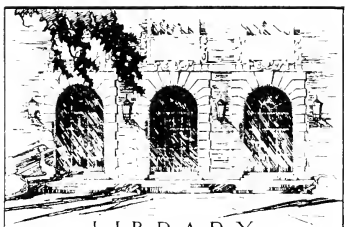

MODERN SCIENCE

AND

NATURAL RELIGION:

An Essay

READ BEFORE THE CHURCH CONGRESS AT BRIGHTON,
AND NOW SUBMITTED TO THE MEMBERS OF THE
BRITISH ASSOCIATION WHO LISTENED TO THE
PRESIDENTIAL ADDRESS AT BELFAST:

BY THE

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Elegantissima hæcce solis, planetarum et cometarum compages non nisi consilio et dominio entis intelligentis et potentis oriri potuit. . . . Hic omnia regit, non ut anima mundi sed ut universorum dominus. . . . Colimus enim ut servi, et Deus sine dominio, providentia, et causis finalibus nihil aliud est quam fatum et natura. . . . Dicitur autem deus per allegoriam videre, audire . . . fabricare, condere, construere. Nam sermo omnis de deo a rebus humanis per similitudinem aliquam desumitur, *non perfectam quidem, sed aliquam tamen.*—Newton, "Principia: Scholium Generale."

Θεὸς ἔδωκεν ἀντὶ δέλτου τὸν κόσμον.—Chrysostom.

La Nature est une Image de la Grâce.—Pascal.

PREFACE.

The reader of the following pages is requested to bear in mind that this Essay was originally constructed so as not greatly to exceed the very limited time allowed for reading it before the Church Congress. Consequently the whole argument has been purposely condensed, and in many instances is little more than a series of suggestive hints. The more important part of the argument seems to the writer to be simply this: Modern Science in its latest and grandest developments leads to the inevitable conclusion that the Universe as we see it, is a Creation by an Intelligent Will? I do not myself see how it is logically possible to evade this conclusion,

drawn from the scientific premises alone. The next step in the argument would, in the grave words of Bishop Butler, be this: "An Author of Nature being supposed, it is not so much a deduction of reason, as a matter of experience that we are under His government: under His government in the same sense as we are under the government of civil magistrates. Because the annexing pleasure to some actions, and pain to others, in our power to do or forbear, and giving notice of this appointment beforehand to those whom it concerns, is the proper formal notion of government." Then follow the considerations which show that in this government, there is "something which makes for righteousness:" that is to say, this government is Moral. After this may fairly come the Historical Argument. Then the consideration of the wonderful character of Christ. And finally will come the composite character of the Human Being, briefly touched on in page 16 of this Essay, and how far this composite character is correlative to the hopes of the

Gospel and to the teachings of the marvellous Central Figure moving and living therein. And here I would venture with all diffidence, but with all the strength of a personal conviction, to quote another passage of the gravest character from the writings of our great philosophical divine, a passage which seems singularly applicable to these days of arrogance and panic, and which ought to arrest the groundless presumption of the one, and allay the equally groundless and vague apprehensions of the other: "There is," he says, "in the present age, a certain fearlessness, with regard to what may be hereafter under the government of God, which nothing but a universally acknowledged demonstration on the side of atheism can justify; and which makes it quite necessary that men be reminded that there is no sort of ground for being thus presumptuous, even upon the most sceptical principles."

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I THINK that the time has come when the relations between science and religion are well understood, and may be clearly stated. In the present attempt to do so, the trammels of the twenty minutes enforce a brevity which must be fatal to completeness, and possibly fatal also to precision. Nevertheless, I have done what I could under the assurance that, whether I fail or otherwise, neither the interests of science nor those of religion can be seriously imperilled at the hands of any single writer.

