

# Theology on the Web.org.uk

*Making Biblical Scholarship Accessible*

This document was supplied for free educational purposes. Unless it is in the public domain, it may not be sold for profit or hosted on a webserver without the permission of the copyright holder.

If you find it of help to you and would like to support the ministry of Theology on the Web, please consider using the links below:



Buy me a coffee

<https://www.buymeacoffee.com/theology>



PATREON

<https://patreon.com/theologyontheweb>

**PayPal**

<https://paypal.me/robbradshaw>

---

A table of contents for *Journal of the Transactions of the Victoria Institute* can be found here:

[https://biblicalstudies.org.uk/articles\\_jtvi-01.php](https://biblicalstudies.org.uk/articles_jtvi-01.php)

JOURNAL OF  
THE TRANSACTIONS  
OF  
The Victoria Institute,  
OR  
Philosophical Society of Great Britain.

---

EDITED BY THE HONORARY SECRETARY

---

VOL. I.



LONDON:

(Published for the Institute)

ROBERT HARDWICKE, 192, PICCADILLY, W.

1867.

---

ALL RIGHTS RESERVED.

## SCIENTIA SCIENTIARUM.

---

THE proposal to form a new Scientific Society in London, where so many already exist, may naturally be regarded as calling for some explanation. Such a proposal would seem to imply, either that the existing societies are defective in their aims, or that they fail to carry out their objects satisfactorily; or else, at the least, that the new Society has some other and further end in view than is contemplated by those previously established. Now, it may frankly be admitted that there is some degree of truth in each of these alternative propositions; and they might all be fairly urged as affording grounds for the establishment of the Victoria Institute or Philosophical Society of Great Britain. The great object of the Victoria Institute, as originally propounded in the Circular of 24th May, 1865,\* and as set forth in Circular No. 4 of July, as the primary Object of the Society, is to defend the revealed truth of Holy Scripture against oppositions arising, not from real science, but from pseudo-science; and this is an object which no previously existing scientific society has made its aim. But then, it must be observed, that if existing scientific societies had duly fulfilled their aims, and guarded scientific truth, pseudo-science would never have been allowed to pass current as truth opposed to the Scriptures, and there would then have been no place for a new scientific society to expose the fallacies of mere *quasi* science. But this leads us further to consider whether this state of things may not be primarily due to some defect in the aims of the old societies, to which this inroad of pseudo-science is fairly attributable, rather than to the failure on the part of modern scientific men to do justice to the objects of their investigations. I venture to think that this is the true explanation of the facts of the case, as I shall now endeavour to prove. But first let us look at the facts themselves.

\* See p. 30.

It may be regarded as simply notorious, that Science, so called (whether truly or not), is considered by many persons to be at issue with what had previously been regarded (whether truly or not) as truths revealed in Holy Scripture. This supposed contradiction between science and the Scriptures was most boldly put forward in the "Essays and Reviews," as a ground for rejecting the theory that the Scriptures are wholly-inspired; and Dr. Colenso and others have followed in the same path, publicly alleging the existence of such contradictions, and, so far with a bold consistency, setting aside the Scriptures, in consequence, as false. And if "science" really means, as it ought, a true knowledge of nature; and if such science really contradicts the Scriptures, then it certainly follows that the Scriptures must be in error or misunderstood. As no rational being who thinks can believe in contradictions, there can be no doubt whatever, that when the Scriptures and science are at issue, one of them must be at fault; and, in that case, it must be of the greatest consequence to mankind at large, to be able to discover which. The issue involved, indeed, is nothing less than the truth or falsehood of Revealed Religion—the maintenance or abandonment of Christianity.

It was the existence of this state of things that gave rise to the famous "Declaration of Students of the Natural and Physical Sciences," which was signed by upwards of 700 gentlemen (the greater number being members of the learned professions and fellows of scientific societies), who expressed themselves as follows:—

"We, the undersigned Students of the Natural Sciences, desire to express our sincere regret, that researches into scientific truth are perverted by some in our own times into occasion for casting doubt upon the Truth and Authenticity of the Holy Scriptures. We conceive that it is impossible for the Word of God, as written in the book of nature, and God's Word written in Holy Scripture, to contradict one another, however much they may appear to differ. We are not forgetful that Physical Science is not complete, but is only in a condition of progress, and that at present our finite reason enables us only to see as through a glass darkly; and we confidently believe that a time will come when the two records will be seen to agree in every particular. We cannot but deplore that Natural Science should be looked upon with suspicion by many who do not make a study of it, merely on account of the unadvised manner in which some are placing it in opposition to Holy Writ. We believe that it is the duty of every Scientific Student to investigate nature simply for the purpose of elucidating truth, and that if he finds that some of his results appear to be in contradiction to the Written Word, or rather to his own *interpretations* of it, which may be erroneous, he should not presumptuously affirm that his own conclusions must be right, and the

statements of Scripture wrong ; rather, leave the two side by side till it shall please God to allow us to see the manner in which they may be reconciled ; and, instead of insisting upon the seeming differences between Science and the Scriptures, it would be as well to rest in faith upon the points in which they agree."

In this Declaration we have the "facts" sufficiently acknowledged, although the manner in which they are stated may be regarded as open to criticism. The language is somewhat indefinite, and therefore not likely quite to satisfy those who have definite scientific notions, any more than those who distrust science, and have no doubt as to their theological traditions. But to say that scientific truth is perverted by some, in order to cast doubt upon scriptural truth, if that is what is meant by the words that "*researches into scientific truth*" are so perverted, is a declaration that scarcely modifies censure by its periphrasis. I do not believe the students who signed this Declaration meant really to imply that researches into science have been purposely perverted, so as to be made antagonistic to religion, as it were, intentionally. Giving due credit to men of science for having simply pursued their studies with the view to discover truth, it is surely a simpler account of the present state of things to say, that men of science, pursuing their researches in this impartial spirit, have arrived at certain cosmological and geological deductions, which they believe to be scientifically true, which are unfortunately at issue with what the Holy Scriptures have hitherto been supposed to reveal as to the Creation and the Deluge.

But it is perfectly clear—and this is acknowledged quite plainly in the Declaration—that there cannot really be a contradiction between true science and true revelation. "We conceive" (the Declaration says) "that it is impossible for the Word of God, as written in the book of nature, and God's Word written in Holy Scripture, to contradict one another, however much they may appear to differ." And on that point, of course, there can be no difference of opinion ; nor is there any such difference. If science and Scripture are at issue, plainly one of them is wrong—untrue. There can be no other issue. If the so-called "science" is really science, though contrary to the Scriptures, then the Scriptures must be in error or misunderstood. Or, if we maintain the integrity of the Scriptures as truly God's revealed word, then what appears to be science must be merely pseudo-science, that is, a false interpretation of nature.

