo, we may with some plausibility say the *Phoibos* of the poet is the Sun ; but we are landed at once in the absurd consequence that we have got a Sun already,⁴⁵ and that the two are joint actors in a scene of the eighth *Odyssey*.⁴⁶ Strange, indeed, will be the effect of such a system if applied to our own case at some date in the far-off future ; for it will be shown, *inter alia*, that there were no priests, but only presbyters, in any portion of Western Christendom ; that our dukes were simply generals leading us in war ; that we broke our fast at eight in the evening (for *dîner* is but a compression of *déjeuner*) ; and even, possibly, that one of the noblest and most famous of English houses pursued habitually the humble occupation of a pig-driver.

The character of Hera, or Heré, has received from Homer a full and elaborate development. There is in it absolutely no trace whatever of ‘the queen of the shining heaven.’ In the action of the *Odyssey* she has no share at all—a fact absolutely unaccountable if her function was one for which the voyages of that poem give much more scope than is supplied by the *Iliad*. The fact is, that there is no queen of heaven in the Achaian system ; nor could there be without altering its whole genius. It is a curious incidental fact that, although Homer recognises to some extent humanity in the stars (I refer to Orion and Leucotheë, both of them foreign personages of the Outer Geography), he never even approximates to a personification of the real queen of heaven, namely, the moon. There happens to be one marked incident of the action of Hera, which stands in rather ludicrous contrast with this lucent queenship. On one of the occasions when, in virtue of her birth and station, she exercises some supreme prerogative, she directs the Sun (surely not so to her lord and master) to set, and he reluctantly obeys.⁴⁷ Her character has not any pronounced moral elements ; it exhibits pride and passion ; it is pervaded intensely with policy and nationalism ; she is beyond all others the Achaian goddess, and it is sarcastically imputed to her by Zeus that she would cut the Trojans if she could, and eat them without requiring in the first instance any culinary process.⁴⁸ I humbly protest against mauling and disfiguring this work ; against what great Walter Scott would, I think, have called ‘mashackering and misguggling’ it, after the manner of Nicol Muschat, when he put an end to his wife Ailie⁴⁹ at the spot afterwards marked by his name. Why blur the picture so charged alike with imaginative

⁴⁵ See *infra*.

⁴⁶ *Od.* viii. 302, 334.

⁴⁷ *Il.* xviii. 239, 240.

⁴⁸ *Il.* iv. 35.

⁴⁹ *Heart of Midlothian*.

power and with historic meaning, by the violent obtrusion of ideas, which, whatever force they may have had among other peoples or in other systems, it was one of the main purposes of Homer, in his marvellous theurgic work, to expel from all high place in the order of ideas, and from every corner, every loft and every cellar, so to speak, of his Olympian palaces?

If the Hera of Homer is to own a relationship outside the Achaian system, like that of Apollo to the Sun, it is undoubtedly with Gaia, the Earth, that it can be most easily established. The all-producing function of Gaia in the *Theogony* of Hesiod⁵⁰ and her marriage with Ouranos, the heaven, who has a partial relation to Zeus, points to Hera as the majestic successor who in the Olympian scheme, as the great mother and guardian of maternity, bore an analogical resemblance to the female head of one or more of the Pelasgian or archaic theogonies that it had deposed.

I have now done with the treatment of details, and I must not quit them without saying that there are some of the chapters, and many of the sentences, of Dr. Réville which appear to me to deserve our thanks. And, much as I differ from him concerning an essential part of the historic basis of religion, I trust that nothing which I have said can appear to impute to him any hostility or indifference to the substance of religion itself.

I make, indeed, no question that the solar theory has a most important place in solving the problems presented by many or some of the Aryan religions; but whether it explains their first inception is a totally different matter. When it is ruthlessly applied, in the teeth of evidence, to them all, in the last resort it stifles facts, and reduces observation and reasoning to a mockery. Sir George Cox, its able advocate, fastens upon the admission that some one particular method is not available for all the phenomena, and asks, Why not adopt for the Greek system, for the Aryan systems at large, perhaps for a still wider range, 'a clear and simple explanation,' namely, the solar theory?⁵¹ The plain answer to the question is, that this must not be done, because, if it is done, we do not follow the facts, nor are led by them; but, to use the remarkable phrase of Æschylus,⁵² we ride them down, we trample them under foot. Mankind has long been too familiar with a race of practitioners, whom courtesy forbids to name, and whose single medicine is alike available to deal with every one of the thousand figures of disease. There are surely many sources to which the old religions are referable. We have solar worship, earth worship, astronomic worship, the worship of animals, the worship of evil powers, the worship of abstractions, the worship of the dead, the foul and polluting worship of bodily organs, so widespread

⁵⁰ *Theog.* 116–136.

⁵¹ *Mythology of Aryan Nations*, i. 18.

⁵² καθιπνάζεσθαι: a remarkable word, as applied to moral subjects, found in the *Eumenides* only.

in the world, and especially in the East; last, but not least, I will name terminal worship, the remarkable and most important scheme which grew up, perhaps first on the Nile, in connection with the stones used for marking boundaries, which finds its principal representative in the god Hermes, and which is very largely traced and exhibited in the first volume of the work of M. Dulaure⁵³ on ancient religions.

But none of these circumstances discredit or impair the proof that in the Book, of which Genesis is the opening section, there is conveyed special knowledge to meet the special need everywhere so palpable in the state and history of our race. Far indeed am I from asserting that this precious gift, or that any process known to me, disposes of all the problems, either insoluble or unsolved, by which we are surrounded; of

the burden and the mystery
Of all this unintelligible world.

But I own my surprise not only at the fact, but at the manner in which in this day, writers, whose name is Legion, unimpeached in character and abounding in talent, not only put away from them, cast into shadow or into the very gulf of negation itself, the conception of a Deity, an acting and a ruling Deity. Of this belief, which has satisfied the doubts, and wiped away the tears, and found guidance for the footsteps of so many a weary wanderer on earth, which among the best and greatest of our race has been so cherished by those who had it, and so longed and sought for by those who had it not, we might suppose that if at length we had discovered that it was in the light of truth untenable, that the accumulated testimony of man was worthless, and that his wisdom was but folly, yet at least the decencies of mourning would be vouchsafed to this irreparable loss. Instead of this, it is with a joy and exultation that might almost recall the frantic orgies of the Commune, that this, at least at first sight terrific and overwhelming calamity is accepted, and recorded as a gain. One recent, and in many ways, respected writer—a woman long wont to unship creed as sailors discharge excess of cargo in a storm, and passing at length into formal atheism—rejoices to find herself on the open, free, and ‘breezy common of the universe.’ Another, also woman, and dealing only with the workings and manifestations of God, finds⁵⁴ in the theory of a physical evolution as recently developed by Mr. Darwin, and received with extensive favour, both an emancipation from error and a novelty in kind. She rejoices to think that now at last Darwin ‘shows life as an harmonious whole, and makes the future stride possible by the past advance.’ Evolution, that is physical evolution, which alone is in view, may be true (like the solar theory), may be delightful and

⁵³ *Histoire abrégée de différens Cultes.* Seconde édition. Paris, 1825.

⁵⁴ I do not quote names, but I refer to a very recent article in one of our monthly periodicals.

wonderful, in its right place ; but are we really to understand that varieties of animals brought about through domestication, the wasting of organs (for instance, the tails of men) by disuse, that natural selection and the survival of the fittest, all in the physical order, exhibit to us the great *arcanum* of creation, the sum and centre of life, so that mind and spirit are dethroned from their old supremacy, are no longer sovereign by right, but may find somewhere by charity a place assigned them, as appendages, perhaps only as excrescences, of the material creation ? I contend that Evolution in its highest form has not been a thing heretofore unknown to history, to philosophy, or to theology. I contend that it was before the mind of Saint Paul when he taught that in the fulness of time God sent forth His Son, and of Eusebius, when he wrote the *Preparation for the Gospel*, and of Augustine when he composed the *City of God* ; and, beautiful and splendid as are the lessons taught by natural objects, they are, for Christendom at least, indefinitely beneath the sublime unfolding of the great drama of human action, in which, through long ages, Greece was making ready a language and an intellectual type, and Rome a framework of order and an idea of law, such that in them were to be shaped and fashioned the destinies of a regenerated world. For those who believe that the old foundations are unshaken still, and that the fabric built upon them will look down for ages on the floating wreck of many a modern and boastful theory, it is difficult to see anything but infatuation in the destructive temperament which leads to the notion that to substitute a blind mechanism for the hand of God in the affairs of life is to enlarge the scope of remedial agency ; that to dismiss the highest of all inspirations is to elevate the strain of human thought and life ; and that each of us is to rejoice that our several units are to be disintegrated at death into ‘countless millions of organisms ;’ for such, it seems, is the latest ‘revelation’ delivered from the fragile tripod of a modern Delphi. Assuredly on the minds of those who believe, or else on the minds of those who after this fashion disbelieve, there lies some deep judicial darkness, a darkness that may be felt. While disbelief in the eyes of faith is a sore calamity, this kind of disbelief, which renounces and repudiates with more than satisfaction what is brightest and best in the inheritance of man, is astounding, and might be deemed incredible. Nay, some will say, rather than accept the flimsy and hollow consolations which it makes bold to offer, might we not go back to solar adoration, or, with Goethe, to the hollows of Olympus ?

Wenn die Funke sprüht,
Wenn die Asche glüht,
Eilen wir den alten Göttern zu.⁵⁵

W. E. GLADSTONE.

⁵⁵ *Braut von Corinth.*



NINETY-NINTH
CELESTIAL PROFESSOR HUXLEY.

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*THE INTERPRETERS OF GENESIS AND
THE INTERPRETERS OF NATURE.*

OUR fabulist warns ‘those who in quarrels interpose’ of the fate which is probably in store for them; and, in venturing to place myself between so powerful a controversialist as Mr. Gladstone and the eminent divine whom he assaults with such vigour in the last number of this Review, I am fully aware that I run great danger of verifying Gay’s prediction. Moreover, it is quite possible that my zeal in offering aid to a combatant so extremely well able to take care of himself as M. Réville may be thought to savour of indiscretion.

Two considerations, however, have led me to face the double risk. The one is that though, in my judgment, M. Réville is wholly in the right in that part of the controversy to which I propose to restrict my observations, nevertheless, he, as a foreigner, has very little chance of making the truth prevail with Englishmen against the authority and the dialectic skill of the greatest master of persuasive rhetoric among English-speaking men of our time. As the Queen’s proctor intervenes, in certain cases, between two litigants in the interests of justice, so it may be permitted me to interpose as a sort of uncommissioned science proctor. My second excuse for my meddlesomeness is that important questions of natural science—respecting which neither of the combatants professes to speak as an expert—are involved in the controversy; and I think it is desirable that the public should know what it is that natural science really has to say on these topics, to the best belief of one who has been a diligent student of natural science for the last forty years.

The original *Prologomènes de l'histoire des Religions* has not come in my way; but I have read the translation of M. Réville's work, published in England under the auspices of Professor Max Müller, with very great interest. It puts more fairly and clearly than any book previously known to me the view which a man of strong religious feelings, but at the same time possessing the information and the reasoning power which enable him to estimate the strength of scientific methods of inquiry and the weight of scientific truth, may be expected to take of the relation between science and religion.

In the chapter on 'The Primitive Revelation' the scientific worth of the account of the Creation given in the Book of Genesis is estimated in terms which are as unquestionably respectful as, in my judgment, they are just; and, at the end of the chapter on 'Primitive Tradition,' M. Réville appraises the value of pentateuchal anthropology in a way which I should have thought sure of enlisting the assent of all competent judges even if it were extended to the whole of the cosmogony and biology of Genesis:—

As, however, the original traditions of nations sprang up in an epoch less remote than our own from the primitive life, it is indispensable to consult them, to compare them, and to associate them with other sources of information which are available. From this point of view, the traditions recorded in Genesis possess, in addition to their own peculiar charm, a value of the highest order; but we cannot ultimately see in them more than a venerable fragment, well deserving attention, of the great genesis of mankind.

Mr. Gladstone is of a different mind. He dissents from M. Réville's views respecting the proper estimation of the pentateuchal traditions no less than he does from his interpretation of those Homeric myths which have been the object of his own special study. In the latter case, Mr. Gladstone tells M. Réville that he is wrong on his own authority, to which, in such a matter, all will pay due respect: in the former, he affirms himself to be 'wholly destitute of that kind of knowledge which carries authority,' and his rebuke is administered in the name and by the authority of natural science.

An air of magisterial gravity hangs about the following passage:—

But the question is not here of a lofty poem, or a skilfully constructed narrative: it is whether natural science, in the patient exercise of its high calling to examine facts, finds that the works of God cry out against what we have fondly believed to be His word and tell another tale; or whether, in this nineteenth century of Christian progress, it substantially echoes back the majestic sound, which, before it existed as a pursuit, went forth into all lands.

First, looking largely at the latter portion of the narrative, which describes the creation of living organisms, and waiving details, on some of which (as in verse 24) the Septuagint seems to vary from the Hebrew, there is a grand fourfold division, set forth in an orderly succession of times as follows: on the fifth day

1. The water-population;
 2. The air-population;
- and, on the sixth day,
3. The land-population of animals;
 4. The land-population consummated in man.

Now this same fourfold order is understood to have been so affirmed in our time by natural science, that it may be taken as a demonstrated conclusion and established fact (p. 696).

'Understood'? By whom? I cannot bring myself to imagine that Mr. Gladstone has made so solemn and authoritative a statement on a matter of this importance without due inquiry—without being able to found himself upon recognised scientific authority. But I wish he had thought fit to name the source from whence he has derived his information, as, in that case, I could have dealt with his authority, and I should have thereby escaped the appearance of making an attack on Mr. Gladstone himself, which is in every way distasteful to me.

For I can meet the statement in the last paragraph of the above citation with nothing but a direct negative. If I know anything at all about the results attained by the natural science of our time, it is 'a demonstrated conclusion and established fact' that the 'four-fold order' given by Mr. Gladstone is not that in which the evidence at our disposal tends to show that the water, air, and land-populations of the globe have made their appearance.

Perhaps I may be told that Mr. Gladstone does give his authority—that he cites Cuvier, Sir John Herschel, and Dr. Whewell in support of his case. If that has been Mr. Gladstone's intention in mentioning these eminent names, I may remark that, on this particular question, the only relevant authority is that of Cuvier. But, great as Cuvier was, it is to be remembered that, as Mr. Gladstone incidentally remarks, he cannot now be called a recent authority. In fact, he has been dead more than half a century, and the palæontology of our day is related to that of his, very much as the geography of the sixteenth century is related to that of the fourteenth. Since 1832, when Cuvier died, not only a new world, but new worlds, of ancient life have been discovered; and those who have most faithfully carried on the work of the chief founder of palæontology have done most to invalidate the essentially negative grounds of his speculative adherence to tradition.

If Mr. Gladstone's latest information on these matters is derived from the famous discourse prefixed to the *Ossemens Fossiles*, I can understand the position he has taken up; if he has ever opened a respectable modern manual of palæontology or geology I cannot. For the facts which demolish his whole argument are of the commonest notoriety. But before proceeding to consider the evidence for this assertion we must be clear about the meaning of the phraseology employed.

I apprehend that when Mr. Gladstone uses the term 'water-population' he means those animals which in Genesis i. 21 (Revised Version) are spoken of as 'the great sea monsters and every living creature that moveth, which the waters brought forth abundantly, after their kind.' And I presume that it will be agreed that whales and porpoises, sea fishes, and the innumerable hosts of marine

invertebrated animals, are meant thereby. So 'air-population' must be the equivalent of 'fowl' in verse 20, and 'every winged fowl after its kind,' verse 21. I suppose I may take it for granted that by 'fowl' we have here to understand birds—at any rate primarily. Secondarily, it may be that the bats, and the extinct pterodactyles, which were flying reptiles, come under the same head. But, whether all insects are 'creeping things' of the land-population, or whether flying insects are to be included under the denomination of 'winged fowl,' is a point for the decision of Hebrew expositors. Lastly, I suppose I may assume that 'land-population' signifies 'the cattle' and 'the beast of the earth,' and 'every creeping thing that creepeth upon the earth,' in verses 25 and 26; presumably, it comprehends all kinds of terrestrial animals, vertebrate and invertebrate, except such as may be comprised under the head of the 'air-population.'

Now what I want to make clear is this: that if the terms 'water-population,' 'air-population,' and 'land-population' are understood in the senses here defined, natural science has nothing to say in favour of the proposition that they succeeded one another in the order given by Mr. Gladstone; but that, on the contrary, all the evidence we possess goes to prove that they did not. Whence it will follow that, if Mr. Gladstone has interpreted Genesis rightly (on which point I am most anxious to be understood to offer no opinion), that interpretation is wholly irreconcilable with the conclusions at present accepted by the interpreters of nature—with everything that can be called 'a demonstrated conclusion and established fact' of natural science. And be it observed that I am not here dealing with a question of speculation, but with a question of fact.

Either the geological record is sufficiently complete to afford us a means of determining the order in which animals have made their appearance on the globe or it is not. If it is, the determination of that order is little more than a mere matter of observation; if it is not, then natural science neither affirms nor refutes the 'fourfold order,' but is simply silent.

The series of the fossiliferous deposits, which contain the remains of the animals which have lived on the earth in past ages of its history, and which can alone afford the evidence required by natural science of the order of appearance of their different species, may be grouped in the manner shown in the left-hand column of the following table, the oldest being at the bottom:

Formations	First known appearance of
Quaternary.	
Pliocene.	
Miocene.	
Eocene.	Vertebrate <i>air</i> -population (Bats).
Cretaceous.	
Jurassic	Vertebrate <i>air</i> -population (Birds and Pterodactyles).
Triassic.	
Upper Palaeozoic.	

Formations	First known appearance of
Middle Palæozoic . . .	Vertebrate <i>land</i> -population (<i>Amphibia, Reptilia</i> [?]).
Lower Palæozoic.	
Silurian . . .	Vertebrate <i>water</i> -population (<i>Fishes</i>). Invertebrate <i>air</i> and <i>land</i> -population (<i>Flying Insects and Scorpions</i>).
Cambrian . . .	<i>left</i> Invertebrate <i>water</i> -population (much earlier, if <i>Eozoon</i> is animal).

In the ~~right~~-hand column I have noted the group of strata in which, according to our present information, the *land*, *air*, and *water*-populations respectively appear for the first time ; and, in consequence of the ambiguity about the meaning of ‘fowl,’ I have separately indicated the first appearance of bats, birds, flying reptiles, and flying insects. It will be observed that, if ‘fowl’ means only ‘bird,’ or at most flying vertebrate, then the first certain evidence of the latter, in the Jurassic epoch, is posterior to the first appearance of truly terrestrial *Amphibia*, and possibly of true reptiles, in the Carboniferous epoch (Middle Palæozoic) by a prodigious interval of time.

The water-population of vertebrated animals first appears in the Upper Silurian. Therefore, if we found ourselves on vertebrated animals and take ‘fowl’ to mean birds only, or, at most, flying vertebrates, natural science says that the order of succession was water, land, and air-population, and not—as Mr. Gladstone, founding himself on Genesis, says—water, air, land-population. If a chronicler of Greece affirmed that the age of Alexander preceded that of Pericles and immediately succeeded that of the Trojan war, Mr. Gladstone would hardly say that this order is ‘understood to have been so affirmed by historical science that it may be taken as a demonstrated conclusion and established fact.’ Yet natural science ‘affirms’ his ‘fourfold order’ to exactly the same extent—neither more nor less.

Suppose, however, that ‘fowl’ is to be taken to include flying insects. In that case, the first appearance of an air-population must be shifted back for long ages, recent discovery having shown that they occur in rocks of Silurian age. Hence there might still have been hope for the fourfold order, were it not that the fates unkindly determined that scorpions—‘creeping things that creep on the earth’ *par excellence*—turned up in Silurian strata, nearly at the same time. So that, if the word in the original Hebrew translated ‘fowl’ should really after all mean ‘cockroach’—and I have great faith in the elasticity of that tongue in the hands of biblical exegetes—the order primarily suggested by the existing evidence :

- 2. Land and air-population
- 1. Water-population

and Mr. Gladstone’s order :

- 3. Land-population
- 2. Air-population
- 1. Water-population

can by no means be made to coincide. As a matter of fact, then, the statement so confidently put forward turns out to be devoid of foundation and in direct contradiction of the evidence at present at our disposal.¹

If, stepping beyond that which may be learned from the facts of the successive appearance of the forms of animal life upon the surface of the globe, in so far as they are yet made known to us by natural science, we apply our reasoning faculties to the task of finding out what those observed facts mean, the present conclusions of the interpreters of nature appear to be no less directly in conflict with those of the latest interpreter of Genesis.

Mr. Gladstone appears to admit that there is some truth in the doctrine of evolution, and indeed places it under very high patronage.

I contend that Evolution in its highest form has not been a thing heretofore unknown to history, to philosophy, or to theology. I contend that it was before the mind of Saint Paul when he taught that in the fulness of time God sent forth His Son, and of Eusebius, when he wrote the *Preparation for the Gospel*, and of Augustine when he composed the *City of God* (p. 706).

Has any one ever disputed the contention thus solemnly enunciated that the doctrine of evolution was not invented the day before yesterday? Has any one ever dreamed of claiming it as a modern innovation? Is there any one so ignorant of the history of philosophy as to be unaware that it is one of the forms in which speculation embodied itself long before the time either of the Bishop of Hippo or of the Apostle to the Gentiles? Is Mr. Gladstone, of all people in the world, disposed to ignore the founders of Greek philosophy, to say nothing of Indian sages to whom evolution was a familiar notion ages before Paul of Tarsus was born? But it is ungrateful to cavil at even the most oblique admission of the possible value of one of those affirmations of natural science which really may be said to be 'a demonstrated conclusion and established fact.' I note it with pleasure, if only for the purpose of introducing the observation that, if there is any truth whatever in the doctrine of evolution as applied to animals, Mr. Gladstone's gloss on Genesis in the following passage is hardly happy—

¹ It may be objected that I have not put the case fairly, inasmuch as the solitary insect's wing which was discovered twelve months ago in Silurian rocks, and which is, at present, the sole evidence of insects older than the Devonian epoch, came from strata of Middle Silurian age, and is therefore older than the scorpions which, within the last two years, have been found in Upper Silurian strata in Sweden, Britain, and the United States. But no one who comprehends the nature of the evidence afforded by fossil remains would venture to say that the non-discovery of scorpions in the Middle Silurian strata, up to this time, affords any more ground for supposing that they did not exist, than the non-discovery of flying insects in the Upper Silurian strata, up to this time, throws any doubt on the certainty that they existed, which is derived from the occurrence of the wing in the Middle Silurian. In fact, I have stretched a point in admitting that these fossils afford a colourable pretext for the assumption that the land and air population were of contemporaneous origin.

God created

- (a) The water-population;
- (b) The air-population.

And they receive His benediction (verses 20–23).

6. Pursuing this regular progression from the lower to the higher, from the simple to the complex, the text now gives us the work of the sixth ‘day,’ which supplies the land-population, air and water having been already supplied (pp. 695–6).

The gloss to which I refer is the assumption that the ‘air-population’ forms a term in the order of progression from lower to higher, from simple to complex—the place of which lies between the water-population below and the land-population above—and I speak of it as a ‘gloss,’ because the pentateuchal writer is nowise responsible for it.

But it is not true that the air-population, as a whole, is ‘lower’ or less ‘complex’ than the land-population. On the contrary, every beginner in the study of animal morphology is aware that the organisation of a bat, of a bird, or of a pterodactyle presupposes that of a terrestrial quadruped; and that it is intelligible only as an extreme modification of the organisation of a terrestrial mammal or reptile. In the same way, winged insects (if they are to be counted among the ‘air-population’) presuppose insects which were wingless, and, therefore, as ‘creeping things,’ were part of the land-population. Thus theory is as much opposed as observation to the admission that natural science endorses the succession of animal life which Mr. Gladstone finds in Genesis. On the contrary, a good many representatives of natural science would be prepared to say, on theoretical grounds alone, that it is incredible that the ‘air-population’ should have appeared before the ‘land-population’—and that, if this assertion is to be found in Genesis, it merely demonstrates the scientific worthlessness of the story of which it forms a part.

Indeed, we may go further. It is not even admissible to say that the water-population, as a whole, appeared before the air and the land-populations. According to the Authorised Version, Genesis especially mentions among the animals created on the fifth day ‘great whales,’ in place of which the Revised Version reads ‘great sea monsters.’ Far be it from me to give an opinion which rendering is right, or whether either is right. All I desire to remark is, that if whales and porpoises, dugongs and manatees, are to be regarded as members of the water-population (and if they are not, what animals can claim the designation?), then that much of the water-population has as certainly originated later than the land-population as bats and birds have. For I am not aware that any competent judge would hesitate to admit that the organisation of these animals shows the most obvious signs of their descent from terrestrial quadrupeds.

A similar criticism applies to Mr. Gladstone’s assumption that, as the fourth act of that ‘orderly succession of times’ enunciated in Genesis, ‘the land-population consummated in man.’

If this means simply that man is the final term in the evolutional series of which he forms a part, I do not suppose that any objection will be raised to that statement on the part of students of natural science. But if the pentateuchal author goes further than this, and intends to say that which is ascribed to him by Mr. Gladstone, I think natural science will have to enter a *caveat*. It is by no means certain that man—I mean the species *Homo sapiens* of zoological terminology—has ‘consummated’ the land-population in the sense of appearing at a later period of time than any other. Let me make my meaning clear by an example. From a morphological point of view, our beautiful and useful contemporary—I might almost call him colleague—the Horse (*Equus caballus*), is the last term of the evolutional series to which he belongs, just as *Homo sapiens* is the last term of the series of which he is a member. If I want to know whether the species *Equus caballus* made its appearance on the surface of the globe before or after *Homo sapiens*, deduction from known laws does not help me. There is no reason that I know of why one should have appeared sooner or later than the other. If I turn to observation, I find abundant remains of *Equus caballus* in Quaternary strata, perhaps a little earlier. The existence of *Homo sapiens* in the Quaternary epoch is also certain. Evidence has been adduced in favour of man’s existence in the Pliocene, or even in the Miocene epoch. It does not satisfy me; but I have no reason to doubt that the fact may be so, nevertheless. Indeed, I think it is quite possible that further research will show that *Homo sapiens* existed, not only before *Equus caballus*, but before many other of the existing forms of animal life; so that, if all the species of animals have been separately created, man, in this case, would by no means be the ‘consummation’ of the land-population.

I am raising no objection to the position of the fourth term in Mr. Gladstone’s ‘order’—on the facts, as they stand, it is quite open to anyone to hold, as a pious opinion, that the fabrication of man was the acme and final achievement of the process of peopling the globe. But it must not be said that natural science counts this opinion among her ‘demonstrated conclusions and established facts,’ for there would be just as much, or as little, reason for ranging the contrary opinion among them.

It may seem superfluous to add to the evidence that Mr. Gladstone has been utterly misled in supposing that his interpretation of Genesis receives any support from natural science. But it is as well to do one’s work thoroughly while one is about it; and I think it may be advisable to point out that the facts, as they are at present known, not only refute Mr. Gladstone’s interpretation of Genesis in detail, but are opposed to the central idea on which it appears to be based.

There must be some position from which the reconcilers of science and Genesis will not retreat, some central idea the maintenance of

which is vital and its refutation fatal. Even if they now allow that the words ‘the evening and the morning’ have not the least reference to a natural day, but mean a period of any number of millions of years that may be necessary; even if they are driven to admit that the word ‘creation,’ which so many millions of pious Jews and Christians have held, and still hold, to mean a sudden act of the Deity, signifies a process of gradual evolution of one species from another, extending through immeasurable time; even if they are willing to grant that the asserted coincidence of the order of Nature with the ‘fourfold order’ ascribed to Genesis is an obvious error instead of an established truth; they are surely prepared to make a last stand upon the conception which underlies the whole, and which constitutes the essence of Mr. Gladstone’s ‘fourfold division, set forth in an orderly succession of times.’ It is, that the animal species which compose the water-population, the air-population, and the land-population respectively, originated during three distinct and successive periods of time, and only during those periods of time.

This statement appears to me to be the interpretation of Genesis which Mr. Gladstone supports, reduced to its simplest expression. ‘Period of time’ is substituted for ‘day;’ ‘originated’ is substituted for ‘created;’ and any order required for that adopted by Mr. Gladstone. It is necessary to make this proviso, for if ‘day’ may mean a few million years, and ‘creation’ may mean evolution, then it is obvious that the order (1) water-population, (2) air-population, (3) land-population, may also mean (1) water-population, (2) land-population, (3) air-population; and it would be unkind to bind down the reconcilers to this detail when one has parted with so many others to oblige them.

But even this sublimated essence of the pentateuchal doctrine (if it be such) remains as discordant with natural science as ever.

It is not true that the species composing any one of the three populations originated during any one of three successive periods of time, and not at any other of these.

Undoubtedly, it is in the highest degree probable that animal life appeared first under aquatic conditions; that terrestrial forms appeared later, and flying animals only after land animals; but it is, at the same time, testified by all the evidence we possess, that the great majority, if not the whole, of the primordial species of each division have long since died out and have been replaced by a vast succession of new forms. Hundreds of thousands of animal species, as distinct as those which now compose our water, land, and air-populations, have come into existence and died out again, throughout the æons of geological time which separate us from the lower Palæozoic epoch, when, as I have pointed out, our present evidence of the existence of such distinct populations commences. If the species of animals have all been separately created, then it follows that hundreds of

thousands of acts of creative energy have occurred at intervals throughout the whole time recorded by the fossiliferous rocks ; and, during the greater part of that time, the ‘ creation ’ of the members of the water, land, and air-populations must have gone on contemporaneously.

