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ARTICLE I.

RELATIONS OF SCIENCE TO THE BIBLE.

1. *Modern Scepticism: a Course of Lectures Delivered at the Request of the Christian Evidence Society. With an Explanatory Paper*, by the Right Rev. C. J. ELLICOTT, D. D., Lord Bishop of Gloucester and Bristol. 1 vol., pp. 526. London: Hodder & Stoughton, 27 Paternoster Row. 1872.
2. *Modern Materialism: Some of its Phases and Elements*. By GEORGE B. CHEEVER, D. D. Published in Nos. I. to XI., in the *New York Observer*, March, April, May, and June, 1873.

Our remarks in this article will be confined to the single question, What are the relations of modern physical science to the Bible—to the volume which claims to be a very gradual revelation of spiritual truth, by a personal God, for his own glory, in the redemption of fallen man, created in the image of his Creator? We intend to discuss neither the evolution hypothesis and other forms of modern scepticism, nor the influence of physical science on modern morality, civilisation, and Christianity, as affected by arts, manufactures, and commerce. Has any truth of science been shown to conflict with any plain declaration of revealed truth? Can science discredit revelation? Is true science responsible for the use of physical hypotheses by sceptical scientists? Can theologians who are ignorant of science, reply wisely to speculations that grow out of scientific discoveries? Does the Bible denounce physical science, as it does divination,

enchantment, sorcery, soothsaying, and astrology? Does it caution man to beware of the tendency of science to generate scepticism? Does it discourage, in any way, the earnest investigation of the laws of the material creation? All these questions we shall examine briefly, and answer negatively.

Dr. Cheever will, it is hoped, pardon the use made of his labors by a retired old teacher of science, to whom such writings as his numbers in the *New York Observer* have long appeared manifestly unwise and injurious, because they induce a general, vague, and false belief that there is some real discrepancy between true science and revealed truth.

We must be allowed to say that Dr. Cheever, how learned soever he may be in theology, is not qualified to reply successfully to such sceptical scientists as Darwin, Tyndall, Huxley, and Virchow, or to writers like Renan and Comte, all of whom he attacks in his articles. He may quote isolated portions of their writings to prove the correctness of some postulation; but the overthrow of their very different hypotheses can be effected by scientists alone.

They do understand science; and they know the wide difference between science and hypothesis or theory; yet they can, by the injurious use of scientific terms, and the perversion of hypotheses that arise naturally from the rapid progress of modern science, not only disguise their real designs and confuse common readers, but excite doubts in the minds of even intelligent readers as to the truth of portions of the Bible, which they wish to assail, or as to popular interpretations of it, which they believe to be incorrect. Against the latter they do not hesitate, of course, to use correct teachings of science. Many of them are honest, truth-seeking men.

We cannot expect all scientists, any more than we can reasonably expect all of any other class of men—learned men—to be Christians. Like Maillet and his successors long ago, and like the ingenious author of the “*Vestiges of Creation*” at a later period, in their attempts to discredit the Bible, such writers as Darwin will exert all their ingenuity, and call to their aid every available fact and principle, to give to their speculations the similitude of science; for they know this is a scientific age; that

physical science has become an immense power in effecting both evil and good in all human affairs; that the civilised world is deeply imbued with a sense of obligation to it; that it is known to be a great system of truth, which has more than quadrupled man's power, and greatly increased his employments and refined his enjoyments; that nations feel its benign influence, and can neither neglect nor reject it; and that any attempt, by individuals, sects, or nations, to repudiate it, would be futile.

Hence the dangerous character of such sceptical scientists as Darwin, the author of valuable scientific books, and also of the purely hypothetical "Descent of Man," in which the evolution hypothesis is skilfully developed and defended. Of course such infidel speculators claim for their speculations some of the respect due to their scientific productions. They are opposed to the Bible, and they know that, while many Christians cannot detect their fallacies, their misuse of hypotheses, and their perversions of science, a still larger number of educated people are willing, if not anxious, to see the religion of the Bible overthrown, if possible, by the resistless power of scientific truth. Hence, such writers are gratified when their speculations are accepted, either as new theories or as outgrowths of science, or as scientific in any sense of the term. Of course they are still more pleased when they see their speculations denounced as *scientific* by religious writers, over the responsible signatures of learned teachers of revealed truth, especially when such Christian writers assail science as the enemy of the Bible. This is exactly the conviction which they wish impressed broadly and deeply on the public mind; for they know that the public mind is convinced of the reality of physical science, and that the public heart loves it as a great benefactor. Let Christians beware, therefore, how they publish any thing calculated to aid sceptical writers in producing the belief that true science and the Bible are antagonistic in any sense of the term.

Few men are qualified to write wisely on any supposed discrepancy between science and revealed truth. To discuss any such question, so as not to excite in the public mind the latent tendency to unbelief, requires more knowledge and wisdom than most men — even learned theologians — possess. It requires, also,

a steady adherence to a correct use of terms; and especially does it demand, in all Christian controversialists, a studied recognition of the wide difference between science and theory or hypothesis, on one side, and of the difference in importance between the plain teachings of the Bible and certain human interpretations of it, on the other side.

At the risk of being tedious, let us illustrate briefly what we mean. Dalton's "Laws of Combination" are truths of science, so firmly established by facts, that the human mind can no more refuse assent to them, when the facts are verified and understood, than it can deny the truth of the problem that the three angles of a triangle are equal to two right angles. These laws, with their facts, may properly be termed scientific. Dalton's Atomic Theory, however, beautifully as it then explained the laws of combination and other phenomena, was not regarded by its author as science, and many chemists rejected it from its publication. Of course the hypotheses as to the size, shape, weight, and polarity of the theoretically indivisible atoms, were mere speculations, which no one versed in science termed scientific.

In like manner, Agassiz's "Glacial Theory," published years ago, and supported by many facts, is still called a theory by its author; and of course the hypotheses to which it gave rise, as to the causes, during the supposed glacial era, of the intense cold required to congeal such masses of ice as the theory postulates, are even less entitled to the terms science and scientific than the theory itself.

The sciences of chemistry and geology are independent of all such theories and hypotheses. They are great systems of truth, to which the human mind cannot refuse assent. The theories and hypotheses are merely ingenious speculations that amuse and instruct, but cannot produce conviction of their truth, even when lucidly explained and ingeniously supported by arguments; and science is not responsible for any use that sceptical writers make of them. They are, it is true, outgrowths, often mushroom offshoots, from scientific discoveries, and are used by such sceptical scientists as Darwin, in vain attempts to mar the beauty, or to shake the foundations, of the temple of revealed truth. Indeed,

while there are sceptical readers, there will be sceptical writers, just as novels and romances will be written while thousands are anxious to read ingenious fictions.