I repeat there cannot be a doubt as to this issue and its

inevitable result. It is accepted, or rather it is advanced, in the plainest manner in the "Essays and Reviews,"—most especially in Mr. C. W. Goodwin's essay on the Mosaic Cosmogony; and it is the very ground upon which the Bishop of Natal left his diocese and came to England, to write his books against the Pentateuch. In one of the latest of his public enunciations, before returning to South Africa, he advanced distinctly the same proposition. I allude to a paper he read before the Anthropological Society of London, on May 16th, 1865. In it he says, "The elementary truths of geological science flatly contradict the accounts of the Creation and the Deluge;" and he adds, "At all events, I have done my best to secure that the simple facts revealed by modern science—some of which, as Dr. Temple has justly said on a recent occasion, are utterly irreconcilable with Scripture statements, if these are taken as announcing literal historical truth,—shall not be kept back from the heathen with whom my own lot has been cast in the district of Natal." Here Dr. Colenso is simply declaring, that he holds it to be impossible that the truths of nature can be contrary to the truths of revelation; and he quite consistently rejects the scriptural statements which are at variance with what *he* regards as truths of science.

The difference between him and the students who signed the Declaration referred to, is this:—He distrusts the Scriptures, and considers his science unquestionable; they rather question science, and are not prepared to give up the Holy Scriptures. They say, "We are not unmindful that Physical Science is not complete, but is only in a condition of progress, and that at present our finite reason enables us only to see as through a glass darkly;" and they afterwards declare, that they "confidently believe that a time will come when the two records will be seen to agree in every particular."

Now, in this state of things it is perfectly clear that men must naturally range themselves either upon the side of Scripture or of science. If, like Dr. Colenso, Dr. Temple and Mr. Goodwin, they have implicit faith in what they consider to be scientific truth, then they must distrust the Scriptures; whereas, on the other hand, if they have faith in the word of God as revealed in Scripture, they must distrust that "science" so called, which contradicts it. They cannot believe equally in both. They must hold to the one or to the other. Even those who are puzzled, and scarcely able to realize so definite a course, must feel that it is most unsatisfactory to have science and revelation thus at issue; and they must naturally be anxious that something should be done to get rid of such contradictions. Now this is precisely the end which is proposed

to be accomplished by means of the Victoria Institute. Those who rather distrust the deductions of science than the statements of Scripture are invited to join the new Society and help "to investigate fully and impartially the most important questions of philosophy and science, but more especially those that bear upon the great truths revealed in Holy Scripture, with the view of defending these truths against "the oppositions of science, falsely so called," that is, against supposed contradictions of science, which, it is anticipated, will be proved to be, not the contradictions of true science, but merely the rash deductions of false or *pseudo* science.\*

To this proposed course, it may obviously be objected, *in limine*, that it assumes science to be at fault, and with this preconceived view it sets about its investigations. But the answer to this is equally easy, namely, that the assumption truly represents the state of mind of those who propose to pursue this course. It is simply a fact that they do distrust science, and do not distrust the Scriptures; and, therefore, they are in a manner bound to see whether their distrust of science can be fully justified or not. Besides, it can be a matter of little moment whether they expect to find one result or another, so

\* One or two gentlemen, who have otherwise and generally approved of the objects of the Victoria Institute, and one at least who has joined it, consider that this "object" is somewhat too negative in its scope. They would have preferred that the primary object of the Society should have been, to show positively how scientific discoveries illustrate and corroborate the truths of revelation. Of course, it by no means follows that this view may not yet prevail in the Society. But it should be kept in mind that the Victoria Institute, as a matter of fact, originated as a defence movement. The first work, therefore, it has set its members and associates, is the investigation of the alleged facts and so called science which Dr. Colenso, Dr. Temple, and others have publicly declared to be in opposition to Scripture statements. And this is surely the natural and proper course for those who dispute the existence of such "facts" or "science." Moreover, for my own part, I would beg leave to adopt the prudent language employed by the Rev. H. B. Tristram before the British Association at Bath, in 1864, upon reading his valuable paper "On the Deposits in the Basin of the Dead Sea." He said he "had a dread of attempting to corroborate Scripture by natural or physical arguments which may be refuted; for the objector is apt to think that when he has refuted the weak argument, he has refuted the Scriptural statement."—(*Rep. of Brit. Assoc.*, 1864, p. 73.)

I ought to add here that the Scriptural phrase, "oppositions of science falsely so called," is not used in the sense of the Greek original, as employed by St. Paul, but only as commonly used now in the popular sense the words imply in English, which is also, perhaps, all they mean as rendered in the *Vulgate*, viz. :—"Oppositiones falsi nominis scientiæ."

that their investigations are really "full and impartial," as they profess they shall be. But some might fairly retort—in fact, the objection has been made—that the admitted preconceptions thus entertained may interfere with the impartiality of such investigations. The members of the Victoria Institute cannot, of course, dispute the probable truth of that general proposition. But they may claim it as an argument equally applicable to those who differ with them, and on the other side assume that science is always right, and who are therefore ready, with the writers of the "Essays and Reviews," or Dr. Colenso, or with sceptics generally, to set aside Scripture, or force upon it new "interpretations:"—"interpretations," that is, so-called, not of prophecies or "dark sayings," but the "explaining away" of plain language, which requires no interpretation in order to be understood.

But at this point the sceptic as to "science" may claim to join issue with the sceptic of Scripture, and say that he has good reason for his distrust of *quasi* science, such as the sceptic of scriptural truth has nothing to offer. And this brings us to the second object of the Victoria Institute. It is—

"To associate together men of science and authors who have already been engaged in such investigations, and all others who may be interested in them, in order to strengthen their efforts by association; and, by bringing together the results of such labours, after full discussion, in the printed transactions of an institution, to give greater force and influence to proofs and arguments which might be regarded as comparatively weak and valueless, or be little known, if put forward merely by individuals."

What we say is this, that what is called "science," and boasted of as so "certain" by some, is far from certain,—is continually changing and altering,—is disputed and denied and controverted, on scientific grounds, by very competent persons; and that if the arguments and disproofs even already put forward by individuals were brought together and well weighed, the public would be astonished to find how much there was to be said against the acceptance of what some persons boast of as scientific truth. And, it may be admitted, they tacitly allege that opinions and facts and arguments which happen to be against the predominant opinions of the leading scientific men, have scarcely a fair chance of a hearing in the existing scientific societies, and, at least, that they lose all influence as against theories which happen to have obtained the sanction of some man, or men, of high scientific reputation.

