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## ON THE RELATIONS BETWEEN SCIENCE AND RELIGION

### INTRODUCTION

AN apology, perhaps, is needed, or, at least, some explanation is due for the appearance of yet another article upon so well-worn a subject as that of the relations between Religion and Science and Theology; for over the pages of the magazines and of the journals of the latter half of the nineteenth century are scattered many attempts to deal with the impact of Science upon Religion and upon Theology; articles, some learned and profound, some crude and shallow; bitter attacks from one side or the other or efforts, more or less successful, towards a reconciliation between the "opposing" realms. And, since this type of article has, in large measure, vanished in our day, not a few minds may prefer to be left in the comfortable belief that, after all, there can be no conflict since Science and Religion, at all events, deal with sides of man's nature altogether remote from one another. In any case, we are told, not infrequently, that whatever conflict there may have been is now past and a truce has been called; Religion has given up many beliefs once regarded as vital but now seen to be unnecessary, and has become "purified" in the process, while from the side of Science comes the recognition that, after all, religion of some sort is necessary for man and deals with a part of his nature altogether outside the sphere of the scientist in his official capacity. And in the second of these statements, at least, there is an element of truth. But, on the one hand, we can scarcely feel that a "truce" is a satisfactory state of relationship between two realms of such importance—suggesting, as it does, a sort of "armed neutrality" between them; while, on the other hand, the whole conception and notion, we confess, seems to us to rest upon somewhat shallow and hasty thinking. Moreover not a few men are compelled to think out for themselves the things which mean most to them; they are *critics* in the true sense of that somewhat abused word. But further there is abroad a quite general, albeit a vague, feeling that the scientists of our day are less irreligious than those of the generation which has just passed; that, indeed, there is manifest in scientific circles a general movement of thought in a direction towards a more favourable position with regard to religion and to religious beliefs. The present age, it is rightly perceived, is

an "age of transition," not only in matters scientific but also everywhere else; in the realm of national and of international affairs, in morals, in customs and, in fact, in the general outlook and attitude; in a word, the *Weltanschauung* is changing radically. In particular, in the realm of scientific thought, not a few of the old dogmas of the nineteenth century are breaking—more strictly, are being modified profoundly—both in the realm of physics and also in that of biology; it is being realised that the positions of "finality" reached in the nineteenth century were, in fact, anything but final; that newer, wider, *different* conceptions must be allowed to emerge. And may it not be, it is asked, that these conceptions are themselves more favourable to religion, or even, that upon them may be based a distinctly religious view of the world? In short, the time would appear ripe for a fresh consideration of the whole field, for some sort of "summing-up" of the controversy which has raged during the last eighty or ninety years; not altogether in any final sense but under the conviction that now, in our day, we are at the end of a period, and at the beginning of another, and that the conflict of the future, if conflict there is to be, will not be waged upon the old basis and presuppositions. It is not easy to prophesy for the future, even when "prophecy" is taken to indicate only an insight into the deeper currents of the present, leading to a perception of the way in which things are tending; but we should at least desire to come to some understanding of the "opposition," so much alleged of late, between Science and Religion and between Science and Theology, so that we may estimate how far such "opposition" is probable for the future. The present writer would admit quite frankly, and at the outset, that he feels himself scarcely able to sum up the position as this should be effected, but he would plead, at all events, an interest, extending now over some years, in these subjects, which have always appeared to him of fundamental importance. One *must* think of these matters, more especially when one's interests have been in things scientific; and some review of the general position may not be altogether devoid of interest to many minds.