Having shown the importance of a technically correct use of terms in all discussions, by Christian writers, of apparent discrepancies between science and the Bible, let us next make a few brief remarks on the equal necessity of cautiously keeping in view the difference between the express and explicit teachings of the word of God, and human interpretations of it.

Apparent discrepancies between geology and the Bible imperatively claimed our attention forty years ago, when official duties first required us to instruct classes of young men in physical science. For twenty-three consecutive years were we forced, most reluctantly, to differ with friends, clergymen and others, who clung to the generally received interpretations of indefinite English words in Genesis, which interpretations science compelled us to reject. With them, the commonly received interpretation as to the recent date and oneness of the creation of the earth as a finished world; the duration of a day of creative time; the universality of the deluge—was as much a part of the Mosaic record as the sublime announcement, “In the beginning God created the heavens and the earth.”

At that time, many incompetent men—bishops, deans, presidents of colleges, and other eminent theologians, but novices in science—wrote voluminously in vain attempts to prove that the Bible teaches the recent creation of the universe; that there was but one creative period; that it was of six literal days' duration; and that the deluge covered the whole globe. Many young and ardent men, who knew more of science than of the evidence of the divine origin of the Bible, were led to believe that the discrepancies were real, and *they rejected the Bible as a human production*. It is fearful to think how many were made sceptics by such Christian writers. Darwin and others may be of the number.

At an early period, however, a few Christian scientists, such as Sedgwick, J. Pye Smith, Mantell, Hitchcock, Hugh Miller, Harris, and others, equally versed in philology, theology, and science, pursued a wiser course, and proved that Genesis does not

fix the date of creation ; that there may be a gap, the duration of which cannot be ascertained, between the second and third verses of Genesis ; that as gradualness is manifest in all God's works, why not in creation ? that the then commonly received chronology of man's creation, (one of a hundred or more,) did not claim to fix it exactly ; that the length of a day of creative time is not necessarily inferred from the record ; that the word day is used in different senses in the Scriptures ; that in the first chapter of Genesis, four verbs—to create, to form, to make, and to build—are used, the verb to *create* being found in verses 1, 21, 27, only ; that other portions of the chapter can be interpreted to describe a reformation or adjustment for a new era, the creation of immortal man in the image of God ; and that the rules of philology, used in interpreting the Bible, do not necessitate belief in either the recent creation of the earth, or in the universality of the deluge. A great change in religious belief took place slowly ; the exegesis of Genesis was improved, as may be seen, in the "Speaker's" and other Commentaries ; and now there are few educated Christians who do not regret that learned and pious but mistaken writers, ignorant alike of philology and science, supplied the enemies of the Bible with so many authorities against it. At that time—a memorable period in the history of Christianity—the battle was between true science and false interpretations of Genesis. And the principle was verified, that true science, correctly understood, cannot conflict with revealed truth, rightly interpreted.

We should bear in mind that the Bible was not written to teach science. The divine purpose was higher and holier—a revelation to man, an immortal fallen creature, of some of the attributes of the Creator, and of some of the laws of his spiritual government. Man's reason could record facts, and deduce from them physical laws ; but it could not, by searching, find out God. The needed revelation was gradually made, through human instrumentalities, and by means of imperfect human language. It touched incidentally only the domain of physical science ; yet, numerous as are these points of contact, the ingenuity of man, in an age eminently scientific, has not been able to establish one real

discrepancy between the two distinct systems of truth; and now, near the close of the nineteenth Christian century, theories and hypotheses only—the mushroom outgrowths of human science—are the most solid foundation, if we except “historical criticism,” on which the most learned opponents of the Bible erect their batteries against it.

The “Evolution Hypothesis” of Darwin, so often referred to by Dr. Cheever in his articles, is an illustration of what we have said. It is neither more nor less than a modification of the development or transmutation hypothesis, which began with one Maillet, a century ago; was revived by some French and German scholars about the time of Voltaire; was extended in England by the unknown author of the “Vestiges of Creation;” and is now ingeniously supported by Darwin and others, who know well that they are using hypotheses and not science, in their efforts to gain notoriety by a display of talent, sophistry, and learning. The fact may be mentioned here, that Agassiz, in his communications to recent meetings of the American Academy of Science, asserts positively that the evolution hypothesis is but a continuation of the old “transmutation theory;” and also that he continues to prove, by new discoveries, that it is opposed and refuted by many facts and principles of science.

Let us now state briefly why Dr. Cheever is not qualified to criticise wisely the sceptical writings—the speculations of such scientists as Darwin, Huxley, and Tyndall.

In doing this, we shall not examine his several articles in the *Observer*, but shall make such general remarks on isolated portions as will enable us to indicate clearly why we believe that such Christian writers make impressions unfavorable to piety, on the minds of many readers, especially on two distinct classes: *First*, on the very large class who are anxious to believe that the Bible is being overthrown by the progress of scientific discovery; and *second*, on the equally large class of nominal Christians, who are unstable and ignorant and ready to be swayed by every wind of doctrine. To our mind it is obvious, that such writers, perhaps because they are ignorant of science, attach vastly too much importance to the real absurdities of the

evolution and other hypotheses, and yield to the writings of their supporters some of the respect due to their discoveries in science. Hence, such writers as Dr. Cheever are too ready to affirm that *science* is assailing the Bible, when in reality true science is calmly but efficiently defending it from vain speculations, prompted by an evil heart of unbelief. Their use of such terms as science and scientific, and avoidance of the words theory and speculation, prove that they are not scientists, and that they fail utterly to perceive the relations of true science to the Bible. The Bible uses words adapted to the masses of men; physical science employs technical terms, each of which, in all discussions relating to the influence of science on religious belief, should be used in its strictly limited technical sense. A few brief illustrations from Dr. Cheever's articles, will apply to a large class of writers of whom he is a fair specimen.

In the first sentence of his first number, he announces his subject thus: "Modern Materialism is Scientific Atheism."

As he does not define these terms, the reader cannot readily decide what idea he intends to express. Modern materialism, like the ancient, assumes and affirms that matter is eternal and indestructible, and, therefore, that creation is impossible; but, unlike the ancient, it denies the existence of a God of any kind, while atheism merely denies "that in, or over, or with nature, there is any thing besides nature;" that there is not, as theism affirms, a personal God. Does Dr. Cheever mean that physical science has reconciled the two, and that the result of the compromise is modern pantheism, which admits the eternal existence of matter with "a diffused impersonal divinity—a harmony, a unity, an unfolding plan and purpose, which must be recognised as transcending all limitations, being unerring, inexhaustible, infinite, and therefore divine?" If this be his meaning, he not only puts physical science in very bad company, but he supposes it to possess powers which its best friends never ascribed to it. Its sphere of action is limited to the simple service of recording *observed* material phenomena or facts, and of systematising and generalising the modes of action—the laws—of the forces acting on matter. Physical science was not present, like Wisdom,

at "the beginning," and therefore recorded no observed phenomenon as to the origin or duration of matter. It is impossible for science to know any thing of the origin of matter, mind, or spirit. It records that alone which the human mind observes when matter is acted on by forces, the origin of which it did not record. How, then, could it coöperate, as Dr. Cheever supposes, with materialism and atheism in the formation of a pantheistic union? If science so departed from her sphere of action and duty, and so transcended her legitimate powers as to assume to speak at all of the origin of matter, or of the existence or non-existence of mind or spirit, she degraded herself below the rank of well-behaved theory, and descended to the trivial and often vicious business of hypothesis.