But, to leave generalities, let us glance at a few actual instances of how "science" so-called, has recently shifted and changed; and how the erroneous theories of the eminent have

held their ground against the sounder views of less-reputed individuals; though these views have at last tardily been admitted as most probable by the highest scientific authorities. We have, perhaps, two of the best specimens of such changes in scientific conclusions in Sir Charles Lyell's Address, as President of the British Association for the Advancement of Science, at Bath, in 1864; inasmuch as he there gives up, as no longer to be regarded as science, the two grand foundation "facts" (as they previously were regarded) of geological science, which were boldly put forth but a few years previously, as well-ascertained scientific truths that completely upset the scriptural account of the Creation in the first chapter of Genesis. I allude to what is called the nebulous theory of astronomy, with what was founded upon it, the plutonic theory of geology; and to the supposed existence of azoic ages, during which it was supposed there was no organic life in this world; a conclusion founded upon what was supposed to be a geological "fact," that the lowest sedimentary strata of the earth were totally devoid of all organic remains.

Now, it was upon the assumption of the truth of the nebular theory, and of this proof of the azoic ages of the world, that Mr. C. W. Goodwin in "Essays and Reviews" made his distinctive attack upon "the Mosaic Cosmogony." He maintained, as against the scriptural account of the creation of the heaven and the earth, that "the first clear view which we obtain [from science] of the early condition of the earth, presents to us a ball of matter, fluid with intense heat, spinning on its own axis, and revolving round the sun." This is Laplace's nebular theory; only it is put forward by Mr. Goodwin from the point when the earth has become "fluid," instead of beginning at the beginning when it was supposed to be in a gaseous state, or Mr. Goodwin may have used the word "fluid" in a loose sense, that would comprehend gaseous matter. Here at any rate is a fuller statement of the nebular theory as it appears in M. Figuier's "Earth before the Deluge," published in Paris so recently as 1863. He says:—

"The theory we are about to develop, and which considers the existing earth as an extinguished sun, as a refrigerated star, as a nebula which has passed from a gaseous to a solid state, this beautiful conception, which binds together in so brilliant a manner geology and astronomy, belongs to the mathematician Laplace . . . We have established, in commencing, that the centre of our globe is still, in our own day, elevated to 195,000°, a temperature which surpasses all the imagination can conceive. We cannot have any difficulty in admitting that, by a heat so excessive, all the materials which now enter into the composition of the globe were reduced, at the first, to a gaseous or vaporous

condition. It is requisite, therefore, to represent our planet in its primitive condition as an aggregate of aeriform fluids as a substance entirely gaseous. . . . Raised to a temperature of white-heat (*rouge-blanc*), by the excessive heat which affected it, the gaseous mass, which constituted then the earth, shone in space as shines the sun at the present time, as shine to our eyes in the serenity of the night the fixed stars and the planets.

Revolving round the sun, according to the law of universal gravitation, this burning gaseous mass was necessarily subject to the laws which affect other material substances. It became cooler, it gradually ceded a portion of its heat to the icy regions of the interplanetary spaces, in the midst of which it traced the thread of its blazing orbit. But in the course of this continual cooling down, and at the end of a period, of which it would be impossible to fix, even approximately, the duration, the primitively gaseous star arrived at a liquid condition. . . . Mechanics teach us that a liquid body kept in a state of rotation takes necessarily the spherical form; it is thus that the earth took the globular or spheroidal form which is proper to it, as to the majority of the heavenly bodies.\*

Here it will be observed that the basis of this cosmological speculation is the supposed geological "fact," that it had been ascertained that the centre of our earth is elevated even yet to the inconceivably enormous temperature of 195,000°. This notion or *quasi* "fact" was again based upon an assumption that the increase of the earth's temperature, as we descend, proceeds at a certain ratio, more and more, till we reach the centre; and, further, that the granite rocks were formed by means of dry heat of this great intensity and a subsequent crystallization by cooling down.

But let us see how now stand these foundation "facts" of this astronomo-geological science, which was put forward so confidently only a few years ago against the Mosaic Cosmogony. In Sir Charles Lyell's Bath address, he says:—"The study, of late years, of the constituent parts of granite has led to the conclusion that their consolidation has taken place at temperatures *far below those formerly supposed to be indispensable.*" "Various experiments have led to the conclusion that the minerals which enter most largely into the composition of the metamorphic rocks *have not been formed by crystallizing from a state of fusion, or in the dry way, but that they have been derived*

\* Figuier, *La Terre avant le Déluge*, Paris, 1863 (p. 27). Since this was written, I have observed that the publication of an English translation from the fourth French edition of this interesting work has been announced by Messrs. Chapman & Hall. In this work, geology is described as "pre-eminently a *French science!*" which may account, perhaps, for no modification of the nebular theory being made in this last edition, notwithstanding Sir Charles Lyell's Bath address.

*from liquid solutions, or in the wet way—a process requiring a far less intense degree of heat.”*

Thus vanishes all that had been taught as geological science for half a century, at least, as to the original formation of granite!

Sir Charles Lyell also says, with reference to a co-relative part of the same theory, with its inconceivable high temperature of 195,000° in the earth's centre, and its matter thus reduced to a gaseous or fluid condition:—“The exact nature of the chemical changes which *hydrothermal action* may effect in the earth's interior will long remain obscure to us, because the regions where they take place are inaccessible to man;\* but the manner in which volcanoes have shifted their position throughout a vast series of geological epochs—becoming extinct in one region, and breaking out in another—may, perhaps, explain the increase of heat as we descend towards the interior, without the necessity of our appealing to an original central heat, or the igneous fluidity of the earth's nucleus.”

And so away goes the foundation “fact” of geology upon which was based the nebular theory of the earth's formation out of a gyrating globe of gas, consisting of intensely hot fused granite! It is at once amusing and melancholy, now, to read over the words in which this rival and scientific view of the cosmos was so confidently put forth by Mr. C. W. Goodwin against the old “Mosaic Cosmogony.” I repeat his words, pregnant as they now are with warning, as regards science falsely so-called, in its opposition to revealed truth!—“The first clear view which we obtain (says Mr. Goodwin) of the early condition of the earth presents to us a ball of matter, fluid with intense heat, spinning on its own axis, and revolving round the sun!”

So much for the primary or foundation “facts” of geology, which had been taught as “science” in this country ever since the publication of Dr. Buckland's Bridgewater Treatise; and which are yet graphically exhibited, in all the geological charts of sections of the crust of the earth, in all our still current geological works of science.

But leaving the earth's centre and its now abandoned igneous fluidity, let us come to the oldest strata, heretofore taught to have been “Azoic,” or formed before any organic beings had been created. The “fact” upon which this geological theory was based, was simply this, that what were

\* This is a very different and much more rational tone than the absurd and confident enunciation of a definite temperature of 195,000°, admitted, at the same time, to be inconceivable!

supposed to be the oldest rocks, were found to be, so far as they had been examined in Europe, without any fossil traces of organic remains. Geology, in fact, unfortunately undertook to prove a negative, and affirmed it had succeeded in a somewhat positive manner.