If we represent the water, land, and air-populations by *a*, *b*, and *c* respectively, and take vertical succession on the page to indicate order in time, then the following schemes will roughly shadow forth the contrast I have been endeavouring to explain :—

Genesis (as interpreted by Mr. Gladstone)	Nature (as interpreted by natural science).
<i>b b b</i>	<i>c¹ a³ b²</i>
<i>c c c</i>	<i>c a² b¹</i>
<i>a a a</i>	<i>b a¹ b</i>
	<i>a a a</i>

So far as I can see, there is only one resource left for those modern representatives of Sisyphus, the reconcilers of Genesis with science; and it has the advantage of being founded on a perfectly legitimate appeal to our ignorance. It has been seen that, on any interpretation of the terms water-population and land-population, it must be admitted that invertebrate representatives of these populations existed during the lower Palæozoic epoch. No evolutionist can hesitate to admit that other land animals (and possibly vertebrates among them) may have existed during that time, of the history of which we know so little ; and, further, that scorpions are animals of such high organisation that it is highly probable their existence indicates that of a long antecedent land-population of a similar character.

Then, since the land-population is said not to have been created until the sixth day, it necessarily follows that the evidence of the order in which animals appeared must be sought in the record of those older Palæozoic times in which only traces of the water-population have as yet been discovered.

Therefore, if any one chooses to say that the creative work took place in the Cambrian or Laurentian epoch in exactly that manner which Mr. Gladstone does, and natural science does not, affirm, natural science is not in a position to disprove the accuracy of the statement. Only one cannot have one’s cake and eat it too, and such safety from the contradiction of science means the forfeiture of her support.

Whether the account of the work of the first, second, and third days in Genesis would be confirmed by the demonstration of the truth of the nebular hypothesis ; whether it is corroborated by what is known of the nature and probable relative antiquity of the heavenly bodies ; whether, if the Hebrew word translated ‘ firmament ’ in the Authorised Version really means ‘ expanse,’ the assertion that the waters are partly under this ‘ expanse ’ and partly above it would be any more confirmed by the ascertained facts of physical geography and meteorology than it was before ; whether the creation of the whole vegetable

world, and especially of ‘grass, herb yielding seed after its kind, and tree bearing fruit,’ before any kind of animal is ‘affirmed’ by the apparently plain teaching of botanical palæontology, that grasses and fruit trees originated long subsequently to animals—all these are questions which, if I mistake not, would be answered decisively in the negative by those who are specially conversant with the sciences involved. And it must be recollect that the issue raised by Mr. Gladstone is not whether, by some effort of ingenuity, the pentateuchal story can be shown to be not disprovable by scientific knowledge, but whether it is supported thereby.

There is nothing, then, in the criticisms of Dr. Réville but what rather tends to confirm than to impair the old-fashioned belief that there is a revelation in the Book of Genesis (p. 694).

The form into which Mr. Gladstone has thought fit to throw this opinion leaves me in doubt as to its substance. I do not understand how a hostile criticism can, under any circumstances, tend to confirm that which it attacks. If, however, Mr. Gladstone merely means to express his personal impression, ‘as one wholly destitute of that kind of knowledge which carries authority,’ that he has destroyed the value of these criticisms, I have neither the wish, nor the right, to attempt to disturb his faith. On the other hand, I may be permitted to state my own conviction that, so far as natural science is involved, M. Réville’s observations retain the exact value they possessed before Mr. Gladstone attacked them.

Trusting that I have now said enough to secure the author of a wise and moderate disquisition upon a topic which seems fated to stir unwisdom and fanaticism to their depths, a fuller measure of justice than has hitherto been accorded to him, I retire from my self-appointed championship, with the hope that I shall not hereafter be called upon by M. Réville to apologise for damage done to his strong case by imperfect or impulsive advocacy. But perhaps I may be permitted to add a word or two, on my own account, in reference to the great question of the relations between science and religion; since it is one about which I have thought a good deal ever since I have been able to think at all, and about which I have ventured to express my views publicly, more than once, in the course of the last thirty years.

The antagonism between science and religion, about which we hear so much, appears to me to be purely factitious—fabricated, on the one hand, by short-sighted religious people who confound a certain branch of science, theology, with religion; and, on the other, by equally short-sighted scientific people who forget that science takes for its province only that which is susceptible of clear intellectual comprehension, and that outside the boundaries of that province they must be content with imagination, with hope, and with ignorance.

It seems to me, that the moral and intellectual life of the civilised nations of Europe is the product of that interaction, sometimes in the way of antagonism, sometimes in that of profitable interchange, of the Semitic and the Aryan races, which commenced with the dawn of history, when Greek and Phœnician came in contact, and has been continued by Carthaginian and Roman, by Jew and Gentile, down to the present day. Our art (except, perhaps, music) and our science are the contributions of the Aryan ; but the essence of our religion is derived from the Semite. In the eighth century B.C., in the heart of a world of idolatrous polytheists, the Hebrew prophets put forth a conception of religion which appears to me to be as wonderful an inspiration of genius as the art of Pheidias or the science of Aristotle.

‘ And what doth the Lord require of thee, but to do justly, and to love mercy, and to walk humbly with thy God ? ’

If any so-called religion takes away from this great saying of Micah, I think it wantonly mutilates, while, if it adds thereto, I think it obscures, the perfect ideal of religion.

But what extent of knowledge, what acuteness of scientific criticism, can touch this, if any one possessed of knowledge or acuteness could be absurd enough to make the attempt ? Will the progress of research prove that justice is worthless, and mercy hateful ; will it ever soften the bitter contrast between our actions and our aspirations ; or show us the bounds of the universe, and bid us say, Go to, now we comprehend the infinite ?

A faculty of wrath lay in those ancient Israelites, and surely the prophet’s staff would have made swift acquaintance with the head of the scholar who had asked Micah whether, peradventure, the Lord further required of him an implicit belief in the accuracy of the cosmogony of Genesis !

What we are usually pleased to call religion nowadays is, for the most part, Hellenised Judaism ; and, not unfrequently, the Hellenic element carries with it a mighty remnant of old-world paganism and a great infusion of the worst and weakest products of Greek scientific speculation ; while fragments of Persian and Babylonian, or rather Accadian, mythology burden the Judaic contribution to the common stock.

The antagonism of science is not to religion, but to the heathen survivals and the bad philosophy under which religion herself is often well-nigh crushed. And, for my part, I trust that this antagonism will never cease ; but that, to the end of time, true science will continue to fulfil one of her most beneficent functions, that of relieving men from the burden of false science which is imposed upon them in the name of religion.

This is the work that M. Réville and men such as he are doing for us ; this is the work which his opponents are endeavouring, consciously or unconsciously, to hinder.

T. H. HUXLEY.

‘DAWN OF CREATION’—AN ANSWER
TO MR. GLADSTONE.

I HAD been already a month in Italy and expected to remain at least another there, and I was so absorbed in my journey, which was partly for pleasure, partly for instruction, through that beautiful country, that I gave absolutely no thought to politics or theology, except to the very special subject which had drawn me to Ravenna and Rome. Had there been elections in France which might have thrown my country into Parliamentary confusion? Were other elections impending in England menacing a people to whom I am much attached, with a similar fate? Did the Bulgarian question threaten Europe with a terrible storm? I confess, to my shame, that all these questions had become as foreign to my thoughts as the conflicts of Peru and Chili, or the question of the prolongation of the mandates of the Hungarian deputies. I lived wholly in Pagan and Christian antiquity. My time also was limited and barely sufficient for the task I had undertaken. I only remember that one day at *table d'hôte* I took somewhat warmly the side of Mr. Gladstone—as far as it was proper for a stranger discussing the affairs of a country not his own to do so—against an old English lady who was vehemently denouncing the Patriarch of British Liberalism. For with all due reserve on the points on which the English alone are competent to speak, Mr. Gladstone is, to us who hold ourselves Continental Liberals, one of the glories, one of the great moral forces of European Liberalism. I am bound, however, to add that my defence of him was entirely restricted to the field of politics.

There seemed, therefore, a certain irony of fate to the writer of these lines when, a few days after this episode, at the same *table d'hôte*, an Italian count, who, unlike myself, was living wholly in the contemporary world, suddenly said to me, ‘You are M. Réville, are you not—Professor of the Collège de France?’ ‘Yes.’ ‘Well, it seems that Mr. Gladstone has been attacking you sharply in an English Review.’ ‘Impossible!’ I exclaimed. ‘Yes, the *Italie* (an Italian newspaper published in French) says so, and I bring you the number.’

This incident brought me a great increase of attention and courtesy in my hotel, where I had hitherto only been No. 17 or 19. I heard, or I thought I heard, that they were saying behind me, ‘That

is the gentleman whom Mr. Gladstone has attacked in an English Review.' I had become a personage. The hotel-keeper and the waiters became more deferential, and I soon saw that it was beyond all doubt an honour and an advantage to be attacked by Mr. Gladstone.

Honours, however, have their drawbacks, and I think I perceived it when I paid my bill. The newspaper which had been shown me gave an account, after its fashion, of the attack of which I had been the object, but it threw very little light on the points of controversy, and I was not able to procure the number of the *Nineteenth Century*. It was no matter of indifference to me to know that I had been censured by the ex-Premier of the United Kingdom, for whose character and superior talents I had long felt a sincere admiration. But *age quoil agis*. I had come to Italy for a special object. I could not deviate from it even for an empire, and when the first moment of surprise and emotion was over I said to myself, like a merchant on his holiday, 'Business to-morrow! We will see to this in Paris.'

At last, thanks to the obliging intervention of some friends in England, and especially to the kind editor of the *Nineteenth Century*, I am in a position not only to make myself acquainted with the article about myself, but also to submit to the English public, and, with every respect, to Mr. Gladstone himself, some reflections on the points on which, in language at once indulgent and severe, he has done me the honour of attacking me.

These remarks will serve to explain why I am so late in replying to the objections of my illustrious assailant. The delay, however, has had this advantage, that I have found my work half done, and by abler hands than mine. M. Max Müller, in an article entitled 'Solar Myths,' has defended with his usual talent the theory which gives a naturalistic interpretation to the greater part of the myths that have come down to us from antiquity, or that can be even now collected in uncivilised nations. Mr. Huxley has demonstrated, with his accustomed vigour and with his indisputable competence, that Mr. Gladstone labours under illusions about the harmony which he supposes himself to have established between the Biblical account of the creation and the conclusions of modern science. I can only express to these two eminent men my gratitude for their good opinion of my humble person, and assure Mr. Huxley in particular that, so far from resenting it, I am happy and proud that a man of his calibre should have so warmly taken my part, or, to speak more accurately, should have taken my writings as an occasion for defending what for him as for me is the cause of scientific truth.

I now come to the points of dispute. Mr. Gladstone, with a courtesy for which I must thank him, accuses my 'Prolegomena' of being rather Epilegomena, because, as he says, I have in the first place, without any preliminary demonstration, eliminated from the field of the

scientific history of religions all theories which start from the supposition of a supernatural revelation granted to primitive humanity. I have put, he maintains, in the ‘preface’ of the ‘History of Religions’ what ought logically only to come at the end, if it comes at all.

I will venture respectfully to observe that prefaces are usually composed by authors when their books are completed, and that they contain directly or indirectly their conclusions; at all events they foreshadow them. I did not begin a history of religions without having studied the subject as a whole. Moreover, the natural end of Prolegomena is to expound, and if necessary to demonstrate, the method which it is proposed to follow in the works to which they are prefixed. Mr. Gladstone is too clear-sighted not to understand at once that it makes an essential difference in the manner in which the history of religions must be treated, whether the writer starts from the idea of a primitive revelation made to the human race, or whether he rejects this hypothesis as unproved or anti-scientific. In the first case this history is the history of a prolonged decadence. In the second it is the history of a progressive evolution. I was therefore forced, by the very nature of things, to state which side I took on this grave question, since all that followed depended upon it. If Mr. Gladstone himself undertook a general history of religion, I would defy him to escape from this necessity.

My honoured critic in the next place complains that I have chosen him, rather than many others, as the representative of the point of view favourable to the idea of a primitive revelation founded on the testimony of the Bible, whereas I ought rather to have referred to specialists, such as Dr. Reusch, who have developed this theory *ex professo*. Mr. Gladstone acknowledges that he would not now formulate his views as ‘crudely’ as formerly on this question, which seemed then more simple than in these later times; that to presuppose the supernatural in such matters is to deviate from the law of scientific method; that he was especially absorbed with the luxuriant beauties of the Homeric poetry, and that he only entered indirectly into the theological bearings of his researches. He maintains only that there are evident traces in the poems of Homer of an historical connection with the traditions of the Hebrews, and especially with the Book of Genesis. As for the precise form in which he expressed his views on this question, he insists on it so little that he has not wished to republish the book which contains them, and it has now become very rare. In fine, he refuses to admit the too dogmatic form given by me to that primitive orthodoxy which was revealed to the first man. It consisted at most ‘of rudimentary indications of what are now developed and established truths.’

I can only bow before these attenuations, introduced by the author himself, into a theory which had appeared to me, and to others also, to have assumed a much more definite and angular form. If I

selected Mr. Gladstone rather than others as the representative of a point of view which is not mine, I did so on account of his eminence. His name has been often put forward in support of the theory which I considered myself obliged to attack. Being called upon by the position I hold to endeavour to make the educated public of my country familiar with an order of studies and controversies as yet very little cultivated in France, it was my duty to consider carefully the antagonists who might be opposed to me. The name of Dr. Reusch would have conveyed nothing to my audience or to my readers. The name of Mr. Gladstone shone with a very different splendour. I did not know, and was not bound to know—especially when I saw so eminent an Englishman as Sir G. Cox forming the same estimate as myself of Mr. Gladstone's views—that Mr. Gladstone had somewhat receded from the 'crudity' of his early affirmations. I note with great satisfaction his corrections. I see in them a sign that his views are not as far as they were from mine, and I shall certainly mention in a new edition the limitations which Mr. Gladstone has himself thought fit to place upon his earlier ideas about the religious origins of humanity.

My illustrious adversary next passes from the defensive to the offensive, and reproaches me first of all for my manner of looking on the Book of Genesis, and in the second place for my errors about the mythology of Homer.

On the second point I must decline at present to enter into a prolonged controversy. Time, and, to a certain point, courage, fails me. In Homeric literature Mr. Gladstone is a specialist who might well intimidate greater scholars than myself. This does not, however, prevent me from thinking that when he sees an historical relation between the accounts in Genesis and the traditions embalmed in the Homeric poems he is looking through deceptive glasses which unconsciously impair the clearness of his sight. In our age he is about the only eminent scholar who has perceived this family resemblance. This is not a reason for asserting that it does not exist, but it is a reason for distrusting it, and I own that, for my part, I find it impossible to establish it. Purely external coincidences, analogies of detail, prove nothing in such a matter. The general history of religious beliefs and practices shows that very curious ideas and customs, entirely unconnected with those that now occupy us, have existed among very different and very distant nations, although it is not possible reasonably to suppose that they were communicated. In such cases it is necessary simply to investigate the psychological point of departure of these ideas and customs; and if this can be discovered, the conclusion must be drawn that the essential unity of the human mind causes it often, when starting from the same intuition or principle, to arrive in many different regions at consequences, applications, and analogies of belief which are truly astonishing both from their strangeness and

from their resemblances. The Incas who ruled over ancient Peru had certainly never read Machiavel, but those who study their history must admire the consummate art with which they knew how to govern their vast empire, regulating their conduct by maxims which might seem borrowed from the great Florentine theorist. I much suspect that what Mr. Gladstone has taken for signs of an 'historical relationship' between the Homeric poems and Genesis are merely superficial analogies, explained by the very nature of the human mind when brought face to face with the same problems, and implying none of those consequences which the eminent statesman wishes to draw from them.

I shall push my boldness one step further. Mr. Gladstone acknowledges himself, with the most engaging modesty (p. 699), that 'of any other system than the Olympian it would be presumption in him to speak, as he has, beyond this limit, none but the most vague and superficial knowledge.' Let me regret deeply this gap in the learning of so distinguished a Hellenist. If there be any department of knowledge in which a comparison of analogies and correspondences is especially instructive, it is undoubtedly the history of religions. Each part of it throws light upon the others, and all who have devoted themselves to it will, I am sure, agree with me, that at every step some problem arises which appears inexplicable as long as we look at it only in one local religion, but finds an easy and immediate solution by reference to some other religion. M. Max Müller and the 'Indianists' of his school have supplied us by this comparative method with very plausible explanations of many exceedingly obscure points in Greek mythology which could never have been elucidated if we had confined ourselves to Greece alone. Who could have otherwise arrived at the explanation of the love of Apollo for Daphne, and of the transformation of the young nymph into a laurel? By what other way could we have traced to its origin the story of Prometheus? And to what error, to what impotence are not those now condemned who attempt to explain the Olympian mythology by itself alone, without ever comparing it with the mythologies that are its sisters?

Let me add, however, that, while speaking in this way, I am one of those who are inclined to think that in these later years some injustice has been done to the Greek mythology and to its originality by resolving it, so to speak, into a multitude of extraneous elements coming from all quarters. I may perhaps give some small pleasure to Mr. Gladstone by informing him that I on the whole share his view about Heracles, whom I do not at all identify with the Phœnician Melkart. Both, I am persuaded, are solar divinities. The myths concerning Melkart or forged in honour of that itinerant divinity have largely entered into the developed legend of Heracles. Nevertheless, I think with Buttmann, Otfried Müller, and Schmidt, that Heracles is primitively a conception purely and authentically Greek. Not only are the

characters of the two divinities very different, it is also inadmissible that an exotic god should have held so considerable a place in the history of primitive Greece.

I acknowledge moreover that the place and the part assigned to Heracles in the Homeric poems have something in them difficult to explain. He is far from being represented there as a hero without reproach. He appears to be rather imposed on the poet by a commanding tradition than liked by him. I will add—what perhaps Mr. Gladstone will think very rash—that being but little convinced of the unity of the Homeric poems, I regard as a not very skilful interpolation of a harmonist the passage of the *Odyssey*, xi. 601-604, where the received text distinguishes the Heracles admitted into the divine abode from the Heracles whom Ulysses perceives among the mournful shades that inhabit the kingdom of Hades. I have myself a little explanation of this apparent anomaly, but I hardly venture to propose it to the learned commentator of Homer. I think that Heracles was long a popular divinity in the lower ranks of the Greek population, still more legendary and especially less refined than his rival, the beautiful Phœbus Apollo, even though both may have sprung from the same root. But Phœbus Apollo was the sun-god preferred by the upper classes, by the nobles, the princes, and the kings. He was the aristocratic sun, and the poetry of the *aēdes*, a poetry in some sort feudal, was from the beginning more in sympathy with the poet-and-musician-god, the sun-god of the upper classes, than with the Gargantua of the populace. Hence the depreciation of the latter, and the kind of satisfaction with which his brutality, his arrogance, even his impiety and his crimes are recounted. At a later period the popular legend obliged every one to respect its favourite hero, and, without effacing all his faults, impressed upon him definitively in the mythology the characters of the pacifier, the liberator, and the 'Good Giant,' which Mr. Gladstone, imprisoned in his 'Homer,' accuses me with some irony of having lightly attributed to a god who by no means deserved them. I do not know whether this explanation, which I could develop and support with some proofs, will find any favour with my censor, and I merely submit it to him with deference.

Another indication of the limitations which the too exclusive study of a single author may impose on the most clear-sighted mind may be found in a little attack which Mr. Gladstone makes on me about Ixion and his burning wheel. It is true that a passage of Homer which speaks of Zeus as having loved the wife of Ixion does not agree with the myth ordinarily received and related at length by Pindar ('Pyth.' ii.), according to which it was Ixion who pursued with his criminal addresses the spouse of Zeus. According to Pindar, Ixion's wheel was not 'burning' but 'winged.' This contradiction between Homer and Pindar, and the difference between Pindar and the later

mythology, only prove that originally many diverging mythical notions connected themselves with the name of Ixion, ‘the man on the wheel,’ the ‘revolving one,’ but the narrative of Pindar, an excellent witness to the myths which were then sung before assembled Greece, proves that this was the consecrated form which at that time dominated over all others. Whether the wheel was ‘burning’ or simply ‘winged’ is of no consequence. This does not deprive the student of myths of the right of bringing together all the mythic wheels, which, from India to the Poitevins of France, have in so many countries been employed to represent the sun. The sun was not only or always conceived as a happy and benevolent being. Phœbus Apollo himself is distinguished by something else than goodness and constant happiness, and the notion of the sun as an enslaved being, condemned to a weary task, forced to roll on for ever, and therefore wretched, guilty and punished, may be easily found elsewhere as well as in the myth of Ixion.

May I now be allowed to express the surprise which I felt in reading in Mr. Gladstone’s article that the Poseidon of Homer, the god in whom the Latins thought they recognised their Neptune, ‘is not the god of the liquid element at all’? This statement appeared to me so contrary to evidence that I read it twice to assure myself that I was not mistaken. I willingly admit that the gods of Homer, at least the Olympian or superior gods, must no longer be confounded materially with the physical elements, of which they were originally the simple personifications. They are distinguished—not absolutely separated—from them. They are above all humanised. As the savage believes that the soul of a man may quit his body and walk abroad according to its caprices, so the Greek of the Homeric times distinguished the divine person from the physical elements that underlay it. He made of it a being superior to, but at the same time resembling, man; and he attributed to this being all the liberty of will, of movement, and of action that could be supposed to exist in a man of gigantic size, force, and intelligence. Side by side with these gods now emancipated from their material prison, the Greek mythology, with the easy syncretism which belongs to polytheistic systems, kept up the memory of other gods which were not in reality older, but which corresponded to older notions. Helios by the side of Apollo, Selene by the side of Artemis, Okeanos and Nereus by the side of Poseidon, &c. But to pretend that this latter is not essentially a sea-god, in Homer as everywhere else,—an ancient personification of the liquid element—he and his spouse Amphitrite, who surrounds the earth and beats it with her incessant waves—is to take up a position in direct contradiction to the beautiful description of the ‘Iliad’ (lib. xiii. 10 sq.), while through the ‘Odyssey’ the hero is compelled continually to suffer upon the sea the effects of the anger of the god of the seas. Does not Poseidon himself declare in the

'Iliad' that in the division of the world between himself and his two brothers he received for his lot 'the foaming sea' (xv. 190) ?

What does it signify that he has been in some places adored as the supreme God?—this is true of almost all the gods of polytheism; or that his worship may be found in the midst of a continent?—the fountains of water, the sources of the rivers, were there attributed to him; or that he loved to visit the Ethiopians?—this was a very usual taste among the Greek gods; Mr. Gladstone knows the reason as well as I do.

I shall not dilate upon the objections he advances on the subject of Hera, the august spouse of Zeus, who seems to me to have personified the sky in its inconstant aspect, mobile, easily disturbed, as if she represented the variable and lower element, while Zeus, her husband, is rather the unchanging sky, in the majestic serenity of its unalterable blue. When they are united and agreed, nothing can equal the smiling beauty of Nature. When they are divided and disputing, all goes wrong. Moreover, in the 'Iliad,' Hera shares, though in a lower measure, the powers of Zeus. She also scolds from the celestial heights, and can, in concert with Boreas, let loose the storms ('Il.' xi. 45, xv. 26). I know that the question of her physical origin is less simple than that of most of the Olympians. I myself hesitated long about whether she ought to be placed in the category of the earth goddesses like Gaia, Rhea, Cybele, Themis, Danae, Leto, Semele, and probably Dione of Dodona. Analogy appeared to lead to this conclusion. Nevertheless, on the whole, Hera seems to me to want the characteristics which usually distinguish the earth goddesses. She has neither their fixity—for 'la donna è mobile'—nor their attributes of divination. Her typical bird, the peacock, with its expanding tail, seems rather to suggest the starry sky than the earth. Her position as the recognised spouse of the god of the heavens, distinct from the earth goddesses, who originally held the first rank in a great number of local mythologies (which, it may be said in passing, contributed greatly to tarnish the conjugal reputation of Zeus), seems to me to be traceable to a time, already past in the Homeric age, when the division of the world into three distinct kingdoms, each with its supreme God, was generally recognised in the Greek world. From that period it must have appeared natural that the titular spouse of the supreme celestial god should have been herself celestial, and not a personification of the marine element or of the earth, which had in Hades its supreme god in Pluto, and its goddess in Demeter or Persephone, just as the sea-god Poseidon had as his 'parhedra' Amphitrite, the Nereid. But I repeat it, this question of Hera is one of the most obscure in Greek mythology; I do not pretend to discuss or to resolve it in my 'Prolegomena,' where I only alluded to it in passing, nor can I attempt to treat it fully in a mere controversial article. I only wish

to show my eminent critic that it has not been with a superficial presumption that I allotted to Hera the mythological title of 'Queen of the shining heaven'—I am persuaded that she has a right to it.

In the next place, I must protest against the term 'solar theory,' which Mr. Gladstone applies to my general views about mythology. It is the 'naturalistic theory' that I have supported, that is the theory which explains the genesis of mythologies by the personification and the dramatisation of natural phenomena. Undoubtedly that theory when well understood supposes the action of the religious sentiment inherent in human nature. There is nothing in it materialist or irreligious. Undoubtedly, also, the sun and the phenomena connected with it, hold so prominent a place that it is natural to expect that solar myths will be the most conspicuous by their number, their attraction, and their variety. But the sun is still only a part of a whole which our languages and our modern minds designate by the word nature. Side by side with the solar myths, there are myths which are purely celestial, marine, and tellurian. It is neither accurate nor just, systematically to describe the whole by one of its parts. I am astonished that the sagacity of Mr. Gladstone has not long since led him to favour an explanation which has found a brilliant confirmation in the relations discovered between the Greek mythology and the mythologies of India and the other Aryan regions, and which Egypt, America, Oceania, Africa, even China, not to speak of the Semitic races, have, I will venture to say, raised to the position of demonstrated truth. But, to judge the force of this demonstration, a scholar must not confine himself to the Homeric poetry.

I shall now pass to the other part of Mr. Gladstone's attack, which relates to the errors I am supposed to have committed in denying that the Biblical account of the creation agrees with the results of modern natural science. This, if I mistake not, is the part which will have most interested the majority of his readers.

I have said in my 'Prolegomena,' while rendering full homage to the beauty and religious purity of the Biblical account of the Creation, that it contains assertions contradicted by modern science. Thus the firmament destined to separate the waters below from those above is represented as a solid vault; the stars have been created after the earth, the periods of creation or formation are single days. I have also, it appears, not recognised the wonderfully scientific order of the successive appearance of the creatures that inhabit the water, the air, and the earth, until at last man appears to crown and complete the work of creation. These are my principal heresies, in addition to which I am accused of having put forward some bad-sounding propositions about the moral state of the first couple, as it

appears in the account of the fall in Eden, and about the meaning of the plural which the Creator employs in speaking of Himself.

I must allow myself to remind my readers that my object in treating these questions was neither to attack nor to defend the sacred writings. It was solely to show, by a succinct analysis of their chief contents, that the partisans of a primitive doctrinal revelation are mistaken in supposing that the Bible itself supports their view.

For the rest, even after the ingenious pleadings of Mr. Gladstone, I maintain my assertions.

Mr. Huxley has made it unnecessary for me to dwell upon the pretended conformity of the successive appearances of organised beings in Genesis with the results that have been established by contemporary geology. It is not true that the vegetable, aquatic, flying, quadruped, and reptile species succeeded each other in their totality in the order specified by the canonic writer. Mr. Gladstone seems to have lost sight of the fact that at verses 11 and 12 the whole vegetable world in all its departments, as the author of the narrative knew it, had made its complete appearance at the command of God. Consequently, the objection drawn from the absence of the solar light remains in all its force. For it is not a diffused light, concentrating itself gradually round the sun, that could have simultaneously permitted all the vegetable species to develope over the surface of the earth. I know well that a lax interpretation has transformed the days of Genesis into periods of immense length, in spite of the mention of 'evening' and 'morning' which closes each of the creative acts. Unfortunately, it is impossible to adopt this interpretation. For it is on the supposition that the days of the creation were similar to our own that the famous commandment of the Sabbath is based, and this is the motive assigned for it by the Hebrew legislator: 'Thou shalt work six days and do all thy work, but the seventh day is the Sabbath of the Lord thy God. Thou shalt do no work on that day. . . . For in six days the Lord made the heavens, the earth, and the sea, and all that is in them, and rested *the seventh day*.' Now, if the days of the creation should be understood as periods of thousands or millions of years, I beg Mr. Gladstone to explain how they can serve as an argument in support of the command to work for six days of our week and to rest on the seventh.

I also regret to tell him that the Hebrew word ordinarily translated in our versions by the word firmament, while it expresses the idea of an expansion, of something that is stretched out, expresses also that of something solid. This is why the firmament supports the waters that are above it, and separates them according to the Divine will from those which are below it (v. 6, 7). Otherwise the passage would be incomprehensible. This idea of a solid sky is general throughout antiquity, and the sacred text, when it proceeds to the

account of the deluge, does not fail to tell us that the sluices or closing parts of the heavens were opened, which brought about the junction of the waters above the heavens with the waters below the earth, which rose from the springs of the great abyss, so that the earth was entirely covered and the second divine work of the creation was for the time annulled (comp. Gen. vii. 10–12, i. 6–8, and also in the same order of ideas Ps. cxlviii. 4, Apoc. iv. 6). All these ways of representing things suppose the solidity of the firmament, and the LXX in translating the Hebrew word by $\sigma\tau\varepsilon\rho\acute{\epsilon}\omega\mu\alpha$ have perfectly given its sense. $\Sigma\tau\varepsilon\rho\acute{\epsilon}\oslash$, in fact, expresses the idea of firmness and solidity.