Dr. Cheever, if he would divest himself of all prejudice against science, could easily prove, what Darwin, Tyndall, and Huxley admit, that materialism, atheism, and pantheism, are all *unscientific*—that science can prove neither their truth nor falsehood. Perhaps he would find the true cause of all three kinds of speculation assigned by David: "The *fool* hath said in his *heart*, There is no God." Nor must we be charged with calling such scientists fools, in the usual sense of the term. The scientists, Darwin, Tyndall, Huxley, and others, have clear heads and vivid imaginations; and their works show that they describe scientific facts, principles, and discoveries, with cautious and rigid accuracy; and yet, that they often indulge their fancies in bold, perhaps wild and impious, speculations, which they know and admit are not science. They have long used, like other scientists, theories and hypotheses in collecting and grouping facts in the zealous search for new truths of science; and some of them deserve the respect of the world, because they have made valuable discoveries; and the sympathy of Christians, because they have not been made wise unto salvation.

Dr. Cheever needlessly admits, in effect, that the establishment of the evolution hypothesis as scientific truth, would prove the non-existence of a personal God, and the human origin of the Bible. He says: "It makes but little difference whether we undertake to get rid of God by denying revelation, or of revelation

by denying God. 'Modern thought' takes the latter path by pretended *scientific demonstrations*." The italicised words show that his controversy is with science, and not with hypothesis. He certainly knows that hypothesis cannot demonstrate any thing. If we have stated correctly the limited sphere of physical science, it can demonstrate neither the non-existence nor the existence of a personal, spiritual Creator. It is, by its very nature, limited to deductions from material phenomena, observed and verified; not assumed or guessed at by human minds. Now, if this be true, the physical demonstration of the possibility of the material evolution of monads from dead earthy matter, or of man from monkeys, would be very far from proving the non-existence of a SPIRIT, infinite, eternal, and unchangeable—a Being capable of creating a universe of spiritual creatures. Christian scientists would still cling to the Bible, and venerate, love, and worship the God of revelation, because science cannot *prove* his non-existence. Such proof is an impossibility. All experimental attempts, however, to evolve animalcules from inorganic matter have failed, and so have all efforts to evolve higher from lower species of plants and animals. Moreover, if evolution should be proved to be a possible mode of the origin of plants and animals, the doctrine would still fail to account for the origin of the endlessly diversified fossil genera and species, in constantly ascending series, not one of which has been proved to afford evidence of its evolution from a lower type, by any process of selection. Nor could it possibly account for the numerous anachronisms which Agassiz and other scientists have observed and described, during their long, earnest, and patient study of fossils—the "musty fossils" of a recent writer. Hence, fossils have become important witnesses against atheists, pantheists, and evolutionists. And if Dr. Cheever will examine "Modern Scepticism," a valuable collection of lectures published recently in London by the "Christian Evidence Society," he will see to what extent each lecturer uses and relies on science for evidence against the various forms of modern speculative materialism.

Is Dr. Cheever not aware of the fact, that the Christian Church has entered a new era, and that a large majority of the most

learned, distinguished, and pious theologians of the period, are now zealously employing physical science in defence of the Bible against various forms of sceptical hypotheses? He may rest assured it is the only kind of evidence that can overthrow the false assumptions of learned but sceptical scientists. "Historical Criticism" may be met in a different way.

He often cites an objectionable passage from Huxley's or Tyn-dall's publications, without perceiving correctly the idea of the writer; and hence his replies are pointless and inconclusive. One example only will be given. He makes Huxley say: "The progress of science has in all ages meant, and now more than ever means, the extension of the province of what we call matter and causation, and the concomitant gradual banishment from all regions of human thought, of what we call spirit and spontaneity."

Strange as it may seem, he indirectly admits the truth of Huxley's absurd assertion, by not even attempting to point out its falsity, which is palpable. Without a word of denial or refutation, he leaves his bewildered unscientific reader to ponder on the supposed disastrous effect of the progress of science on Christianity, and utters a useless homily in these words: "God is a Spirit; but the progress of science will necessarily banish him from all regions of human thought, with all that is called theology."

Now, much of Huxley's sentence is true. The general proposition is correct; but it is artfully perverted and vitiated by the insertion of a modifying clause. Physical science, though still young, is rapidly attaining strength, and its progress has demonstrated that it deals with matter only, and cannot prove any thing with regard to spirit and spontaneity. Its teachings all relate something of matter—its properties, forces, and laws. When asked what life, or soul, or spirit is, it is absolutely deaf and dumb. It cannot be used to deceive, like ancient sorcery and divination, and it cannot be made to favor priestcraft, witchcraft, or spirit-rappings. In this respect, Huxley is right. But the clause which claims for physical science the power of banishing all thought on other subjects from the human mind, is simply one of those hasty, extravagant, and unscientific expressions of

which even wise men are sometimes guilty. Huxley is as ardent in scepticism as in science. He probably meant to say, emphatically, that physical science cannot prove the existence of a personal God, or the truth of revelation. This is true, and it is true also that it cannot be used to prove the opposite. It can, however, prove the falsity of vain, material speculations, when employed in assailing some part of the Bible. Revelation rests on a different kind of evidence, which is independent of physical science. This evidence has not been rightly examined by Huxley and Tyndall; and having rejected the Bible, they cannot see in the results of science, that evidence of design in the operations of nature, which is both consolatory and convincing to Christian scientists. The unbelief of one affects his feelings and thoughts in his researches, experiments, studies, and writings, against the Bible; while the faith of the other affects him in its favor. Both are fallible, and each is liable to go too far, and suffer his belief to *color* his scientific expressions. Both agree perfectly as to scientific truth. No Christian scientist bases his faith on science; but his faith is strengthened when he sees science used successfully, as it now is, in the overthrow of atheistic and pantheistic speculations; and when he finds, in all the operations of existing and living nature, as well as in the fossiliferous strata, evidence of the existence of a ceaselessly active, infinite, creative agency, his belief in a personal God is confirmed, and his heart is filled with emotions of adoration. This result of scientific progress is what Huxley abhors and rejects, because he does not believe the Bible. He knows that science, by searching, cannot find out God to perfection; but he refuses to believe that the Bible itself supplies the evidence of its divine origin and plenary inspiration.