But Sir Charles Lyell tells us, in his Bath address, that "late discoveries in Canada have at last demonstrated that certain theories founded in Europe on mere negative evidence *were altogether delusive.*"

"It has been shown, he says, that northward of the river St. Lawrence, there is a vast series of stratified and crystalline rocks of gneiss, mica-schist, quartzite, and limestone, about 40,000 feet in thickness, which are more ancient than the oldest fossiliferous strata of Europe, to which the term primordial had been rashly assigned;" and "in this lowest and most ancient system of crystalline strata, a limestone, about 1,000 feet thick, has been observed, containing organic remains." He adds, "We have every reason to suppose that the rocks in which these animal remains are included are of as old a date as any of the formations named Azoic in Europe, if not older, so that they preceded in date rocks once supposed to have been formed before any organized beings had been created."

Now, notwithstanding these frank admissions by Sir Charles Lyell, which were publicly made by him as President of the British Association for the Advancement of Science at Bath, in 1864; and although Bishop Colenso was present and heard that address delivered, the Bishop did not hesitate on the 16th of May, 1865, to use the language I have already quoted, in which he makes it a boast that he had done his best while in his diocese—that is, upwards of three years previously—to secure that the simple facts revealed by modern science should not be kept back from the heathen with whom his lot had been cast in the district of Natal! Nay, he quotes a recent utterance of Dr. Temple (I believe while preaching in Whitehall Chapel) as agreeing with himself, that these facts are utterly irreconcilable with Scripture statements! Can it be that these "educators of the world" do not read, or hear, or understand, or know what they are saying? Why, when Bishop Colenso taught what he calls "the simple facts revealed by modern science," to the Zulus,—or what he more specifically describes as "the elementary truths of geological science," which "flatly contradict the accounts of the creation and the deluge" in Holy Scripture,—he must have taught the nebulous theory, and that there were azoic ages of enormous duration before living creatures were created, as Mr. Goodwin did in his Essay! He must have then taught as "simple facts" or "elementary truths of geological science," what he has himself heard Sir Charles describe as theories altogether delusive, and what—if

he would speak as plainly about science as about the Scriptures—he must now know never to have been “facts” at all,” but “rash deductions,” founded, at best, “upon mere negative evidence;” and he might well be asked, Whether, in his zeal for the truths he thinks are “revealed by science,” he will be as anxious to make the Zulus, on going back to his late diocese, acquainted with these now acknowledged blunders in geology as he has been to let them know of the alleged blunders he thinks may be discovered in the Pentateuch as to the creation?\*

I venture to say that neither Dr. Colenso, nor any sceptical geologist on his behalf, can point to a single geological fact, or even to any respectable theory entertained and taught in any geological work now extant, which any great number of geologists would say they accept, that can in the least be considered as contradictory to the Mosaic account of the creation. There is not a geological text-book at the present time in existence that gives any other foundation for the science than the igneous theory of the earth’s nucleus which Sir Charles Lyell considers “may now be dispensed with;”—a very gentle euphemism for a frank admission that the theory has no foundation at all to which it can appeal in the facts of geology, since the constitution of granite has been better understood. That we may have another theory, and another which may, like the last, contradict Scripture, is very possible, perhaps only too probable; but what I say is, there is no such theory yet invented. The theories that did contradict the Scriptures, as regards the original formation of the earth and its azoic rocks and ages, are pronounced *ex cathedrâ scientiæ*, to be “altogether delusive.” That is the present state of the case. As regards the Creation, that is the only revelation of science which Dr. Colenso can honestly teach at present to his “Zulu philosopher!”

But no doubt Dr. Colenso might yet retort, in modern style, “What about the Deluge?” He might still appeal to the “volcanic cones of loose ashes in the valleys of Auvergne,” and maintain that Sir Charles Lyell has not given up his former scientific teaching about these. He may still with Sir Charles believe that they “must have been formed ages before the Noachian deluge,” and that had the deluge been universal, the light and loose substances that cover these cones “must have been swept away.”

My object not being to refute the geological views of Sir Charles Lyell or Bishop Colenso, I may content myself with

\* See POSTSCRIPT, pp. 32, *et seq.*

observing, as regards this point, that I have no reason for supposing that Sir Charles Lyell has as yet changed his opinions, and that till he does so, Dr. Colenso will probably be content to believe as he does. It is no part of my object to endeavour to prove that there are now no scientific views opposed to the Scriptures. Were that the case—had every *quasi*-fact and every “scientific” theory already shared the fate of the azoic ages and the “original igneous fluidity of the earth’s nucleus,” why then, of course, the Victoria Institute had been founded late in the day! It would have had really no occupation. I for one would never have thought of its establishment. But at the same time, I may be permitted to observe, that surely these confident appeals made by Bishop Colenso and Dr. Temple to “simple facts revealed by modern science” that contradict the statements of Holy Scripture, are put forward with an unwise effrontery so soon after such large confessions by our most eminent geologist (from whom they take their science second-hand), of science contradicting itself, and of the utterly delusive character of its former “revelations” respecting the very foundation “facts” of geology. Surely when the scientific have been all out as regards the Creation of the world,—after all the bold sneers in “Essays and Reviews” as to the blunders of “the Hebrew Descartes,”—a little modesty and somewhat less confidence might well become our once “deluded” teachers, when they come to speak now of the Deluge. There are, doubtless, men of science and authors, who have already been engaged in investigating this question of the evidence of the universality of the deluge from a scientific point of view; and who have arrived at other conclusions than those of Sir Charles Lyell.\* Some of them are already members of the Victoria Institute; and it is one of the professed objects of that Society to bring such men together, to give them a fair hearing, to discuss their arguments, and further to investigate what may be regarded as the facts under discussion, and thus to get at truth. In Sir Charles Lyell’s “Antiquity of Man” he informs us, that for the greater part of his scientific lifetime, he had resisted evidences he now

\* I may here draw attention to an able pamphlet by Mr. S. R. Pattison, F.G.S., *The Antiquity of Man: An Examination of Sir C. Lyell’s recent work* (Lond.: Lovell Reeve, 1863), and to the well-reasoned and larger work, *Remarks on the Antiquity and Nature of Man*, by the Rev. James Brodie, A.M. (Lond.: Hamilton, Adams & Co., 1864). In the latter work, Sir C. Lyell’s arguments, adopted by Bishop Colenso, against the Mosaic account of the Deluge, are fairly met; but my present object is not to bring forward anything that has not been acknowledged by the recognized “authorities” in science.

admits of man's contemporaneous existence with certain long extinct animals. Those who are interested in the statements of the Bible; may well be anxious that no similar overwhelming influence may be successfully brought to bear against any evidences there may be in nature of the universality of the flood.