I am also afraid that Mr. Gladstone attaches a very undue and ill-founded importance to the metaphysical distinction which he establishes between the expressions ‘to create’ and ‘to make,’ which are used alternately in the account in Genesis of the successive works of the Creator. It is true that it is said God created the heavens and the earth (i. 1), God made the firmament (v. 7), God made the sun and the moon (v. 16), God created the great fishes (v. 21), God made the terrestrial animals (v. 25), and God created man (v. 27). But are we therefore authorised to think that the canonical writer intended to mark the enormous difference from a metaphysical point of view, which separates creating, that is calling being into existence by an incomprehensible act of Divine power, from the act of making? Hebraists are far from certain that the word *barah*, which we translate by ‘to create,’ had this exclusive and rigorous meaning. It signifies, according to the dictionaries, ‘to form,’ ‘to fashion,’ as well as ‘to create.’ The LXX had no idea of expressing the distinction between creating and making. They might certainly have employed alternately the words *κτιζειν* and *ποιειν*. They did not do so, probably because the distinction of meaning escaped their notice. Moreover, a clear proof that the distinction to which Mr. Gladstone appeals has not a great importance is that in v. 26 God says, ‘Let us *make* man in our image,’ and in v. 27 it is said, ‘God *created* man in his image.’ It is evident from this that in the mind of the author the words ‘create’ and ‘make’ might be used indistinguishably, and that we moderns are quite wrong in trying to force our metaphysical distinctions on old historians who never dreamed of them.

But what use is there, it will be said, in these subtle discussions? It remains not the less certain that the canonical writer wished to express the great monotheistic truth that God is the only and absolute author of the world and of all that exists, that He is the principle and source of being, and this is all that it is necessary from a religious point of view to maintain.—Be it so, but it is in a distinction, which is in my eyes an anachronism, that Mr. Gladstone hopes to find an answer to those who object to the pretended harmony between Genesis and modern science that the first represents the sun, moon, and stars, as created subsequently to the earth, and intended only to throw light upon it.

I think in truth that this was the idea of the sacred writer, and that every one who reads him without a preconceived opinion would derive this impression from his words. But this is not the opinion of Mr. Gladstone. No, he says, God did not *create*, in the strict sense of the word *create*, the celestial bodies on the fourth day when the earth already existed, freed from waters and covered with plants ; He *made* them, which is a very different thing ; He assigned them their place in relation to the earth. They were, no doubt, already included in the creation of the heavens which is mentioned in the first verse. The fourth day only marks the moment of the final exclusive concentration of light in the sun, and of its reflection on the moon and on the planets. I must here stop ; I do not wish to prolong this explanation to the point of giving it an appearance of irony. I would only submit this question to any impartial reader—when it is said that God determined that there should be light-giving bodies in the firmament to divide the seasons, and to shine upon the earth, that God *made* them, and that God *placed* them in the firmament, is it conceivable that such words were intended to convey that these light-bearing bodies already existed, and that the work of the Creator on that day consisted simply of assigning them a place, an orbit, and a power of radiation ? Whether God *made* or *created* the stars on the fourth day, after the earth and its vegetation, the difficulty remains absolutely the same.

Having said this, I have now only to defend myself against two reproaches of a certain importance.

Mr. Gladstone blames me for having misinterpreted the passage ‘Let us make man in our image,’ in which orthodox Christianity wishes to see an allusion to the Trinity. I have suggested that this is either a *pluralis majestaticus*, or that this passage may imply the existence of celestial beings, the Bené Elohim, in whose presence the Creator was displaying His energies, and whom He invites to some kind of co-operation when he comes to the last and the most perfect of his works. I have not concealed my preference for the second explanation which appears to me supported by the analogy of other passages of the Old Testament, such as Gen. iii. 22 ; vi. 2 ; Job xxxviii. 7. I must decline absolutely the honour which Mr. Gladstone is good enough to do me in representing me as opposing proudly and presumptuously my solitary opinion to the tradition of the Christian Church. There are passages in the Bible, as, for example, Isaiah vii. 14, concerning which the unanimity of tradition does not prevent it from being very erroneous. But as for the passage we are now discussing, I am very far from being alone in my opinion, and I wait for some other refutation than an appeal to a tradition of which those who alone for so many centuries knew how to read or to interpret the original Hebrew were profoundly ignorant.

In the last place Mr. Gladstone is much surprised that, relying

on the picture which the author of the second chapter of Genesis traces of the life of the first human couple in Eden, I say that he represents them as ignorant of the elementary notions of morality. He admits, indeed, that it is only possible to ascribe to them ‘the morality of a little child, the undeveloped morality of obedience.’ This is already some approach to an agreement. But in my turn I will venture to ask him if he has duly weighed the full significance of the declaration that they were without the knowledge of good and evil ? that they only acquired this knowledge by a transgression the immoral character of which must necessarily have escaped them ? I have not to justify or to criticise the canonical writer. I confine myself to registering his statement. There are but these two alternatives. Either Adam and Eve before eating the forbidden fruit knew that they were committing, not a false calculation, not an act of imprudence, but a fault in the moral sense of the word, and in that case it is inadmissible that they had no knowledge of good and evil until after they had eaten it ; or else they had, as the canonical narrative affirms, up to this time no knowledge of good or evil, and in that case I am perfectly justified in saying that they were strangers to the most elementary notions of morality. And I see a confirmation of this opinion in the incident related by the sacred author with so much psychological truth, according to which the sentiment of shame which distinguishes so clearly man, the moral being, from the brute, only awoke in them after they had eaten the forbidden food.

No doubt much may be said about the meaning or the possible meanings of this mythical story. The great difficulty in penetrating to its true meaning comes not only from the fact that a later theology has based upon its poetry imposing dogmas of which the author had no idea, and that many succeeding generations have only looked on it through the factitious lights created by these traditional dogmas ; it comes also from the fact that the author himself could not completely extricate himself from the apparent contradiction of the two principles to which he tries to do justice. On the one side man has advanced ; he knows what he did not know ; he has become a moral being ; the serpent has not lied ; his eyes have been opened. On the other side, the progress seems to have been accomplished against God and in spite of God. We find elsewhere this double sentiment of a timid piety, which, while recognising the progress of man as good in itself, finds it difficult to imagine that it does not constitute an insolent, impious, guilty revolt against the Sovereign God. Is not this the point of view of old *Æschylus* in the drama of ‘Prometheus’? But it is not now our business to resolve the antinomies involved in the narratives we are trying to interpret. It is sufficient to interpret them exactly. How many of the most eminent minds find it difficult to read them without infusing into them ideas or points of view which distort their meaning ! The same author in connecting

with a divine malediction provoked by the first transgression certain collective evils which afflict the man, the woman, and the serpent, says that God pronounced that there should be henceforth enmity between the posterity of the serpent and the posterity of the woman, that the posterity of the woman should attack the serpent on the head (or bruise its head) and that the serpent or its posterity should attack on the heel the posterity of the woman. Others besides myself have thought that it has been a mistake in the Christian Church to see a prophecy of the Redemption in this curse which leaves the two adversaries in a relation of mortal, enduring hostility without giving any prospect of its cessation (compare Gen. iii. 15). But this displeases Mr. Gladstone. He thinks he finds an indication of the superiority and final victory of man in the fact that man attacks his enemy on the head, and that his enemy can only attack him on the heel, for the head is much more essential to life than the foot. Good heavens! If Mr. Gladstone were unfortunate enough to be bitten on the heel by a venomous serpent, would his lot be much more favourable than that of the serpent whose head he had crushed?

I shall not pause upon a little cavil which he raises against me about the somewhat strange text Genesis iv. 26, generally translated, 'Then they began to invoke the name of Jahveh.' The importance of this Jahvistic text comes especially from its contradiction with the Elohistic text Exodus vi. 2-3, from which it seems to follow that the name of Jahveh was unknown to the patriarchs. However this may be, and without entering into a discussion which would be necessarily too long, and even if the phrase ought to be put in the singular, with the Samaritan codex and the LXX, which the Hebrew text puts in the plural, I maintain that this text may be always justly adduced against those who pretend that the first man received a doctrinal revelation in the beginning. This is all that I attempted to maintain in my 'Prolegomena,' and I do not think that the arguments of my respected critic are of a nature to weaken the proof.

I am sincerely grateful to him for not having confounded me with those who despise or detest religion itself. Though much detached from the dogmatic traditions of the Church, I am in truth more and more convinced of the legitimacy of the religious principle in the human mind. I see in it a prophetic indication of the higher destiny of man; and I must add that it is my conviction that religion among civilised men is for ever destined to move in the same direction which the Gospel gave it eighteen hundred years ago. Either man will cease to be religious or he will find himself compelled to be in a certain measure Christian. I do not recognise myself, therefore, in the eloquent and moving picture which Mr. Gladstone has drawn at the end of his article of the iconoclasts who are exulting in the idea that they have destroyed one or other of the beliefs from which so many generations have drawn their best

consolations and hopes. If I have been able like others to greet with enthusiasm the complete liberty of conscience and intelligence contained in principle in the Gospel, partially restored at the Reformation and completely won in our own day, I have also more than once known what it is to bid melancholy farewell to traditional doctrines which had charmed my childhood and my youth with their grandeur, their poetry, and their mystic beauty. The fruits of the tree of knowledge are sometimes bitter, and Mr. Gladstone is quite right in protesting against the brutality with which the venerable roots of the ancient faith are sometimes treated.

But allow me to tell him that there is one thing of far higher importance than the propriety and the decency which he demands from contemporary criticism. It is that it should be inspired by a genuine and disinterested love of truth. I can well imagine that the defenders of expiring Paganism or the sincere Roman Catholics who lived during the destructive revolution of Luther, shed many a tear over the kind of fury with which men were sapping the very foundations of systems which seemed to them the most sacred and the most consoling in the world. Yet the Christians of the fourth century, the Protestants of the sixteenth, were in *the truth*; they were on the path that leads upwards to truth. Let us keep clear of all passion, whether it be conservative or negative. Passion always blinds. But let us have the courage to seek for and to express the truth, as it appears to our minds, in all its simplicity and its purity. Do not let us be alarmed by the torrents swollen with the autumnal rains, nor yet with the frost that congeals the waters and the plants. In due time, the spring will come with its brightness and its flowers. The worst thing that could happen would be that humanity should cease to discuss those great problems which constitute at once its torment, its nobility, and its happiness. This danger is not now to be feared. On the contrary, we may hope that from the angry shock of opposing religious principles and ideas a great synthesis will arise which may satisfy the wants and aspirations of all. We shall probably not see it with the eyes of the flesh, but we may all contribute to its advent by seeking for truth in religion as in all other things, laboriously, faithfully, and courageously. Neither the rage of an irreligious fanaticism, nor the sentimentality of an emasculated romanticism, must guide us in this voyage towards the unknown or the little known. The love of truth is but one of the elements of the love of God, since truth is but one of the aspects of His supreme perfection. If Christ lived and spoke in the midst of us, unless He were untrue to Himself, He could speak no other language. Let us search, study, work, each in his sphere, for the good, the just, and the true, in nature, in society, in the soul. I know an illustrious statesman who in our days has been one of the great workers of God in the work

of justice on the earth. Perhaps he has been less happy in his excursions into the field of religious science. It is still a great and salutary example which he has given to his contemporaries in turning to this side also his powerful and brilliant intellect. However this may be, just because we believe in God, let us never lose our faith in the final results of sincere search for truth everywhere and always, whether it be in the vast and obscure fields of physical nature or in the records which embalm the experiences and the beliefs of our race. This work, carried on by very different intellects, cannot be accomplished without discussions or without errors. But let us never lose courage. '*Magna est veritas et prævalebit.*'

ALBERT RÉVILLE, D.D.

POSTSCRIPT TO ARTICLE ON 'PROEM TO GENESIS.'

I learn with satisfaction that in America, where the stores of geological knowledge have been so greatly enlarged, the business of the Reconciler has been taken into the hands of scientists: Dr. Dana, Professor of Geology in Yale College; and Dr. Arnold Guyot, Professor of Geology and Physical Geography in New Jersey College. Both of these authorities, it appears, have adhered through a long career, and now adhere with increased confidence, to the idea of a substantial harmony between science and the Mosaic text. Professor Dana's latest Tract has recently appeared in the *Bibliotheca Sacra* for April 1885. He thinks the evidence doubtful as to the priority of birds over the low or marsupian mammals (p. 214); but strong for an abundant early plant life in the Azoic period (p. 213): and he holds, with Professor Guyot, that the first, or cosmogonical, portion of the Proem not only accords with, but teaches, the nebular hypothesis (p. 220).

It is a relief to find that the burden of this argument is shared with witnesses, who are competent and unsuspected on the scientific side; and who will not be liable to a repetition *mutatis mutandis* of an old objection: '*This people, which knoweth not the law, is accursed.*'¹

Mr. Marsh, Professor of Palæontology in Yale College, holds (*Ornithodontes*, 1880, p. 137), on the grounds of the wide differences between the *archæopteryx* and the other types of early birds, that the common ancestor was remote, and probably Palæozoic. He also adheres to the order 1. Reptiles; 2. Birds; 3. Mammals. (It may be well to refer to Sir C. Lyell, *Principles of Geology*, vol. iii. p. 175, on the reasons why bird-remains are sometimes rare.)

In my passages referring to geological results, I would ask the reader to substitute *priority* for *succession*. The latter implies a continuity of series, which is not found in the scientific record, since it is broken by the absence of reference to the invertebrates of the palæozoic, and the reptiles of the mesozoic, rocks.

W. E. G.

¹ St. John, vii. 49.

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*PROEM TO GENESIS:
A PLEA FOR A FAIR TRIAL.*

Vous avez une manière si aimable d'annoncer les plus mauvaises nouvelles, qu'elles perdent par là de leurs désagrémens. So wrote, *de haut en bas*, the Duchess of York to Beau Brummell, sixty or seventy years back;¹ and so write I, *de bas en haut*, to the two very eminent champions who have in the *Nineteenth Century* of December entered appearances on behalf of Dr. Réville's *Prolegomènes*, with a decisiveness of tone, at all events, which admits of no mistake: Professor Huxley and Professor Max Müller. My first duty is to acknowledge in both cases the abundant courtesy and indulgence with which I am personally treated. And my first thought is that, where even disagreement is made in a manner pleasant, it will be a duty to search and see if there be any points of agreement or approximation, which will be more pleasant still. This indulgence and courtesy deserves in the case of Professor Huxley a special warmth of acknowledgment, because, while thus more than liberal to the individual, he has for the class of Reconcilers, in which he places me, an unconcealed and unmeasured scorn. These are they who impose upon man a burden of false science *in the name of religion*, who dictate as a Divine command ‘an implicit belief in the cosmogony of Genesis;’ and who ‘stir unwisdom and fanaticism to their depths.’² Judgments so severe should surely be supported by citation or other evidence, for which I look in vain. To some they might suggest the

¹ *Life*, by Jesse. Revised edition, i. 260.

² *Nineteenth Century*, December 1885, pp. 859, 860.

idea that Passion may sometimes unawares intrude even within the precincts of the temple of Science. But I admit that a great master of his art may well be provoked, when he finds his materials tumbled about by incapable hands, and may mistake for irreverence what is only want of skill.

While acknowledging the great courtesy with which Professor Huxley treats his antagonist individually, and while simply listening to his denunciations of the Reconcilers as one listens to distant thunders, with a sort of sense that after all they will do no great harm, I must presume to animadvert with considerable freedom upon his method ; upon the sweeping character of his advocacy ; upon his perceptible exaggeration of points in controversy ; upon his mode of dealing with authorities ; and upon the curious fallacy of substitution by which he enables himself to found the widest proscriptions of the claim of the Book of Genesis to contain a Divine record upon a reasoned impeachment of its scientific accuracy in, as I shall show, a single particular.

As to the first of these topics, nothing can be more equitable than Professor Huxley's intention to intervene as a 'science proctor' in that part of the debate raised by M. Réville, 'to which he proposes to restrict his observations' (*N. C.* p. 849). This is the part on which he proposes in his first page to report as a student—and every reader will inwardly add, as one of the most eminent among all students—of natural science. Now this is not the cosmogonical part of the account in Genesis. On Genesis i. 1-19, containing the cosmogony, he does not report as an expert, but refers us (p. 859) to 'those who are specially conversant with the sciences involved ;' adding his opinion about their opinion. Yet in his second page, without making any reference to this broad distinction, he at once forgets the just limitation of his first, and our 'proctor for science' pronounces on M. Réville's estimate, not of the fourfold succession in the stratification of the earth, but of 'the account of the Creation given in the Book of Genesis,' that its terms are as 'respectful as in his judgment they are just' (*ibid.*). Thus the proctorship for science, justly assumed for matters within his province as a student, is rather hastily extended to matters which he himself declares to be beyond it. In truth it will appear, that as there are many roads to heaven with one ending, so, provided only a man arrives at the conclusion that the great Proem of Genesis lends no support to the argument for Revelation, it does not much matter how he gets there. For in this 'just' account of the Creation I have shown that M. Réville supports his accusation of scientific error by three particulars (*N. C.* p. 639) : that in the first he contradicts the judgment of scholars on the sense of the original ; in the second he both misquotes (by inadvertence) the terms of the text, and overlooks the distinction made so palpable (if not earlier) half a century ago, by

the work of Dr. Buckland,³ between *bara* and *asa*; while the third proceeds on the assumption that there could be no light to produce vegetation, except light derived from a visible sun. These three charges constitute the head and front of M. Réville's indictment against the cosmogony; and the fatal flaws in them, without any notice or defence, are now all taken under the mantle of our science proctor, who returns to the charge at the close of his article (p. 859), and again dismisses with comprehensive honour as 'wise and moderate' what he had ushered in as reverent and just. So much for the sweeping, undiscriminating character of an advocacy which, in a scientific writer, we might perhaps have expected to be carefully limited and defined.

I take next the exaggeration which appears to me to mark unhappily Professor Huxley's *method*. Under this head I include all needless multiplication of points of controversy, whether in the form of overstating differences, or understating agreements, with an adversary.

As I have lived for more than half a century in an atmosphere of contention, my stock of controversial fire has perhaps become abnormally low; while Professor Huxley, who has been inhabiting the Elysian regions of science, the *edita doctrinâ sapientum templâ serena*,⁴ may be enjoying all the freshness of an unjaded appetite. Certainly one of the lessons life has taught me is, that where there is known to be a common object, the pursuit of truth, there should also be a studious desire to interpret the adversary in the best sense his words will fairly bear; to avoid whatever widens the breach; and to make the most of whatever tends to narrow it. These I hold to be part of the laws of knightly tournament.

I do not, therefore, fully understand why Professor Huxley makes it a matter of objection to me that, in rebuking a writer who had treated evolution wholesale as a novelty in the world, I cited a few old instances of moral and historical evolution only, and did not extend my front by examining Indian sages and the founders of Greek philosophy (*N. C.* p. 854). Nor why, when I have spoken of physical evolution as of a thing to me most acceptable, but not yet in its rigour (to my knowledge) proved (*N. C.* p. 705), we have only the rather niggardly acknowledgment that I have made 'the most oblique admissions of a possible value' (*N. C.* p. 854). Thus it is when agreement is threatened, but far otherwise when differences are to be blazoned. When I have spoken of the succession of orders in the most general terms only, this is declared a sharply divided succession in which the last species of one cannot overlap the first species of another (p. 857). When I have pleaded on simple grounds of reasoning for the supposition of a substantial correspondence between Genesis i. and science

³ *Bridgewater Treatise*, vol. i. pp. 19–28. Chap. i.: 'Consistency of Geological Discoveries with Sacred History.'

⁴ *Lucr.* ii. 8.

(*N. C.* p. 696), have waived all question of a verbal inspiration, all question whether the whole of the statements can now be made good (*N. C.* p. 694), I am treated as one of those who impose 'in the name of religion' as a divine requisition 'an implicit belief in the accuracy of the cosmogony of Genesis,' and who deserve to have their heads broken in consequence (*N. C.* p. 860).

I have urged nothing 'in the name of religion.' I have sought to adduce probable evidence that a guidance more than human lies within the great Proem of the Book of Genesis (*N. C.* p. 694), just as I might adduce probable evidence to show that Francis did or did not write Junius, that William the Third was or was not responsible for the massacre of Glencoe; I have expressly excepted detail (p. 696), and have stated (*N. C.* p. 687) that in my inquiry 'the authority of Scripture cannot be alleged in proof of a primitive revelation' (*N. C.* p. 687). I object to all these exaggerations of charge, as savouring of the spirit of the Inquisition, and as restraints on literary freedom.

My next observation as to the Professor's method refers to his treatment of authorities.

In one passage (*N. C.* p. 851) Mr. Huxley expresses his regret that I have not named my authority for the statement made concerning the fourfold succession, in order that he might have transferred his attentions from myself to a new delinquent. Now, published works are (as I may show) a fair subject for reference. But as to pointing out any person who might have favoured me with his views in private correspondence, I own that I should have some scruple in handing him over to be pilloried as a Reconciler, and to be pelted with charges of unwisdom and fanaticism, which I myself, from long use, am perfectly content to bear.

I did refer to three great and famous names: those of Cuvier, Sir John Herschel, and Whewell (*N. C.* p. 697). Mr. Huxley speaks of me as having quoted them in support of my case on the fourfold succession; and at the same time notices that I admitted Cuvier not to be a recent authority, which in geology proper is, I believe, nearly equivalent to saying he is, for particulars, no authority at all. This recital is singularly inaccurate. I cited them (*N. C.* p. 697), not with reference to the fourfold succession, but generally for 'the general accordance of the Mosaic cosmogony with the results of modern inquiry' (*ibid.*), and particularly in connection with the nebular hypothesis. It is the cosmogony (Gen. i. 1-19), not the fourfold succession, which was the sole object of Réville's attack, and the main object of my defence; and which is the largest portion of the whole subject. Will Mr. Huxley venture to say that Cuvier is an unavailable authority, or that Herschel and Whewell are other than great and venerable names, with reference to the cosmogony? Yet he has quietly set them aside without notice; and they with many

more are inclusively bespattered with the charges, which he has launched against the pestilent tribe of Reconcilers.

My fourth and last observation on the ‘method’ of Professor Huxley is that, after discussing a part, and that not the most considerable part, of the Proem of Genesis, he has broadly pronounced upon the whole. This is a mode of reasoning which logic rejects, and which I presume to savour more of licence than of science. The fourfold succession is condemned with argument; the cosmogony is thrown into the bargain. True, Mr. Huxley refers in a single sentence to three detached points of it partially touched in my observations (p. 853). But all my argument, the chief argument of my paper, leads up to the nebular or rotatory hypothesis (*N. C.* 689–94 and 697–8). This hypothesis, with the authorities cited—of whom one is the author of *Vestiges of the Creation*—is inclusively condemned, and without a word vouchsafed to it.

I shall presently express my gratitude for the scientific part of Mr. Huxley’s paper. But there are two sides to the question. The whole matter at issue is, 1, a comparison between the probable meaning of the Proem to Genesis and the results of cosmological and geological science; 2, the question whether this comparison favours or does not favour the belief that an element of divine knowledge—knowledge which was not accessible to the simple action of the human faculties—is conveyed to us in this Proem. It is not enough to be accurate in one term of a comparison, unless we are accurate in both. A master of English may speak the vilest and most blundering French. I do not think Mr. Huxley has even endeavoured to understand what is the idea, what is the intention, which his opponent ascribes to the Mosaic writer: or what is the conception which his opponent forms of the weighty word Revelation. He holds the writer responsible for scientific precision: I look for nothing of the kind, but assign to him a statement general, which admits exceptions; popular, which aims mainly at producing moral impression; summary, which cannot but be open to more or less of criticism in detail. He thinks it is a lecture. I think it is a sermon. He describes living creatures by structure. The Mosaic writer describes them by *habitat*. Both I suppose are right. I suppose that description by *habitat* would be unavailing for the purposes of science. I feel sure that description by structure, such as the geologists supply, would have been unavailing for the purpose of summary teaching with religious aim. Of Revelation I will speak by-and-by.

In order to institute with profit the comparison, now in view, the very first thing necessary is to determine, so far as the subject-matter allows, what it was that the Pentateuchal or Mosaic writer designed to convey to the minds of those for whom he wrote. The case is, in more ways than one, I conceive, the direct reverse of that which the Professor has alleged. It is not bringing Science to be tried at the

bar of Religion. It is bringing Religion, so far as it is represented by this part of the Holy Scriptures, to be tried at the bar of Science. The indictment against the Pentateuchal writer is, that he has written what is scientifically untrue. We have to find then in the first place what it is that he has written, according to the text, not an inerrable text, as it now stands before us.

First, I assume there is no dispute that in Genesis i. 20-27 he has represented a fourfold sequence or succession of living organisms. Aware of my own inability to define in any tolerable manner the classes of these organisms, I resorted to the general phrases—water-population, air-population, land-population. The immediate purpose of these phrases was not to correspond with the classifications of Science, but to bring together in brief and convenient form the larger and more varied modes of expression used in verses 20, 21, 24, 25 of the Chapter.

I think, however, I have been to blame for having brought into a contact with science, which was not sufficiently defined, terms that have no scientific meaning : water-population, air-population, and (twofold) land-population. I shall now discard them and shall substitute others, which have the double advantage of being used by geologists, and perhaps of expressing better than my phrases what was in the mind of the Mosaic writer. These are the words—1, fishes ; 2, birds ; 3, mammals ;⁵ 4, man. By all, I think, it will be felt that the first object is to know what the Pentateuchal writer means. The relation of his meaning to science is essential, but, in orderly argumentation, subsequent. The matter now before us is a matter of reasonable and probable interpretation. What is the proper key to this hermeneutic work ? In my opinion it is to be found in a just estimate of the purpose with which the author wrote, and with which the Book of Genesis was, in this part of it, either composed or compiled.

If this be the true point of departure, it opens up a question of extreme interest, at which I have but faintly glanced in my paper, and which is nowhere touched in the reply to me. What proper place has such a composition as the first Chapter of Genesis in such a work as the Scriptures of the Old Testament ? They are indisputably written with a religious aim ; and their subject-matter is religious. We may describe this aim in various ways. For the present purpose, suffice it to say they are conversant with belief in God, with inculcation of duties founded on that belief, with history and prophecy obviously having it for their central point. But this Chapter, at the least down to verse 25, and perhaps throughout, stands on a different ground. In concise and rapid outline, it traverses a vast region of physics. It is easy to understand Saint Paul when he speaks of

⁵ I wish to be understood as speaking here of the higher or ordinary mammals, which alone I assume to have been probably known to the Mosaic writer.

the world as bearing witness to God.⁶ What he said was capable of being verified or tested by the common experimental knowledge of all who heard him. Of it, of our Saviour's mention of the lilies—and may it not be said generally of the references in Scripture to natural knowledge?—they are at once accounted for by the positions in which they stand. But this first Chapter of Genesis professes to set out in its own way a large and comprehensive scheme of physical facts: the transition from chaos to kosmos, from the inanimate to life, from life in its lower orders to man. Being knowledge of an order anterior to the creation of Adamic man, it was beyond verification, as being beyond experience. As a physical exposition in miniature, it stands alone in the Sacred Record. And, as this singular composition is solitary in the Bible, so it seems to be hardly less solitary in the sacred books of the world. ‘The only important resemblance of any ancient cosmogony with the Scriptural account, is to be found in the Persian or Zoroastrian :’ this Bishop Browne⁷ proceeds to account for on the following among other grounds: that Zoroaster was probably brought into contact with the Hebrews, and even perhaps with the prophet Daniel; a supposition which supplies the groundwork of a recent and remarkable romance, not proceeding from a Christian school.⁸ Again, the Proem does not carry any Egyptian marks. In the twenty-seven thousand lines of Homer, archaic as they are and ever turning to the past, there is, I think, only one⁹ which belongs to physiology. The beautiful sketch of a cosmogony by Ovid¹⁰ seems in considerable degree to follow the Mosaic outline; but it was composed at a time when the treasure of the Hebrew records had been for two centuries imparted, through the Septuagint, to the Aryan nations.

Professor Huxley, if I understand him rightly (*N. C.* pp. 851–2), considers the Mosaic writer, not perhaps as having intended to embrace the whole truth of science in the province of geology, but at least as liable to be convicted of scientific worthlessness if his language will not stand the test of this construction. Thus the ‘water-population’ is to include ‘the innumerable hosts of marine invertebrated animals.’ It seems to me that these discoveries, taken as a whole, and also taken in all their parts and particulars, do not afford a proper, I mean a rational, standard for the interpretation of the Mosaic writer; that the recent discovery of the Silurian scorpion, a highly organised animal (p. 858), is of little moment either way to the question now before us;¹¹ that it is not an account of the extinct species which we should consider the Mosaic writer as intending to convey; that while his words are capable of covering

⁶ Acts xiv. 17; Romans i. 20.

⁷ Note on Gen. i. 5.

⁸ *Zoroaster.* By F. M. Crawford. Macmillan, 1885.

⁹ *Il.* vii. 99.

¹⁰ Ovid, *Metam.* i. 1–38.