Dr. Cheever quotes Tyndall against Genesis, thus: "In our day, the best informed clergymen are prepared to admit that our views of the universe and its Author are not impaired, but improved, by the abandonment of the Mosaic account of creation." Does he deny either this reproach of the clergy, or the abandonment of Genesis? Not at all. His sole reply is in these words: "Count us out, therefore, as not best informed, but still holding to the authority of Moses, until some greater scientist than Prof.

Tyndall, having been present at the creation, and made experiments, shall deserve belief accordingly."

What his object was in thus publishing Tyndall's hostility to Genesis, is not easily perceived. Was it to assist his own adhesion to the Mosaic record, in spite of an admitted abandonment of it by the clergy of his day?

Must not the perusal of Tyndall's assertion, and Dr. Cheever's reply, have left a vague impression on the minds of many readers of the *Observer*, that a victory, more or less complete, has been achieved by physical science over the oldest book of revelation? In his eagerness to assail science, because it is cultivated and taught by very eloquent lecturers and skilful experimenters, some of whom are sceptics, he fails to rescue the ministry from aspersion, and the Bible from false accusations of decay and weakness.

Some weak clergymen, and a few wicked ones, have, no doubt, degraded themselves, and injured the Church, by abandoning the Pentateuch; but Tyndall must know that their defection is to be ascribed not so much to science as to the application to the writings of Moses, since the time of Niebuhr, of the rules of historical criticism, which yielded satisfactory results in profane history.

Geology, as has been stated, proves the great antiquity of the earth, and repeated creations before the recent human era of creation described by Moses, after the general description found in Gen. i. 1 and 2; and the consequent abandonment of the old interpretations of Genesis, which are found in the notes of Henry's, Clarke's, and Scott's Commentaries, is probably what Tyndall refers to. It may safely be said, that though science has forced the rejection, by a very large majority of educated people, of the interpretation generally received when such commentaries were written, yet many facts prove that neither the clergy nor the laity of England have abandoned a line or a word of the inspired volume. In proof of this, two facts only will be stated.

The *first*, already referred to, is the formation in London, in 1871, of the "Christian Evidence Society," "for the maintenance of the truth of the Christian revelation." The Society is composed of the wisest and *best* men of all creeds, classes, and ranks;

and its fields of labor are designed to reach all grades of inquiring minds. One volume of eleven lectures, adapted to the educated classes, was published in 1872; and though some of the reverend lecturers—archbishops, bishops, deans, canons, and professors of theology, occasionally use the words science and scientific loosely, yet all recognise the value of science as a part of Christian evidence. All believe the Pentateuch has been strengthened by the assaults of scientists on it, and none agree with Dr. Cheever in hostility to science. To one of the lecturers, Rev. R. Payne Smith, D. D., was assigned the task of pointing out “the strictly scientific basis of a revelation,” which he did with signal ability. He describes the error of such writers as Dr. Cheever so clearly and correctly, that we shall quote a part of it for the special benefit of that class of writers. He says: “They take up an antagonistic position to science, and try to make out systems of geology, astronomy, and anthropology, from the Bible, and by these judge of all that scientific men say. Really, the Bible never gives us any scientific knowledge in a scientific way. If it did, it would be leaving its own proper domain. When it does seem to give us any such knowledge, as in the first chapter of Genesis, there is a very important differentia about it. What it says has always reference to man. The first chapter of Genesis does not tell us how the earth was formed absolutely; geology ought to tell us that. It tells us how it was prepared and fitted for man. Look at the work of the fourth day. Does any man suppose the stars were then set in the expanse of heaven absolutely that man might know what time of year it was? To the geologist, man is just as much and just as little as a *trilobite* or a *megatherium*. To the student of the Bible, man is everything, and the first chapter of Genesis teaches him that man was the sum of all other terrestrial creation, the sum and crown of the Creator’s work.”

The *second* fact is the “Speaker’s Commentary,” in eight volumes. A few years ago, the Speaker of the House of Commons suggested the necessity of the execution of a new commentary on the Bible, in which the latest information—physical, philological, and historical—might be made accessible to all.

He and many wise men seem to have felt that "while the word of God is one and does not change, it must touch, at new points, the changing phases of physical, philological, and historical knowledge; and so the comments that suit one generation, are felt by another to be obsolete."

The Church authorities were consulted; a plan was matured; the work was assigned to a company of divines, "who might expound each the portion of Scripture for which his studies might best have fitted him;" and the "Speaker's Commentary" is the result. In it the text of the old English version of 1611 is unchanged; but copious notes expound anew all doubtful passages, those especially which have been assailed on philological, historical, or scientific grounds.

A careful examination of the Commentary on Genesis, by the Rt. Rev. E. Harold Browne, D. D., Bishop of Ely, and author of "The Pentateuch in reply to Colenso," will convince any one that science has not caused the abandonment of a line or a word in the English version of the Mosaic record of creation, or of the deluge; but that it has shed much light on some of its most general statements, made in common words, adapted to all capacities, in all ages. The Church, the Parliament, and the people of England, have thus re-uttered solemnly their belief in the Mosaic record, after a protracted period of fierce assaults on it by sceptics of all creeds, and names, and nations, including Darwin, Huxley, Tyndall, and other English scientists. The Bishop of Ely closes his introduction to Genesis in these words: "Certainly as yet nothing has been proved which can disprove the record of Genesis, if both the proof and the record be interpreted largely and fairly."

All that has been said seems to prove, therefore, that attacks on science and scientists, by Christian writers, are generally unwise, because such attacks, as experience shows, proceed from misapprehension of the relations of science to the Bible. Assumptions or speculations inimical to revealed truth, may safely be replied to as such; but all must admit that theory is the vital part of any science—that which excites curiosity, and stimulates to earnest efforts to add new truth to the common stock of knowl-

edge. Nor can experienced Christians doubt that the sceptical hypotheses of this period, like those of the past, will eventually augment the cumulative evidence of the existence of a personal Creator, and of the inspiration of his word, without overthrowing any thing more sacred than some interpretation of it. In all such discussions, care in the use of terms is necessary, to avoid making the impression on general readers, that scientific can be opposed to revealed truth. "It is no use," says a wise theologian, "treating physical science as a bugbear. Let our theologians master it, and they will find it a manly study, which will give their minds breadth, and will teach them what are the difficulties that press heavily on many thoughtful minds, and which must be fairly met." And the reason is obvious. All real science is truth, from which the human mind cannot withhold assent. Each truth of any kind is consistent with every other truth of every kind. To suppose the reverse is an absurdity. The Bible is essential truth. All physical truth is but an expression of God's laws impressed on matter, as understood by man. Both physical and revealed truth are but parts, and probably very limited parts, of one infinite system of harmonious truth; and it is perfectly reasonable to suppose that finite human reason may misinterpret and misunderstand both one and the other.