#### NECESSITY FOR *SOME* RELATIONSHIP BETWEEN SCIENCE AND RELIGION

Religion has been with man always—at all events from the earliest times of which we have any record, or any indication of a record—and this *fact*, although simply expressed, is one of

considerable moment ; indeed man, as distinct from the "lower animals," has been defined by his possession of the "capacity for religion." And, as has been noticed frequently, man's religion, in his early stages, comprised also both his philosophy and his science. We should expect, therefore, an "opposition" between any of these realms to bear heavily upon the mind of man, and we should not be surprised then to find many and frequent attempts at a reconciliation, when reconciliation appeared necessary. After all we live in a *Universe* and, as the very word implies, these various realms, of religion, of philosophy, of science, if they are to have any validity at all, must stand in *some* relationship to each other ; the mind cannot rest in a state of division within itself<sup>1</sup> ; it cannot, for long, hold, for example, that "religion is true" and that "science is true," while yet it seeks to bring these realms into no sort of relationship. Still less can it hold the mediæval heresy of the "double truth," namely, that a doctrine can, really, be at the same time both true and false—true for theology and false for science. Nor is the matter at all mended by the idea of "value-judgments" presented to us in the Ritschlian theology ; the idea that a doctrine, quite apart from its truth, can have permanent "regulative-value" for men's minds. For one thing, the regulative value of any doctrine will be found to vanish when the mind which holds it begins to doubt its truth ; indeed the whole notion of "value-judgments" would appear to verge upon the doctrine of the "double truth." Yet nevertheless this is not to say that the Ritschlian doctrine is wholly devoid of value and is not an expression of at least some element of truth ; we must not overlook the fact, which cannot be too carefully borne in mind, that no theory which has ever obtained powerful sway over able minds is ever wholly false ; on the contrary, it draws whatever strength it has from some side or aspect of the truth to which it seeks to do justice. But to return : inasmuch as two realms are regions in which is exercised the activity of the mind these two realms *must* be thought of as standing in some sort of relationship to each other.

To bring the issue nearer to ourselves, however, we have to remember that the Christian religion has always claimed to be a rational religion, and this claim is to be understood, not in the sense that the doctrines of Christianity could have been obtained

<sup>1</sup> For while it is true that it is not given to any man to see all the consequences of his own thinking, so that a man may hold in his mind, at one and the same time, incompatible beliefs, yet we may agree with Martineau that "in the history of systems an inexorable logic rids them of their halfness and hesitations, and drives them straight to their inevitable goal."

by the unaided exercise of the human mind but in the sense that when these doctrines have in fact been received then they can be used as a basis for deduction; and this implies, of course, that they will not be found to conflict with any of the findings of reason exercising itself alone.<sup>1</sup> The mind, it is claimed, is able, when once these doctrines are known, to take them up into itself, to work with them and to make deductions from them; to relate them to results already obtained and, incidentally, to relate them to one another; to show, in fact, that they form parts of an organic unity. Augustine believed, for example, that wherever he could find any portion of truth it belonged to his Lord, and should be claimed for Him. "In every man," says Cyril of Alexandria, "whom He calls into existence . . . God implants the root of understanding, and thus makes him a rational creature, and partaker of His own nature."<sup>2</sup> "To do everything by the Word," says Ambrose, "and nothing without the Word, thou must do everything by reason and nothing without reason, for thou art a rational being, O man."<sup>3</sup> We remember, in this connection, that Clement of Alexandria and Origen, the first great teachers of theology, insisted on the importance of both science and philosophy as a basis and preparation for the full comprehension of Christian truth. Or again, coming down to the Schoolmen we have, as the accredited teaching of Thomas Aquinas, the great champion of orthodox belief, "Reason is an inner light, with which God speaks to us," "Obedience to reason is a preparation to obedience to God"; while the claim of Cardinal Cusa is that, "to seek the reason of things is to seek God." We do not desire to multiply instances—although this might be done almost without limit, and involving only the leaders of thought—but we would mention two others; in the first place Boyle, one of the founders of the Royal Society, and a leader of the new natural science of his day, who tells us that, "We Christians, in assenting to doctrines upon the account of revelation, need not, nor do not, reject the authority of reason, but only appeal from reason to itself, i.e., from reason as it is more slightly, to its dictates, as it is more fully, informed . . ."<sup>4</sup> And, in the second place, there are the well-known words of Bishop Butler, "I express myself with caution, lest I should be

<sup>1</sup> By "alone" here is meant "without special supernatural aid."