I therefore revert to the nebular theory, to show that there were not wanting men—and men, as it turns out, better entitled to the name of “men of science,” than others more eminent in reputation—who contended strongly against that theory, but whose arguments were disregarded, or not allowed even a hearing before some of our existing scientific societies, which thus acted as hindrances instead of as helps to the advancement of science.

In 1844, when the British Association for the Advancement of Science met at York, the late Dean of York, Dr. Cockburn, a practical geologist, made a straightforward attack upon the nebular theory, “laid down by Dr. Buckland, in his Bridgewater Treatise, as to the original formation of the earth,” upon this very sufficient ground, namely, “because that theory will not account for the many facts made known to us by geologists;” and he put forward another theory in some detail, which he maintained did account for these facts, and of which he challenged criticism. He concluded his remarks in these words:—

“You will, of course, perceive that my theory accords perfectly with the account given by Moses. I do not, however, press it upon you in consequence of that accordance, but because I contend that every modern discovery may be accounted for by this theory, and cannot be accounted for by the theory of Dr. Buckland.”\*

Professor Sedgwick, who was President of the Geological Section that year, replied to Dr. Cockburn, but as he “confined himself almost exclusively to remarks upon the Dean's supposed ignorance,” the learned Dean printed his speech, and requested the Professor to answer it in print; observing that “it appeared to him, and to many wiser men, that the theories, of the Geological Society were incompatible with Christianity,” although Professor Sedgwick had said that “these theories, if rightly understood, would confirm the truths of revelation.” For, if so, added the Dean, my answer is, “these theories are *not* rightly understood by me and by thousands of others.”

That Dean Cockburn formed the truer estimate of the character of the nebular theory, when he described it as con-

\* *The Bible Defended against the British Association.* Fourth Edition (p. 16).

tradictory to the Mosaic Cosmogony, has since been abundantly proved. Yet many persons at one time professed to agree with Professor Sedgwick, and freely "interpreted" the Scriptures to make out a kind of agreement between them and the then current geological theories. But the thing did not last. After the publication of "The Vestiges of Creation," any such pretence of agreement was really absurd; and Mr. Goodwin's *Essay* and lastly Dr. Colenso's writings have since cleared this quite away.

Dean Cockburn asked for a second discussion, as he got no answer from Professor Sedgwick. Professor Ansted replied, that he was directed by the Committee of the section to say, "that, as there is no precedent for re-opening the discussions of the section, they consider it would not be proper for them to comply with the request." What an answer for an "Association for the Advancement of Science" to give. No precedent, and therefore "not proper!" "No precedent," in 1844, given as a reason by an Association then only in its 14th year! Well might the learned Dean be excused for observing: "Whether this refusal arose from a lofty or an humble opinion of their cause, it left the question of their Christianity where it was." He also asked that the Geological Society should "put forth *ex cathedrâ* a printed statement of their opinions respecting the Creation;" and at last Professor Sedgwick sent him a reply. In it, the Professor however "declined to support the nebulous theory!" He said, "that it was first put forth by astronomers and adopted by the geologists, as a matter of indifference to them whether true or false." Surely nothing could be very much stranger than such an account of the acceptance of any scientific hypothesis whatever. "Adopted by geologists, as a matter of indifference to them whether true or false!" But nevertheless adopted; and, as already said, to this day exhibited as a *foundation* of "the geology of the earth" in every current text-book of geological science.

Further correspondence took place between the Professor and the Dean. But the former would not consent that his letters should be published. Of the last of these the learned Dean writes: "I wish you would allow me to publish it. It has no appearance of hasty composition, but is evidently the work of an able writer perfectly conversant with his subject. It would, I doubt not, give complete satisfaction to the members of the Geological Society. But, unfortunately, there are thousands who think with me, that that society have had too much respect for the *argumentum ad verecundiam*, and have never allowed their own unbiassed judgment to investi-

gate theories introduced by former great names." The Dean afterwards addressed the President of the Geological Society, sending copies of his letters to Professor Sedgwick. He wrote as follows :—

"The members of the British Association have always been accustomed to act in strict unison. They discountenance all difference of opinion, and seem bound *jurare in verba magistri*. Professor Sedgwick could not, therefore, with propriety appear publicly in opposition to the nebulous theory; and at the same time considerations for his own character would not allow him to stand up in support of what he knew to be an absurdity."

The Dean, after challenging objections to his own theory and arguments, agreeing with the Mosaic Cosmogony, goes on :—

"You say that there are geological facts which prove the long existence of the world through many ages. I say there are *no such facts*. Here we are completely and plainly at issue. Produce, then, some one or more of these facts; and if I cannot fairly account for them without supposing the very long duration of the earth, I am beaten! I am silenced! But if you do not produce such facts, and retreat, like Professor Sedgwick, from the challenge, confess, or let your silence confess, that the whole doctrine of a pre-Adamite world has been a mistake, too hastily adopted by men of talent and learning, and too apt, like all other persons, to draw general conclusions from a few particular facts."

In a subsequent passage, which need not be quoted, the Dean refers to the Geological Society as a "valuable body," adding, in a foot note, "Most valuable, as having furnished us with unexpected and unanswerable proofs of the waters having once covered the existing earth." So that it would appear, that at that time, the "orthodox" geologists taught that the facts of geology proved the universality of the deluge, which Bishop Colenso, on May 16th, 1865,—drawing his inspiration, no doubt, from what he now regards as geological science—declared to be "an impossibility" in such absolute terms, as even to draw forth a disclaimer from the president of the Anthropological Society of London.

But it may be said that the nebular theory has now been given up by Sir Charles Lyell, not on account of arguments such as those adduced by Dean Cockburn, but because it has been found, from the constitution of granite, that its formation must have proceeded from a watery crystallization, and not from the fiery, dry heat, which the nebulous theory ignorantly ascribed to it. That is very true. Even in the absence of a knowledge of the constitution of granite, and for various other and more obvious reasons, Dean Cockburn was enabled to declare "the nebulous theory is really nonsense." But if, nevertheless, it was really believed in, merely or chiefly

because of a blunder as to the formation of granite, surely, then, earlier attention ought to have been paid to the matter of which granite is composed, before "adopting" such a physical theory as the very basis of the geology of the earth.