According, then, to the latest and most authoritative statement of the new philosophy, it is asserted with considerable confidence :

1. That the potential of all things terrestrial, including man with all his powers, intellectual and moral, the potential of our very selves, for instance, in this assembly, was originally contained in the atoms of one of those nebulous patches of light, thousands of which are brought within the ken of the modern telescope. How this potential got there is not stated.

2. That the present state of things has been brought about, not by the subsequent intervention of any supreme cause or governor of all things, but through the natural interaction of these atoms or atomic forces. Combinations and recombinations throughout unnumbered ages have ensued, and the fittest have survived. Of living organisms the powers have descended by inheritance, have then been modified by their environments, and again the fittest have survived. This, succintly, is said to be the origin of man by evolution.

3. It is asserted that throughout Nature there are no certain tokens of design; wonderful adaptations are by no means denied, but they are referred to the influence of successive environments and Natural Selection.

4. This philosophy asserts that if there be an intelligent Author of Nature, an Absolute Supreme, He is to us unknowable.

Such, so far as I understand it, are said to be the legitimate philosophical conclusions of the most complete and refined science of the day.

If this be the ultimate result of the latest combinations of the atoms, and if this be all, then, so far as man is concerned, this ultimate result is, human life without an adequate motive, affections with no object sufficient to fill them, hopes of immortality never to be realized, aspirations after God and godliness never to be attained: thus myriads of myriads of other nebulae may still be the potentials of delusion, and their outcomes the kingdom of despair.

Now, I am old-fashioned enough not to accept any of these postulates of the new philosophy *in their entirety;* there seems to be just a sufficient substratum of truth in each of them to render them specious, and to some minds attractive; but in their entirety I am unable to accept them; not solely because I am a Christian, but because I am a student of nature. I know of no more illustrious names

in the annals of science than those of Newton, Herschel, and Faraday (I make no mention, as I could, of the names of the living), and their faith in an intelligent Author and Governor of all things is a matter of history. Mere authority, I well know, neither has nor ought to have any ultimate weight in the deductions of science; nevertheless, the mention of these great names seems the readiest mode of reassuring an assembly such as this—of reassuring them from the very first, after the enunciation of postulates which could not fail to shock the ears and sadden the hearts of Christian men.

As to the evolution of man, not so much from a zoophyte or a monkey, as rather through zoophytes from the interaction of the atomic forces in a nebula; if such can be shown to be the order of nature, that is to say, the will of Him Who ordered nature, I bow, and have no objection to make. For "an intelligent Author of Nature being supposed, it makes no alteration in the matter before us, whether He acts in nature every moment, or at once contrived and executed His own part in the plan of the world."

These are the words of Bishop Butler, and he goes still further and adds in words of a burning significance, "If civil magistrates could make the sanctions of their laws execute themselves, we should be just in the same sense under their government then as we are now; but in a much higher degree and more perfect manner."

If creation by evolution were a very strongly presumable fact, I should logically accept it. With my own hands a quarter of a century ago, I obtained, and any chemist might have obtained, all the elements which I found in an egg and in grains of wheat, out of a piece of granite and from the air which surrounded it, element for element. It has been one of the most astonishing and unexpected results of modern science that we can unmistakeably trace these very elements also in the stars, and partly also in the nebulae; perhaps all of them when our instruments are improved. But no chemist, with all his wonderful art, has ever yet witnessed the evolution of a living thing from these lifeless molecules of matter and force.

From what I know, through my own spe-

ciality, both from geometry and experiment, of the structure of lenses and the human eye, I do not believe that any amount of evolution, extending through any amount of time consistent with the requirements of our astronomical[1] knowledge, could have issued in the production of that most beautiful and complicated instrument the human eye. There are too many curved surfaces, too many distances, too many densities of the media, each essential to the other, too great a facility of ruin by slight disarrangement, to admit of anything short of the intervention of an intelligent Will at some stage of the evolutionary process.[2]

[1] On this subject I trust I may be permitted to refer to Note A, appended to my Hulsean Lectures for 1867 (Deighton, Bell, and Co.), where the question of the formation of the human eye by evolution is considered at large. See also note 11 *infra*.