Writers are apt to forget, however, that physical truth is strictly limited to the study of material substance, and can give no direct and positive response to any inquiry relative to the existence or non-existence of spirit. Nor is this a peculiarity of physical science. Mental science can give no information of the origin of mind or spirit. Both kinds of science are but deductions from facts and phenomena, long and patiently and accurately observed, collated, and compared by human minds; and no human mind ever observed the origin of either matter, or mind, or spirit. To this point all scientists, physical and metaphysical, proceed harmoniously in company. At this barrier to further progress in the light of scientific truth, some admit the existence of a personal God, and accept revelation as necessary for the supply of their spiritual wants, while others reject revela-

tion, and seek the gratification of their irrepressible spiritual longings in either deism or some form of pantheism.

Tyndall admits this. In his "Forms of Water," he says: "The blindness is ours; and what we ought to say, and to confess, is that our minds are absolutely unable to comprehend either the origin or the end of the operations of nature." We can, however, *believe* what we cannot comprehend. This, too, Tyndall and all scientists admit in all processes of scientific reasoning. He admits it repeatedly in his splendid Lectures on Light, while demonstrating experimentally some of the wonderful truths of science; as, that one solution is transparent to the light, but opaque to the heat from the sun or incandescent bodies; while another solution is opaque to light, but transparent to heat. He believes this; but he cannot comprehend the origin of the difference in the two solutions.

Hence, unbelieving scientists have industriously and faithfully aided Christian scientists, in so augmenting and perfecting science that it goes far already, and will go farther, in demonstrating a necessity for a revelation, as a part of God's plan of creation—"of the operations of nature," and of the end too.

We live among mysteries, which no finite mind can comprehend. To our minds, our own minds are mysteries. Some external, higher intelligence is needed to tell us what we are, and what is our destiny. Let science go on helping man to feel and believe this. Let it go on, solving one apparently fundamental problem after another, to convince him that ignorance alone is presumptuous; for science is gradually supplying evidence that faith in revealed truth, which has withstood successfully all scientific assaults for centuries, and which is still the only refuge from the deadly chill of atheism or the dreamy uncertainty of pantheism, is the beginning of wisdom.

Both mental and physical science tell us plainly that we cannot learn for ourselves what mind and matter cannot teach us; and we have seen that neither can teach us anything of its own origin, or of the origin of the other, or of the existence or non-existence of a spiritual creation or existence. In all researches, in any direction, a limit is soon reached, which arrests the pro-

gress of successful inquiry by science ; and, at that barrier, the baffled and anxious soul pauses, and desires more light as to its origin and end. It makes new efforts, and solves new problems, to find that it is again arrested, without any real approximation to the end of its search, though it has, in the mean time, learned many new truths of science, each of which says plainly that it cannot tell the origin of the operations of nature. The real tendency of true science, then, is to convince man of the reasonableness of a revelation, as the only means of gratifying those inward longings for a knowledge of the future, of which all human beings are more or less conscious.

From true science Christianity has nothing to fear. The real danger to the Bible is totally different ; or, rather, (for the Bible is not in danger,) the danger of a temporary prevalence of scepticism is very different ; and it certainly is not understood by such writers as Dr. Cheever.

It is to be feared that ministers of the gospel, as a class, devote themselves too exclusively to the study of the old science of theology, and know too little of progressive physical science, which has come, and will continue to come, into contact with the Bible. If they continue to decry it, instead of studying it so as to understand its relations to the Bible, they will lose their influence over the intellect of the country ; for the tendency of the refined physical researches of this period is, unquestionably, to generalisation and simplification ; and from this source will continue to arise dangerous forms of speculation. To distinguish these forms of speculation from science ; to know their real nature and strength ; and to meet them successfully, will necessitate in a writer at least a comprehensive knowledge of the special science from which the assailing speculation is an offshoot. This want of scientific knowledge is the danger to which we refer. We see this, for example, in the continued, earnest efforts to prove that all the phenomena of heat, light, electricity, magnetism, gravitation, and affinity, including crystallisation, (once believed to result from distinct forces—perhaps subtle forms of fluid substance,) are all produced by one force acting on the molecules of bodies—in one mode or direction to produce heat, in another mode to produce

light, etc. This belief is still theoretical ; but it is supported by so many facts, that many scientists assume it to be proved. Allied to this is Darwin's theory of the Conservation of Force, which assumes, in addition, that the aggregate amount of force in nature is constant, and, like that of matter, changes in form or mode of action, but is incapable of increase or diminution. To such assumptions, on scientific grounds, we see no objection ; but when a few learned sceptics assume further, that the same force or selection can finally be made capable of explaining all the phenomena of vital action, the case is very different.

How vital force is originated or produced, is a problem which physical science can never solve. The other forces, as heat and light, can be evolved, and one can be made to evolve another ; and we may admit, for the sake of argument, that one is convertible into another form of force ; but the *production* and evolution of the vital force (different things,) by the combined action of all the physical forces on dead matter, has never been effected. All experiments have demonstrated the futility of the attempt. The vital force preëxists in all ova or cells from which organised structures originate. Agassiz says there is no exception to the law ; and much of his long life has been devoted to its verification. In this way science meets and refutes hypothesis in its most subtle forms. Moreover, the production—the origin—of physical force has not been and cannot be accounted for by physical science.

Scientists will, however, go on questioning nature, through experiments on material bodies. They will strive to reach and solve the fundamental problem of molecular dynamics. And should they be able to reach and solve it—a mere possibility—speculative scientists would build hypotheses upon it, from which to assail the Bible, as the evolutionists and others have done, and are now doing.

A Scotch scientist, Croll, has published recently some excellent articles on force. In one he shows that force cannot produce force, and that the production of motion by force is a very different thing from the *determination* of motion. Hence, if all physical forces should be proved to be forms or modifications of one force, and this force should be proved to include the vital force,

(which Croll and Agassiz say is impossible,) the material evolutionist would be no nearer the attainment of his object than now; for the question would recur, what *determines* all the molecular motions in substance—living and growing substance—the kinds, directions, intensities, and durations of motion, in all portions of infinite space? The explosion of gunpowder moves a ball, but does not determine its course. A magnet evolves electricity, but does not, without a determining will, send it north or south. Force produces but cannot determine motion. Croll's article is a very lucid one. He is a scientist and a very skilful controversialist. He grants some of his opponent's assumptions, goes with him into his chosen field of inquiry, and very politely points out to him the error in his fundamental position. It is the error in science that he seeks. It is the assumption that he exposes. It is some theory or hypothesis that he undermines. He knows what is and what is not science; and he knows that speculations, assumptions, and hypotheses, cannot prove anything; and he believes that the Bible is in no danger from the truths of science. He is not made tremulous, and nervous, and apprehensive, when the Bible is assailed by sceptical scientists. He does not provoke attacks on it, by such manifestations of want of faith in it. He avoids causing a public apprehension that it may be overthrown by even the great power of modern science. He is sure that, to this day, science has strengthened the external evidence of its divine origin, by correcting false interpretations of its multitudinous and minute teachings, without touching any one of the great requirements of faith, like those embodied in the Apostles' Creed.