But even this plea will not serve as a justification for such an inveterate adherence to this now abandoned theory. Even before the Dean of York attacked it, namely, in 1843, a fellow of the Geological Society, Mr. Evan Hopkins—also now a member of the Victoria Institute—put forth a theory of the earth adverse to the nebular and plutonic hypotheses; and one of the main "facts" to which he appealed was, that granite was a water formation, or a true crystallization, and could never have been formed by dry heat as the nebular theory required. But his voice was not regarded, and not his facts, as against the great name and gratuitous assertions of Laplace, unfortunately accepted by Dr. Buckland. In giving up the theory, Sir Charles Lyell does not even notice him, although two years before the then President of the Geological Society, Professor Ramsay, had distinctly done so. At that time, also, I may observe, *i.e.* in 1862, Professor Ramsay said "that he believed that the science of geology was on the eve of a great revolution"—the "science" that Bishop Colenso but a short time before had been preaching to his Zulus as the certain "revelations" of truth! and to which, even since then, he dares once more to appeal as unquestionable truth, and as upsetting the statements of Scripture!

But if any doubt whether all that Dean Cockburn said, under somewhat provoking circumstances, was quite deserved, as to the disposition of the Geological Society to yield too much to the *argumentum ad verecundiam*, or as to the unwillingness of the British Association to listen to contradictions to theories put forward by great names; I can cite another witness, a Professor at Cambridge, with reference even to a mathematical discovery of his own, which will place in a still stronger light the fact that, in his opinion, the present organizations among the scientific rather serve to retard the advancement of science, and to foster the maintenance of established dogmas in science than to admit new truths; while, at the same time, we know that all that may appear opposed to Scripture may be very freely put forward in scientific societies, and by some men even in the pulpit! Professor Challis thus expresses himself:—"I know enough of the history of physical science to be aware that an advance of this kind in an abstruse department of science can be expected to make its way only by slow degrees." This was said but a few years ago, and notwithstanding the existence of the British Association!

But not to multiply instances of this kind in further detail ; it is surely a fair argument, for those who are anxious not to see science put unfairly or unwarrantably forward as at issue with Holy Scripture, to say that, after all this recent experience of theories rashly adopted and authoritatively upheld, while facts and arguments, adduced by numerous assailants, have been disregarded, refused a hearing, and despised,—they are anxious to see a freer discussion of scientific dogmas in a new arena, and especially anxious to invite an immediate and rigid investigation and discussion of such scientific facts and theories that are yet said to be adverse to scriptural statements, which they regard to be the revealed truth of God.

What they may well say is this : that just as Dean Cockburn and others opposed the nebular theory twenty years ago, but were not heard ; so that now other competent persons dispute other *quasi* “facts” in geology and other theories in science which now pass for true ; and they are anxious to give these investigators a hearing, which they cannot expect to secure in existing scientific societies. They say that this must be for the real interest, and that it will tend to the real advancement, of true science ; and that it has become a necessity in the interest of revealed truth, which it is so important should not be allowed to remain liable to be ever rashly impugned by crude theories in the name of science, without any independent organization of a scientific kind composed of men able and willing to watch, as it were, over the outworks of religion in this respect.

Let us revert, moreover, to the remark of Professor Sedgwick, that the nebular theory was adopted by the geologists from the astronomers, while indifferent whether it was true or false ! And only consider what must be the effect of thus carelessly adopting a hypothesis in science, without raising the question whether it is probably true or utterly absurd, and then going on for years, collecting and arranging in the mind all newly discovered facts, with sole reference to such a groundlessly assumed hypothesis. In what other way could a mere unreasoning prejudice be better instilled and made to grow inveterate in the human mind ? Adopted thus at first, as we are told, with indifference, in time the nebular theory became, what Mr. Goodwin called “the first *clear* conception” of the origin of the world ; and even now, when the intensely scarlet tint of the earth’s imagined central fire and of the welling up molten granite must be obliterated in all the future graphic representations of the earth’s sections, the cosmographers, so long accustomed to this false basis, will indeed be puzzled what

else to substitute in its room ! We really have no "science" of the world's origin at present !

Consider, too, how much valuable time has been lost for science, and how much talent has been wasted, while this untenable theory has thus been blindly entertained; and while men have generally thus been discouraged and even debarred from seeking after a true interpretation of the numerous and most important newly discovered facts made known by geological research.

But we must be content with these few brief instances of how the progress of true science has been hampered and retarded, through the mischievous influence of imperative theories and the authority of great names, to attend to some still more important considerations, which I apprehend in themselves alone constitute a sufficient ground for the establishment of the Victoria Institute; and which will further and at the same time account, in great measure, for inductive science having already acquired some of the worst vices of the false system of philosophising; which it was Bacon's great object to root out for ever from scientific inquiry.

While we have been obliged to appeal to the fact, that there is an openly alleged opposition in our day between the so-called discoveries of modern science and the statements of Scripture, especially as to the creation and deluge, I think we may also find evidence, that this is not solely if at all to be accounted for, by any desire on the part of scientific men generally, at least in this country, to establish any such opposition, or any disposition to pervert scientific research, so as to make it antagonistic to religion. If Halley was infidel in his opinions, still we know that Newton was devout. If Laplace was atheistic in his views, and applying Sir W. Herschel's speculations as to the nebulae to the first formation of this world, was thus furnished with an hypothesis which enabled him, as he supposed, "to dispense with God throughout;"—still we must remember that that hypothesis was first put forth in England, as an interpretation of geological appearances, in one of the Bridgewater Treatises, by Dr. Buckland, some thirty years ago, intentionally to exhibit God's power in His works of creation. Professor Sedgwick, also, no doubt expressed an opinion entertained by many other men of science besides himself, when he declared that the theories now admitted to be "altogether delusive" by Sir Charles Lyell,—but which some may then have believed to be true theories founded upon sufficient facts ascertained by geological science,—were confirmatory of revelation. It is very true that in saying this, it was with the understanding that considerable modification might

fairly be made as to the meaning usually gathered from the scriptural statements. But what I wish to point out is, that while many infidels and atheists have from time to time made a handle of scientific theories to cast discredit upon revelation, there have also been many earnest men of science who have adopted the same scientific theories, but have not considered them incompatible with the revelations of Scripture. Very numerous attempts were made by Hugh Miller and other eminent writers, to reconcile the Scriptural statements with every fresh scientific discovery or supposed discovery in geology.

But, unfortunately, in all these efforts, "the science" of the day was always apparently adopted with too much readiness, as if *it* required no probable essential correction, while Scripture alone was constantly tampered with, in order to get it to mean something different from what its plain language had previously seemed to imply. "Science," it may be said, was allowed to pass uncriticised; while Scripture was ever being subjected to fresh and far-fetched interpretations. But this could not, of course, go on. Professor Baden Powell, in Kitto's Cyclopædia, in his article on "Creation," rejected the 1st chapter of Genesis as "not being history;" and Mr. C. W. Goodwin ridiculed all such "attempts to reconcile the Scriptures with science" as "failures;" and he, not without some good reason, pointed to "the trenchant way in which these theological geologists overthrow one another's theories." The mischief, however, it will thus be seen, had been done. Science had been taken on trust, the Scriptures had been sceptically handled; all, it may be, with the best intention on the part of many, but not the less with fatal results—results not less fatal to true science than to religious faith. And we have to account for these results. The scientific, no less than the religious, are interested in the inquiry. For what do we now find is the case? We find that it is science that ought to have been more narrowly watched and criticised; and that it would really have been to the credit of scientific men if they had applied to "science" somewhat of that vigilance to detect its possible errors, its contradictions, and fallacies, which has been freely enough and too exclusively exercised in our day upon the statements of the Scriptures, by those who have accepted without the least examination and with an almost absolute credulity, often at second hand, all that has been passing for science upon the authority of a few names of great scientific repute. Now, I venture to say, the explanation is not far to seek why science has thus "drifted" into contradictions and delusive theories and fallacies, which have become a scandal

and discredit to science on its own account,—leaving the question of revelation altogether out of consideration.