¹¹ Because my argument in no way requires universal accordance, what bearing the scorpion may have on any current scientific hypothesis, it is not for me to say.

them, as the *oikoumenè* of the New Testament covers the red and yellow man, the rules of rational construction recommend and require our assigning to them a more limited meaning, which I will presently describe.

Another material point in Professor Huxley's interpretation appears to me to lie altogether beyond the natural force of the words, and to be of an arbitrary character. He includes in it the proposition that the production of the respective orders was effected (p. 857) during each of 'three distinct and successive periods of time; and only during those periods of time;' or again, in one of these, 'and not at any other of these;' as, in a series of games at chess, one is done before another begins; or as in a 'march-past,' one regiment goes before another comes. No doubt there may be a degree of literalism which will even suffice to show that, as 'every winged fowl' was produced on the fourth day of the Hexaemeron, therefore the birth of new fowls continually is a contradiction to the text of Genesis. But does not the equity of common sense require us to understand simply that the order of 'winged fowl,' whatever that may mean, took its place in creation at a certain time, and that from that time its various component classes were in course of production? Is it not the fact that in synoptical statements of successive events, distributed in time for the sake of producing easy and clear impressions, general truth is aimed at, and periods are allowed to overlap? If, with such a view, we arrange the schools of Greek philosophy in numerical order, according to the dates of their inception, we do not mean that one expired before another was founded. If the archæologist describes to us as successive in time the ages of stone, bronze, and iron,¹² he certainly does not mean that no kinds of stone implement were invented after bronze began, or no kinds of bronze after iron began. When Thucydides said that the ancient limited monarchies were succeeded by tyrannies, he did not mean that all the monarchs died at once, and a set of tyrants, like Deucalion's men, rose up and took their places. Woe be, I should say, to anyone who tries summarily to present in series the phases of ancient facts, if they are to be judged under the rule of Professor Huxley.

Proceeding, on what I hold to be open ground, to state my own idea of the true key to the meaning of the Mosaic record, I suggest that it was intended to give moral, and not scientific, instruction to those for whom it was written. That for the Adamic race, recent on the earth, and young in faculties, the traditions here incorporated, which were probably far older than the Book, had a natural and a highly moral purpose in conveying to their minds a lively sense of

¹² I use this enumeration to illustrate an argument, but I must, even in so using it, enter a caveat against its particulars. I do not conceive it to be either probable or historical that, as a general rule, mankind passed from the use of stone implements to the use of bronze, a composite metal, without passing through some intermediate (longer or shorter) period of copper.

the wise and loving care with which the Almighty Father, who demanded much at their hands, had beforehand given them much, in the provident adaptation of the world to be their dwelling-place, and of the created orders for their use and rule. It appears to me that, given the very nature of the Scriptures, this is clearly the rational point of view. If it is so, then, it follows, that just as the tradition described earth, air, and heaven in the manner in which they superficially presented themselves to the daily experience of man—not scientifically, but

The common air, the sun, the skies—

so he spoke of fishes, of birds, of beasts, of what man was most concerned with; and, last in the series, of man himself, largely and generally, as facts of his experience; from which great moral lessons of wonder, gratitude, and obedience were to be deduced, to aid him in the great work of his life-training.

If further proof be wanting, that what the Mosaic writer had in his mind were the creatures with which Adamic man was conversant, we have it in the direct form of verse 28, which gives to man for meat the fruit of every seed-yielding tree, and every seed-yielding herb, and the dominion of every beast, fowl, and reptile living. There is here a marked absence of reference to any but the then living species.

This, then, is the key to the meaning of the Book, and of the tradition, if, as I suppose, it was before the Book, which seems to me to offer the most probable, and therefore the rational guide to its interpretation. The question we shall have to face is whether this statement so understood, this majestic and touching lesson of the childhood of Adamic man, stands in such a relation to scientific truth, as far as it is now known, as to give warrant to the inference that the guidance under which it was composed was more than that of faculties merely human, at that stage of development, and likewise of information, which belonged to the childhood of humanity.

We have, then, before us one term of the desired comparison. Let us now turn to the other.

And here my first duty is to render my grateful thanks to Professor Huxley for having corrected my either erroneous or superannuated assumption as to the state of scientific opinion on the second and third terms of the fourfold succession of life. As one probable doctor sufficed to make an opinion probable, so the dissent of this eminent man would of itself overthrow and pulverise my proposition that there was a scientific *consensus* as to a sequence like that of Genesis in the production of animal life, as between fishes, birds, mammals, and man. I shall compare the text of Genesis with geological statements; but shall make no attempt, unless this be an attempt, to profit by a *consensus* of geologists.

I suppose it to be admitted on all hands that no perfectly com-

prehensive and complete correspondence can be established between the terms of the Mosaic text and modern discovery. No one, for instance, could conclude from it that which appears to be generally recognised, that a great reptile-age would be revealed by the mesozoic rocks.

Yet I think readers, who have been swept away by the torrent of Mr. Huxley's denunciations, will feel some surprise when on drawing summarily into line the main allegations, and especially this ruling order of the Proem, they see how small a part of them is brought into question by Mr. Huxley, and to how large an extent they are favoured by the tendencies, presumptions, and even conclusions of scientific inquiry.

First, as to the cosmogony, or the formation of the earth and the heavenly bodies—

1. The first operation recorded in Genesis appears to be the formation of light. It is detached, apparently, from the waste or formless elemental mass (verses 2–5), which is left relatively dark by its withdrawal.

2. Next we hear of the existence of vapour, and of its condensation into water on the surface of the earth (verses 6–10). Vegetation subsequently begins: but this belongs rather to geology than to cosmogony (verses 11, 12).

3. In a new period, the heavenly bodies are declared to be fully formed and visible, dividing the day from the night (verses 14–18).

Under the guidance particularly of Dr. Whewell, I have referred to the nebular hypothesis as confirmatory of this account.

Mr. Huxley has not either denied the hypothesis, or argued against it. But I turn to Phillips's *Manual of Geology*, edited and adapted by Mr. Seeley and Mr. Etheridge (1885). It has a section in vol. i. (pp. 15–19) on 'Modern Speculations concerning the Origin of the Earth.'

The first agent here noticed as contributing to the work of production is the 'gas hydrogen in a burning state,' which now forms the enveloping portion of the sun's atmosphere; whence we are told the inference arises that the earth also was once 'incandescent at its surface,' and that its rocks may have been 'products of combustion.' Is not this representation of light with heat for its ally, as the first element in this Speculation, remarkably accordant with the opening of the Proem to Genesis?

Next it appears (*ibid.*) that 'the product of this combustion is vapour,' which with diminished heat condenses into water, and eventually accumulates 'in depressions on the sun's surface so as to form oceans and seas.' 'It is at least probable that the earth has passed through a phase of this kind' (*ibid.*). 'The other planets are apparently more or less like the earth in possessing atmospheres and seas.' Is there not here a remarkable concurrence with the second great act of the cosmogony?

Plainly, as I suppose it is agreeable to these suppositions that, as vapour gradually passes into water, and the atmosphere is cleared, the full adaptation of sun and moon by visibility for their functions should come in due sequence, as it comes in Gen. i. 14–18.

Pursuing its subject, the Manual proceeds (p. 17): ‘This consideration leads up to what has been called the nebular hypothesis,’ which ‘supposes that, before the stars existed, the materials of which they consist were diffused in the heavens in a state of vapour’ (*ibid.*). The text then proceeds to describe how local centres of condensation might throw off rings, these rings break into planets, and the planets, under conditions of sufficient force, repeat the process, and thus produce satellites like those of Saturn, or like the Moon.

I therefore think that, so far as cosmogony is concerned, the effect of Mr. Huxley’s paper is not by any means to leave it as it was, but to leave it materially fortified by the Manual of Geology, which I understand to be a standard of authority at the present time.

Turning now to the region of that science, I understand the main statements of Genesis, in successive order of time, but without any measurement of its divisions, to be as follows :

1. A period of land, anterior to all life (verses 9, 10).
2. A period of vegetable life, anterior to animal life (verses 11, 12).
3. A period of animal life, in the order of fishes (verse 20).
4. Another stage of animal life, in the order of birds.
5. Another, in the order of beasts (verses 24, 25).
6. Last of all, man (verses 26, 27).

Here is a chain of six links, attached to a previous chain of three. And I think it not a little remarkable that of this entire succession, the only step directly challenged is that of numbers four and five, which (p. 858) Mr. Huxley is inclined rather to reverse. He admits distinctly the seniority of fishes. How came that seniority to be set down here? He admits as probable upon present knowledge, in the person of *Homo sapiens*, the juniority of man (p. 856). How came this juniority to be set down here? He proceeds indeed to describe an opposite opinion concerning man as holding exactly the same rank as the one to which he had given an apparent sanction (*ibid.*). As I do not precisely understand the bearing of the terms he uses, I pass them by, and I shall take the liberty of referring presently to the latest authorities, which he has himself suggested that I should consult. But I add to the questions I have just put this other inquiry. How came the Mosaic writer to place the fishes and the men in their true relative positions not only to one another, and not only to the rest of the animal succession, but in a definite and that a true relation of time to the origin of the first plant-life, and to the colossal operations by which the earth was fitted for them all? Mr. Huxley knows very well that it would be in the highest degree irrational to ascribe this correct distribution to the doctrine of chances;

nor will the stone of Sisyphus of itself constitute a sufficient answer to inquiries which are founded, not upon a fanciful attempt to equate every word of the Proem with every *dictum* of science, but upon those principles of probable reasoning by which all rational lives are and must be guided.

I find the latest published authority on geology in the Second or Mr. Etheridge's volume of the Manual¹³ of Professor Phillips, and by this I will now proceed to test the sixfold series which I have ventured upon presenting.

First, however, looking back for a moment to a work, obviously of the highest authority,¹⁴ on the geology of its day, I find in it a table of the order of appearance of animal life upon the earth, which, beginning with the oldest, gives us—

- | | |
|------------------|------------|
| 1. Invertebrates | 4. Birds |
| 2. Fishes | 5. Mammals |
| 3. Reptiles | 6. Man. |

I omit all reference to specifications, and speak only of the principal lines of division.

In the Phillips-Etheridge Manual, beginning as before with the oldest, I find the following arrangement, given partly by statement, and partly by diagram.

1. 'The Azoic or Archæan time of Dana ;' called Pre-Cambrian by other physicists (pp. 3, 5).
2. A commencement of plant life indicated by Dana as anterior to invertebrate animal life; long anterior to the vertebrate forms, which alone are mentioned in Genesis (pp. 4, 5).
3. Three periods of invertebrate life.
4. Age of fishes.
5. Age of reptiles.
6. Age of mammals, much less remote.
7. Age of man, much less remote than mammals.

As to birds, though they have not a distinct and separate age assigned them, the Manual (vol. i. ch. xxv. pp. 511–20) supplies us very clearly with their place in 'the succession of animal life.' We are here furnished with the following series, after the fishes: 1. Fossil reptiles (p. 512); 2. Ornithosauria (p. 517); they were 'flying animals, which combined the characters of reptiles with those of birds ;' 3. The first birds of the secondary rocks with 'feathers in all respects similar to those of existing birds ' (p. 518); 4. Mammals (p. 520).

I have been permitted to see in proof another statement from an authority still more recent, Professor Prestwich, which is now

¹³ Phillips's *Manual of Geology* (vol. ii.) part ii., by R. Etheridge, F.R.S. New edition, 1885.

¹⁴ *Palæontology*, by Richard Owen (now Sir Richard Owen, K.C.B.) Second edition, p. 5, 1861.

passing through the press. In it (pp. 80, 81) I find the following seniority assigned to the orders which I here name :

- | | |
|--------------------------|------------|
| 1. Plants (cryptogamous) | 4. Mammals |
| 2. Fishes | 5. Man |
| 3. Birds | |

It will now, I hope, be observed that, according to the probable intention of the Mosaic writer, these five orders enumerated by him correspond with the state of geological knowledge, presented to us by the most recent authorities, in this sense ; that the origins of these orders respectively have the same succession as is assigned in Genesis to those representatives of the orders, which alone were probably known to the experience of Adamic man. My fourfold succession thus grows into a fivefold one. By placing before the first plant-life the azoic period, it becomes sixfold. And again by placing before this the principal stages of the cosmogony, it becomes, according as they are stated, nine or tenfold ; every portion holding the place most agreeable to modern hypothesis and modern science respectively.

I now notice the points in which, so far as I understand, the text of the Proem, as it stands, is either incomplete or at variance with the representations of science.

1. It does not notice the great periods of invertebrate life standing between (1) and (2) of my last enumeration.
2. It also passes by the great age of Reptiles, with their antecessors the *Amphibia*, which come between (2) and (3). The secondary or Mesozoic period, says the Manual (i. 511), ‘has often been termed the age of Reptiles.’
3. It mentions plants in terms which, as I understand from Professor Huxley and otherwise, correspond with the later, not the earlier, forms of plant life.
4. It mentions reptiles in the same category with its mammals.

Now, as regards the first two heads, these omissions, enormous with reference to the scientific record, are completely in harmony with the probable aim of the Mosaic writer, as embracing only the formation of the objects and creatures with which early man was conversant. The introduction of these orders, invisible and unknown, would have been not agreeable, but injurious, to his purpose.

As respects the third, it will strike the reader of the Proem that plant life (verses 11, 12) is mentioned with a particularity which is not found in the accounts of the living orders ; nor in the second notice of the Creation, which appears, indeed, pretty distinctly to refer to recent plant-life (Gen. ii., 5, 8, 9). Questions have been raised as to the translation of these passages, which I am not able to solve. But I bear in mind the difficulties which attend both oral traditions and the conservation of ancient MS., and I am not in any way troubled by the discrepancy before us, if it be a discrepancy, as

it is the general structure and effect of the Mosaic statement on which I take my stand.

With regard to reptiles, while I should also hold by my last remark, the case is different. They appear to be mentioned as contemporary with mammals, whereas they are of prior origin. But the relative significance of the several orders evidently affected the method of the Mosaic writer. Agreeably to this idea, insects are not named at all. So reptiles were a family fallen from greatness; instead of stamping on a great period of life its leading character, they merely skulked upon the earth. They are introduced, as will appear better from the LXX than from the A.V. or R.V., as a sort of appendage to mammals. Lying outside both the use and the dominion of man, and far less within his probable notice, they are not wholly omitted like insects, but treated apparently in a loose manner as not one of the main features of the picture which the writer meant to draw. In the Song of the Three Children, where the four principal orders are recited after the series in Genesis, reptiles are dropped altogether, which suggests either that the present text is unsound, or, perhaps more probably, that they were deemed a secondary and insignificant part of it. But, however this case may be regarded, of course I cannot draw from it any support to my general contention.

I distinguish, then, in the broadest manner, between Professor Huxley's exposition of certain facts of science, and his treatment of the Book of Genesis. I accept the first, with the reverence due to a great teacher from the meanest of his hearers, as a needed correction to myself, and a valuable instruction for the world. But, subject to that correction, I adhere to my proposition respecting the fourfold succession in the Proem; which further I extend to a fivefold succession respecting life, and to the great stages of the cosmogony to boot. The five origins, or first appearances of plants, fishes, birds, mammals and man, are given to us in Genesis in the order of succession, in which they are also given by the latest geological authorities.

It is, therefore, by attaching to words a sense they were never meant to bear, and by this only, that Mr. Huxley establishes the parallels (so to speak), from which he works his heavy artillery. Land-population is a phrase meant by me to describe the idea of the Mosaic writer, which I conceive to be that of the animals familiarly known to early man. But, by treating this as a scientific phrase, it is made to include extinct reptiles, which I understand Mr. Huxley (*N. C.* p. 853) to treat as being land-animals; as, by taking birds of a very high formation, it may be held that mammal forms existed before such birds were produced. These are artificial contradictions, set up by altering in its essence one of the two things which it is sought to compare.

If I am asked whether I contend for the absolute accordance of the Mosaic writer, as interpreted by me, with the facts and presump-

tions of science, as I have endeavoured to extract them from the best authorities, I answer that I have not endeavoured to show either that any accordance has been demonstrated, or that more than a substantial accordance—an accordance in principal relevant particulars—is to be accepted as shown by probable evidence.

In the cosmogony of the Proem, which stands on a distinct footing as lying wholly beyond the experience of primitive man, I am not aware that any serious flaw is alleged; but the nebular hypothesis with which it is compared appears to be, perhaps from the necessity of the case, no more than a theory; a theory, however, long discussed, much favoured, and widely accepted in the scientific world.

In the geological part, we are liable to those modifications or displacements of testimony which the future progress of the science may produce. In this view its testimony does not in strictness pass, I suppose, out of the category of probable into that of demonstrative evidence. Yet it can hardly be supposed that careful researches, and reasonings strictly adjusted to method, both continued through some generations, have not in a large measure produced what has the character of real knowledge. With that real knowledge the reader will now have seen how far I claim for the Proem to Genesis, fairly tried, to be in real and most striking accordance.

And this brings me to the point at which I have to observe that Mr. Huxley, I think, has not mastered, and probably has not tried to master, the idea of his opponent as to what it is that is essentially embraced in the idea of a Divine revelation to man.

So far as I am aware, there is no definition, properly so called, of revelation either contained in Scripture or established by the general and permanent consent of Christians. In a word polemically used, of indeterminate or variable sense, Professor Huxley has no title to impute to his opponent, without inquiry, anything more than it must of necessity convey.

But he seems to assume that revelation is to be conceived of as if it were a lawyer's parchment, or a sum in arithmetic, wherein a flaw discovered at a particular point is *ipso facto* fatal to the whole. Very little reflection would show Professor Huxley that there may be those who find evidences of the communication of Divine knowledge in the Proem to Genesis as they read it in their Bibles, without approaching to any such conception. There is the uncertainty of translation; translators are not inspired. There is the difficulty of transcription; transcribers are not inspired, and an element of error is inseparable from the work of a series of copyists. How this works in the long courses of time we see in the varying texts of the Old Testament, with rival claims not easy to adjust. Thus the authors of the recent Revision¹⁵ have had to choose in the Massoretic text itself between different readings, and 'in exceptional cases' have given a pre-

¹⁵ Preface to the Old Testament, p. vi.

ference to the Ancient Versions. Thus, upon practical grounds quite apart from the higher questions concerning the original composition, we seem at once to find a human element in the sacred text. That there is a further and larger question, not shut out from the view even of the most convinced and sincere believers, Mr. Huxley may perceive by reading, for example, Coleridge's *Confessions of an Inquiring Spirit*. The question whether this Proem bears witness to a Divine communication, to a working beyond that of merely human faculties in the composition of the Scriptures, is essentially one for the disciples of Bishop Butler; a question, not of demonstrative, but of probable evidence. I am not prepared to abandon, but rather to defend, the following proposition. It is perfectly conceivable that a document penned by the human hand, and transmitted by human means, may contain matter questionable, uncertain, or even mistaken, and yet may by its contents as a whole present such *πίστεις*, such moral proofs of truth Divinely imparted, as ought irrefragably *pro tanto* to command assent and govern practice. A man may possibly admit something not reconciled, and yet may be what Mr. Huxley denounces as a Reconciler.

I do not suppose it would be feasible, even for Professor Huxley, taking the nebular hypothesis and geological discovery for his guides, to give, in the compass of the first twenty-seven verses of Genesis, an account of the cosmogony, and of the succession of life in the stratification of the earth, which would combine scientific precision of statement with the majesty, the simplicity, the intelligibility, and the impressiveness of the record before us. Let me modestly call it, for argument's sake, an approximation to the present presumptions and conclusions of science. Let me assume that the statement in the text as to plants, and the statement of verses 24, 25 as to reptiles, cannot in all points be sustained; and yet still there remain great unshaken facts to be weighed. First, the fact that such a record should have been made at all. Secondly, the fact that, instead of dwelling in generalities, it has placed itself under the severe conditions of a chronological order, reaching from the first *nexus* of chaotic matter to the consummated production of a fair and goodly, a furnished and a peopled world. Thirdly, the fact that its cosmogony seems, in the light of the nineteenth century, to draw more and more of countenance from the best natural philosophy; and fourthly, that it has described the successive origins of the five great categories of present life, with which human experience was and is conversant, in that order which geological authority confirms. How came these things to be? How came they to be, not among Accadians, or Assyrians, or Egyptians, who monopolised the stores of human knowledge when this wonderful tradition was born; but among the obscure records of a people who, dwelling in Palestine for twelve hundred years from their sojourn in the valley of the Nile, hardly had force to stamp even so much as their name upon the history of the world at large, and

only then began to be admitted to the general communion of mankind when their Scriptures assumed the dress which a Gentile tongue was needed to supply? It is more rational, I contend, to say that these astonishing anticipations were a God-given supply, than to suppose that a race, who fell uniformly and entirely short of the great intellectual development¹⁶ of antiquity, should here not only have equalled and outstripped it, but have entirely transcended, in kind even more than in degree, all known exercise of human faculties.

Whether this was knowledge conveyed to the mind of the Mosaic author, I do not presume to determine. There has been, in the belief of Christians, a profound providential purpose, little or variously visible to us, which presided, from Genesis to the Apocalypse, over the formation of the marvellous compound, which we term the Holy Scriptures. This we wonderfully embrace without being much perplexed by the questions which are raised on them; for instance, by the question, In what exact relation the books of the Apocrypha, sometimes termed deutero-canonical, stand to the books of the Hebrew Canon. Difficulties of detail, such as may (or ultimately may not) be found to exist in the Proem to Genesis, have much the same relation to the evidence of revealed knowledge in this record, as the spots in the sun to his all-unfolding and sufficing light. But as to the Mosaic writer himself, all I presume to accept is the fact that he put upon undying record, in this portion of his work, a series of particulars which, interpreted in the growing light of modern knowledge, require from us, on the whole, as reasonable men, the admission that we do not see how he could have written them, and that in all likelihood he did not write them, without aid from the guidance of a more than human power. It is in this guidance, and not necessarily or uniformly in the consciousness of the writer, that, according to my poor conception, the idea of Revelation mainly lies.

And now one word on the subject of Evolution. I cannot follow Mr. Huxley in his minute acquaintance with Indian sages, and I am not aware that Evolution has a place in the greater number of the schools of Greek philosophy. Nor can I comprehend the rapidity with which persons of authority have come to treat the Darwinian hypothesis as having reached the final stage of demonstration. To the eye of a looker-on their pace and method seem rather too much like a steeplechase. But this may very well be due to their want of appropriate knowledge and habits of thought. For myself, in my loose and uninformed way of looking at Evolution, I feel only too much biassed in its favour, by what I conceive to be its relation to the great argument of design.¹⁷

¹⁶ I write thus bearing fully in mind the unsurpassed sublimity of much that is to be found in the Old Testament. The consideration of this subject would open a wholly new line of argument, which the present article does not allow me to attempt.

¹⁷ ‘Views like these, when formulated by religious instead of scientific thought, make more of Divine Providence and fore-ordination, than of Divine intervention; but

Not that I share the horror with which some men of science appear to contemplate a multitude of what they term 'sudden' acts of creation. All things considered, a singular expression: but one, I suppose, meaning the act which produces, in the region of nature, something not related by an unbroken succession of measured and equable stages to what has gone before it. But what has equality or brevity of stage to do with the question how far the act is creative? I fail to see, or indeed am somewhat disposed to deny, that the short stage is less creative than the long, the single than the manifold, the equable than the jointed or graduated stage. Evolution is, to me, series with development. And like series in mathematics, whether arithmetical or geometrical, it establishes in things an unbroken progression; it places each thing (if only it stand the test of ability to live) in a distinct relation to every other thing, and makes each a witness to all that have preceded it, a prophecy of all that are to follow it. It gives to the argument of design, now called the teleological argument, at once a wider expansion, and an augmented tenacity and solidity of tissue. But I must proceed.

I find Mr. Huxley asserting that the things of science, with which he is so splendidly conversant, are 'susceptible of clear intellectual comprehension' (*N.C.* p. 859). Is this rhetoric, or is it a formula of philosophy? If the latter, will it bear examination? He pre-eminently understands the relations between those things which Nature offers to his view; but does he understand each thing in itself, or *how* the last term but one in an evolutional series passes into and becomes the last? The seed may produce the tree, the tree the branch, the branch the twig, the twig the leaf or flower; but can we understand the slightest mutation or growth of Nature in itself? can we tell *how* the twig passes into leaf or flower, one jot more than if the flower or leaf, instead of coming from the twig, came directly from the tree or from the seed?

I cannot but trace some signs of haste in Professor Huxley's assertion that, outside the province of science (*ibid.*), we have only imagination, hope, and ignorance. Not, as we shall presently see, that he is one of those who rob mankind of the best and highest of their inheritance, by denying the reality of all but material objects. But the statement is surely open to objection, as omitting or seeming to omit from view the vast fields of knowledge only probable, which are not of mere hope, nor of mere imagination, nor of mere ignorance; which include alike the inward and the outward life of man; within which lie the real instruments of his training, and where he is to learn how to think, to act, to be.

perhaps they are not the less theistical on that account.' (From the very remarkable Lectures of Professor Asa Gray on *Natural Science and Religion*, p. 77. Scribner, New York, 1880.)

I will now proceed to notice briefly the last page of Professor Huxley's paper, in which he drops the scientist and becomes simply the man. I read it with deep interest, and with no small sympathy. In touching upon it, I shall make no reference (let him forgive me the expression) to his 'damnatory clauses,' or to his harmless menace, so deftly conveyed through the Prophet Micah, to the public peace.

The exaltation of Religion as against Theology is at the present day not only so fashionable, but usually so domineering and contemptuous, that I am grateful to Professor Huxley for his frank statement (p. 859) that Theology is a branch of science; nor do I in the smallest degree quarrel with his contention that Religion and Theology ought not to be confounded. We may have a great deal of Religion with very little Theology; and a great deal of Theology with very little Religion. I feel sure that Professor Huxley must observe with pleasure how strongly practical, ethical, and social is the general tenor of the three synoptic Gospels; and how the appearance in the world of the great doctrinal Gospel was reserved to a later stage, as if to meet a later need, when men had been toned anew by the morality and, above all, by the life of our Lord.

I am not, therefore, writing against him, when I remark upon the habit of treating Theology with an affectation of contempt. It is nothing better, I believe, than a mere fashion; having no more reference to permanent principle than the mass of ephemeral fashions that come from Paris have with the immovable types of Beauty. Those who take for the burden of their song 'Respect Religion, but despise Theology,' seem to me just as rational as if a person were to say 'Admire the trees, the plants, the flowers, the sun, moon, or stars, but despise Botany, and despise Astronomy.' Theology is ordered knowledge; representing in the region of the intellect what religion represents in the heart and life of man. And this religion, Mr. Huxley says a little further on, is summed up in the terms of the prophet Micah (vi. 8): 'Do justly, and love mercy, and walk humbly with thy God.' I forbear to inquire whether every addition to this—such, for instance, as the Beatitudes—is (*N. C.* p. 860) to be proscribed. But I will not dispute that in these words is conveyed the true ideal of religious discipline and attainment. They really import that identification of the will which is set out with such wonderful force in the very simple words of the *Paradiso*—

In la sua volontade è nostra pace,

and which no one has more beautifully described than (I think) Charles Lamb: 'He gave his heart to the Purifier, his will to the Will that governs the universe.' It may be we shall find that Christianity itself is in some sort a scaffolding, and that the final building is a pure and perfect theism: when¹⁸ the kingdom shall be 'delivered up

¹⁸ 1 Cor. xv. 24, 28.

to God,' ‘that God may be all in all.’ Still, I cannot help being struck with an impression that Mr. Huxley appears to cite these terms of Micah, as if they reduced the work of religion from a difficult to a very easy performance. But look at them again. Examine them well. They are, in truth, in Cowper’s words—

Higher than the heights above,
Deeper than the depths beneath.

Do justly, that is to say, extinguish self; love mercy, cut utterly away all the pride and wrath, and all the cupidity, that make this fair world a wilderness; walk humbly with thy God, take His will and set it in the place where thine own was used to rule. ‘Ring out the old, ring in the new.’ Pluck down the tyrant from his place; set up the true Master on His lawful throne.

There are certainly human beings, of happy composition, who mount these airy heights with elastic step, and with unbated breath.

Sponte suâ, sine lege, fidem rectumque colebat.¹⁹

This comparative refinement of nature in some may even lead them to undervalue the stores of that rich armoury, which Christianity has provided to equip us for our great life-battle. The text of the prophet Micah, developed into all the breadth of St. Paul and St. Augustine, is not too much—is it not often all too little?—for the needs of ordinary men.