The truth is, that in this scientific age, the importance of science to the Bible is not understood or appreciated.

We should hearken to an adversary, and try to make a wise use of the truths uttered by him. Tyndall says, in the same work referred to above:

“But while we thus acknowledge our limits, there is also reason for wonder at the extent to which science has mastered the system of nature. From age to age, and from generation to generation, fact has been added to fact and law to law, the true method and order of the universe being thereby more and more revealed. In doing this, science has encountered and overthrown

various forms of superstition and deceit, of credulity and imposture. But the world continually produces weak persons and wicked persons; and as long as they continue to exist side by side, as they do in this our day, very debasing beliefs will continue to infest the world."

Now, feel or think as we may, the passage just quoted contains much important truth. It is what the pious Sir David Brewster proved in his *Natural Magic*, and Sir W. Scott in his *Witchcraft and Demonology*. Tyndall is a sceptic, and he may have had reference to ancient and modern superstitions or to the abuses of some particular Christian sects, or he may mentally have included all ancient and modern religions; though his words will hardly bear the latter interpretation. Be this as it may, the paragraph gives us the opinion of a great scientist, as to the increasing power of modern science in religious affairs. And will the Christian Church forego or neglect the acquisition of such a power? Is it wise to rest satisfied with denouncing it, and to discourage the study of it? The Church has often rejoiced in the successful services of some man, skilled in the use of some branch of human learning. And is not this a time when profound Christian scientists are needed to "encounter and overthrow" various forms of hypotheses, used actively against the Bible, by a few sceptical scientists, skilled in the use of scientific language, and aware of all the conquests of physical science? When learned theologians, ignorant of science, attack such men as Darwin, Huxley, Tyndall, and Virchow, with theological arguments only, they remind us of a man endowed with mere muscular power, assailing with a club a skilful fencer, fully equipped for the conflict.

Will the Church continue to intrust such a power to secular instruction and to chance? Is it safe to rely wholly, as heretofore, on such volunteer Christian champions as the Duke of Bridgewater, J. Pye Smith, Hitchcock, Sedgwick, Mantell, Murchison, Hugh Miller, Harris, and Croll? What ought the Church to do?

Before we answer this question, we will inquire briefly what the Bible says about science. It is the standard of faith and practice. We approach this part of the subject with diffidence

If we make any mistake, however, correction is easy. It seems to us that those Christian writers who denounce science and the study of it as inimical to religion, ought to be able to show that their opinion is sanctioned by Scripture authority, express or implied. Have they done it? Can they do it? In the discussion of a subject of so much importance, assumption and perversion of one or two texts of Scripture are inexcusable. If they have proved that either directly or indirectly the cultivation of physical science is condemned or censured in revelation, their arguments, with proofs, have escaped our attention. If they can prove it, our very careful examination of this special subject has been strangely unsuccessful.

We are not aware that the Saviour uttered a recorded word against science. On the contrary, he seems to have recognised one branch of physical science, medicine, when he said, "They that be whole need not a physician, but they that are sick." And in Proverbs we are told; "A merry heart doeth good like a medicine." Joseph, too, ordered the physicians to embalm his father, and "they embalmed Israel."

In Eadie's Concordance, we can find the word science in two verses only. In Dan. i. 4, the king directs Ashpenaz to select from the captive "children of Israel," some "skilful in all wisdom, and cunning in knowledge, and understanding *science*," to be taught "the learning and the tongue of the Chaldeans." The three terms, wisdom, knowledge, science, are obviously used in the same sentence, in a purely historical statement of a fact, in three different senses, *science* referring probably to mathematics, mechanics, astronomy, and medicine, of which much was then known. In this verse, wisdom, knowledge, and science, are connected as coördinate names of things of the same general character. All are tacitly commended or approved.

In I. Tim. vi. 20, the apostle solemnly entreats Timothy to "keep that (the pure gospel,) which is committed to thy trust," and then warns him to avoid "profane and vain babblings, and oppositions of science falsely so called." Scott tells us that efforts were early made, which finally corrupted the Church, to introduce into Christianity, not only frivolous observances of the

Jewish scribes, but also the doctrines of the Gnostic philosophy. The former were probably described by the apostle as "profane and vain babblings," and the latter as "oppositions of science falsely so called." Hence we may infer, that the special object of the verse was to warn Timothy and other Christians of that period, to avoid the incorporation of Jewish observances or heathen philosophy into the belief and worship of the Christian Church; and we may also admit that the general truth expressed in the warning, forbids the intermixture of human invention, knowledge, or science with the truths of revelation. Scott says: "These speculations of the Gnostics were borrowed from the vain philosophy of the Gentiles, and being distorted and mutilated to suit their purposes, men introduced them into Christianity." As science was made directly the subject of thought, may we not venture the remark that, to our mind, the very guarded language of the inspired writer indicates a wise purpose to avoid any seeming condemnation of science or of scientific pursuits?

So, in the same Concordance, two verses only are cited in which the words philosophers and philosophy occur. In the first Acts, xvii. 18, we are told: "Certain philosophers of the Epicureans and Stoics met him," Paul, while preaching at Athens. In this verse, the term philosophers is limited by the inspired writer to two Greek schools of heathen philosophy. Hence, may we not infer that this common meaning of the Greek word was attached to it by the apostles, when they wrote? If so, should we not limit the word to this meaning, as Scott did, in the only other verse in which it is used, Col. ii. 8? And may not the question be asked, why this verse should be made the text of sermons preached against science?

In Col. ii. 8, the apostle says: "Beware lest any man spoil you, through philosophy and vain deceit, after the traditions of men, after the rudiments of the world, and not after Christ." This verse seems to us to be so guarded in expression, the word "philosophy" being connected with "vain deceit," and immediately followed by the significant clause, "after the traditions of men," as to *exclude* the idea of physical science, some parts of which, as astronomy, were then well known. It is very

similar to 1 Tim. vi. 20, though it is, perhaps, more explicit in condemnation and prohibition of any mixture of any human science, philosophy, traditions, and observances, in the Christian Church, with the purely spiritual teachings of the gospel. Even the ritual of the Jewish Church, prescribed in the Old Testament, including circumcision, was abolished or superseded. It was obviously a caution to a Church recently organised near the centre of heathen materialism and Grecian mythology, to beware of the speculations of schools of philosophy incompatible with and subversive of the spirituality of the religion of Christ. On this verse we subjoin a part of the exposition by Scott, who says: "The Judaizing teachers seem to have blended their system with speculations borrowed from the Pagans and their different sects of philosophers; thus the traditions of the sages, and those of the Pharisees, were incorporated; and the worldly elements of heathen superstition or philosophy were blended with legal and traditionary external observances, and these were opposed to the simple faith of the gospel."