<sup>2</sup> Cyril of Alex. In Ioan. iv.

<sup>3</sup> In Ps. cxviii, serm. 14.

<sup>4</sup> Boyle, *Works*, iv, p. 181.

mistaken to vilify reason ; which is indeed the only faculty we have wherewith to judge concerning anything, even revelation itself."<sup>1</sup> All this, we repeat, was the *claim* made and it is recorded here, not as in itself proving itself, but as an indication of the attitude adopted uniformly by Christian theologians and thinkers of the past ; Christianity was regarded by them, not as one branch of truth, not as one theory amongst the rest, but as really the higher truth which is the synthesis and completion of all truths.<sup>2</sup>

#### MATERIALISM IN THE NINETEENTH CENTURY

But in the popular, and in the semi-popular, estimation at least, a change appeared over the scene in the middle of the nineteenth century, and as the century drew to its close the "modern" view of the world emerged ; the type of theory, that is to say, which, sometimes in a more reasoned out and aggressive form, sometimes more vaguely, was found underlying an influential part of the scientific thought of the day—characterised by a tendency to (at times a dogmatic affirmation of) a materialistic and mechanical explanation of the phenomena of life, and of mind, and, of course, by an utter rejection of the idea of the entrance of the supernatural into human history and experience, and so of the very conception of revelation. The view was fostered that there existed a radical opposition between religion and religious beliefs on the one hand and the findings of modern science on the other ; not, indeed, that Christianity, in particular, had lacked adversaries from the beginning, from the days of Celsus and Porphyry to the time of Hume. But the rapid progress of natural science, and the remarkable achievements of it within its own realm, caused men's minds to be dominated by the assumptions which underlay its methods and to base their thoughts on similar assumptions in quite other realms. In the first place, no doubt, the opposition presented itself as between special "results" of theology and of science. On the one side, for example, the view commonly prevailed that the earth, and indeed the Universe, had been created about six thousand years ago and in six days each of twenty-four hours<sup>3</sup>, while, on the other side, the study of geology and of astronomy

<sup>1</sup> Butler, *Anal.*, Pt. II, c. 3.

<sup>2</sup> The attitude of Christian thinkers, an attempt to indicate which is made in the few quotations given, is of course well known to those acquainted with theological writings of the past, and to those who seek out these things *for themselves* ; but it would seem to be almost entirely unknown to the majority of the men of our day.

<sup>3</sup> But not so Augustine, nor Origen.

indicated unmistakably that such a conception was far from the truth. Yet nevertheless there are but few religious beliefs, or theological doctrines, which can be held to conflict with isolated results of scientific investigation ; the two realms are naturally too widely dissevered. It is scarcely conceivable, for example, that the discovery of the finite velocity of the propagation of light, or the more modern discovery that a ray of light is deflected from its rectilinear path by the presence of neighbouring matter, or again, the idea that light must be thought of as consisting of corpuscles as well as of waves ; it is scarcely conceivable that facts such as these, if facts they be, can modify religious beliefs or theological doctrines. The bearing of the one sphere of thought upon the other seems so remote ; and the realisation of examples such as these is responsible, no doubt, for the statement encountered, not infrequently, that no *factual* result of science can possibly come into conflict with any *doctrine* of theology, or with any belief of religion. And this broad general position may be conceded ; yet we should hesitate perhaps to commit ourselves to the general affirmation that this is true of *all* of the special results of science. We can conceive the possibility, at all events, that some such result of science may modify profoundly our religious beliefs.