I must now turn, by way of epilogue, to Professor Max Müller; and I hope to show him that on the questions which he raises we are not very far apart. One grievous wrong, indeed, he does me in (apparently) ascribing to me the execrable word ‘theanthromorphic’ (*N. C.* p. 920), of which I wholly disclaim the paternity, and deny the use. Then he says, I warn him not to trust too much to etymology (p. 921). Not so. But only not to trust to it for the wrong purpose, in the wrong place: just as I should not preach on the virtue and value of liberty to a man requiring handcuffs. I happen to bear a name known, in its genuine form, to mean stones or rocks frequented by the gled; and probably taken from the *habitat* of its first bearer. Now, if any human being should ever hereafter make any inquiry about me, trace my name to its origin, and therefore describe the situation of my dwelling, he would not use etymology too much, but would use it ill. What I protest against is a practice, not without example, of taking the etymology of mythologic names in Homer, and thereupon supposing that in all cases we have thus obtained a guide to their Homeric sense. The place of Nereus in the mind of the poet is indisputable; and here etymology helps us. But when a light-etymology is found for Hera, and it is therefore asserted that in Homer she is a light-goddess, or when, because no one denies that *Phoibos* is a light-name, therefore

¹⁹ Ovid, *Metam.* i. 90.

the Apollo of Homer was the Sun, then indeed, not etymology, but the misuse of etymology, hinders and misleads us. In a question of etymology, however, I shall no more measure swords with Mr. Max Müller than with Mr. Huxley in a matter of natural science, and this for the simple reason that my sword is but a lath. I therefore surrender to the mercy of this great philologist the derivation of *dine* and *dîner* from *déjeuner*; which may have been suggested by the use of the word *dine* in our Bible (as John xxi. 12) for breakfasting; a sense expressed by La Bruyère (xi.) in the words, *Cliton n'a jamais eu, toute sa vie, que deux affaires, qui sont de dîner le matin, et de souper le soir.*

But, Mr. Max Müller says, I have offended against the fundamental principles of comparative mythology (*N. C.* p. 919). How, where, and why, have I thus tumbled into mortal sin? By attacking solarism. But what have I attacked, and what has he defended? I have attacked nothing, but the exclusive use of the solar theory to solve all the problems of the Aryan religions; and it is to this monopolising pretension that I seek to apply the name of solarism, while admitting that 'the solar theory has a most important place' in solving such problems (*N. C.* p. 704). But my *vis-à-vis*, whom I really cannot call my opponent, declares (*N. C.* p. 919) that the solarism I denounce is not his solarism at all; and he only seeks to prove that 'certain portions of ancient mythology have a directly solar origin.' So it proves that I attack only what he repudiates, and I defend what he defends. That is, I humbly subscribe to a doctrine, which he has made famous throughout the civilised world.

It is only when a yoke is put upon Homer's neck, that I presume to cry 'hands off.' The Olympian system, of which Homer is the great architect, is a marvellous and splendid structure. Following the guidance of ethnological affinities and memories, it incorporates in itself the most diversified traditions, and binds them into an unity by the plastic power of an unsurpassed creative imagination. Its dominating spirit is intensely human. It is therefore of necessity thoroughly anti-elemental. Yet, when the stones of this magnificent fabric are singly eyed by the observer, they bear obvious marks of having been appropriated from elsewhere by the sovereign prerogative of genius; of having had an anterior place in other systems; of having belonged to Nature-worship, and in some cases to Sun-worship; of having been drawn from many quarters, and among them from those which Mr. Max Müller excludes (p. 921): from Egypt, and either from Palestine, or from the same traditional source, to which Palestine itself was indebted. But this is not the present question. As to the solar theory, I hope I have shown either that our positions are now identical, or that, if there be a rift between them, it is so narrow that we may conveniently shake hands across it.

W. E. GLADSTONE.

MR. GLADSTONE AS A THEOLOGIAN.

MR. GLADSTONE's article in the *Nineteenth Century* on the "Dawn of Creation and of Worship" is exactly what might have been expected from him—eloquent, rhetorical, diffuse; anything, in short, except logical and closely reasoned. His mental attitude towards these questions may be described in two words, as that of a man who is ecclesiastically-minded and HomERICALLY-minded.

In fact, about one-third of his essay is taken up by a digression, which is almost entirely irrelevant, as to the extent to which the Olympian gods, as described by Homer, do or do not bear traces of being personifications of natural powers, and do or do not possess attributes which point to derivation from sources common to the author of the *Iliad* and the author of Genesis. It is needless to point out what a very remote bearing this speculation can have on the serious and vitally important question whether the account of the creation of the world and of man contained in the Bible is or is not consistent with the ascertained facts of modern science. That the Homeric gods are to a certain extent derived from solar myths is beyond doubt. Phœbus, the shining one, whose arrow-rays, darted in wrath, bring pestilence, is clearly in some senses the sun; and it admits of no question that the labours of Hercules are principally, if not wholly, taken from the signs of the Zodiac. But there are other elements mixed up with these, and if it should be proved that some of them are borrowed from ancient mythologies common to the Arian and Semitic races, which is far from being an ascertained fact, it would go a very little way towards settling the question whether the narrative of Noah's ark is a true narrative.

The digression is chiefly interesting as illustrating the working of Mr. Gladstone's mind, which is eminently excursive, prone to elaborate details and to dwell on irrelevant issues to an extent which obscures the main argument. It is also a mind eminently sentimental and emotional, and he seems to think that questions of pure scientific fact can be decided by impassioned appeals to the feelings connected with old forms of faith. In such appeals it is needless to say that Mr. Gladstone is at home, and that those who are already convinced will find in this, as in his other writings, strains of lofty, if somewhat vague and verbose, eloquence to read and to admire. Nor can it be denied that any candid reader, whether convinced or not, must feel his admiration increased for a man who, amidst the exciting occupations of political life, can keep his mind open to such subjects and snatch a leisure hour to write upon them.

But when we pass from these side issues to the central question, we cannot allow our admiration for Mr. Gladstone to give more weight to his assertions and arguments than if they proceeded from some unknown Mr. Smith or Mr. Jones. The issue is quite definite and precise. Is or is not the account of the creation contained in the Old Testament *true*—that is, consistent with real facts which no one can dispute? Mr. Gladstone undertakes to prove that it is *true*, and that its accordance with facts, as ascertained by modern science, goes a long way to prove the inspiration of the volume in which it is contained.

To sustain this weighty proposition it is obvious that the first requisite is to be thoroughly acquainted with the most recent discoveries in astronomy, geology, zoology, physiology, and, in fact, with all branches of modern science. The time is long past when the *facts* had to be tested by their correspondence with the *theory* of an inspired revelation; nowadays it is the *theory* which has to be tested by its correspondence with the *facts*. Mr. Gladstone enters upon this arduous contest with the gallantry and confidence of an Arab who takes the field armed with sword and spear, to oppose, for the first time, an adversary armed with rifle and revolver. He says himself that he is “wholly destitute of that kind of knowledge which carries authority,” and the most cursory perusal of his essay is sufficient to show it. For instance, he states that the fourfold division of animated creation set forth in Genesis, viz. :—

1. The water population ;
2. The air population ;
3. The land population of animals ;
4. The land population consummated in man—

“is understood to have been so approved in our time by natural science, that it may be taken as a demonstrated conclusion and established fact.” Is it possible that Mr. Gladstone never heard of the iguanodon of the Wealden, or of the small insectivorous and marsupial animals of the Oolite, or of the labyrinthodon and large batrachians of the Trias, or of the scorpion of the Silurian, all of which lived on land many millions of years before a single species of any fish now inhabiting the waters, or of any birds now inhabiting the air, had come into existence? Can he ever have visited the South Kensington Museum, and seen the fossil from Oeningen, of the feathered creature, half bird, half reptile? And is he ignorant of the great mass of evidence tending to show how the existing forms of bird-life were developed from reptilian life, at a period enormously remote, but still long subsequent to the existence of many species of that “land population” which he complacently assumes modern science has proved to have had no existence prior to the creation of the population of air and water? If Mr. Gladstone

will go to the British Museum, he will see there a slab of sandstone from one of the very oldest formations, and probably deposited more than one hundred million years ago ; and what will he see on this slab ? Little pits made by rain-drops, higher on one side than the other, showing that the shower fell during a smart breeze ; ripple-marks made by the tide exactly similar to those now made in the estuary of the Mersey or Solway, and numerous castings and tracings made in the wet sand by worms. What does this prove ? That at this remote period the winds blew, the rain fell, the tides ebbed and flowed, implying the existence of their cause—the sun and moon ; that an animal creation existed, which, as it lived entirely on land, although moist land, can hardly be described as falling within the category of either a water or an air population.

It would be easy to multiply instances ; but it is superfluous to do so, when the late President of the Royal Society, Professor Huxley, the highest living authority on these questions, has so recently as in the last number of the *Nineteenth Century* said, “ If I know anything at all about the results attained by the natural science of our time, it is ‘ a demonstrated conclusion and established fact ’ that the ‘ fourfold order ’ given by Mr. Gladstone is not that in which the evidence at our disposal tends to show that the water, air, and land populations of the globe have made their appearance.” To those who have the most elementary acquaintance with works like those of Lyell, Huxley, and Haëckel, the assumption that such a succession is proved by science must appear as amazing as if Mr. Gladstone had stated it to be a demonstrated conclusion that the earth was flat and not round. His other arguments in support of the Genesis account of creation are of the same nature : those of a man fifty years behind his time in everything that relates to modern science.

The history of creation contained in the first chapter of Genesis, if the words are taken in their obvious and natural meaning, is perfectly clear and consistent. It is, as Mr. Gladstone says, “ a singularly vivid, forcible, and effective popular narrative ; or, if we like to take it so, a sublime poem ”—of what ? Of the cosmogony common to the early thinkers of the ancient world, and which must inevitably have been the first conception of those who, in the infancy of science, began to attempt an explanation of the origin of the phenomena presented to the natural senses. Man and his habitation the earth were assumed to be the central and primary fact of the universe. The earth was first formed out of chaos ; light separated from darkness, the seas from the land ; and the whole surrounded by a firmament or crystal vault, solid enough to separate the waters above, which caused the rain, from the waters below, and to support the heavenly bodies which revolved with it in twenty-four hours round the earth. In this firmament the sun was placed to rule the day,

and the moon to rule the night, and, as its name, “the measurer,” denotes, to measure times and seasons. The stars also were added as things of minor importance, probably for ornament, or to aid the work of the moon in nights when the lunar orb was invisible. The inorganic world being thus created, the earth was conceived to have been peopled, once for all, with its existing animal life by three successive stages, viz., the fish, or water population; the birds, or air population, and land animals; and the whole work crowned by the creation of man in God’s “own image.” This work was conceived to have been carried out by an anthropomorphic Deity, or magnified man, who worked like a man, by regular spells of day-work, surveying each evening the work of the preceding day to see that it was properly done, and resting on the seventh day after his week’s labours. This is the plain, simple, and obvious meaning which the narrative must have conveyed to every one to whom it was addressed at the time, as it did to every one who read it until quite recently. The question is, is it a *true* narrative; that is, consistent with the *facts* as now established; and, if untrue, can the volume be inspired which contains mistakes on matters of such importance?

The first observation is, that to bring the question at all within the limits of reasonable discussion it is necessary to assume that the words of the narrative are to be taken in a non-natural sense; that is, in a sense different from the obvious meaning which they must have conveyed to those to whom they were addressed. This presents no difficulty to Mr. Gladstone, whose mind has a singular capacity for using words in this non-natural sense, and saying things which may mean almost anything that the different political or other proclivities of different hearers may choose to find in them. Thus he has no difficulty in assuming that the “firmament,” which supports the stars and separates the waters, may mean simply an expanse; or that if the writer of Genesis says “days” he means “periods,” notwithstanding their duration being expressly defined by an “evening and a morning;” and the reference to them as an authority for the seventh natural day being taken as a day of rest. It may be sufficient to say, that to ordinary minds such a use of language by any uninspired writer would be without hesitation termed “Jesuitical,” and that there is absolutely no authority for it, except in the preconceived determination to escape, *per fas vel nefas*, from the too direct antagonism between Scripture and science. But waiving this point, and allowing the fullest latitude for non-natural meanings, the difficulty is only postponed. The assumption that Laplace’s nebular hypothesis, or any other hypothesis at all consistent with known astronomical and geological facts, can in any way be reconciled with the “stages of the majestic process described in the Book of Genesis” is as untenable as that of a solid crystal vault,

or of six literal days for creation. Mr. Gladstone argues that if the author of Genesis mentions the creation of the earth as the beginning of the work, and introduces the sun and moon only on the fourth day, he may have meant, not that the sun and moon had no previous existence, but that the "assignment to them of a certain place and orbit respectively, with a light-giving power," only took place long periods after the geological structure of the earth had been completed by the "emergence of our land and its separation from the sea." It is, of course, obvious that the first condensation of any cosmic nebula must have taken place about a central nucleus; in other words, about a sun, and that planets and satellites can only have been detached successively, and with their places and orbits assigned, as the rotating mass contracted. By no possibility could an intermediate planet like the earth have been detached out of its order before other members of its family.

Still more hazy are Mr. Gladstone's ideas respecting the separation of light from dark, and wet from dry. He seems to consider light and darkness as separate substances, which, like white and black beans mixed together in a bag, could be taken out and sorted into two separate heaps. No other sense can be attached to the employment of such a phrase as "the detachment and collection of light." It is, of course, well known that light is simply the vibration of an almost infinitely rare and elastic medium called ether, and darkness the absence of such vibration; and that cosmic matter, even in the earlier stages of nebulous formation, is self luminous, *i.e.*, emits light. Light, therefore, must inevitably have long preceded the aggregation of this matter into the planet known as the earth. The "detachment of wet from dry, and of solid from liquid" is open to still more obvious objection. It is evidently the expression of one who supposed that the separation of sea from land was a process which took place, once for all, establishing the present configuration of the earth's surface, whereas it is certain that there has been a perpetual rising and sinking, and alternation of sea and land, going on from the earliest geological periods. The chalk, which now forms a large portion of continents and rises into considerable hills, was formed at the bottom of a deep ocean. The Wealden, which, below the chalk, is the delta formation of a large river, implies the existence of a continent drained by that river which has long since disappeared beneath the chalk ocean. And so on for all the stratified formations forming nine-tenths of the earth's crust, which must all have been formed beneath water, by denudation of older rocks and subsequently upheaved. Even in quite recent times, and since the appearance of men, Britain has been at one time an archipelago of islands in a frozen sea, and at others part of a continent, roamed over by the mammoth, the Irish elk, and the reindeer.

When we pass from inorganic to organic nature, the account of the creation of animated being is in still more direct opposition with facts. We have already seen what a mistake Mr. Gladstone commits in supposing that the succession of life was in the regular order of a water, an air, and a land population. But this is a mere nothing to the difficulty in reconciling the creation of those three orders of being in three successive days, with the enormous multitude of special miraculous creations required to account for the vast number of separate species actually existing in separate zoological provinces of the earth, and for the incalculably vaster number proved by their remains to have come into existence, flourished, and died out in the older geological formations. Madeira alone contains no less than one hundred and thirty-four species of land snails peculiar to this little group of islands, of which only twenty-one are found in Europe or Africa. If we discard the theory of evolution for that of miraculous creation, we must suppose the miraculous act to have been exerted one hundred and thirteen times in Madeira alone for no other purpose than that of giving it a variety of land snails.

It is, however, when we come to the creation of man that the discrepancy between the account in Genesis and the discoveries of modern science strikes us most forcibly. According to Genesis, "God created man in his own image," at a date which, measured by years or generations, is comparatively recent. In the time of Cuvier, on whose authority Mr. Gladstone relies, no geological evidence had been discovered to confute this statement, and the supposed absence of human remains in connection with extinct animals, or in anything older than the merest superficial deposits, was reasonably thought to give it considerable support. But the case was completely altered when hundreds of thousands of undoubted human remains came to be discovered in the gravels of ancient rivers, and securely sealed under beds of stalagmite in caves, associated with remains of extinct animals, and under conditions implying enormous antiquity. No one who has the slightest acquaintance with the subject any longer doubts that palæolithic man must have existed at any rate during part of the glacial period, and in all probability much earlier. His existence on earth must be measured, not by generations or centuries, but by long periods, the units of which cannot be less than ten thousand years. It is equally certain that these primeval men existed in a state of the rudest savagery, and that, instead of falling from a high state, the course of the human race has been that of slow and painful progress upwards from rude and almost bestial beginnings. These discoveries, of which not even a hint escapes from Mr. Gladstone to show that he is aware of them, have practically revolutionised the attitude of modern thought towards old creeds. It is no longer possible to consider as inspired revelations writings which

contain views as to man's origin as diametrically opposed to actual facts as the legend of Deucalion and Pyrrha, and very much farther from the truth than the account given in the poem of Lucretius.

If it requires some slight acquaintance with modern science to recognise fully the impossibilities involved in the account of creation given in the first chapter of Genesis, none is required to perceive the manifest impossibilities of what may be called the second creation of animated life, described in the narrative of the Noachian deluge. Mr. Gladstone makes no reference whatever to this, but it is as integral a part of the Bible as the account of the original creation.

What does this narrative tell us ?

That God, seeing the wickedness of man, repented of having created him and the other inhabitants of the earth, and determined to destroy them ; but that Noah, the one just man, found grace in his sight, and was warned to construct an ark, or big ship, in which to save from the impending flood himself and family, and a pair, male and female, of every living thing of all flesh, animals, birds, and reptiles. Another version makes the number of each species taken into the ark seven of each sex of clean animals and of birds, *i.e.*, fourteen instead of two ; but the smaller number may be taken, so as to avoid the appearance of wishing to exaggerate the impossibility of the narrative. This being done, the flood came, and covered "all the high hills that were under the whole heaven," utterly destroying every living thing upon the earth, except those who were saved with Noah in the ark. The flood began on the 17th day of the second month—say the 17th February—and lasted at its height for a hundred and fifty days, the ark grounding on Ararat on the 17th July, and the tops of the other mountains being first seen on the 1st October. The ark was opened, and the animals came forth on the 27th February of the succeeding year, so that they were shut up rather more than twelve months. The account of Noah offering a burnt offering of every clean beast and fowl may be omitted, though clearly inconsistent with the first narrative, which says that only one male and one female of each species were preserved ; nor is it necessary to dwell on the very rude anthropomorphic conception of God which represents Him as promising never again to destroy the earth because He was pleased by the sweet savour of the roast meat.

Compare this narrative with actual facts. In the first place, the number of cubic feet in an ark of the given dimensions is easily calculated, and it is apparent that it would be totally insufficient to accommodate pairs of all the larger animals, such as elephants, giraffes, rhinoceroses, bisons, buffaloes, oxen of various species, horses, asses, zebras, quaggas, elks, and the various species of the deer family, elands and other large antelopes, lions, tigers, bears and other carnivora, to say nothing of all the enormous minor population of the

earth, the land birds, reptiles, snails, insects, and so forth, which were all destroyed by a universal deluge flooding the whole earth for a year. To say nothing, also, of the vast stores of provender for the herbivora, and flesh for the carnivora, which must have been provided in the ark for more than twelve months' consumption, and of the impossibility of arctic and tropical animals living together for a year at the same temperature. Nor is the difficulty less, when they emerged from the ark, of seeing how the herbivora could exist until a new vegetation had sprung up on the earth soaked and sodden by being for a year under water, or how the carnivora could exist without preying on the single pairs of herbivorous animals, which were the sole tenants of that earth for long afterwards. Nor is it possible to account for the actual distribution of animal life in different geological provinces if it all radiated from the common centre of a mountain in Armenia. Could the kangaroo, for instance, have jumped at one bound from the top of Ararat to Australia, leaving no trace of its passage in any intermediate district? Or how can the narrative be reconciled with the fact of the existence, long prior to any possible date of the Noachian deluge, of an enormous variety, both of species and types of land life, which were gradually developed into more and more specialised forms, and which appeared at different periods, grew, flourished, and finally decayed and disappeared? Was the mammoth, whose skeleton, still covered with flesh and hair, was discovered on the frozen banks of the Lena, a descendant of a pair of mammoths who were saved in the ark; or the *Elephas Meridionalis*, whose bones, twice the size of the largest existing elephant, are found in the forest bed at Cromer; or the anthropoid ape and sabre-toothed tiger of the Miocene; or the palæotherium and anoplotherium of the Eocene, or any of the earlier inhabitants of the earth's land surface?

No stretching of days into periods, or other use of words in a non-natural sense, can in the slightest degree get over the glaring contradiction between the *naïve* and almost infantile story of Noah's ark, and the facts, I will not say of science, but of common sense and common observation, which are patent to every decently well-read schoolboy of the rising generation.

The real "dawn of creation" is that traced through three different lines of scientific research:—

First, that of astronomy, showing the progressive condensation of nebulæ, nebulous stars, and suns in various stages of their life history.

Secondly, that of geology, commencing with the earliest known fossil, the Eozoon Canadiense of the Laurentian, and continued in a chain, every link of which is firmly welded, though the Silurian, with its abundance of molluscous, crustacean, and vermiform life, and

first indication of fishes; the Devonian, with its predominance of fish and first appearance of reptiles; the Mesozoic, with its batrachians; the Secondary formations, in which reptiles of the sea, land and air preponderated, and the first humble forms of vertebrate land animals began to appear; and finally the Tertiary, in which mammalian life has become abundant, and type succeeding to type and species to species, are gradually differentiated and specialised, through the Eocene, Miocene, and Pliocene periods, until we arrive at the Glacial and Pre-historic periods, and at positive proof of the existence of man.

Thirdly, the line of embryology, or development of every individual life, from the primitive speck of protoplasm, and the nucleated cell in which all life originates, passing, as in the parallel case of types and species, through progressive stages of specialisation from the lowest, the amœba, to the highest, man—who, like all other animals, originates in a cell, and is developed through stages undistinguishable from those of fish, reptile, and mammal, until the cell finally attains the highly specialised development of the quadrumanous, and, last of all, of the human type.

In like manner the “dawn of worship” is to be found in the flint hatchets and other rude implements deposited with the dead, as by modern savages, testifying to some sort of belief in spirits and in a future existence. This clearly prevailed in the Neolithic, and possibly in the immensely older Palæolithic period, though the evidence for the latter is at present very weak, and the first object which can be affirmed with any certainty to be an idol or attempt to represent a deity, dates only from the Neolithic period, as do the cannibal feasts, which can be proved to have not infrequently accompanied the interment of important chiefs. For anything beyond this we have to descend to the historical period, and turn to early monuments, myths, and sacred books. The earliest records by far are those of the Egyptian tombs of the first four dynasties, and they tell us little more than this, that with a highly developed civilisation, the idea of a future life was very much that of a continuance of the present life, in a tomb which was made to resemble the deceased's actual house, and with surroundings which repeated his actual belongings; while the whole complicated Egyptian mythology, of symbolised gods and deified animals, was of later origin. If we turn to the earliest mythologies of the Arian and of the mixed Semitic and races of Western Asia, we find them plainly originating, to a great extent, in the personification of natural force, mainly of the sun, on which are engrafted ideas of family, tribal, and national gods, and of deified heroes. Sometimes, as the original meaning of the names and attributes of these gods came to be forgotten, the mythologies branched out into innumerable fables; at other times,

among more simple and severe races, or with more philosophic minds in the inner circle of a hereditary priesthood, the fables of polytheism were rejected, and the idea prevailed, either of a unity of nature implying a single author, or of such a preponderance of the national god over all others as led by a different path to the same result of monotheism. The real merit of the Jewish race and of the Hebrew scriptures is to have conceived this idea earlier, and retained it more firmly, than any of the less philosophical and more immoral religions of the ancient world ; and this is a merit of which they can never be deprived, however much the literal accuracy, and consequently the inspiration and miraculous attributes, of these venerable books may be disproved and disappear.

Works like this of Mr. Gladstone's, however well intentioned, are in reality profoundly irreligious, for if—like the throw of the gambler, who, when the cards or dice go against him, stakes all or nothing on some desperate cast—religion is staked on the one issue that incredible narratives are true, and were dictated by divine inspiration, there can be but one result. Every day brings to light fresh discoveries confirming the conclusions of science, and conflicting with the accounts of the creation of the world and man, and of the universal deluge, given in the Old Testament. Every day diffuses a knowledge of these discoveries more widely among millions of readers. What must be the result if men of “light and leading” proclaim to the world that if these conclusions of science are true there is an end of religion ? Evidently the same as George Stephenson predicted for the cow who should stand on the rails and try to stop the locomotive, “Varra awkward for the coo.” The really religious writers of the present day are those who, thoroughly understanding and recognising the facts of science, boldly throw overboard whatever conflicts with them, abandon all theories of inspiration and miraculous interferences with the order of nature, and appeal, in support of religion, to the essential beauty and truth in Christianity underlying the myths and dogmas which have grown up about it ; who, above all, appeal to the fact that it exists and is a product of the evolution of the human mind, satisfying, as nothing else can do so well, many of the purest emotions and loftiest aspirations, which are equally a necessary and inevitable product of that evolution.

S. LAING.

MR. GLADSTONE AND GENESIS.

I.

IN controversy, as in courtship, the good old rule to be off with the old before one is on with the new greatly commends itself to my sense of expediency. And therefore it appears to me desirable that I should preface such observations as I may have to offer upon the cloud of arguments (the relevancy of which to the issue which I had ventured to raise is not always obvious) put forth by Mr. Gladstone in the January number of this Review, by an endeavour to make clear to such of our readers as have not had the advantage of a forensic education, the present net result of the discussion.

I am quite aware that, in undertaking this task, I run all the risks to which the man who presumes to deal judicially with his own cause is liable. But it is exactly because I do not shun that risk, but, rather, earnestly desire to be judged by him who cometh after me, provided that he has the knowledge and impartiality appropriate to a judge, that I adopt my present course.

In the article on ‘The Dawn of Creation and Worship,’ it will be remembered that Mr. Gladstone unreservedly commits himself to three propositions. The first is that, according to the writer of the Pentateuch the ‘water population,’ the ‘air population,’ and the ‘land population’ of the globe were created successively, in the order named. In the second place, Mr. Gladstone authoritatively asserts that this (as part of his ‘fourfold order’) has been ‘so affirmed in our time by natural science, that it may be taken as a demonstrated conclusion and established fact.’ In the third place, Mr. Gladstone argues that the fact of this coincidence of the Pentateuchal story with the results of modern investigation makes it ‘impossible to avoid the conclusion, first, that either this writer was gifted with faculties passing all human experience, or else his knowledge was divine.’ And, having settled to his own satisfaction that the first ‘branch of the alternative is truly nominal and unreal,’ Mr. Gladstone continues, ‘So stands the plea for a revelation of truth from God, a plea only to be met by questioning its possibility’ (p. 697).

I am a simple-minded person, wholly devoid of subtlety of intellect, so that I willingly admit that there may be depths of alternative meaning in these propositions out of all soundings attainable by

my poor plummet. Still there are a good many people who suffer under a like intellectual limitation; and, for once in my life, I feel that I have the chance of attaining that position of a representative of average opinion, which appears to be the modern ideal of a leader of men, when I make free confession that, after turning the matter over in my mind with all the aid derived from a careful consideration of Mr. Gladstone's reply, I cannot get away from my original conviction that, if Mr. Gladstone's second proposition can be shown to be not merely inaccurate, but directly contradictory of facts known to every one who is acquainted with the elements of natural science, the third proposition collapses of itself.

And it was this conviction which led me to enter upon the present discussion. I fancied that if my respected clients, the people of average opinion and capacity, could once be got distinctly to conceive that Mr. Gladstone's views as to the proper method of dealing with grave and difficult scientific and religious problems had permitted him to base a solemn 'plea for a revelation of truth from God' upon an error as to a matter of fact, from which the intelligent perusal of a manual of palaeontology would have saved him, I need not trouble myself to occupy their time and attention with further comments upon his contribution to apologetic literature. It is for others to judge whether I have efficiently carried out my project or not. It certainly does not count for much that I should be unable to find any flaw in my own case, but I think it counts for a good deal that Mr. Gladstone appears to have been equally unable to do so. He does, indeed, make a great parade of authorities, and I have the greatest respect for those authorities whom Mr. Gladstone mentions. If he will get them to sign a joint memorial to the effect that our present palaeontological evidence proves that birds appeared before the 'land population' of terrestrial reptiles, I shall think it my duty to reconsider my position—but not till then.

It will be observed that I have cautiously used the word 'appears' in referring to what seems to me to be absence of any real answer to my criticisms in Mr. Gladstone's reply. For I must honestly confess that, notwithstanding long and painful strivings after clear insight, I am still uncertain whether Mr. Gladstone's 'Defence' means that the great 'plea for a revelation from God' is to be left to perish in the dialectic desert, or whether it is to be withdrawn under the protection of such skirmishers as are available for covering retreat.

In particular the remarkable disquisition which covers pages 11 to 14 of Mr. Gladstone's last contribution has greatly exercised my mind. Socrates is reported to have said of the works of Heraclitus that he who attempted to comprehend them should be a 'Delian swimmer,' but that, for his part, what he could understand was so good that he was disposed to believe in the excellence of that which he found unintelligible. In endeavouring to make myself

master of Mr. Gladstone's meaning in these pages, I have often been overcome by a feeling analogous to that of Socrates, but not quite the same. That which I do understand, in fact, has appeared to me so very much the reverse of good, that I have sometimes permitted myself to doubt the value of that which I do not understand.

In this part of Mr. Gladstone's reply, in fact, I find nothing of which the bearing upon my arguments is clear to me, except that which relates to the question whether reptiles, so far as they are represented by tortoises and the great majority of lizards and snakes, which are land animals, are creeping things in the sense of the Pentateuchal writer or not.

I have every respect for the singer of the Song of the Three Children (whoever he may have been); I desire to cast no shadow of doubt upon, but, on the contrary, marvel at, the exactness of Mr. Gladstone's information as to the considerations which 'affected the method of the Mosaic writer'; nor do I venture to doubt that the inconvenient intrusion of these contemptible reptiles—'a family fallen from greatness' (p. 14), a miserable decayed aristocracy reduced to mere 'skulkers about the earth' (*ibid.*)—in consequence apparently of difficulties about the occupation of land arising out of the earth-hunger of their former serfs, the mammals—into an apologetic argument, which otherwise would run quite smoothly, is in every way to be deprecated. Still, the wretched creatures stand there, importunately demanding notice; and, however different may be the practice in that contentious atmosphere with which Mr. Gladstone expresses and laments his familiarity, in the atmosphere of science it really is of no avail whatever to shut one's eyes to facts, or to try to bury them out of sight under a tumulus of rhetoric. That is my experience of 'the Elysian regions of Science,' wherein it is a pleasure to me to think that a man of Mr. Gladstone's intimate knowledge of English life during the last quarter of a century believes my philosophic existence to have been rounded off in unbroken equanimity.