Four verses, therefore, seem to contain all direct teachings of the Bible on the direct relations of science, philosophy, and philosophers to revelation; and all will admit that two of the verses — Dan. i. 4, and Acts xvii. 18 — are simply historical statements of facts, which have no reference to the subject we are discussing. The part of the Bible, therefore, which can be tortured to refer directly to science or philosophy, is thus reduced to two verses, which are so exceedingly similar in import, that both may be regarded as a caution to avoid the same attempt to incorporate the traditions of the Pharisees, and the speculations of heathen philosophy, with the spiritual truths of the recently established Christian Church.

In explanation of these two verses, we have purposely quoted the exposition of Scott, one of the most learned of the commentators, who wrote before the discrepancies between geology and the generally received interpretation of the Mosaic record were voluminously discussed. Scott does not allude to any implied caution, in either text, against any possible evil tendency, in any extension, by zealous cultivation, of true physical science.

When the Bible was translated, the words science and philosophy were in common use, and the translators recognised the Hebrew and Greek as the languages which the Spirit had employed in making the revelation to man. Hence, we must presume that the translators sought to use, in our English version, the word or words which expressed most accurately the meaning of the word or words in the original Hebrew or Greek text; for to these appeal is made in all cases of doubt. Relying on this rule, we infer that the verses which we have cited, are the only portions of Scripture in which the translators were required to use the words science and philosophy. We thus add to the authority of Scott, that of the translators of the Bible, who certainly did not understand Paul to caution Timothy or the Colossians against science of any kind. As to the word philosophy, it has not had a definite meaning in modern times; but science has long denoted systematised known truth; and the almost total absence of the word, and of the idea expressed by it, from the Bible, is a significant fact, which should be kept in view in all discussion of the influence of physical science—known truth—truth divested of all theory and hypotheses—on efforts made to obey the command, “Go ye into all the earth, and preach the gospel to every creature.”

We have searched in vain for any prohibition, express or implied, of the investigation of physical phenomena, in order to ascertain the laws of the material creation.

Yet, how often have we heard, in the past thirty-five years, with mortification and regret, the passages which we have cited used even in the pulpit, whence truth only should flow, in sweeping denunciations of physical science as the enemy of the Bible; and also in support of groundless assertions that the study of science tends to alienate the minds and hearts of its devotees from revealed truth, and to foster pride, unbelief, and atheism itself; and this in a greater degree than an equal devotion to the study of history, Church history, law, ethics, and metaphysics.

Our long experience has convinced us that a larger per cent. of men, devoted to the study of one or more of the numerous branches of physical science, have been and now are Christians,

than of any other class, clergymen not excepted, especially if we include Unitarians, Universalists, and various sects who zealously teach false interpretations, perversions, and mutilations of the Scriptures.

We greatly fear that the many volumes industriously poured forth by nominal clergymen, from a professedly Christian press, are doing more to foster scepticism than the writings of Darwin, Huxley, Tyndall, and others, who are known to be speculative scientists, and who deny that the Bible is a revelation from a personal God, and who are willing to treat it as a collection of human productions. They are some of those to be found in every class of men, to whom the SON has not revealed the FATHER. For "the natural man receiveth not the things of the Spirit of God; for they are foolishness unto him."

The writers of the Old Testament were surrounded by enlightened heathen nations, and understood the general principles of the sciences and of the systems of philosophy taught in the schools of the Medes, Persians, Chaldeans, and Egyptians. These systems were modified and improved by Democritus, Epicurus, Zeno, and others, in Greece and adjacent countries, between the time of Malachi and the Christian era. And the Saviour taught, and his apostles preached and wrote, in the midst of these nations, when their systems of philosophy had attained their greatest influence over the minds and consciences of men. Now, the Bible not only prohibits sin in general, and many sins by name, but it warns and cautions man against many things, innocent and even commendable in moderation, but sinful in excess; as gluttony, sloth, riot, waste, and covetousness. If the study of science is adverse to the spread of vital godliness, and liable to cause its devotees to run into scepticism and atheism, why do we find so few direct allusions to it in the Scriptures, and not one caution as to its effects on the hearts and consciences of men? The prophets and apostles, as men, must have abhorred much of the philosophy of their heathen contemporaries. Why, then, did they not explicitly condemn and denounce it in their inspired writings? The true answer is, it seems to us, that the Holy Spirit restrained them; for the revelation was made neither to teach science, nor

to prohibit research in the material creation. This silence of the Scriptures on a subject so intimately and vitally connected with modern civilisation, is a striking proof of the divine origin of the Bible. It condemned most explicitly, however, the worship of anything except God as idolatry; all false teachings as foolishness; and all attempts to deceive and mislead nations or individuals, *by the pretended exercise of miraculous powers*, as divination, sorcery, enchantment, astrology, and necromancy. Such practices were not, in any degree, of the nature of physical science and true philosophy. They were infamous and cunningly devised arts to deceive and mislead men into superstitious beliefs; and that, too, at the time when prophets were making known revealed truth, and occasionally working miracles.

The Psalmist said: "Truth shall spring out of the earth." And so it did; for the progress of physical science, in modern times, has exposed the folly of "foolishness," stripped sorcery of its charms, shown the absurdity of enchantments, divested divination of all plausibility, and enabled man to weigh the planets, and to predict with certainty the reäppearance of comets. And science has made itself accessible to all, in such works as the "International Scientific Series," in journals, in cheap periodicals, and in newspapers. In the clear light of modern science—true physical science—all mists of necromancy vanish, and idols become hideous and disgusting to even unrenewed minds.

We proceed now to show why we think the general tenor and intent of the Bible favors and encourages research into the causes and laws of physical phenomena, having shown, we think, that it does not condemn, directly or indirectly or impliedly, the study of science, and that it studiously avoids any caution to the Church against its tendencies. How else can we understand the sublime allusions of its poetry and prophecy to the works of creation? "Before the mountains were brought forth, (not created,) or ever thou hadst formed the earth and the world, even from everlasting to everlasting, thou art God." The fact has already been stated, that in the first and second chapters of Genesis, four Hebrew verbs are used, which mean, respectively, to create, to make, to form, and to build; and that the use of these verbs is

such as to prove, as Hebrew scholars affirm, that the Mosaic account of creation, beginning at verse three, is a description of the remodelling of the planet, preparatory to the *creation* of immortal man. In Genesis i. 1, Moses says: "God created the heavens and the earth;" in Ps. xc. 2, he says, "formed the earth and the world." In Prov. viii. 23—31, Wisdom says: "I was set up from everlasting, from the beginning;" "before the mountains were settled, before the hills" were settled; "while as yet he had not made the earth;" "when he prepared the heavens;" "when he established the clouds;" "when he gave to the sea his decree:" "then was I by him," "rejoicing in the habitable part of his earth, and my delights were with the sons of men."