[2] It makes no difference to the force of this argument, whether the intervention of the Will took place at the creation of the atoms, or at a subsequent stage. The former hypothesis, viz. that of an original self-adaptive power impressed upon the molecules (assemblages of atoms) at the time of their creation, only enhances the power and wisdom of the Creator. This is in the spirit of Butler's observation already quoted relative to *the execution of laws by themselves*. The "manufactured articles" of Sir John Herschel would, on this hypothesis, be more

The most perfect, and at the same time, the most difficult optical contrivance known, is the powerful achromatic object-glass of a microscope: its structure is the long unhoped-for result of the ingenuity of many powerful minds; yet in complexity and in perfection it falls infinitely below the structure of the eye. Disarrange any one of the curvatures of the many surfaces or distances, or densities of the latter; or worse, disarrange its incomprehensible self-adaptive power, the like of which is possessed by the handiwork of nothing human, and all the opticians in the world could not tell you what is the correlative alteration necessary to repair it, and still less to improve it as natural selection is presumed to imply.[3]

But I do not rest my objections to the theory

highly manufactured still. They would in fact realize Plato's ideal Republic, in which every element minds its own business.

[3] Dr. Helmholtz advances an argument on the other side. I quote it only to show some results of the new Philosophy. He says: "Now it is not too much to say that if an optician wanted to sell me an instrument which had all these defects [of the human eye], I should think myself quite justified in blaming his carelessness in the strongest terms, and giving him back his instrument." (!) I can only express astonishment, entire dissent, and the deepest regret at the language.

of the universal prevalence of creation by natural selection without some intervention of an external intelligent will, solely on any special knowledge of the structure of the human eye. Above and beyond all other similar arguments, and there are many such, Mr. Wallace, who has an equal claim with Mr. Darwin to the origination of the theory of evolution, Mr. Wallace has made an express exception in the case of man. For the creation of man, as he is, he postulates the necessity of the intervention of an external Will, and I commend his essay to your special attention. Among other arguments, he observes that the lowest types of savages are in possession of a brain and of capacities far beyond any use to which they can apply them in their present condition, and therefore they could not[4] have been evolved

[4] My able University colleague, Professor Fowler, somewhat objects to this argument, because the power of anticipation might have been originally impressed upon the molecules. This is conceivable, and, if really the case, would be a still more wonderful instance of a more highly wrought manufacture of the atoms. But the contention of Mr. Darwin's Theory of Evolution seems to be, that the alteration or development of an organism is brought about solely by the environment, and is up to the extent only of the demands of the environment itself and at the time:

from the mere necessities of their environments. Prolepsis, anticipation, I may add, involves intention and a will. For my own part, I would carry Mr. Wallace's remark upon savages much further, and apply it to ourselves. We, too, possess powers and capacities immeasurably beyond the necessities of any merely transitory life. There stir within us yearnings irrepressible, longings unutterable, a curiosity unsatisfied and insatiable by ought we see. These appetites, passions, and affections come to us, not as Socrates and Plato [5] supposed, nor as our own great Poet sings, from the dim recollection

in other words the Forces of Natural Selection are not *anticipative*. In the beginning of Nature this theory supposes no "*pre-established harmony*." See Mr. Wallace's "Contributions to the Theory of Natural Selection" (Macmillan, 1870).

[5] It is curious to see how small are the advances made by modern speculative Philosophers, on the theoretical schemes of their ancient predecessors. Plato seems to have regarded much of human knowledge as arising from the recollections of some anterior state of our being. The Theory of Evolution substitutes inheritance for this recollection, and an embryological Pangenesis has been suggested by way of supplemental aid. Would it not be wiser and more truthful to call these theories by their rightful name of *guesses*, though ingenious "Guesses at Truth." See the well-known passages in Plato's "*Meno*."

of some former state of our being,[6] still less from the delusive inheritance of our progenitors; they are the indications of something within us, akin to something immeasurably beyond us; tokens of something attainable yet not hitherto attained; signs of a potential fellowship with spirits nobler and more glorious than our own; they are the title-deeds of our presumptive heirship to some brighter world than any that has yet been formed among the starry spangles of the skies.