However reprehensible, and indeed contemptible, terrestrial reptiles may be, the only question which appears to me to be relevant to my argument is whether these creatures are or are not comprised under the denomination of 'everything that creepeth upon the ground.'

Mr. Gladstone speaks of the author of the first chapter of Genesis as 'the Mosaic writer'; I suppose, therefore, that he will admit that it is equally proper to speak of the author of Leviticus as the 'Mosaic writer.' Whether such a phrase would be used by any one who had an adequate conception of the assured results of modern Biblical criticism is another matter; but, at any rate, it cannot be denied that Leviticus has as much claim to Mosaic authorship as Genesis. Therefore, if one wants to know the sense of a phrase used in Genesis, it will be well to see what Leviticus has to say on the matter.

Hence, I commend the following extract from the eleventh chapter of Leviticus to Mr. Gladstone's serious attention:—

And these are they which are unclean unto you among the creeping things that creep upon the earth: the weasel, and the mouse, and the great lizard after its kind, and the gecko, and the land-crocodile, and the sand-lizard, and the chameleon. These are they which are unclean to you among all that creep (v. 29-31).

The merest Sunday-school exegesis therefore suffices to prove that when the 'Mosaic writer' in Genesis i. 24 speaks of 'creeping things' he means to include lizards among them.

This being so, it is agreed on all hands that terrestrial lizards, and other reptiles allied to lizards, occur in the Permian strata. It is further agreed that the Triassic strata were deposited after these. Moreover, it is well known that, even if certain footprints are to be taken as unquestionable evidence of the existence of birds, they are not known to occur in rocks earlier than the Trias, while indubitable remains of birds are to be met with only much later. Hence it follows that natural science does not 'affirm' the statement that birds were made on the fifth day, and 'everything that creepeth on the ground' on the sixth, on which Mr. Gladstone rests his order; for, as is shown by Leviticus, the 'Mosaic writer' includes lizards among his 'creeping things.'

Perhaps I have given myself superfluous trouble in the preceding argument, for I find that Mr. Gladstone is willing to assume (he does not say to admit) that the statement in the text of Genesis as to reptiles cannot 'in all points be sustained' (p. 16). But my position is that it cannot be sustained in any point, so that, after all, it has perhaps been as well to go over the evidence again. And then Mr. Gladstone proceeds, as if nothing had happened, to tell us that—

There remain great unshaken facts to be weighed. First, the fact that such a record should have been made at all.

As most peoples have their cosmogonies, this 'fact' does not strike me as having much value.

Secondly, the fact that, instead of dwelling in generalities, it has placed itself under the severe conditions of a chronological order reaching from the first *nisus* of chaotic matter to the consummated production of a fair and goodly, a furnished and a peopled world.

This 'fact' can be regarded as of value only by ignoring the fact demonstrated in my previous paper, that natural science does not confirm the order asserted so far as living things are concerned; and by upsetting a fact to be brought to light presently, to wit, that, in regard to the rest of the Pentateuchal cosmogony, prudent science has very little to say one way or the other.

Thirdly, the fact that its cosmogony seems, in the light of the nineteenth century, to draw more and more of countenance from the best natural philosophy.

I have already questioned the accuracy of this statement, and I do not observe that mere repetition adds to its value.

And, fourthly, that it has described the successive origins of the five great categories of present life with which human experience was and is conversant, in that order which geological authority confirms.

By comparison with a sentence on page 14, in which a fivefold order is substituted for the ‘fourfold order,’ on which the ‘plea for Revelation’ was originally founded, it appears that these five categories are ‘plants, fishes, birds, mammals, and man,’ which, Mr. Gladstone affirms, ‘are given to us in Genesis in the order of succession in which they are also given by the latest geological authorities.’

I must venture to demur to this statement. I showed, in my previous paper, that there is no reason to doubt that the term ‘great sea monster’ (used in Genesis i. 21) includes the most conspicuous of great sea animals—namely, whales, dolphins, porpoises, manatees, and dugongs;¹ and as these are indubitable mammals, it is impossible to affirm that mammals come after birds, which are said to have been created on the same day. Moreover, I pointed out that as these Cetacea and Sirenia are certainly modified land animals, their existence implies the antecedent existence of land mammals.

Furthermore, I have to remark that the term ‘fishes,’ as used technically in zoology, by no means covers all the moving creatures that have life, which are bidden to ‘fill the waters in the seas’ (Genesis i. 20-22). Marine mollusks and crustacea, echinoderms, corals, and foraminifera are not technically fishes. But they are abundant in the palæozoic rocks, ages upon ages older than those in which the first evidences of true fishes appear. And if, in a geological book, Mr. Gladstone finds the quite true statement that plants appeared before fishes, it is only by a complete misunderstanding that he can be led to imagine it serves his purpose. As a matter of fact, at the present moment, it is a question whether, on the bare evidence afforded by fossils, the marine creeping thing or the marine plant has the seniority. No cautious palæontologist would express a decided opinion on the matter. But, if we are to read the Pentateuchal statement as a scientific document (and, in spite of all protests to the contrary, those who bring it into comparison with science do seek to make a scientific document of it), then, as it is quite clear that only terrestrial plants of high organisation are spoken of in verses 11 and 12, no palæontologist would hesitate to say that, at present, the records of sea animal life are vastly older than those of any land plant describable as ‘grass, herb yielding seed, or fruit-tree.’

Thus, although, in Mr. Gladstone’s ‘Defence,’ the ‘old order

¹ Both dolphins and dugongs occur in the Red Sea, porpoises and dolphins in the Mediterranean ; so that the ‘Mosaic writer’ may well have been acquainted with them.

passeth into new,' his case is not improved. The fivefold order is no more 'affirmed in our time by natural science' to be 'a demonstrated conclusion and established fact' than the fourfold order was. Natural science appears to me to decline to have anything to do with either; they are as wrong in detail as they are mistaken in principle.

There is another change of position, the value of which is not so apparent to me as it may well seem to be to those who are unfamiliar with the subject under discussion. Mr. Gladstone discards his three groups of 'water population,' 'air population,' and 'land population,' and substitutes for them (1) fishes, (2) birds, (3) mammals, (4) man. Moreover, it is assumed in a note that 'the higher or ordinary mammals' alone were known to the 'Mosaic writer' (p. 6). No doubt it looks, at first, as if something were gained by this alteration; for, as I have just pointed out, the word 'fishes' can be used in two senses, one of which has a deceptive appearance of adjustability to the 'Mosaic' account. Then the inconvenient reptiles are banished out of sight; and, finally, the question of the exact meaning of 'higher' and 'ordinary' in the case of mammals opens up the prospect of a hopeful logomachy. But what is the good of it all in the face of Leviticus on the one hand and of palæontology on the other?

As, in my apprehension, there is not a shadow of justification for the suggestion that when the Pentateuchal writer says 'fowl' he excludes bats (which, as we shall see directly, are expressly included under 'fowl' in Leviticus), and as I have already shown that he demonstrably includes reptiles, as well as mammals, among the creeping things of the land, I may be permitted to spare my readers further discussion of the 'fivefold order.' On the whole, it is seen to be rather more inconsistent with Genesis than its fourfold predecessor.

But I have yet a fresh order to face. Mr. Gladstone (p. 11) understands 'the main statements of Genesis, in successive order of time, but without any measurement of its divisions, to be as follows:

1. A period of land, anterior to all life (v. 9 and 10).
2. A period of vegetable life, anterior to animal life (v. 11 and 12).
3. A period of animal life, in the order of fishes (v. 20).
4. Another stage of animal life, in the order of birds.
5. Another, in the order of beasts (v. 24 and 25).
6. Last of all, man (v. 26 and 27).

Mr. Gladstone then tries to find the proof of the occurrence of a similar succession in sundry excellent works on geology.

I am really grieved to be obliged to say that this third (or is it fourth?) modification of the foundation of the 'plea for Revelation' originally set forth, satisfies me as little as any of its predecessors.

For, in the first place, I cannot accept the assertion that this order is to be found in Genesis. With respect to No. 3, for example, I hold,

as I have already said, that 'great sea monsters' includes the Cetacea, in which case mammals (which is what, I suppose, Mr. Gladstone means by 'beasts') come in under head No. 3, and not under No. 5. Again, 'fowl' are said in Genesis to be created on the same day as fishes; therefore I cannot accept an order which makes birds succeed fishes. Once more, as it is quite certain that the term 'fowl' includes the bats—for in Leviticus xi. 13–19 we read, 'And these shall ye have in abomination among the fowls . . . the heron after its kind, and the hoopoe, and the bat'—it is obvious that bats are also said to have been created at stage No. 3.⁴? And as bats are mammals, and their existence obviously presupposes that of terrestrial 'beasts,' it is quite clear that the latter could not have first appeared as No. 5. I need not repeat my reasons for doubting whether man came 'last of all.'

As the latter half of Mr. Gladstone's sixfold order thus shows itself to be wholly unauthorised by, and inconsistent with, the plain language of the Pentateuch, I might decline to discuss the admissibility of its former half.

But I will add one or two remarks on this point also. Does Mr. Gladstone mean to say that in any of the works he has cited, or indeed anywhere else, he can find scientific warranty for the assertion that there was a period of land—by which I suppose he means dry land (for submerged land must needs be as old as the separate existence of the sea)—'anterior to all life'?

It may be so, or it may not be so; but where is the evidence which would justify anyone in making a positive assertion on the subject? What competent palaeontologist will affirm, at this present moment, that he knows anything about the period at which life originated, or will assert more than the extreme probability that such origin was a long way antecedent to any traces of life at present known? What physical geologist will affirm that he knows when dry land began to exist, or will say more than that it was probably very much earlier than any extant direct evidence of terrestrial conditions indicates?

I think I know pretty well the answers which the authorities quoted by Mr. Gladstone would give to these questions; but I leave it to them to give them if they think fit.

If I ventured to speculate on the matter at all, I should say it is by no means certain that sea is older than dry land, inasmuch as a solid terrestrial surface may very well have existed before the earth was cool enough to allow of the existence of fluid water. And in this case dry land may have existed before the sea. As to the first appearance of life, the whole argument of analogy, whatever it may be worth in such a case, is in favour of the absence of living beings until long after the hot water seas had constituted themselves; and of the subsequent appearance of aquatic before terres-

trial forms of life. But whether these 'protoplasts' would, if we could examine them, be reckoned among the lowest microscopic algæ, or fungi, or among those doubtful organisms which lie in the debatable land between animals and plants, is, in my judgment, a question on which a prudent biologist will reserve his opinion.

I think that I have now disposed of those parts of Mr. Gladstone's defence in which I seem to discover a design to rescue his solemn 'plea for Revelation.' But a great deal of the 'Proem to Genesis' remains which I would gladly pass over in silence, were such a course consistent with the respect due to so distinguished a champion of the 'reconcilers.'

I hope that my clients—the people of average opinions—have by this time some confidence in me; for when I tell them that, after all, Mr. Gladstone is of opinion that the 'Mosaic record' was meant to give moral and not scientific instruction to those for whom it was written, they may be disposed to think that I must be misleading them. But let them listen further to what Mr. Gladstone says in a compendious but not exactly correct statement respecting my opinions:—

He holds the writer responsible for scientific precision: I look for nothing of the kind, but assign to him a statement general, which admits exceptions; popular, which aims mainly at producing moral impression; summary, which cannot but be open to more or less of criticism of detail. He thinks it is a lecture. I think it is a sermon (p. 5).

I note, incidentally, that Mr. Gladstone appears to consider that the *differentia* between a lecture and a sermon is, that the former, so far as it deals with matters of fact, may be taken seriously, as meaning exactly what it says, while a sermon may not. I have quite enough on my hands without taking up the cudgels for the clergy, who will probably find Mr. Gladstone's definition unflattering.

But I am diverging from my proper business, which is to say that I have given no ground for the ascription of these opinions, and that, as a matter of fact, I do not hold them and never have held them. It is Mr. Gladstone, and not I, who will have it that the Pentateuchal cosmogony is to be taken as science.

My belief, on the contrary, is, and long has been, that the Pentateuchal story of the creation is simply a myth. I suppose it to be an hypothesis respecting the origin of the universe which some ancient thinker found himself able to reconcile with his knowledge, or what he thought was knowledge, of the nature of things, and therefore assumed to be true. As such, I hold it to be not merely an interesting but a venerable monument of a stage in the mental progress of mankind, and I find it difficult to suppose that any one who is acquainted with the cosmogonies of other nations—and especially with those of the Egyptians and the Babylonians, with whom

the Israelites were in such frequent and intimate communication—should consider it to possess either more or less scientific importance than may be allotted to these.

Mr. Gladstone's definition of a sermon permits me to suspect that he may not see much difference between that form of discourse and what I call a myth; and I hope it may be something more than the slowness of apprehension, to which I have confessed, which leads me to imagine that a statement which is 'general' but 'admits exceptions,' which is 'popular' and 'aims mainly at producing moral impression,' 'summary' and therefore open to 'criticism of detail,' amounts to a myth, or perhaps less than a myth. Put algebraically, it comes to this, $x=a+b+c$; always remembering that there is nothing to show the exact value of either a , or b , or c . It is true that a is commonly supposed to equal 10, but there are exceptions, and these may reduce it to 8, or 3, or 0; b also popularly means 10, but being chiefly used by the algebraist as a 'moral' value, you cannot do much with it in the addition or subtraction of mathematical values; c also is quite 'summary,' and if you go into the details of which it is made up, many of them may be wrong, and their sum total equal to 0, or even to a minus quantity.

Mr. Gladstone appears to wish that I should (1) enter upon a sort of essay competition with the author of the Pentateuchal cosmogony; (2) that I should make a further statement about some elementary facts in the history of Indian and Greek philosophy; and (3) that I should show cause for my hesitation in accepting the assertion that Genesis is supported, at any rate to the extent of the first two verses, by the nebular hypothesis.

A certain sense of humour prevents me from accepting the first invitation. I would as soon attempt to put Hamlet's soliloquy into a more scientific shape. But if I supposed the 'Mosaic writer' to be inspired, as Mr. Gladstone does, it would not be consistent with my notions of respect for the Supreme Being to imagine Him unable to frame a form of words which should accurately, or at least not inaccurately, express His own meaning. It is sometimes said that, had the statements contained in the first chapter of Genesis been scientifically true, they would have been unintelligible to ignorant people; but how is the matter mended if, being scientifically untrue, they must needs be rejected by instructed people?

With respect to the second suggestion, it would be presumptuous in me to pretend to instruct Mr. Gladstone in matters which lie as much within the province of Literature and History, as in that of Science; but if any one desirous of further knowledge will be so good as to turn to that most excellent and by no means recondite source of information, the *Encyclopædia Britannica*, he will find, under the letter E, the word 'Evolution,' and a long article on that subject. Now, I do not recommend him to read the first half of the article;

but the second half, by my friend Mr. Sully, is really very good. He will there find it said that in some of the philosophies of ancient India, the idea of evolution is clearly expressed: ‘Brahma is conceived as the eternal self-existent being, which, on its material side, unfolds itself to the world by gradually condensing itself to material objects through the gradations of ether, fire, water, earth, and other elements.’ And again: ‘In the later system of emanation of Sankhya there is a more marked approach to a materialistic doctrine of evolution.’ What little knowledge I have of the matter—chiefly derived from that very instructive book *Die Religion des Buddha*, by C. F. Koeppen, supplemented by Hardy’s interesting works—leads me to think that Mr. Sully might have spoken much more strongly as to the evolutionary character of Indian philosophy, and especially of that of the Buddhists. But the question is too large to be dealt with incidentally.

And with respect to early Greek philosophy² the seeker after additional enlightenment need go no further than the same excellent storehouse of information:—

The early Ionian physicists, including Thales, Anaximander, and Anaximenes, seek to explain the world as generated out of a primordial matter which is at the same time the universal support of things. This substance is endowed with a generative or transmutative force by virtue of which it passes into a succession of forms. They thus resemble modern evolutionists, since they regard the world, with its infinite variety of forms, as issuing from a simple mode of matter.

Further on, Mr. Sully remarks that ‘Heraclitus deserves a prominent place in the history of the idea of evolution,’ and he states, with perfect justice, that Heraclitus has foreshadowed some of the special peculiarities of Mr. Darwin’s views. It is indeed a very strange circumstance that the philosophy of the great Ephesian more than adumbrates the two doctrines which have played leading parts, the one in the development of Christian dogma, the other in that of natural science. The former is the conception of the Word (*λόγος*) which took its Jewish shape in Alexandria, and its Christian form³ in that Gospel which is usually referred to an Ephesian source of some five centuries later date; and the latter is that of the struggle for existence. The saying that ‘strife is father and king of all’ (*πόλεμος πάντων μὲν πατήρ ἐστι, πάντων δὲ βασιλεύς*), ascribed to Heraclitus, would be a not inappropriate motto for the ‘Origin of Species.’

I have referred only to Mr. Sully’s article, because his authority is quite sufficient for my purpose. But the consultation of any of the more elaborate histories of Greek philosophy, such as the great work of Zeller, for example, will only bring out the same fact into

² I said nothing about ‘the greater number of schools of Greek philosophy,’ as Mr. Gladstone implies that I did, but expressly spoke of the ‘founders of Greek philosophy.’

³ See Heinze, *Die Lehre vom Logos*, p. 9, *et seqq.*

still more striking prominence. I have professed no ‘minute acquaintance’ with either Indian or Greek philosophy, but I have taken a great deal of pains to secure that such knowledge as I do possess shall be accurate and trustworthy.

In the third place, Mr. Gladstone appears to wish that I should discuss with him the question whether the nebular hypothesis is or is not confirmatory of the Pentateuchal account of the origin of things. Mr. Gladstone appears to be prepared to enter upon this campaign with a light heart. I confess I am not, and my reason for this backwardness will doubtless surprise Mr. Gladstone. It is that, rather more than a quarter of a century ago (namely, in February 1859) when it was my duty, as President of the Geological Society, to deliver the Anniversary Address,⁴ I chose a topic which involved a very careful study of the remarkable cosmogonical speculation originally promulgated by Immanuel Kant, and subsequently by Laplace, which is now known as the nebular hypothesis. With the help of such little acquaintance with the principles of physics and astronomy as I had gained, I endeavoured to obtain a clear understanding of this speculation in all its bearings. I am not sure that I succeeded ; but of this I am certain, that the problems involved are very difficult, even for those who possess the intellectual discipline requisite for dealing with them. And it was this conviction that led me to express my desire to leave the discussion of the question of the asserted harmony between Genesis and the nebular hypothesis to experts in the appropriate branches of knowledge. And I think my course was a wise one ; but as Mr. Gladstone evidently does not understand how there can be any hesitation on my part, unless it arises from a conviction that he is in the right, I may go so far as to set out my difficulties.

They are of two kinds—exegetical and scientific. It appears to me that it is vain to discuss a supposed coincidence between Genesis and science, unless we have first settled, on the one hand, what Genesis says, and, on the other hand, what science says.

In the first place, I cannot find any consensus among Biblical scholars as to the meaning of the words ‘In the beginning God created the heaven and the earth.’ Some say that the Hebrew word *bara*, which is translated ‘create,’ means ‘made out of nothing.’ I venture to object to that rendering, not on the ground of scholarship, but of common sense. Omnipotence itself can surely no more make something ‘out of’ nothing than it can make a triangular circle. What is intended by ‘made out of nothing’ appears to be ‘caused to come into existence,’ with the implication that nothing of the same kind previously existed. It is further usually assumed that ‘the heaven and the earth’ means the material substance of the universe. Hence the ‘Mosaic writer’ is taken to imply that where nothing of a material

⁴ Reprinted in *Lay Sermons, Addresses, and Reviews*, 1870.

nature previously existed, this substance appeared. That is perfectly conceivable, and therefore no one can deny that it may have happened. But there are other very authoritative critics who say that the ancient Israelite⁵ who wrote the passage was not likely to have been capable of such abstract thinking, and that, as a matter of philology, *bara* is commonly used to signify the ‘fashioning,’ or ‘forming,’ of that which already exists. Now it appears to me that the scientific investigator is wholly incompetent to say anything at all about the first origin of the material universe. The whole power of his organon vanishes when he has to step beyond the chain of natural causes and effects. No form of the nebular hypothesis that I know of is necessarily connected with any view of the origination of the nebular substance. Kant’s form of it expressly supposes that the nebular material from which one stellar system starts may be nothing but the disintegrated substance of a stellar and planetary system which has just come to an end. Therefore, so far as I can see, one who believes that matter has existed from all eternity has just as much right to hold the nebular hypothesis as one who believes that matter came into existence at a specified epoch. In other words, the nebular hypothesis and the creation hypothesis, up to this point, neither confirm nor oppose one another.

Next, we read in the revisers’ version, in which I suppose the ultimate results of critical scholarship to be embodied : ‘And the earth was waste [without form, in the authorised version] and void.’ Most people seem to think that this phraseology intends to imply that the matter out of which the world was to be formed was a veritable ‘chaos’ devoid of law and order. If this interpretation is correct, the nebular hypothesis can have nothing to say to it. The scientific thinker cannot admit the absence of law and order, anywhere or any when, in nature. Sometimes law and order are patent and visible to our limited vision ; sometimes they are hidden. But every particle of the matter of the most fantastic-looking nebula in the heavens is a realm of law and order in itself, and that it is so is the essential condition of the possibility of solar and planetary evolution from the apparent chaos.⁶

‘Waste’ is too vague a term to be worth consideration. ‘Without form,’ intelligible enough as a metaphor, if taken literally, is absurd ; for a material thing existing in space must have a superficies, and if it has a superficies it has a form. The wildest streaks of marestail clouds in the sky, or the most irregular heavenly nebulæ, have surely just as much form as a geometrical tetrahedron ; and as for ‘void,’

⁵ ‘Ancient,’ doubtless, but his antiquity must not be exaggerated. For example, there is no proof that the ‘Mosaic’ cosmogony was known to the Israelites of Solomon’s time.

⁶ When Jeremiah (iv. 23) says, ‘I beheld the earth, and, lo, it was waste and void,’ he certainly does not mean to imply that the form of the earth was less definite, or its substance less solid, than before.

how can that be void which is full of matter? As poetry, these lines are vivid and admirable; as a scientific statement, which they must be taken to be if any one is justified in comparing them with another scientific statement, they fail to convey any intelligible conception to my mind.

The account proceeds: 'And darkness was upon the face of the deep.' So be it; but where, then, is the likeness to the celestial nebulae, of the existence of which we should know nothing unless they shone with a light of their own? 'And the spirit of God moved upon the face of the waters.' I have met with no form of the nebular hypothesis which involves anything analogous to this process.

I have said enough to explain some of the difficulties which arise in my mind, when I try to ascertain whether there is any foundation for the contention that the statements contained in the first two verses of Genesis are supported by the nebular hypothesis. The result does not appear to me to be exactly favourable to that contention. The nebular hypothesis assumes the existence of matter having definite properties as its foundation. Whether such matter was created a few thousand years ago, or whether it has existed through an eternal series of metamorphoses of which our present universe is only the last stage, are alternatives, neither of which is scientifically untenable, and neither scientifically demonstrable. But science knows nothing of any stage in which the universe could be said, in other than a metaphorical and popular sense, to be formless or empty, or in any respect less the seat of law and order than it is now. One might as well talk of a fresh-laid hen's egg being 'without form and void,' because the chick therein is potential and not actual, as apply such terms to the nebulous mass which contains a potential solar system.

Until some further enlightenment comes to me, then, I confess myself wholly unable to understand the way in which the nebular hypothesis is to be converted into an ally of the 'Mosaic writer.'⁷

But Mr. Gladstone informs us that Professor Dana and Professor Guyot are prepared to prove that the 'first or cosmogonical portion of the Proem not only accords with, but teaches, the nebular hypothesis.' There is no one to whose authority on geological questions I am more

⁷ In looking through the delightful volume recently published by the Astronomer Royal for Ireland, a day or two ago, I find the following remarks on the nebular hypothesis, which I should have been glad to quote in my text if I had known them sooner:—

'Nor can it be ever more than a speculation; it cannot be established by observation, nor can it be proved by calculation. It is merely a conjecture, more or less plausible, but perhaps, in some degree, necessarily true, if our present laws of heat, as we understand them, admit of the extreme application here required, and if the present order of things has reigned for sufficient time without the intervention of any influence at present known to us.'—*The Story of the Heavens*, p. 506.

Would any prudent advocate base a plea, either for or against Revelation, upon the coincidence, or want of coincidence, of the declarations of the latter with the requirements of an hypothesis thus guardedly dealt with by an astronomical expert?

readily disposed to bow, than that of my eminent friend Professor Dana. But I am familiar with what he has previously said on this topic in his well-known and standard work, into which, strangely enough, it does not seem to have occurred to Mr. Gladstone to look before he set out upon his present undertaking ; and unless Professor Dana's latest contribution (which I have not yet met with) takes up altogether new ground, I am afraid I shall not be able to extricate myself, by its help, from my present difficulties.

It is a very long time since I began to think about the relations between modern scientifically ascertained truths and the cosmogonical speculations of the writer of Genesis ; and, as I think that Mr. Gladstone might have been able to put his case with a good deal more force if he had thought it worth while to consult the last chapter of Professor Dana's admirable *Manual of Geology*, so I think he might have been made aware that he was undertaking an enterprise of which he had not counted the cost, if he had chanced upon a discussion of the subject which I published in 1877.⁸

Finally, I should like to draw the attention of those who take interest in these topics to the weighty words of one of the most learned and moderate of Biblical critics :—

A propos de cette première page de la Bible, on a coutume de nos jours de disserter, à perte de vue, sur l'accord du récit mosaïque avec les sciences naturelles ; et comme celles-ci, tout éloignées qu'elles sont encore de la perfection absolue, ont rendu populaires et en quelque sorte irréfragables un certain nombre de faits généraux ou de thèses fondamentales de la cosmologie et de la géologie, c'est le texte sacré qu'on s'évertue à torturer pour le faire concorder avec ces données.⁹

In my paper on the 'Interpreters of Nature and the Interpreters of Genesis,' while freely availing myself of the rights of a scientific critic, I endeavoured to keep the expression of my views well within those bounds of courtesy which are set by self-respect and consideration for others. I am therefore glad to be favoured with Mr. Gladstone's acknowledgment of the success of my efforts. I only wish that I could accept all the products of Mr. Gladstone's gracious appreciation, but there is one about which, as a matter of honesty, I hesitate. In fact, if I had expressed my meaning better than I seem to have done, I doubt if this particular proffer of Mr. Gladstone's thanks would have been made.

To my mind, whatever doctrine professes to be the result of the application of the accepted rules of inductive and deductive logic to its subject-matter, and accepts, within the limits which it sets to itself, the supremacy of reason, is Science. Whether the subject-matter consists of realities or unrealities, truths or falsehoods, is quite another question. I conceive that ordinary geometry is science, by reason of its method, and I also believe that its axioms, definitions, and conclusions are all true. However,

⁸ Lectures on Evolution delivered in New York. (American Addresses.)

⁹ Reuss, *L'Histoire Sainte et la Loi*, i. 275.

there is a geometry of four dimensions, which I also believe to be science, because its method professes to be strictly scientific. It is true that I cannot conceive four dimensions in space, and therefore, for me, the whole affair is unreal. But I have known men of great intellectual powers who seemed to have no difficulty either in conceiving them, or at any rate in imagining how they could conceive them, and therefore four-dimensioned geometry comes under my notion of science. So I think astrology is a science, in so far as it professes to reason logically from principles established by just inductive methods. To prevent misunderstanding, perhaps I had better add that I do not believe one whit in astrology; but no more do I believe in Ptolemaic astronomy, or in the catastrophic geology of my youth, although these, in their day, claimed—and, to my mind, rightly claimed—the name of science. If nothing is to be called science but that which is exactly true from beginning to end, I am afraid there is very little science in the world outside mathematics. Among the physical sciences I do not know that any could claim more than that each is true within certain limits, so narrow that, for the present at any rate, they may be neglected. If such is the case, I do not see where the line is to be drawn between exactly true, partially true, and mainly untrue forms of science. And what I have said about the current theology at the end of my paper leaves, I think, no doubt as to the category in which I rank it. For all that, I think it would be not only unjust, but almost impertinent, to refuse the name of science to the *Summa* of St. Thomas or to the *Institutes* of Calvin.

In conclusion, I confess that my supposed ‘unjaded appetite’ for the sort of controversy in which it needed not Mr. Gladstone’s express declaration to tell us he is far better practised than I am (though probably, without another express declaration, no one would have suspected that his controversial fires are burning low) is already satiated.

In ‘Elysium’ we conduct scientific discussions in a different medium, and we are liable to threatenings of asphyxia in that ‘atmosphere of contention’ in which Mr. Gladstone has been able to live, alert and vigorous beyond the common race of men, as if it were purest mountain air. I trust that he may long continue to seek truth, under the difficult conditions he has chosen for the search, with unabated energy—I had almost said fire :

May age not wither him, nor custom stale
His infinite variety.

But Elysium suits my less robust constitution better, and I beg leave to retire thither, not sorry for my experience of the other region—no one should regret experience—but determined not to repeat it, at any rate in reference to the ‘plea for Revelation.’