Now, may not the geologist ask, while reading and studying such portions of Scripture, (and they are numerous,) are not these descriptions of the remodelling of the earth which preceded the human creation? The terms, prepared, made, settled, established, and gave, applied to the heavens, earth, sun, moon, stars, mountains, hills, clouds, and seas, seem to denote changes in preëxisting objects of creation, by which changes the earth was made "habitable" by "the sons of men." And this is precisely what the science of geology demonstrates to be true. Now, can scientific investigations that lead to such results, be unfavorable to religion in the heart of a right-minded student of science?

True, Darwin, a geologist, is an evolutionist; but, if the study of geology made him such, why did it not have the same effect on Murchison, Sedgwick, Hitchcock, Hugh Miller, and Mantell, all Christians, and the contemporaries of Darwin, and his superiors in science?

May not physiologists safely inquire how they are "fearfully and wonderfully made?" Astronomers, how "the heavens declare the glory of God?" Opticians, how the "sun brings forth precious fruits?" Chemists, how clouds, hail, snow, rain, and dew are formed? Electricians, the cause of lightning and thunder?

Was Franklin doing wrong when, with his kite and key, he demonstrated the identity of electricity and lightning? Morse, when he learned to teach man to communicate, in an hour, with

his brother across oceans and continents? Copernicus, Galileo, and Newton, when they opened distinctly to human view the wonderful working of the machinery of the heavens? Priestly, Lavoisier, and others, when they studied and made known the constitution and adaptations of the firmament or atmosphere?

Did David, in Ps. xxix., caution the Jews against investigations into the laws of the material creation, as exhibited in storms, tempests, lightnings, and earthquakes? In Ps. viii., against searching for a more full comprehension of the manifestation of the divine perfections, in the works of creation? In Ps. xix., against efforts to show, by the discovery of new facts and principles of science, that the man "is without excuse," who does not discover, in the creation and government of the world, evidence of "the invisible things of God, even his eternal power and godhead?"

Finally, how can we interpret the first sentence of the Confession of Faith, that "the light of nature and the works of creation and providence do so far manifest the goodness, wisdom, and power of God, as to leave men inexcusable"—how can we understand this to imply any mistrust of the tendency of scientific pursuits, or of science carried to its utmost limits of perfection?

An attempt has thus been made to show that the Bible neither condemns science as inimical to faith in it, nor warns us to beware of any evil tendency in science to generate scepticism. We have attempted, moreover, to show that, in tone and import, the Bible encourages close and constant examination of the phenomena of the material creation, and that it teaches explicitly, Rom. i. 20, that he is inexcusable who does not see enough in the things that are made, to induce him thankfully to glorify the Creator; and, in part, because the Romans failed to do this, they became vain, foolish, and darkened idolaters, and were given over to all manner of "uncleanness." Rom. i. 21-24.

It may be asked, if such views be correct, why are some learned theologians opposed to science, and mistrustful of scientists? To this question the correct reply seems to be this: Before geology demonstrated the great antiquity of the earth, there was very little, if any, opposition to science by religious writers. In the

long, learned, and excited discussion of what were then supposed by many to be irreconcilable differences between the conclusions of science and the Mosaic record of creation, much was unwisely written before it was finally settled, with the sanction of a large majority of Christians, that science was in conflict, not with the Bible, but with one of about one hundred human interpretations of it. Added to this was the republication, in the *Vestiges of Creation*, of the transmutation hypothesis. All this time, many pious scientists were exerting themselves to prove that the transmutation hypothesis is contrary to fundamental principles of science, and Hebrew scholars exerted themselves to prove that the generally received Scripture chronology could be safely and advantageously abandoned, and the lapse of long ages, anterior to the human creation, be admitted.

Deep impressions against science were made, however, on many learned and pious, but mistaken minds, which were transmitted to others; and the volumes then written against geology and geologists, are still read by some as oracles of truth, and the same volumes cited by sceptics in proof of their assertion, that portions of the Bible itself have been overthrown and discredited.

Such adherents to the old interpretation of Genesis remind us of the old physicians when the circulation of the blood was discovered and described by a young anatomist. Most of them rejected it to the day of their death. School girls now read the proofs with admiration, as they do also those of the sphericity and revolutions of the earth, which the Roman Catholic world rejected with horror, at the time of Galileo's forced recantation.

This controversy with science and scientists has too long withdrawn the attention of the true Church of all denominations from the real danger to the success of its operations. We have already referred to this danger; and again we ask the question, is not this an age in which profound scientists are needed in the Church, to wield successfully, in defence of the Bible, the power described by Tyndall? Are they not more needed to "encounter and overthrow" various forms of hypothesis, speculation, and assumption, used actively against the Bible by a few sceptical scientists, skilled in the use of scientific terms, aware of all the changes in

refined and abstruse scientific research, and fully apprised of the import of the fundamental physical problems now sought to be solved? Tyndall is right in saying that physical science is a stupendous power in ecclesiastical as well as in civil affairs. It cannot be safely decried and ridiculed by Christian writers, neglected by candidates for the ministry, nor rejected by Church judicatories and theological seminaries. And should not the Church enlarge the course of scientific instruction in its colleges and theological seminaries? This is a question of much importance, and should be carefully considered by all concerned in the management of those institutions.

ARTICLE II.

THE PAULICIANS.*

About the year of our Lord, 650, a Syrian deacon, returning from captivity amongst the Saracens, was entertained for some time by a man named Constantine, of Mananalis, a small town near Samosata. On leaving his hospitable host, the deacon presented him with two books, written in the Grecian language; the one comprising the four Gospels, and the other the fourteen Epistles of the apostle Paul.

Constantine, in opposition to the restrictions of the priests concerning the reading of the Bible by the laity, studied his incomplete Testament with great diligence and care. The consequence was, as might have been expected, that his religious opinions underwent a decided change, and from being a rigid Church-

* Mosheim's Church History, Gieseler's Church History, Milner's Church History, Kurtz's Church History, Neander's History of the Christian Church, Jones's History of the Christian Church, Gibbon's Decline and Fall, Faber's Ancient Vallenses, Allix's Albigensian Church, Sismondi's History of the Albigensians, Blair's History of the Waldenses, Sime's History of the Waldenses, Waddington's Library of Useful Knowledge, Gardiner's Faith of Worlds, Milner's Religious Denominations, Peter Bayle's Dictionary, etc., etc.