For example : suppose it *proven* that man has arisen, from some type of animal, through a long and slow process of brutishness ; through scenes of horror and bloodshed and cruelty indescribable ; with brute passions at their maximum and made fiercer and more lawless by dawning self-consciousness, while reason and conscience and power of self-control are but a feeble glimmer. Our moral nature is shocked and revolted to its very depths and the whole conception cannot fail to modify profoundly any idea we may have of the " God " or First Cause responsible for it all ; for it is no answer to point out that man, even as we know him now, performs acts quite as terrible as these. The point is that *we* feel ourselves to be morally responsible, *we* claim freedom of choice, and we feel that *we* bear the responsibility for our actions ; but in the picture outlined above it is " God " who is responsible since, by hypothesis, man, in the early stages, had a moral nature but imperfectly developed or, indeed, at the beginning, no moral nature at all. We are not concerned here with the *fact* of evolution, whatever that fact may be, but with the *mode* of the process. And in any case it will scarcely be

denied that conceptions akin to that described above have in fact modified the ideas of theologians and scientists alike, with regard to the nature of "sin," for example; for here "sin" is looked upon as a necessary element in growth, something from which man will pass away as he progresses in the scale of evolution, an "ape and tiger inheritance" which, perhaps slowly, is to be eradicated. But the Christian view quite clearly regards "sin" as something which "ought not to be"; not as a necessary stage in growth to something better but as that which ought never to be and ought never to have been. Of course we need not indicate that the view outlined above is not the *only* view of the process of evolution and indeed we gather that not a few modern notions have departed considerably from it; moreover regarded as a "result" of science it stands upon a level altogether different from that of the results, indicated previously, concerning the nature and propagation of light; for, in particular, these latter depend for their validity upon experiments which can be repeated. The processes, if they bear any resemblance to the truth, are going on around us continually and continuously. But nevertheless it will not be denied, we think, that the theory of man's origin which has been indicated, was by some regarded quite as objectively, as being objective truth, in precisely the same manner as that in which light is regarded now as composed of both waves and corpuscles.<sup>1</sup>

#### SCIENTIFIC FACTS AND SCIENTIFIC THEORIES

Yet still, in the main, we may agree to hold that the *results* of science do not conflict either with religion or with religious beliefs; but the matter stands quite otherwise when we proceed to consider some of the *theories* which from time to time have been associated with science—or, more strictly, with scientists; and this more particularly with reference to certain theories widely current in the nineteenth century. Of course it is not possible for the mind to become acquainted with a large aggregate of facts all within one realm, for example within the realm of electricity, without at the same time postulating some connection between them, and entertaining the idea of *cause* and *effect*.

<sup>1</sup> It is asserted, at times, that "origins" need not concern us; we have, we are told, *spiritual values* now, and their origin is of little moment—they must be catered for and hence the need for, and the province of, religion. And there is an element of truth in this position—but only an element; for one cannot think deeply on such matters without being forced to consider questions of *origin* and *genesis*. Certainly the reverse line of thought has been followed and spiritual values denied to us because, on some preconceived theory, no room appeared for their emergence. And while, we feel, these views and their foundations were mistaken, yet the whole notion and conception serves to show the connection in men's minds between spiritual values as we know them, and their origin.



It is, we take it, an essential feature of any science that it should seek to bring together all its facts and results under as few general principles as possible ; sometimes under *one* general principle, as with the Principle of Stationary Action in dynamics ; which one principle is taken to be the fundamental formulation of all physical science—as distinct, that is to say, from biological science. The danger, of course, is that theories suggested by results obtained in certain realms may be, and demonstrably have been, forced to “ account ” for the phenomena of quite other realms ; and this to the point of ignoring, or even of explaining away, *facts* within these other regions of investigation. It will be seen that we are now within the realm of *theory* and away from that of demonstrated fact ; and indeed one purpose of any theory is to predict new “ facts,” afterwards to be verified. And here we impinge upon Philosophy ; indeed it would seem evident that religion and religious beliefs must stand always in much closer relationship to Philosophy than to Science. Now it may be, and indeed commonly is the case, that a set of facts or positive results of science can be “ explained ” on any of quite a number of widely differing theories, or philosophies ; for one thing the facts known to investigators in any particular realm of science are at all times vanishingly few in number as compared with those yet remaining to be discovered. And of these many explanations, that dominant in any given day, and with certain types of mind, may quite well conflict with religion—perhaps with the Christian religion only, perhaps with all religion worthy of the name. In this sense, maybe in this sense alone, it can be held that science has been in antagonism with religion.