T. H. HUXLEY.

II.

SCIENCE, Religion, Philology, and History have now unsheathed their most richly chased blades in this famous tournament. So goodly a fight has not been seen for many a day ; and whether one regards the dignity of the combatants, or the gravity and delicacy of the cause, it is not possible to await the issue without the keenest interest. Meanwhile, a voice may be permitted on behalf of a group among the spectators who have not yet been heard in this controversy, but whose modest reluctance to interfere seems only equalled by their right. In arenas more obscure, but not less worthy, they too have fought this fight ; and as a humble camp-follower, and from conviction that the thing must now be done, rather than as one possessing the right to do it, I would venture to state the case on their account.

Mr. Huxley interposes in this question because he is moved by the violence being done in high places to natural science. This third party is constrained to speak because of a similar violence done to theological science. Were the reconcilers of Geology and Genesis equal in insight to their last and most distinguished champion, and did Mr. Gladstone himself realise the full meaning of his own concessions, little further contribution to this controversy might perhaps be called for. And were the opponents of this ancient fraternity as calm in spirit, as respectful to beliefs, and as discriminating as to the real question at issue as Mr. Huxley, no other word need be spoken. But with a phalanx of reconcilers on the one hand, who will continue to shelter untenable positions under the carefully qualified argument of Mr. Gladstone ; and with quasi-scientific men on the other, who will exaggerate and mis-interpret the triumph of Mr. Huxley, a further clearing of the ground is necessary. The breadth of view, the sagacity, and inimitable charity of Mr. Gladstone's second article certainly go far with many minds to remove the forebodings with which they received the first. Nevertheless, so powerful a championship of a position which many earnest students of modern religious questions have seen reason wholly to abandon cannot but excite misgivings of a serious kind. And though these are now in part removed by the large concessions and ampler statement of the second paper, Mr. Gladstone still deliberately involves himself with

the fortunes of the reconcilers. So far, however, is he in advance of most of them that much that may be reluctantly said here against the standpoint from which they work in no sense applies to him. This much fairness not less than courtesy makes it a pleasure to premise.

It will be recognised by everyone that the true parties in this case are, as the title of Mr. Huxley's article suggests, *The Interpreters of Genesis and the Interpreters of Nature*. Now, who are the interpreters of Genesis? We answer by asking, who are the interpreters of Nature?

We respectfully point out to Mr. Huxley that his paper contains no single reference to the interpreters of Genesis in the sense in which he uses the term 'the interpreters' in the case of science. Who are 'the interpreters' of Nature? Mr. Huxley answers, and rightly, himself. And who are 'the interpreters' of Genesis? Certainly Mr. Gladstone would be the last to claim this for himself. Does not the legitimate question lie between *modern theology* and modern science? And in perfect fairness should not the title of Mr. Huxley's paper have read '*Some interpreters of Genesis, and the scientific interpreters of Nature?*' This may be a verbal matter, and we do not press it. But in view of the fact that many will see in Mr. Huxley's article, and in spite of all protestation, a direct and damaging assault upon the Biblical records, would it not have been right to have pointed out the real terms of the antithesis? It may be replied, and justly, that Mr. Huxley is not responsible for the inferences of the uneducated. And in ordinary circumstances it would be gratuitous to define so carefully the real limitations of the question at issue. But the circumstances here are quite exceptional. For although the widely general knowledge of science makes the aberrations of individual theorists in that department harmless, it is not so in the case of theology. Theology, in this relation, has long suffered under quite unusual treatment. Any visionary is taken, and that notoriously by men of science, as the representative of the system. And it is time for theology to be relieved of the irresponsible favours of a hundred sciolists, whose guerilla warfare has so long alienated thinking men in all departments of knowledge. That there is a 'science of theology' Mr. Huxley himself admits. It has exponents in Britain and Germany as well-equipped in learning, in sobriety, in balance of mind, and in the possession of the scientific spirit, as the best of the interpreters of Nature. When these men speak of science, it is with respectful reliance upon the best and most recent authorities. They complain that when science speaks of them it accepts positions and statements from any quarter, from books which have been for years or centuries outgrown; or from popular teachers whom scientific theology unweariedly repudiates. To theological science the whole underlying theory of the reconcilers is as exploded as *Bathybius*. And

Mr. Huxley's interference, however much they welcome it in the interest of popular theology, is to them the amusing performance of a layman, the value of which to scientific theology is about the same as would be a refutation of the Ptolemaic astronomy to modern physics.¹

This, however, to some minds may have to be made plain, and we may briefly devote ourselves to a statement of the case.

The progress of opinion on this whole subject is marked by three phases: First, until the present century the first chapter of Genesis was accepted as a veritable cosmogony. This, in the circumstances, was inevitable. The hypothesis of Laplace was not yet in the field; palæontology, Fracastoro notwithstanding, had produced nothing except what everyone knew was the remains of the Noachian Deluge; and geology, even with Buffon behind it, had so little to say for itself that a hint from the Sorbonne was sufficient to quench what feeble light it had. The genesis of the world, therefore, was left to Moses, and the most mechanical theory of creation—a purely anthropomorphic thing and not really in the sacred page at all—was everywhere accepted.

Presently, as the sciences gathered volume and focussed their rays on the past, a new version of creation was spelled out from earth and sea and stars. Accepted at first tentatively, even by men of science, it is not to be wondered at that theologians were for a time unwilling to give up the reading which had held the ground so long. They therefore adopted the policy which is always followed in similar circumstances—compromise and adjustment. Thus intervened the interregnum of the reconcilers, De Luc, Kurtz, Pye-Smith, Hugh Miller, Chalmers, and a hundred others whom we need not name. The man who speaks of the labours of these workers without respect

¹ Of course, in commentaries written by experts for popular uses, the condemnatory evidence from natural science is sometimes formally cited in stating the case against the reconcilers generally. From one of the most recent, as well as most able, of these we quote the following passage, in which Mr. Huxley is anticipated in so many words. It is here seen, not only that theology 'knew all this before,' but how completely it has abandoned the position against which Mr. Huxley's counter-statements are directed: 'This narrative is not careful to follow the actual order in which life appeared on the globe: it affirms, *e.g.*, that fruit-trees existed before the sun was made; science can tell us of no such vegetation. It tells us that the birds were created in the fifth day, the reptiles in the sixth; Nature herself tells a different tale, and assures us that creeping things appeared before the flying fowl. But the most convincing proof of the regardlessness of scientific accuracy shown by this writer is found in the fact that in the second chapter he gives a different account from that which he has given in the first, and an account irreconcilable with physical facts. . . . He represents the creation of man as preceding the creation of the lower animals—an order which both the first chapter and physical science assure us was not the actual order observed. . . . It seems to me, therefore, a mistaken and dangerous attempt which is often made to reconcile the account of physical facts given here with that given in Nature herself. These accounts disagree in the date or distance from the present time to which the work of creation is assigned, in the length of time which the preparation of the world for man is said to have occupied, and in the order in which life is introduced into the world.'—*Genesis*, by Marcus Dods, D.D. Edinburgh, T. & T. Clark, 1882.

has no acquaintance with the methods by which truth, or error, is ascertained. It was necessary that that mine should be worked, and worked out. Whatever fundamental error underlay it, it was done with reverence, with courage, often with learning and with eloquence. A whole literature sprang up around the reconstruction, and one good end was at least secured—science was ardently studied by the Church. But the failure of the new method was a foregone conclusion, and those who sailed on this shallow sea one by one ran aground. This was a moment of peril—one of those moments which always come when truth is in the making, and which, honestly accepted, lead to new departures in the direction where the true light is ultimately found. The wise among the harmonists accepted the situation, though some of them did not know where next to turn. But deliverance swiftly came, and from an unlooked-for quarter.

For meantime in Germany and England, in a wholly different department of theology, another science was at work. Apart from any questions of doctrinal detail, the young science of Biblical Criticism was beginning to inquire into the composition, meaning, method, and aims of the sacred books. It dealt with these books, in the first instance, simply as literature. Questions of age, authorship, and literary form were for the first time investigated by qualified experts. And the result of these labours—labours in the truest sense scientific—is that these sacred writings are now regarded by theology from a wholly changed standpoint. Now from this standpoint the problem of the reconciliation of Genesis with geology simply disappears. The probable scientific solution, the possibility or impossibility of a harmony—the very statement becomes an absurdity. The question, in fact, is as irrelevant as that of the senior wrangler who asked what Milton's *Paradise Lost* was meant to prove. This is of course the true method of dealing with old theories. Beaten in argument, they will surely rise again; outgrown, they are for ever dead. And this is the hall-mark of all true science, that it destroys by fulfilling.

However it may have escaped recognition, it is certain that theology has been at work for some time now with methods of inquiry similar to those employed by natural science. And it has already partially succeeded in working out a reconstruction of some important departments from the standpoint of development. If the student of science will now apply to theology for its Bible, two very different books will be laid before him.

The one is the Bible as it was accepted by our forefathers; the other is the Bible of modern theology. The books, the chapters, the verses, and the words are the same in each, yet in the meaning, the interpretation, and the way in which they are looked at, they are two entirely distinct Bibles. The distinction between them is one which science will appreciate the moment it is stated. In point of fact,

the one is constructed like the world according to the old cosmogonies; the other is an evolution. The one represents revelation as having been produced on the creative hypothesis, the Divine-fiat hypothesis, the ready-made hypothesis; the other on the slow-growth or evolution theory. This last—the Bible of development—is the Bible of modern scientific theology. It is not less authoritative than the first, but it is differently authoritative; not less inspired, it is yet differently inspired.

From its standpoint the Bible has not been made in a day, any more than the earth; nor have its parts been introduced mechanically into the minds of certain men, any more than the cells of their brain. In uttering it they have not spoken as mere automata—the men, though inspired, were *authors*. This Bible has not been given independently of time, of place, or of circumstance. It is not to be read without the philosophic sense which distinguishes the provisional from the eternal; the historic sense, which separates the local from the universal; or the literary sense, which recognises prose from poetry, imagery from science. The modern Bible is a book whose parts, though not of unequal value, are seen to be of different kinds of value; where the casual is distinguished from the essential, the subordinate from the primal end. This Bible is not an oracle which has been erected; it has grown. Hence it is no longer a mere word-book, nor a compendium of doctrines, but a nursery of growing truths. It is not an even plane of proof-texts without proportion or emphasis, or light and shade, but a revelation varied as Nature, with the divine in its hidden parts, in its spirit, its tendencies, its obscurities, and its omissions. Like Nature, it has successive strata, and valley and hill-top, and mist and atmosphere, and rivers which are flowing still, and hidden ores, and here and there a place which is desert, and fossils too, whose crude forms are the stepping-stones to higher things. In a word this Bible is like the world in which it is found, natural, human, intelligible in form; mysterious, inscrutable, divine in origin and essence.

With so living a book, theology has again become living. A whole cloud of problems, perplexities, anomalies, and doubts fall before it. No formal indictment is drawn against older views; difficulties are not examined and answered in detail. Before the new standpoint they disappear of themselves. Men who are in revolt against many creeds breathe again in this larger atmosphere and believe afresh, satisfying their reason and keeping their self-respect. For scientific theology no more pledges itself to-day to the interpretations of the Bible of a thousand years ago than does science to the interpretations of Nature in the time of Pythagoras. Nature is the same to-day as in the time of Pythagoras, and the Bible is the same to-day as a thousand years ago. But the Pythagorean interpretation of Nature is not more impossible to the modern mind than are many

ancient interpretations—those of Genesis among others—to the scientific theologian.

This is no forced attempt, observe, to evade a scientific difficulty by concessions so vital as to make the loss or gain of the position of no importance. This change is not the product of any destructive criticism, nor is this transformed book in any sense a mutilated Bible. It is the natural result of the application of ordinary critical methods to documents which sooner or later must have submitted to the process and from which they have never claimed exemption.

But to return to Genesis. Those modern critics, believing or unbelieving, who have studied the Biblical books as literature—studied them, for instance, as Professor Dowden has studied Shakespeare—concur in pronouncing the Bible absolutely free from natural science. They find there history, poetry, moral philosophy, theology, lives and letters, mystical, devotional, and didactic pieces; but science there is none. Natural objects are, of course, repeatedly referred to, and with unsurpassed sympathy and accuracy of observation; but neither in the intention of any of the innumerable authors nor in the execution of their work is there any direct trace of scientific teaching. Could anyone with any historic imagination for a moment expect that there would have been? There was no science then. Scientific questions were not even asked then. To have given men science would not only have been an anachronism, but a source of mystification and confusion all along the line. The almost painful silence—indeed, the absolute sterility—of the Bible with regard to science is so marked as to have led men to question the very beneficence of God. Why was not the use of the stars explained to navigators, or chloroform to surgeons? Why is a man left to die on the hillside when the medicinal plant which could save him, did he but know it, lies at his feet? What is it to early man to know how the moon was made? What he wants to know is how bread is made. How fish are to be caught, fowls snared, beasts trapped and their skins tanned—these are his problems. Doubtless there are valid reasons why the Bible does not contain a technological dictionary and a pharmacopœia, or anticipate the *Encyclopædia Britannica*. But that it does not inform us on these practical matters is surely a valid argument why we should not expect it to instruct the world in geology. Mr. Huxley is particular to point out to us that the bat and the pterodactyle must be classified under the ‘winged fowl’ of Genesis, while at a stretch he believes the cockroach might also be included. But we should not wonder if the narrator did not think of this.

Scientific men, apparently, need this warning, not less than those whom they punish for neglecting it. How ignorantly, often, the genius of the Bible is comprehended by those who are loudest in their denunciations of its positions otherwise, is typically illustrated

in the following passage from Haeckel. Having in an earlier paragraph shown a general harmony between the Mosaic cosmogony and his own theory of creation, he proceeds to extract out of Genesis nothing less than the evolution theory, and that in its last and highest developments :—

Two great and fundamental ideas, common also to the non-miraculous theory of development, meet us in this Mosaic hypothesis of creation with surprising clearness and simplicity—the idea of separation or differentiation, and the idea of progressive development or perfecting. Although Moses looks upon the results of the great laws of organic development . . . as the direct actions of a constructing Creator, yet in his theory there lies hidden the ruling idea of a progressive development and a differentiation of the originally simple matter.²

With the next breath this interpreter of Genesis exposes ‘two great fundamental errors’ in the same chapter of the book in which he has just discovered the most scientific phases of the evolution hypothesis, and which lead him to express for Moses ‘just wonder and admiration.’ What can be the matter with this singular book? Why is it science to Haeckel one minute and error the next? Why are Haeckel and Mr. Huxley not agreed, if it is science? Why are Haeckel and Mr. Gladstone agreed, if it is religion? If Mr. Huxley does not agree with Haeckel why does he not agree with Mr. Gladstone?

George Macdonald has an exquisite little poem called ‘Baby’s Catechism.’ It occurs among his children’s pieces.

Where did you come from, baby dear?
Out of the everywhere into here.

Where did you get your eyes so blue?
Out of the sky as I came through.

Where did you get that little tear?
I found it waiting when I got here.

Where did you get that pearly ear?
God spoke, and it came out to hear.

How did they all just come to be you?
God thought about me and so I grew.

For its purpose what could be a finer, or even a more true, account of the matter than this? Without a word of literal truth in it, it would convey to the child’s mind exactly the right impression. Now conceive of the head nurse banishing it from the nursery as calculated to mislead the children as to the origin of blue eyes. Or imagine the nursery governess who has passed the South Kensington examination in Mr. Huxley’s ‘Physiology,’ informing her pupils that ears never ‘came out’ at all, and that hearing was really done inside, by the fibres of Corti and the epithelial arrangements of

² Haeckel, *History of Creation*, vol. i. p. 38.

the maculæ acusticæ. Is it conceivable, on the other hand, that the parish clergyman could defend the record on the ground that ‘the everywhere’ was a philosophical presentation of the Almighty, or that ‘God thought about me’ contained the Hegelian Idea? And yet this is precisely what interpreters of Genesis and interpreters of science do with the Bible. Genesis is a presentation of one or two great elementary truths to the childhood of the world. It can only be read aright in the spirit in which it was written, with its original purpose in view, and its original audience. What did it mean to them? What would they understand by it? What did they need to know and not to know?

To expand the constructive answers to these questions in detail does not fall within our province here. What we have to note is that a scientific theory of the universe formed no part of the original writer’s intention. Dating from the childhood of the world, written for children, and for that child-spirit in man which remains unchanged by time, it takes colour and shape accordingly. Its object is purely religious, the point being, not how certain things were made, but that God made them. It is not dedicated to science, but to the soul. It is a sublime theology, given in view of ignorance or idolatry or polytheism, telling the worshipful youth of the world that the heavens and the earth and every creeping and flying thing were made by God. What world-spirit teaches men to finger its fluid numbers like a science catalogue, and discuss its days in terms of geological formations? What blindness pursues them, that they mark the things He made only with their museum-labels, and think they have exhausted its contribution when they have never even been within sight of it? This is not even atheism. It is simple illiterateness.

The first principle which must rule our reading of this book is the elementary canon of all literary criticism, which decides that any interpretation of a part of a book or of a literature must be controlled by the dominant purpose or *motif* of the whole. And when one investigates that dominant purpose in the case of the Bible, he finds it reducing itself to one thing—religion. No matter what view is taken of the composition or authorship of the several books, this feature secures immediate and universal recognition.

Mais s’il en est ainsi (says Lenormant), me demandera-t-on peut-être, Où donc voyez-vous l’inspiration divine des écrivains qui ont fait cette archéologie, le secours surnaturel dont, comme chrétien, vous devez les croire guidés? Où? Dans l’esprit absolument nouveau qui anime leur narration, bien que la forme en soit restée presque de tout point la même que chez les peuples voisins.³

A second principle is expressed with such appositeness to the present purpose, by an English commentator, that his words may be given at length:—

There is a principle frequently insisted on, scarcely denied by any, yet recognised with sufficient clearness by few of the advocates of revelation, which, if fully

³ *Les Origines de l’Histoire*, Préf., xviii.

and practically recognised, would have saved themselves much perplexity and vexation, and the cause they have at heart the disgrace with which it has been covered by the futile attempts that have been made, through provisional and shifting interpretations, to reconcile the Mosaic Genesis with the rapidly advancing strides of physical science. The principle referred to is this: matters which are discoverable by human reason, and the means of investigation which God has put within the reach of man's faculties, are not the proper subjects of Divine revelation; and matters which do not concern morals, or bear on man's spiritual relations towards God, are not within the province of revealed religion.⁴

Here lies the whole matter. It is involved in the mere meaning of revelation, and proved by its whole expression, that its subject-matter is that which men could not find out for themselves. Men could find out the order in which the world was made. What they could not find out was, that God made it. To this day they have not found that out. Even some of the wisest of our contemporaries, after trying to find that out for half a lifetime, have been forced to give it up. Hence the true function of revelation. Nature in Genesis has no link with geology, seeks none and needs none: man has no link with biology, and misses none. What he really needs and really misses—for he can get it nowhere else—Genesis gives him; it links nature and man with their Maker. And this is the one high sense in which Genesis can be said to be scientific. The scientific man must go there to complete his science, or it remains for ever incomplete. Let him no longer resort thither to attack what is not really there. What is really there he cannot attack, for he cannot do without it. Nor let religion plant positions there which can only keep science out. Then only can the interpreters of Nature and the interpreters of Genesis understand each other.

HENRY DRUMMOND.

⁴ Quarry, *Genesis*, pp. 12, 13.

GENESIS AND SCIENCE

A Summary.

GENESIS AND SCIENCE - A Summary.

It is not often that a controversy excites such deep interest as that which occupied the pages of the Nineteenth Century Review during the end of last year and the beginning of this, respecting the relation between Scriptural and Scientific Truth, and the extent to which Divine Revelation may be supposed to have inspired the author of the Book of Genesis.

It was indeed a Battle of Giants; on the one side we saw a writer, who has been justly termed "the greatest master of persuasive rhetoric among English-speaking men of our time", forced to use all the dialectic skill at his command, to defend himself from the reiterated, and combined attacks made upon him; whilst on the other, we saw arrayed against him some of the most weighty authorities on modern natural science that could be found, who, at all events, had this advantage, that they fought with their own weapons and upon their own ground. For many reasons it is to be regretted that the results of the conflict have never been summed up, especially as the Bible has been always held up as the Book of Truth, and, consequently,

many Christians have felt alarmed at those discoveries of modern Science which point to any want of accuracy in the Bible story of the Creation, inasmuch as it appears to them, that, if once the truth of any portion of the Bible be called in question, the whole groundwork of their faith must be shaken to its foundation. I think, however, I am justified in saying that, in the opinion of most people, all fears upon this head have been dispelled; and, although inaccuracies do exist in the Bible history of the Creation, they can be accounted for, as regards our translation, by the mere fact, that the language, in which the story has been handed down to us, is one, every word of which is capable of immense expansion of meaning; and that story is moreover related in but few and brief sentences, which require no more than, what may be called, marginal notes to render it, on the whole, marvellously complete and accurate. Inaccuracies, no doubt, exist which cannot be accounted for; but, on the other hand, there are facts adduced which cannot but impress us with a conviction that the writer was endued with more than human knowledge, as, for

instance, the statement that the Creation of Light was prior to that of the Sun, Moon, and Stars, which are the most obvious source of light to this earth. There can be no doubt but that the sun existed before the earth did, as it is the attractive force of that great body which keeps our world in its path in space; so, when Moses speaks of the creation of the sun as a later act than that of the earth, it is evident that he alluded simply to the period when its rays reached the surface of the earth, or, in other words, to the time when the sun would have been visible to any inhabitant of the earth, had there been one.

In the controversy in question the subject of the inaccuracies in the Book of Genesis has been fully discussed, and the battle fairly fought out; on both sides lances have been splintered, and wounds inflicted, and it remains to be decided who has had the best of it. If this question were put to the combatants, it is probable that both sides would claim the victory, but, in truth, it is one upon which each reader of the controversy must decide for himself, and, to assist them in doing so, I pro-

pose to submit a precis of what may be called the thrusts, counter thrusts and parries made on both sides.

Mr Gladstone. The controversy may be said to have commenced by Mr Gladstone coming to the support of Mon^r de Ronald who - as champion of the doctrine that, 'in the very beginning of the human race, the creative power revealed the essential principles of religious truth to the first men by supernatural means' - was attacked by Mon^r Reville. Thus Mr Gladstone, together with Mon. de Ronald, joins issue with Mon. de Reville as to whether or no the doctrine of a primitive revelation can be reasonably supported. Mon. Reville observes, that those who maintain the truth of such a doctrine must be influenced by theological interest; the Protestant, to fortify the authority of the Bible; the Roman Catholic, to prop the infallibility of the Church; to which Mr Gladstone retorts that, if the doctrine of a primitive revelation does undoubtedly tend to fortify the authority of religion, it appears equally obvious that the denial of it tends to undermine it. After this sparring prelude Mr Gladstone shows his colours

in the following unqualified assertion, "I have an unshaken belief in Divine Revelation, not resting on assumption, but made obligatory upon me by reason". In support of this he contends that many important pictures drawn, and indications given, in the Homeric poems supply evidence, that cannot be confuted, not only of an ideal, but of an historical relationship to the Hebrew traditions; first, and mainly, as they are recorded in the Book of Genesis; secondly, as less authentically to be gathered from the later Hebrew learning; and thirdly, as illustrated from extraneous sources, Mr Gladstone further adds that he has, in former writings, supplied proofs of the existence in the Homeric poems of a number of traits incongruous in various degrees with their immediate environment, but having such marked and characteristic resemblances to the Hebrew traditions as to require of us the admission of a common origin, just as the markings sometimes noticed on horses or donkeys, are held to require the admission of their relationship to the zebra. At the same time Mr Gladstone does not hold that the ideas conveyed in the Book of Genesis, or in

any Hebrew tradition, were ever developed in the form of dogma; and that, so far from ever having held that there was a "primitive orthodoxy" revealed to the first men, he carefully, from the first, referred, - not to developed doctrine - but to rudimentary indications of what are now developed and established truths. - Mr Gladstone next proceeds to examine the manner in which Dr Reville handles the Book of Genesis, especially with regard to the Scientific errors which are to be found in it, and which he specifies as follows: 1st. That it speaks of the heavens as a solid vault; - 2nd That it places the creation of the stars after that of the earth, and so places them solely for its use; - and lastly; That it introduces the vegetable kingdom, before that Kingdom could be subjected to the action of Solar Light; and he calls attention to the manner in which Dr Reville enunciated these condemnations, as if he would imply that they were subject to no dispute. Upon these several points Mr Gladstone joins issue with him in the above order of succession, thus: with regard to No.1. That, according to the recent revision of the Old

Testament, scholars appear to have agreed that the Hebrew expression, rendered by Dr Reville as "solid vault", should be translated as "an expanse". Secondly, that the sacred text does not say that the stars were made solely for the use of the Earth, although it is true that it mentions no other use. With regard to the assertion that, in the cosmogony of Genesis, the creation of the stars is placed after that of the Earth, Mr Gladstone claims a distinction between the expressions "Created" and "made", a distinction which, he says, was evidently recognised by Dante and Luther, as well as by the English translators and their revisers. The writer of Genesis used the word "Created" on three grand occasions only, First the beginning of the mighty work; secondly the beginning of Animal Life; and thirdly of the Creation of Man. In every other instance a word implying less than Creation is employed.

From this very marked mode of use, Mr Gladstone argues, that a marked distinction of sense was intended by the sacred writer, in fact that the one phrase points more to calling into a separate, or individual existence; the other

more to shaping and fashioning the conditions of that existence. Our Earth, created in verse 1, undergoes structural change, and different arrangement of material, in verse 9; and - after this, and - in the fourth day, comes, not the original Creation, but the location in the firmament of the sun and moon. - In the very commencement of the recital, it is stated, that "God created the Heavens and the Earth"; and as, after that, no further mention is made of the Heaven, it is allowable to suppose that, in that expression, the heavenly bodies were included. In any case, what is afterwards conveyed is, not the calling into existence of the sun and moon, but the assignment to them of a certain place and orbit, respectively, with a light-giving power. As to the third charge of scientific error, that 'the vegetable kingdom appeared before it could be subjected to the action of solar light', Mr Gladstone submits, that there is not the smallest inconsistency in a statement, which places the emergence of our land, and its separation from the sea, and the commencement of vegetable life, before the final and full concentration of light upon the

sun, and its reflection on the moon and the planets; and that, as there would plainly be light diffused before there was light concentrated, that diffused light may well have been sufficient for the purposes of vegetation, seeing that the other necessary concomitants were present, viz: soil, atmosphere, and moisture. After some, comparatively speaking, unimportant observations respecting certain other arguments in Mon: Reville's *Prélegomènes de l'Histoire des Religions*, which Mr Gladstone stigmatizes as a "compound labour to satisfy his readers, 1st that there is no revelation in Genesis, and 2ndly that, if there be, it is one which has no serious or relevant meaning", he submits, that "there is nothing in the criticisms of Dr Reville but what rather tends to confirm than to impair the old fashioned belief that there is a revelation in the Book of Genesis"; and he next proceeds to adduce some "positive considerations" which appear to him to sustain the ancient, and - according to his views - impregnable belief of Christians, and of Jews, concerning the inspiration of the book. He begins by stating the process of Creation, as

described in Genesis, as follows: 1st. From a formless mass, created by God, the shaping of the Earth, so as to constitute it to be a thing of individual existence. 2nd. The detachment and collection of Light, leaving the chaotic mass, from which it was detached, still in darkness whilst the process was going on; - here submitting that, the assigning a space of time to each process in the narrative appears to show that each was gradual, not instantaneous. - 3rd The detachment of solid from liquid in the firmament, and on the face of the earth. - 4th The presentation to us of all the heavenly bodies in their final forms, light-collection and concentration in the sun being completed. Also the due clearing of the intervening spaces so as to admit of the direct and also reflected light of the sun to reach and illuminate the Earth, 5th. The introduction of certain animal existence in the following sequence:

The water population

The air population.

6th. The introduction of the land population, culminating with the Creation of Man; this last event being marked as a great occasion, by the

employment, - for the third time, - of the word "Create".

The important question is now raised as to whether Natural Science can adduce any facts which can shake our belief in the truth of the above narrative, which has, hitherto, been generally looked upon as God's word; and Mr Gladstone's observations next relate to, what he terms "the grand fourfold division" set forth in the latter part of the narrative, viz:

The water population;

The air population;

The land population of animals;

and The land population consummated in Man;

and states that "this fourfold order is under-

stood to have been so affirmed in our time by

Natural Science, that it may be taken as a de-

monstrated conclusion and established fact";

and he submits that, as the facts, as above

detailed, have only lately been established by

the discoveries of Science, it is impossible to

avoid the conclusion, either that the knowledge

of them by the writer of Genesis must have been

divine, or that he was gifted with faculties

passing all human experience. Mr Gladstone then

cites Sir J. Herschel and Cuvier among the persons of very high authority in Natural Science, quoted by Dr Reusch, who held the general accordance of the Mosaic Cosmogony with the results of modern enquiry; and further alleges that, since Cuvier's day, their opinion seems to have received some remarkable illustrations.

Mr Gladstone next alludes to La Place's Theory, or the Nebular Hypothesis, as having been discussed with favor by Dr Whewell, who showed that it is in no way adverse to the Mosaic Cosmogony as regards its explanation of the 'beginning of the present state of things'; and also calls attention to the following observation of McCaul concerning it, viz: that 'had it been devised for the express purpose of removing the supposed difficulties of the Mosaic record, it could hardly have been more to the purpose.'