I have alluded to Halley, Laplace, and other atheists, infidels or unbelievers, who, as individuals, have no doubt been glad to find what they considered to be scientific contradictions of God's Revealed Word. But that is not all. Not merely have some pursued science in that spirit; but others have been found who have boldly put forth the opinion that the inductive philosophy of Bacon is necessarily atheistic in its principle and foundation; and they have even claimed Bacon himself as an atheist, and accused him of being a mere hypocrite in his religious professions! Not only have the atheists themselves put this forth as a boast, but the same accusations have been strangely re-echoed by others in their over zeal for faith and religion! Thus has Bacon been libelled and his philosophy misrepresented, by ungrateful and unfaithful followers on the one hand, and by the avowed enemies of all scientific investigation on the other.

But the real truth is, that science has become, in our day, materialistic and wildly speculative, entirely through a disregard of Lord Bacon's principles, and in spite of his actual warnings. Moreover, certain branches only of human knowledge have been cultivated by too many professed followers of Bacon, and the higher and connecting links of general philosophy have been too much neglected. "Hitherto (he says) the industry of man has been great and curious in noting the variety of things, and in explaining the accurate differences of animals, vegetables, and minerals, many of which are rather the sport of nature than of any real utility to science. Things of this sort are amusing, and, sometimes, not without practical use, but they contribute little or nothing towards the investigation of nature." (Nov. Org., ii., 27.) And elsewhere: "By means of these we have a minute knowledge of things, but scanty and often unprofitable information with respect to science. Yet these are the things of which common natural history makes a boast." (Descrip. Globi Intellect., c. iii.)—In reading these passages, one almost might imagine he had been describing by anticipation the so-called natural science of the present day. True, we have speculations enough, and theories in addition, but they are rash and ill-considered, because the sciences have been too much separated, and the great majority have devoted their minds to the details of some narrow speciality. But what says Bacon?—

"Let no one expect great progress in the sciences (especially their operative part) unless natural philosophy be applied to particular sciences, and they

again be referred back to natural philosophy. Hence it arises that astronomy, optics, music, many mechanical arts, medicine itself, and what seems more wonderful, moral and political philosophy, have no depth, but only glide over the surface and variety of things; because (mark this reason) these sciences, having once been partitioned out and established, are no longer nourished by natural philosophy. Then there is little cause for wonder that the sciences do not grow, when they are separated from their roots." (Nov. Org., i., 80.)

Again :—

"Generally let this be a rule, that all partitions of knowledges [sciences] be accepted rather for lines and veins, than for sections and separations; and that the continuity and entireness of knowledge be preserved. *For the contrary hereof hath made particular sciences to become barren, shallow, and erroneous*, while they have not been nourished or maintained from the common fountain."—(Adv. of Learn., B. ii.)

It is very true that Bacon deprecated, as a "philosophical calamity," the excursions of final causes into the limits of physical causes. But he did not, therefore, as some have rashly concluded, banish final causes from his scheme of true philosophy altogether. On the contrary, he contemplates the sciences, generally, as all comprehended in one pyramid of the Truth of things or Philosophy proper, founded, indeed, upon the basis of a knowledge of the varied facts of nature, but having an apex in the intelligence of Deity. Far from participating, in the least, in any atheistic notions, he thus expresses himself:—"It is easier to believe the most absurd fables of the Koran, the Talmud, and the Legends, than to believe that the world was made without understanding. Hence, God has wrought no miracles for the refutation of Atheism, because, to this end, His regular works in nature are sufficient." (Ess. on Atheism.) And thus it was, also, that he regarded "Natural Philosophy as properly the Handmaid of Religion," and not, as some regard it in our day, as its antagonist.

But nothing could be less Baconian than to endeavour to establish any philosophical position by an appeal to any authority, even though it were an appeal to his own great name. In thus vindicating his memory from misrepresentation, I have had no wish to employ the *argumentum ad verecundiam*. On the contrary, I would appeal to Bacon, mainly because he taught us to cast off all mere authority in science, and to trust to the mind itself, with all the independent aids to reason with which we are amply furnished by nature. Let me cite, however, one other witness as to the present unsatisfactory condition of science, attributable to its over-subdivision into branches, and the undue influence of scientific coteries in the

present day; too much like what it was when unreformed in Bacon's own time. I cite from the "Introduction to Anthropology," by the late Dr. Theodore Waitz, Professor of Philosophy in Marburg University:—

"In Germany (writes the learned Professor) it is at present a common case that in the fields of the various sciences, and even within the limits of a single science, opposite theories grow up, without their respective propounders taking any notice of one another's views, or making any attempt to reconcile their contradictory dogmas. The strength of party comes in place of strength of reasoning; and the labour of giving scientific proofs seems superfluous, where deference is merely yielded to the authority of those who, agreeing in some general principles, appear to support one another with the instinctive interest of an *esprit de corps*. With the same kind of tact, all that has grown upon a foreign stock is silently passed over or eliminated, while only what seems homogeneous is assimilated. Thus scientific life moves in individual narrow spheres, and the more comprehensive and fundamental principles are no longer discussed."

It is in order to provide a remedy for this state of things that the founders of the Victoria Institute agreed that its third object shall be:—

"To consider the mutual bearings of the various scientific conclusions arrived at in the several distinct branches into which Science is now divided, in order to get rid of contradictions and conflicting hypotheses, and thus promote the real advancement of true Science; and to examine and discuss all supposed scientific results with reference to final causes and the more comprehensive and fundamental principles of Philosophy proper, based upon faith in the existence of one Eternal God, who, in His wisdom, created all things very good."