> "Whether we be young or old,
> Our destiny, our being's heart and home,
> Is with infinity, and only there;
> With hope it is, hope that can never die,
> Effort, and expectation and desire,
> And something evermore about to be."
>
> *Wordsworth.*

But our knowledge of these atomic forces, so far as it at present extends, does not leave us in serious doubt as to their origin; for there is a very strong presumptive evidence drawn

[6] See Wordsworth's ode on "Intimations of Immortality," stanza 5:—

> "Our birth is but a sleep and a forgetting:
> The Soul that rises with us, our life's Star,
> Hath had elsewhere its setting,
> And cometh from afar."

from the results of the most modern scientific investigation that they are neither eternal nor the products of evolution. No philosopher of recent times was better acquainted than Sir J. Herschel with the general mechanism of nature. From his contemplation of the remarkably constant, definite, and restricted, yet various and powerful interactions of these elementary molecules, he was forced to the conviction that they possessed "*all the characteristics of manufactured articles.*" The expression is memorable, accurate, and graphic; it may become one of the everlasting possessions of mankind. Professor Maxwell,[7] a man whose mind has been trained by the mental discipline of the same noble university, arrives at the same conclusion; but as his knowledge has exceeded that of Herschel on this point, so he goes further in the same direction of thought. "No theory of evolution," he says, "can be formed to account for the similarity of the molecules throughout all time, and throughout the whole region of the stellar universe, for evolution necessarily implies con-

[7] See Professor Maxwell's Speech at the British Association, 1873, reported in "*Nature.*"

tinuous change, and the molecule is incapable of growth or decay, of generation or destruction." —"None of the processes of Nature, since the time when Nature began, have produced the slightest difference in the properties of any molecule. On the other hand, the exact equality of each molecule to all others of the same kind, precludes the idea of its being eternal and self-existent. We have reached the utmost limit of our thinking faculties when we have admitted that because matter cannot be eternal and self-existent it must have been created." "These molecules," he adds, "continue this day as they were created, perfect in number, and measure, and weight; and from the ineffaceable characters impressed on them we may learn that those aspirations after truth in statement and justice in action, which we reckon among our noblest attributes as men, are ours because they are the essential constituents of the image of Him, Who in the beginning created not only the heaven and the earth, but the materials of which heaven and earth consist." And this, my friends, this is the true outcome of the deepest, the most exact, and the most recent science of

our age. A grander utterance has not come from the mind of a philosopher, since the days when Newton concluded his Principia by his immortal *scholium* on the majestic personality of the Creator and Lord of the universe.

I now come to the question of design in Nature. Our new philosophy admits that throughout Nature there are found innumerable instances of wonderful adaptations; nevertheless, it is asserted that these adaptations are the products of the actions and necessities of the successive environments. It is not stated whence came the capacities of the molecules for assuming their new arrangements. But it is stated that Mr. Darwin, whose mind is said to be "the most deeply stored with the choicest materials of the teleologist, rejects teleology, seeking to refer these wonders to natural causes." This is high authority, though in science, as I have said, authority weighs but little. On the other hand, I know for certain that so strong were the convictions of Sir John Herschel in the very contrary direction, that one of his last acts, very shortly before his removal from among us, was to busy himself about a MS. collection of all the

passages in his writings where he had referred to the tokens of an intelligent Will in Nature.[8] We have also heard the testimony of the greatest molecular physicist now living among us. If, then, the question of design were to be settled by the weight of philosophical authority, that authority is on the side of an intelligent Author and Governor of Nature. But in questions such as this, wherein, and from whatever causes, the philosophers are said to differ, I should prefer to appeal to the common and average sense of mankind.