Mr Gladstone then submits some further observations upon the question of the Creation of the Planets after that of the Earth, and states that there seems to be no known law which excludes such a supposition, especially with regard to the larger and more distant of their

number. These, he points out, are of great rarity as compared to the Earth. "Why then", asks he, "should it be declared impossible that they should have taken a longer time in condensation, like, in this point, to the Comets which still continue in a state of excessive rarity?"

Mr Gladstone next touches upon the "days" of Genesis, and argues that, inasmuch as that the object of the writer was to make the great procession of acts intelligible and impressive, it was necessary to distribute the parts each into some integral division of time, and that - of the divisions most familiarly known to man - the "day" was the most familiar to human perceptions, for which reason its figurative use is found in prophetic texts, as indeed it largely pervades ancient and modern speech. Given the object in view, it appears that the "day", - as it more definitely separates what precedes and what follows than either month or year would, was appropriately chosen to convey the idea of development by gradation in the process which the Book sets forth.

The latter portion of Mr Gladstone's first paper is devoted to criticisms on Dr Reville's

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expositions of the Olympian mythology, which has no bearing upon the main question raised in this Controversy, viz: whether, or not, the discoveries of modern natural science do, or do not, support the cosmogony of Genesis, and tend to confirm the belief that it was written under Divine inspiration.

Mr Huxley. At this point Professor Huxley steps into the arena to support M. Reville with the great weight of his authority, and commences by saying that that author's work, - *Prolegomènes de l'Histoire des Religions*, - "puts more fairly and clearly, than any book previously known to him, the view which a man with strong religious feelings, but at the same time, possessing the information and the reasoning power which enable him to estimate the strength of scientific methods of enquiry, and the weight of scientific truth, may be expected to take of the relation between Science and Religion." Alluding to the fourfold order of Creation of living organisms, viz:

1. Water population;
2. Air Population;
3. Land population of animals;
4. Land population consummated in man.

said by Mr Gladstone "to have been so affirmed in our time by natural science that it may be taken as a demonstrated conclusion, and established fact", the Professor says he can only meet the statement in the last paragraph with a direct negative, and he unqualifiedly asserts that it is a demonstrated conclusion and established fact that the fourfold order, given by Mr Gladstone, is not that in which the evidence at our disposal tends to show that the water, air, and land populations of the globe have made their appearance; that, as for Cuvier's authority, it is now of no weight, seeing that since 1832, when he died, not only a new world but new worlds of ancient life have been discovered; and the palaeontology of our day, as compared with that of his time, is very much as the geography of the xvith century is related to that of the xivth. Mr Huxley presumes that, by the term "water population", Mr Gladstone means those animals which in Genesis are spoken of as "the great sea monsters, and every living creature which moveth, which the waters brought forth abundantly after their kind"; and he assumes also that, in that category, are includ-

ed Whales, Porpoises, Sea Fishes, and the innumerable hosts of marine invertebrated animals. Moreover that "air population" must be the equivalent of Fowl (named in verses 20 and 21), and also that, by "Fowl", we have here to understand "Birds", - at any rate primarily; and, secondarily, that Bats, and Flying Reptiles, are to come under the same head. Lastly, he presumes that "Land Population" signifies "the Cattle", and "The Beast of the Field", and "every creeping thing that creepeth upon the earth" (in verses 25 and 26); in fact, that it comprehends all kinds of terrestrial animals, vertebrate, and invertebrate, except such as may be comprised under the head of the "air population". If the terms "water-population", "air population", and "land population" are understood in the senses above defined, then all the evidence accumulated by natural science goes to prove that they did not succeed each other in the order given by Mr Gladstone; whence it follows that, if Mr Gladstone has interpreted Genesis rightly, that interpretation is wholly irreconcilable with the conclusions at present accepted by the interpreters of Nature, - with

everything that can be called "a demonstrated conclusion and established fact" of natural science. The Professor then states the order in which the various classes of animals were introduced, as shown by that in which their fossil remains are found. Beginning with the oldest stratum in which fossiliferous deposits have been discovered, viz: The Cambrian, he states that the first living organism which appeared on the face of this globe was the Eozoon, which must unquestionably be classed under the head of invertebrate water population; after that, succession, in ascending order, is shown to have been as follows:-

Invertebrate air and land population; (Flying insects and scorpions.)

Vertebrate water population; (Fishes)

Vertebrate land population; (Amphibia, Reptilia (?)

Vertebrate air population; (Birds and Pterodactyles)

Vertebrate air population; (Bats)

By this it is clear that, to support Mr Gladstone's order of succession, flying insects must not be taken as representatives of the air population, as they came before fishes, and scorpions, (which are undoubtedly "creeping

things that creep on the earth") must be excluded from the 'land population', as must also the Amphibia and Reptilia, which - as well as Scorpions - preceded Birds, (which are par excellence the 'air population'). In no way therefore can Mr Gladstone's order, - 1. Water Population, 2. Air Population, and 3. Land Population - be made to coincide with the order primarily suggested by the existing evidence which is, in point of fact, as follows:-

1. Water Population.
2. Land and air Population.

Professor Huxley next proceeds to show how theory is as much opposed as observation is to the admission that natural science endorses the succession of animal life which Mr Gladstone finds in Genesis. Referring to the doctrine of evolution, which he points out that Mr Gladstone appears to view with favour, he submits that there is strong reason to suppose that the land population would naturally have preceded the air population, because it is not true that the air population, as a whole, is lower or less "complex" than the land population, but rather the reverse. The organisation of a Bat, a Bird, or a Pterodactyle, in fact presupposes that of

a terrestrial quadruped, and in the same way winged insects (if they are to be counted among the air population) presupposes insects which were wingless, and therefore, as 'creeping things' were part of the land population.

It will be observed that Professor Huxley has hitherto raised no objection to the position of the fourth term in Mr Gladstone's "order" viz: that the acme and final achievement in the process of peopling the globe was the creation of Man, but he nevertheless protests against its being said that natural science counts even this opinion among her 'demonstrated conclusions and established facts', for - he says - there would be just as much or as little reason for ranging the contrary opinion among them. Mr Huxley then gives what is intended to be, the coup de grace to the 'reconcilers' of Science and Genesis generally in somewhat sneering terms, as follows:- "Even if they now allow" he says, "that the words 'Evening and Morning' have not the least reference to a natural day, but mean a Period of any number of millions of years that may be necessary; even if they are driven to admit that the word 'creation', -

instead of meaning a sudden act of the Deity, - signifies a process of gradual evolution of one species to another, extending through immeasurable time, even if they are willing to grant that the asserted coincidence of the order of Nature with the fourfold order ascribed to Genesis is an obvious error instead of an established truth, they are surely prepared to make a last stand upon the conception which underlies the whole, which is, that the animal species which compose the water; the air, and the land populations respectively, originated during three successive and distinct periods of time, and only during those periods of time, but it is not true that the species composing any one of the three populations originated during any one of three successive periods of time and not during any other."

The Professor sums up as follows, "If 'day' may mean a few million years, and 'creation' may mean evolution, then it is obvious that the order, water, air, land population may also mean water, land, air population, and it would be unkind to bind down the reconcilers to this detail when one has parted with so many

others to oblige them; but even this sublimated essence of the pentateuchal doctrine (if it be such) remains as discordant with Natural Science as ever. It is in the highest degree probable that animal life appeared first under aquatic conditions, that terrestrial forms appeared later, and flying animals only after land animals, but it is at the same time testified by all the evidence we possess that the great majority, if not the whole, of the primordial species of each division have long since died out and have been replaced by a vast succession of new forms, and that therefore the bringing into existence of members of the water, land, and air populations must, for ages and ages, have gone on contemporaneously."

M.Reville. Consequent upon the attack made by Mr Gladstone upon M.Reville for the errors of which he accuses him, the latter - in the January 1886 number of the N.C.Review - proceeds to defend himself. - It will be remembered that the alleged errors in the Biblical record found fault with by him are the following: 1st. That the Firmament destined to separate the waters below from those above is represented as a "Solid Vault": secondly, That the Creation of

the Stars is placed as a later act than that of the Earth; and Lastly, That the periods of Creation or Formation are single days.

Mon. Reville commences by reminding his readers that it never was his intention either to attack or to defend the sacred writings, but that his object was to show, by a succinct analysis of their chief contents, that the partisans of a primitive doctrinal revelation are mistaken in supposing that the Bible itself supports their view.

He then alludes to the arguments of Professor Huxley as having clearly proved that the vegetable aquatic flying quadruped and reptile species certainly did not succeed each other in their totality in the order specified by the canonic writer, and points out that Mr Gladstone seems to have lost sight of the fact that, at verses 11 and 12, the whole vegetable world in all its departments, - as the author of the narrative knew it - had made its complete appearance at the command of God. Consequently the objection drawn from the absence of the solar light remains in all its force; for it is not a diffused light, in process of being concentrated, that could have simultaneously per-

mitted all the vegetable species to develope over the surface of the earth. He adds that he is well aware that "a lax interpretation has transformed the days of Genesis into periods of immense length, in spite of the mention of 'evening' and 'morning', which closes each of the creative acts" but that "unfortunately it is impossible to adopt this interpretation", because it is on the supposition that the days of creation were similar to our own that the famous commandment of the Sabbath is based, viz: that the seventh day shall be kept as a day of rest. "How" - he asks, "can you explain that commandment if you understand the days of creation as periods of thousands or millions of years"? As to the substitution of the word 'expansion' for 'firmament', he will not agree to it, and maintains that the Hebrew word - while it expresses the idea of an expansion of something that is stretched out - expresses also that of something solid; that this is why the firmament supports the waters above, and separates them from those below, and that, otherwise, the passage would be incomprehensible. To give force to his argument, M.Reville points to the

account of the Deluge, in which we are told that the sluices, or closing parts, of the heaven are opened. As to the metaphysical distinction established by Mr Gladstone between the expressions to 'create' and 'to make', M. Reville submits that it is ill-founded, and unimportant, seeing that it is uncertain whether the Hebrew word which we translate 'to create' had this rigorous and exclusive meaning, but may as well be translated 'to form' or 'to fashion' as 'to create'. In further support of this, he points to verses 26 and 27, in the former of which God says: "Let Us make Man in our image"; whereas, in the latter it is said "God created man in his image". Mon. Reville concludes with a most eloquent protest against any accusation, that may be laid against him, of imperilling the cause of true Religion by weakening faith in the accuracy of Bible statements. 'Let us', he says!, 'keep clear of all passion. whether it be conservative or negative.'

"Passion always blinds; let us have the courage to seek for, and to express the truth, as it appears to our minds, in all its simplicity and purity, as the love of truth is but one of the elements of the love of God, since truth

is but one of the aspects of His supreme perfection; just because we believe in God, let us never lose our faith in the final results of sincere search for truth everywhere and always, whether it be in the vast and obscure fields of physical nature, or in the records which embalm the experiences and the beliefs of our race."

Mr Gladstone. It will have been seen that up to this point Mr Gladstone has met with no quarter from his redoubtable opponents, but, in the N.C. of January 1886, he returns undaunted to the charge, and begins by protesting strongly against the interpretation given by Professor Huxley to certain portions of his first article. "When", he says, "I have spoken of the succession of orders in the most general terms only, this is declared a sharply divided succession in which the last species of one, cannot overlap the species of another." He goes on to say that he only pleaded on simple grounds of reasoning, for the supposition of a substantial correspondence between Genesis I and Science, that he waived all question of a verbal inspiration, and all question whether the whole of the

statements can now be made good, N.C. p.694; and that the Professor has no right to treat him as one of those who impose, 'in the name of religion', as a divine requisition 'an implicit belief in the accuracy of the cosmogony of Genesis', as all that he has done is to seek to adduce probable evidence that a guidance more than human lies within the great Proem of the Book of Genesis. As for his reference to Cuvier, Herschel and Whewell, he did not cite them as authorities with reference to the four-fold succession, but for their general consent that the Mosaic Cosmogony accorded with the results of modern enquiry, and particularly in connection with the nebular hypothesis. Mr Gladstone then observes that the whole matter at issue may be summed up in two distinct points, viz: 1st. a comparison between the probable meaning of the Proem to Genesis, and the results of cosmological and geological science. Secondly, The question whether this comparison does or does not favour the belief that a knowledge, inaccessible to the simple action of the human faculties, is conveyed to us in this Proem. He does not hold the writer of the Proem responsible for scientific precision, but

he assigns to him a statement general, which admits of exceptions; popular, which aims mainly at producing moral impression; and summary, which cannot but be open to more or less of criticism in detail. The first thing necessary is to determine what it was that the Mosaic writer designed to convey to the minds of those for whom he wrote, and this - Mr Gladstone submits - is the direct reverse of that which the Professor has alleged. It is not bringing Science to be tried at the bar of Religion, but it is bringing Religion, so far as it is represented by this part of the Holy Scriptures, to be tried at the bar of Science. The indictment against the Pentateuchal writer is, that he has written what is scientifically untrue, § and the question to be considered is: What is it that he has written, and for what purpose did he write it.

The first chapter of Genesis, at least down to verse 25, traverses in concise and rapid outline a vast region of physics, sets out in fact,

§ Note. Mr Gladstone here discards the former terms used by him to denote the succession, viz: water, air, and land population, and substitutes the following: viz: Fishes, Birds, Mammals, and Man.

in its own way, a large a comprehensive scheme of physical facts, the transition from chaos to kosmos, from the inanimate to life, from life in its lower orders to Man; and, Mr Gladstone submits that, given the very nature of the Scriptures, the rational point of view from which to consider the Mosaic record is, that the intention was to give Moral and not Scientific instruction to those for whom it was written; that there is no more reason to suppose that the respective orders were produced, each in its distinct and successive period of time, and in no other, than there would be a right to misinterpret the meaning of an archaeologist describing as successive in time the ages of stone, bronze, and iron, as intending to convey the idea that no kinds of stone implements were invented after bronze began, or no kinds of bronze after iron began. So was it, adds Mr Gladstone, that, just as the tradition described Earth, Air and Heaven in the manner in which they superficially presented themselves to the daily experience of man, so were fishes, birds, and beasts spcken of as the things with which man was mostly concerned, the intention being,

to aid him in the great work of his life-training by exciting his wonder, gratitude, and obedience toward the Creator. - Mr Gladstone next points to the fact that no one, at all events, has anything to say against the correctness of the cosmogony of Genesis, and alludes to its accordance with the nebular hypothesis. The first operation recorded is the formation of Light; it is then detached apparently from the waste, or formless elementary mass, verses 2-5, which is left relatively dark by its withdrawal. Secondly, we hear of the existence of vapour and of its condensation into water on the surface of the earth. Verses 6-10. Vegetation begins. Thirdly, the heavenly bodies are declared to be fully formed and visible, dividing day from night. 'And now' - asks Mr Gladstone - 'is there anything in this description, under the above three heads, that is discordant with the most recent scientific theories?' - With reference to further creation, Mr Gladstone details the various acts in the following succession:

1. A period of land anterior to all life (v.9-10)
2. A period of vegetable life anterior to animal life (v.11-12).
3. A period of animal life in the order of

fishes (v.20)

4. Another stage of animal life in the order of birds.
5. Another in the order of beasts (v.24-25)
6. Last of Man.

and submits that it is not a little remarkable that, of this entire succession, the only step directly challenged is that of numbers 4 and 5, which Mr Huxley is inclined rather to reverse; and further adds - with considerable pertinence - that it would be in the highest degree irrational to ascribe a distribution so generally correct to the doctrine of chances. In support of his argument, Mr Gladstone next quotes the latest published authority on Geology, viz: Mr Etheridge's volume of the Manual of Professor Phillips, in which the following table is given of the order of the appearance of animal life upon the Earth:-

1. Invertebrates.
2. Fishes.
3. Reptiles.
4. Birds.
5. Mammals.
6. Man.

Professor Prestwich, who gives the following

table:-

1. Plants.
2. Fishes.
3. Birds.
4. Mammals
5. Man.

and submits that, according to the probable intention of the Mosaic writer, these five orders, enumerated by him, do correspond with the facts as agreed to by the most recent geological authorities in this sense, viz: that the origins of these orders respectively have the same succession as is assigned in Genesis to those representatives of the orders which alone were probably known to the experience of Adamic Man. With reference to the incompleteness, or difference of the text of the Proem with the representations of Science, viz: the omission of reference to the great periods of invertebrate life, the omission of Reptiles, the mention of plants in terms which represent later instead of earlier forms of plant life, and the mention of reptiles in the same category with mammals, Mr Gladstone submits that some of these omissions are completely in harmony with the probable aim of the Mosaic writer, and that the introduc-

tion of orders invisible and unknown would have been injurious to his purpose, and that he has therefore made good the position which he has taken up in this Controversy, viz: that the wonderful series of particulars put by the Mosaic writer upon undying record in the first chapter of Genesis, interpreted in the growing light of modern knowledge. require from us, on the whole, as reasonable men, the admission that we do not see how he could have written them, and that, in all probability, he did not write them without aid from the guidance of a more than human power.

Professor Huxley. In the N.C. of February Professor Huxley replies to Mr Gladstone's article of the preceding month.

He cannot accept the assertion that the following order given by Mr Gladstone is to be found in Genesis, viz:

1. A period of land anterior to all life (v.9 and 10)
2. A period of vegetable life, anterior to animal life (v.11 and 12).
3. A period of animal life, in the order of fishes (v.20).
4. Another stage of animal life, in the order of birds.
5. Another in the order of beasts (v.24 and 25)

6. Last of all, man (v.26 and 27).

With reference to No.3., for example, he still holds that great sea monsters must include cetacea, in which case mammals come in under head No.3., and not under No.5. That fowl are said in Genesis to be created on the same day as fishes, and that therefore an order cannot be accepted which makes birds succeed fishes. Also that, as bats are evidently included in the term 'fowl' (see Leviticus IX.vv.13-19), it is obvious that bats are also said to have been created at Stage No.3.. (4?), but, as bats are mammals, and their existence obviously presupposes that of terrestrial beasts, it is quite clear that the latter could not have first appeared as No.5.

Professor Henry Drummond. In the same number of the N.C.,

which contains Professor Huxley's second Article appears a most able and well-timed critique from the pen of Professor Henry Drummond, who - like a herald of peace - steps into the arena to part the combatants. He commences by saying that the breadth of view, the sagacity, and inimitable charity of Mr Gladstone's second article go far to remove the

forebodings with which the first must, by many minds, have been received. He submits, however, that the dispute at issue has been wrongly described as one between 'The interpreters of Genesis and the interpreters of Nature', which was the title of Mr Huxley's first Article, but that it should be called one between 'Some interpreters of Genesis, and the Scientific interpreters of Nature', and that - as many will see in Mr Huxley's article a direct, and damaging assault upon the Biblical records - it is essential that the real terms of the anti-thesis should be pointed out. Mr Drummond then points to the fact that there is a Science of Theology, and that it is of the utmost importance, in judging in a controversy, such as the one in point, what are the views of such as may be considered to be authorities in theology respecting the interpretation of the Biblical records. He then speaks of Scientific theology as of comparatively recent origin, being the outcome of the studies and reflection of earnest thinkers who were driven - indirectly perhaps - by the discoveries of Science to enquire into the Composition, meaning, method, and aims of

the sacred books, the result of their enquiries being, that these sacred writings are now regarded by Theology from a wholly changed standpoint than formerly; that, from this standpoint the problem of the reconciliation of Genesis with Geology simply disappears. That, to the Scientific theologian, the Bible now appears in a very different light to what it did formerly; no longer a compendium of doctrines, but a nursery of growing truths; still authoritative, and still inspired, whilst - at the same time - the ancient interpretations of many portions of it (those of Genesis amongst others) are looked upon as impossible. Mr Drummond then submits that no one with any historic imagination would ever for a moment expect to find any direct trace of Scientific teaching in the Bible, for the simple reason that, at the time it was written, there was no Science, and that to have given Science to men in those days would not only have been an anachronism, but would have been a source of mystification and confusion to them. That scientific theology looks upon Genesis as simply a presentation of one or two great elementary truths to the child-

hood of the world, and considers that it can only be read aright in the Spirit in which it was written, with its original purpose in view, and its original audience, and, moreover, it is essential to bear in mind what is was intended to mean to them, what they would understand by it, and what it was that they needed to know, and not to know. That a scientific theory of the universe formed no part of the writer's original intention. That - written in the childhood of the world, - it was written for children. - That its object was purely religious, the point being, not how certain things were made, but that God made them. That it was not dedicated to Science, but to the Soul. In short that it is a sublime theology given in view of ignorance , or idolatry, or polytheism to teach the worshipful youth of the day that the heavens and the earth and every creeping and flying thing were made by God. Mr Drummond concludes by saying that the first principle which must rule our reading of the Bible must be a due consideration of the dominant purpose or motive of the whole, which can only be reduced to one object, viz: Religion. Another

principle is the following. Matters which are discoverable by human reason, and the means of investigation which God has put within the reach of man's faculties, are not the proper subjects of Divine revelation; and matters, which do not concern morals, or bear on man's spiritual relations towards God, are not within the province of revealed religion. As regards therefore the extent to which supernatural aid should be attributed to the writer of Genesis, it should be limited to such subject matter as men could not find out for themselves. Thus men could find out the order in which the world was made, but what they could not find out was, that God made it. Nature in Genesis has no link with Geology, seeks none, and needs none, but what man really needs, Genesis gives him; it links nature and man with their Maker, and this is the high sense in which Genesis can be said to be scientific. The scientific man must go there to complete his science, or it remains for ever incomplete. He must not attack Genesis for what is not really there, and, on the other hand, religion must not plant positions there which can only keep science out, for it is only

upon this mutual understanding that the interpreters of Nature and the interpreters of Genesis can understand each other.

After duly weighing the various arguments summarized above, it will probably be allowed by most people that - but for the timely intercession of Professor Drummond and his authoritative teaching - the question at issue would have remained very much as it was at the outset. The champions of natural science have undoubtedly made good the position which they took up, which is simply this: that the Mosaic record, (taken literally in the wording in which it has come down to us) is incorrect; but, on the other hand, it must equally be granted that Mr Gladstone has also made good the position which he took up, viz: that the true key to the meaning of that record is an assumption that it was intended to give moral and not scientific, instruction to those for whom it was written; that the object of the writer was, to give only such a general sketch of the Creation as would be intelligible to the men of his day, and would, at the same time, impress them with a lively sense of the power and wisdom of the Creator.

Considered in this light, Mr Gladstone submits that the omissions, and trifling inaccuracies, in the record may well be overlooked, seeing the short space into which it was compressed. It must be observed that Mr Gladstone's opponents, one and all, have begged the question as to what is the true meaning of certain words in the Record. M.Reville, for instance, says "I know well that a lax interpretation has transformed the 'days' of Genesis into periods of immense length in spite of the mention of 'evening' and 'morning', which closes each of the creative acts. Unfortunately it is impossible to adopt this interpretation." - Why impossible? Is M.Reville not aware that the identical word, which has unfortunately been translated into 'days' in our version, is used in other places in the Old Testament to express long periods of time? Has it never occurred to him that days are marked by the rising and setting of the sun, and that, in the Mosaic record, days are spoken of when as yet there was no sun to mark them? With regard to his further argument as to 'evening', and 'morning', the correct translation should have been 'And there

was evening, and there was morning, one day', etc. Now, though night and day make up what we term a day, evening and morning certainly do not and it is impossible for any one to decide what was the exact meaning intended by the words, 'And there was evening, and there was morning'. A suggestion was once offered by one who held the prominent position of Head Master of one of our leading Colleges, and who was as eminent as a man of science, as he was as a scholar, although alas! one of those now somewhat derisively spoken of by certain Professors as "Reconcilers", that the meaning of the above words might be, that 'all the great 'days' of Creation began in obscure, undefined, and imperfect organisms, and ended in full light and organic perfection.' This must doubtless be set down amongst the numerous passages, which occur in the Scriptures, concerning which it is by far the wisest and safest course to say honestly that we do not know what they mean, and can, at best, give only imperfect and unsatisfactory conjectures. It may however not be out of place here to call attention to the vision of the Prophet Daniel, which he speaks of as the vision of the evening and the morning,

but which described a period of 2300 days.

Although, as Mr Drummond has very justly remarked, no definite conclusion could have been expected in a discussion as to whether, or no, the Mosaic Record agrees with the discoveries of modern science, without having first settled, on the one hand, what Genesis really says, and, on the other hand, what Science says, most persons will agree that this Controversy has not been without valuable results, as many, who were unhappy at being forced to admit that there are statements contained in our version of the Bible which are open to correction, will now see that there is no reason why their faith in the sacred Book should, on that account, be shaken or even disturbed.

P. FEILDING

Lieut^{nt} General.

My attention has been called to the following passage in the article entitled 'Dawn of Creation and of Worship,' in the *Nineteenth Century* for November, 1885 :—

"But among the persons of very high authority in natural science quoted by Dr. Reusch, who held the general accordance of the Mosaic cosmogony with the results of modern inquiry, are Cuvier and Sir John Herschel. The words of Cuvier," &c.

In a foot-note it is added, "The declaration of Sir John Herschel was in 1864."

Allow me to ask your readers to compare this statement with the subjoined letter written by my father in 1864 (one of his very few published utterances on the subject of religion, and obviously the one here referred to), and to take in connexion with it the passage in his 'Discourse on the Study of Natural Philosophy,' the one, no doubt, to which he appeals as containing his unaltered "sentiments on the mutual relations of Scripture and Science." In this passage (chap. i. par. 5), while maintaining that a spirit of philosophical inquiry is not incompatible with, nay, rather conduces to, aspirations after a revealed religion—a revelation of such truths as lie "beyond the testimony of natural reason"—he urges, with all the eloquent sympathy of experience, the privilege of that natural reason to "cherish as a vital principle an unbounded spirit of inquiry and ardency of expectation," to "unfetter the mind from every prejudice," and, while rendering it only the more susceptible to impressions of the highest nature, to fortify it, in regard to those impressions, "by a habit of strict investigation." In all this, so genuine in its devotion to truth, and so studiously broad, though clear, in the principles laid down for its pursuit, it would be difficult to find a declaration of opinion about the Mosaic cosmogony, still less of one in favour of its general accordance with scientific conclusions.

I. HERSCHEL.

(From the *Athenaeum*, Sept. 17, 1864, No. 1925)

"Collingwood, Sept. 6, 1864.

"Sir,—I received some time ago a Declaration for signature, identical in its wording or at all events in its obvious purport with that you have sent me. I considered that the better course was to put it aside without notice. But since it is pressed upon me, and to prevent the repetition of a similar appeal, it becomes necessary for me distinctly to decline signing it; and to declare that I consider the act of calling on me, publicly to avow or disavow, to approve or disapprove, in writing, any religious doctrine or statement however carefully or cautiously drawn up (in other words to append my name to a religious manifesto) to be an infringement of that social forbearance which guards the freedom of religious opinion in this country with especial sanctity.

"At the same time, I protest against my refusal to sign your 'Declaration' being construed into a profession of Atheism or infidelity. My sentiments on the mutual relations of Scripture and Science have long been before the world, and I see no reason to alter or to add to them. But I consider this movement simply mischievous, having a direct tendency (by putting forward a new Shibboleth, a new verbal test of religious partisanship) to add a fresh element of discord to the already too discordant relations of the Christian world.

"I do not deny that care and caution *are* apparent on the face of the document I am called on to subscribe. But no nicety of wording, no artifice of human language, will suffice to discriminate the hundredth part of the shades of meaning in which the most world-wide differences of thought on such subjects *may be* involved; or prevent the most gently worded and apparently justifiable expressions of regret so embodied, from grating on the feelings of thousands of estimable and well-intentioned men with all the harshness of controversial bitterness

obedient Servant,

"J. F. W. HERSCHE L

Berger Esq^{re}

THE BIBLE AND MODERN CRITICISM.

TO THE EDITOR OF THE TIMES.

Sir,—While desirous to waste neither your space nor my own time upon mere misrepresentations of what I have said elsewhere about the relations between modern science and the so-called "Mosaic" cosmogony, it seems needful that I should ask for the opportunity of stating the case once more, as briefly and fairly as I can.

I conceive the first chapter of Genesis to teach—(1) that the species of plants and animals owe their origin to supernatural acts of creation; (2) that these acts took place at such times and in such a manner that all the plants were created first, all the aquatic and aerial animals (notably birds) next, and all terrestrial animals last. I am not aware that any Hebrew scholar denies that these propositions agree with the natural sense of the text. Sixty years ago I was taught, as most people were then taught, that they are guaranteed by Divine authority.

On the other hand, in my judgment, natural science teaches no less distinctly—(1) that the species of animals and plants have originated by a process of natural evolution; (2) that this process has taken place in such a manner that the species of animals and plants, respectively, have come into existence one after another throughout the whole period since they began to exist on the earth; that the species of plants and animals known to us are, as a whole, neither older, nor younger, than the other.

The same holds good of aquatic and aerial species, as a whole, compared with terrestrial species; but birds appear in the geological record later than terrestrial reptiles, and there is every reason to believe that they were evolved from the latter.

Until it is shown that the first two propositions are not contained in the first chapter of Genesis, and that the second pair are not justified by the present condition of our knowledge, I must continue to maintain that natural science and the "Mosaic" account of the origin of animals and plants are in irreconcilable antagonism.

As I greatly desire that this broad issue should not be obscured by the discussion of minor points, I propose to defer what I may have to say about the great "shehretz" and "rehmes" question till to-morrow.

I am, Sir, your obedient servant,
Eastbourne, Feb. 1. T. H. HUXLEY.