This object is surely one, at least, which requires no apology as yet in England. It assumes, no doubt, a fundamental principle—the existence of the all-wise God. It therefore precludes the advocacy of atheistic theories in the Society. It need scarcely be said it does so, simply because its members and associates, as indeed the great mass of the scientific and unscientific, of the literate and illiterate alike, in this country, have no manner of doubt whatever of the truth so assumed. And this being the case, it is in fact to be only straightforwardly honest, to say that that constitutes a major proposition, which must necessarily override and *ipso facto* overthrow all opposite and conflicting hypotheses. To teach that truth and to establish it, pertains to the ministers of religion, and, therefore, it is excluded, as a question to be investigated, from the objects of the Victoria Institute. So are all purely religious or theological propositions. Science, in all its branches and ramifications, is

what the Society will be properly occupied with. And, convinced that no real science will be found to be contradictory to the revealed Truth of God as set forth in the Holy Scriptures, all questions of science about which there may be doubts in this respect, or which some may have alleged to be thus at issue with the Bible, will especially claim the attention of the members. One great means of carrying out this object and pursuing such investigations, will be the co-relating, when that is possible, the conclusions arrived at in one branch of science with those arrived at in another; so also discovering their discordance, when the supposed scientific conclusions are at issue.

It would be easy to give instances in detail of such conflicting theories and conclusions put forward in the present day. It is almost unnecessary. Everybody must see and admit that contradictory theories cannot both be true; both cannot be regarded as science. Nay, it must further be manifest, that our "science" of the Cosmos must be discredited and not believed in as "science" at all, even among the reputedly scientific, if they themselves are looking out for still further explanations, or are entertaining, putting forward, or quietly listening to, ever new theories in existing scientific societies.

I may with propriety give one single instance of this kind of thing, respecting what has long been regarded as the highest science in this country, and indeed in Christendom, for upwards of a hundred years at least. I allude to the Copernican Astronomy as modified by Kepler, and interpreted by Sir Isaac Newton's theory of universal gravitation. I leave out of consideration a subsequent modification of the system arising from the first Herschel's notion of Solar Motion in Space, which after being received by astronomers as "science," confirmed by all their calculations since 1783, was recently assailed as untenable, and shortly afterwards admitted by the Astronomer Royal to be now in "doubt and abeyance!" I leave this out, therefore, of consideration—though it too is a notable instance of what was long regarded as a "scientific fact" turning out to be a "mere delusion,"—and wish to speak only of conclusions supposed to be established by mathematical proof in Newton's "Principia." Not only are all Newton's demonstrations based upon the assumption that the heavenly bodies are moving in what is called "free space," or "spaces void of resistance;" but this was the notorious difference in the Cosmos, between the rival theories of Newton and Descartes. When Voltaire came to visit Newton in England, he wrote to a friend, that "he had left the world *full* at Paris—(referring to the "*plenum*" of Descartes and Aristotle) but

“found it was empty in London !” And yet our own Astronomer Royal made the announcement at the first meeting of the British Association, in 1831, “that the existence of a resisting medium has once more been established in this century by Encke.” (*Rep. on Astr., in loc.*) No individual astronomer I believe, nor any existing scientific society, has made it its business to see what effect this restoration of “the plenum” must have upon all Newton’s and Laplace’s demonstrations in the “Principia” and “Mécanique Celeste,” in both of which the non-existence of a resisting medium is taken for granted. Not only so ; but recent theories, put forward by Professor Thomson before the Royal Society of Edinburgh and elsewhere, and also by others in England, assuming an intense heat in the sun, are utterly irreconcilable with the Newtonian hypothesis that, as the centre of the solar system, it must have a mass 350,000 times greater than the earth, while about 1,400,000 times greater in bulk.\* If as hot as has been recently speculated, as its bulk remains the same (namely, about 850,000 miles in diameter), then its mass will not be 1,000 times greater than that of the earth ; and, on Newtonian principles, this would render its being the centre of the solar system impossible. Any child can understand, that if the calculation which required the sun’s mass to be 350,000 times greater than that of the earth, was *science*, it cannot be also “science” that its mass should be so reduced that it can only be about 1,000 times greater. Nor is this all. These speculations, as to the sun’s intense heat, have required the co-relative theory of some means of supplying the immense waste of matter by heat and radiation. So, it has further been speculated that this was accomplished by meteoric matter which was supposed to be falling constantly into the sun to supply it with fuel. This theory was noticed approvingly by the President of the British Association in 1863, and the fullest account of it is to be found in two papers by Mr. E. W. Brayley, F.R.S., in the “Companion to the British Almanack.” But scarcely had this theory been completed, as it were, in detail, and recognized as “a reasonable supposition” by the President of the British Association, than all of a sudden Mr. Brayley, who formerly appeared to be one of its staunchest advocates, put forward, in the Royal Society, another theory as diametrically opposed to it as

\* *Vide* Letter of “Nauticus,” in the *Astronomical Register* for February, 1865, p. 49. (London : Adams & Francis, Fleet Street.) Also, Essay on “The Scriptures and Science,” in *Fresh Springs of Truth*. (London : Griffin & Co.)

any two cosmical theories could possibly be. He suggested a totally different theory, in which the sun is not only the centre of the solar system, but the source whence all the planets were drawn! Instead of the sun being fed with meteors to keep it from burning out, Mr. Brayley's theory makes the sun, in rotating rapidly on its axis, throw off meteoric bodies; and thus he argues the earth and other planets were most probably created! I have no intention of going further into this speculation here. I mention the fact of its having been brought forward, and that in the Royal Society, in the presence of Professor Tyndall, and of Newton's successor in the Lucasian chair, without a word being uttered against it. This forces us, I say, naturally, to ask this question, What is now our knowledge, our "science," of the sun or Cosmos? Mr. Brayley's views, of course, are entirely opposed to every part of the "Principia" and all that was dreamt of in Newton's philosophy. Professor Thomson's theory destroyed the possibility of the sun being the theoretical centre of the solar system, if universal gravitation had anything like a plausible foundation. But apart from that argument, which some people may not trust themselves to admit, any boy can see that Professor Thomson's and Mr. Brayley's theories are flat contradictions of one another, even as speculations; and then we are bound to ask, Upon what extraordinary data of facts or principles can such conflicting theories be based?

That existing societies do not trouble themselves to compare and contrast, and so to reject as unscientific such contradictory hypotheses, or one or other of them, is simply *true*. The transactions of the Royal Society—and no other need be named—bear witness to the truth of this averment. And that to do so—as proposed in the third object of the Victoria Institute—would tend to the advantage and real advancement of true science, I think will scarcely be disputed. The Science of Sciences, in fact, is the proper co-relation of all the various sciences into one grand and consistent Philosophy, which will be the interpretation of the nature of things as ordained by the one true God; and it does not require to be argued that each science should at least be consistent with itself. True lovers of Science, and all lovers of Truth, must surely unite in one desire to harmonize the conflicting elements of human speculations; and the members of the Victoria Institute may reasonably hope, that when this is done it will be found, that the highest human wisdom will be in accordance with the Wisdom of the One God, Who has created all things very good.