I know of no greater intellectual treat—I might even call it moral—than to take Mr. Darwin's most charming work on the Fertilization of Orchids, and his equally charming and acute monograph on the Lythrums, and repeat, as I have repeated, many of the experiments and observations therein detailed. The effect on my mind was an irresistible impulse to uncover and bow my head, as being in the more imme-

[8] "Will without Motive, Power without Design, Thought opposed to Reason, would be admirable in explaining a chaos, but would render little aid in accounting for anything else." Herschel's "Familiar Lectures," xii. I regard this little book, in some important respects, as one of the wisest in our language.

diate presence of the wonderful prescience and benevolent contrivance of the Universal Father. And I think such, also, would be the result on the convictions and the emotions of the vast majority of average[9] men. I think their verdict would be, that no plainer marks of a contriving Will exist in a steam engine, or a printing press, or a telescope—I am not speaking of the whole end, scope, and intention of that Divine will, I am only speaking of the marks of its existence.

Or again, recurring to our ultimate molecules. The great modern advance of human knowledge, and especially the wonderful applications of this knowledge to the purposes of the arts of life, have arisen very much from the existence of iron, and coal, and sulphur, and platina, and silica upon our planet. Now tell

[9] A few years ago a celebrated cause was tried at Edinburgh; the question being whether a certain mineral was coal or not coal. Several of the ablest geologists and microscopists of the day were called on both sides. The one set deposed that the mineral was not coal at all; the other, that it was coal of the very best description. The perplexed Judge was compelled to throw aside all the scientific evidence and to rely on the judgment of an average workman of intelligence. Of course the mineral was coal.

me, what were the anterior chances, prior to the existence of Nature, that when a being like man came, after the lapse of ages, upon our earth, he would have found stored up for him, and for his development in the scale of being, iron and coal, and sulphur, and platina, and silica? To tell me that the co-existence of all these essentially independent existences might be the result of anything short of the intention of a prescient will, the evidences of a "*pre-established harmony*," would be equivalent to telling me that, after placing sufficient letters of the alphabet into a box, there might be dredged out of it the dialogues of Plato, the dramas of Shakespere, and the Principia of Newton.

But now comes the inevitable question, which all along may have been perplexing your minds, as I confess it once greatly perplexed my own. How is it that men, endowed with nearly equal capacities, and possessing nearly equal opportunities, should draw such different, not to say such opposite, conclusions, on subjects which in importance transcend all others, and beyond all others tax the reason to the utmost, and touch the emotions to the quick?

"I think that one cause of this contrariety of conviction lies in the nature of the evidences for Christianity, in the natural evidences for the being of a Supreme, and for the immortality of the Soul.[1] These evidences from the very nature of the case, cannot be mathematical, or demonstrative, or scientific; they belong, rather, to that class of evidence which we call probable; to that class, be it observed, upon which alone we determine the conduct of our lives; for, "to us probability is the guide of life." And although these probable evidences range greatly in degree, and although not any one of them, taken alone and by itself, may be sufficient to command entire consent, and enforce an absolute conviction, nevertheless, when taken all together,

[1] A very few years ago, a philosopher, with whom I am acquainted, was discussing the question of the Natural Evidences for the Immortality of the Soul, with one of the most eminent, acute, and scientific of our judges then living. It was agreed that they should hold three séances of an hour each, and then dispassionately form their conclusion from the weight of the probable evidence. At the end of the third séance, the philosopher said: "Well, then, judging from the evidence, I think that our conclusion must be, that 'it is impossible to conceive that man is not immortal.'" The aged judge buried his face in his hands, burst into tears, and sobbed, "IT IS IMPOSSIBLE."

they may—they often do—by their consilience from many different and *independent* sources, furnish the mind with the highest moral certainty of which it is capable. This we claim to be especially the case with Christianity; and in arguing the case, this consilience ought never to be forgotten, for it is by laying too great stress upon one or two of these presumptive evidences alone, and '*especially in conversation*,'[2] that many a mind has been robbed of its peace. "For it is easy to show," says Bishop Butler, "in a short and lively manner, that such and such things are liable to objection, that this and another thing is of little weight in itself; but impossible to show, in like manner, the united force of the whole argument in one view."

Now, it is especially in this region of probable evidence that the bias of the will comes in to warp the judgment: the bias of early education, the still greater bias of a later discipline of the intellectual and moral faculties, the bias of the environment, and of party spirit, the bias of a religious or of an irreligious life, the bias, we are told, even of a strong or of a

[2] Analogy, ch. vii. part ii.

morbid mood.[3] Thus, by the excessive or exclusive cultivation of any one side of our complex nature, intellectual or ethical, the mind becomes one-handled—lop-sided. This is the inevitable *Nemesis of Disproportion*.

In like manner, the exclusive or excessive addiction to mathematical studies has a tendency to render the mind averse to, or distrustful of, arguments which are not demonstrative; excessive addiction to physiology may superinduce an undue reliance on the effects of the "rhythmic vibrations of the brain," or on unquestionably mechanical actions of the nervous system; experimental philosophy suggests the arguments of measure and weight, and has been found to match vaccination against prayer.[4] On the other hand, the theologian is very liable to a strong bias in favour of authority, and to circumscribe his views to the conditions of a world

[3] Tyndall's Preface to his Address to the British Association, 1874.

[4] I have considered this question of Prayer from a scientific point of view, in the note to a Sermon preached before the British Association at Nottingham. See my Hulsean Lectures for 1867. Deighton, Bell, and Co., Cambridge.

not yet realized. All these tendencies, unless consciously and carefully watched, do, and of necessity must, warp the judgment, and render it more or less incapable of a just and impartial decision. This or that line of probable evidence, when presented to its consideration, is unduly cast aside, according to the bias of the will; the successive threads of the evidence are rudely snapped one after the other, and the *consilient* network of the whole argument is overlooked.

It is in the modern tendency to specialism [5] of pursuit, that the greatest danger is to be feared in regard to the philosophical arguments against Christianity; for the evidences of Christianity are not special, but varied and co-extensive with the whole nature of man and his environments. Hence it would be well for the philosopher to take into his laboratory such old-fashioned authors as Butler and Paley and

[5] It is worth observing that the late eminent Professors of Geology at our two great Universities, Sedgwick and Phillips, men whose minds were stored with scientific knowledge drawn from a great variety of sources, both of whom were competent *mathematicians* and not specialists in any sense; men, moreover, of singular candour and simplicity of mind,—came to the conclusion that the doctrine of Creation by Evolution, did not, to their apprehensions, express a Law of Nature.

Coleridge,[6] and honestly test in his personal experience the faith which he doubts, before he finally rejects it. Better still would it be if, in the study of every manse throughout England, there were found a well-used microscope, and on the lawn, a tolerable telescope; and best of all, if those who possess influence in our national universities, could see their way to the enforcement of a small modicum of the practical knowledge of common things, on the minds of those who are to go forth and do battle with the ignorance and the failings of our population, and to spread light throughout the land. A little knowledge of the ancient elements, fire, air, earth, and water, would save many a young clergyman from the vanity of ridiculous extremes,

[6] There is in my opinion no book in our language on the fundamentals of the Christian Faith better suited to a patient and thoughtful mind than Coleridge's "Aids to Reflection." The late venerated Bishop Sumner, at one time, used to recommend Aphorism xix. on Redemption, to the notice of his candidates for Ordination. With reference to Christianity, Coleridge says: "TRY IT. It has been eighteen hundred years in existence: and has one individual, in whose words you could place full confidence, left a record like the following?—I tried it, and it did not answer. . ." —Aphorism vii.

and from the surprise of the more wisely and widely educated among his flock. For, depend upon it, whatever may be our suspicions or our fears, the pursuit of the knowledge of the works of nature will increase, and increase with an accelerated velocity; and if our clergy decline to keep pace with it, and to direct it into wholesome channels, they and their flocks will be overtaken, though from opposite directions, by the inevitable Nemesis of Disproportion.

I, for one, believe, not so much in the right, as in the duty of every man to make the best of the faculties wherewith his Maker has entrusted him; and I meet with a grateful and a hopeful thought all those unexpected accessions to our knowledge of God in nature, which in recent times have come to us in almost overwhelming abundance. There is no need to be frightened at the phantoms raised by such terms as matter and force, and molecules, and protoplasmic energy, and rhythmic vibrations of the brain; there are no real terrors in a philosophy which affirms the conceivability that two and two might possibly make five; or of that which predicates that an infinite number of straight

lines constitute a finite surface; or in that which denies all evidence of design in nature; or in that which assimilates the motives which induce a parent to support his offspring, to the pleasures derived from wine and music; or in that which boldly asserts the unknowableness of the Supreme, and the vanity of prayer. Surely philosophies which involve such results can have no permanent grasp on human nature: they are in themselves suicidal,[7] and in their turn, and after their brief day, will, like other such philosophies, be refuted or denied by the next comer, and are doomed to accomplish the happy despatch.

Meanwhile we have the means of at least

[7] Mr. Mivart's word is "*internecine*;" Dr. M. Arnold's is "*dismal*." See "Contemporary Review," Oct., 1874, p. 776 and p. 818. With reference to the unlimited time demanded by the Theory of Evolution, it may be remarked, that if the resultant of the forces of evolution acting on an organism, be expressed as a *definite integral* with the time from its appearance in organic form as independent variable, and the superior limit A.D. 1874, is it not conceivable that the result should, as is the case with many such integrals, be either nothing or a small quantity? This seems to me to be worth consideration, as a possible source of fallacy; and is very nearly the mathematical expression of the argument adduced by the Duke of Argyll in his "Reign of Law," p. 273, ed. 3.

partially summarizing the results of modern discovery on the interpretation of the revelation of God's Will contained in the Sacred Scriptures. The discoveries of Copernicus, Galileo, and Kepler taught the Christian Church that the language of the Bible was to be understood in the ordinary sense of the ordinary language of men, and was not to be strained into an adamantine literalness. The subsequent discoveries of geology have carried a similar lesson still further, and we may safely conclude, that in the earlier chapters of Genesis the great Father of Mankind is teaching His children *as children*, and only up to the measure of their capacities and their needs, at and about the time of the Revelation. At the same time, we find that He has endowed them with vast and various powers and capacities, each and all of which they are bound to develope, and thereby to learn for themselves more and more of His will in Nature. Lastly, the course of scientific discovery has led to the certainty that the universe at large, our own physical frames, and our mental and moral constitution, are arranged on a much more mechanical principle than had hitherto been conceived. The

Christian student and the philosophical divine will be wise to expect a still further development of knowledge in the same direction. On the other side, we have at length been brought, by philosophical conclusions, from the most advanced scientific knowledge of the day, to the philosophical certainty that matter is not eternal, but that from the beginning of Nature it was endued with very wonderful properties by some Intelligent Will. This is the latest and the grandest Revelation of Nature. Here we may safely stop.

For my own part, a lifetime passed in the pursuit and the communication of natural knowledge, so far from effacing or obscuring the faith in which I was brought up, has served to deepen and to render more intelligent the conviction that the sacred Scriptures, properly interpreted, are to us the Word of God; that the Great Father of all has rendered Himself knowable to mankind by the manifestation of Christ, and that in this knowledge consists their highest life; that He has redeemed them by the atonement of His Son, and illuminates and strengthens all who come to Him, by His Spirit.

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