In passing we may consider, as an example, the mechanistic theories of biology and of psychology so widely held in the latter half of the nineteenth century. Owing to the labours of Galileo, of Huyghens, of Newton, of Laplace and Lagrange, of Fresnel and Young, of Faraday and Clerk-Maxwell, of Joule and Kelvin, and of a host of other eminent thinkers, the world of physics, that is, of inorganic nature, had been explored to no small extent and its “ laws ” brought in some measure before the mind of man. And all of its phenomena were regarded, and successfully regarded, as but expressions of the properties of matter in motion ; “ give me matter and motion,” in the words of Descartes, “ and I will construct the Universe,” and this in no small measure had been accomplished as regards the universe of inanimate matter. But

these investigators were dealing with a "dead" world—with purely dynamical systems, that is to say; and it must be remembered that physics and chemistry are still regarded, we believe rightly, as merely branches of dynamics. For dynamics may be defined as the science which examines the general properties of matter in motion, as distinct, that is, from the special properties of particular kinds or types of matter. But clearly we are acquainted also with biological organisms, with matter associated with "life"—whatever "life" may be; and such organisms manifestly obey *some* of the "laws" of the inorganic world. For example, if a living organism fall over a cliff it falls with the acceleration due to gravity; it has "mass" and "weight"; it obeys the grand mechanical law of the conservation of energy as regards its chemical and physical intake and output; and so on indefinitely. It was overlooked that, in addition, such organisms obey "laws" quite different from those of the purely physical realm. And not a few of the biologists of the nineteenth century came to hold that not some only, but *all*, of the phenomena of biology were explicable interims of the inorganic realm, that is to say, in terms of matter in motion. And they proceeded, in many cases, to the same view with regard to the psychological realm, the realm of mind. Thus Huxley, "thought is as much a property of matter in motion as is chemical action"; or Cabanis, "the brain secretes thought as the liver secretes bile." Now, in the first place, views such as these must be regarded as a *philosophy*, for it is the essential task of philosophy to view the Universe as a Whole; and they are based, for the most part, upon investigations carried out within *one* realm, namely the realm of physics. And, secondly, these views can scarcely fail to modify, and to modify profoundly, all theological doctrine and all religious beliefs. As a matter of actual fact we know that such were affected, and on the premisses assumed it is not easy to see how the matter could stand otherwise. It does not appear a long step to complete Determinism, as within the physical realm so within the realm of mind, and, of course, to a radical antagonism to the idea of the supernatural as entering into human history and experience. But it will be observed that the conflict of religion was not with the *facts* of science, not with the *fact* that organisms obey some of the physical "laws," but with the *assumption* that these organisms are subject to no other type of "law." In a word, the conflict was between religion and, not scientific *facts*

nor *results*, but a scientific *theory* or *philosophy*. We need not press the point, perhaps, for among those who think for themselves the situation is sufficiently realised in our day.<sup>1</sup>

#### SCIENCE IN THE TWENTIETH CENTURY

There is abroad today a feeling, ill-defined it may be but yet definite, that modern science and modern scientists have reached a position more favourable to religion and to religious beliefs than that which obtained a generation or two ago ; that there has been a general movement of scientific thought away from an earlier position of antagonism with religion. And in some limited sense we believe this to be true ; we seek subsequently to determine in what precisely this movement consists. But a prior comment is, perhaps, not unnecessary. For is the implication indeed justifiable that scientists, as a body, ever were irreligious ? We have indicated the popularity, in the nineteenth century, of certain naturalistic theories which were indeed subversive of all religion, and these theories were ably propagated, in a very determined manner, by a few eminent minds, eminent, that is, in the realms of their own special studies ; but it will be found, we think, that they were vocal out of all proportion to their relative numbers, or to their relative importance—although their controversial ability was not small. And it is to the activities of these men that we owe the still widely-spread notion that science was, and to some extent still is, inimical to religion and to religious beliefs. But scientists of this type were by no means representative ; for if, on the one hand, among physicists, we have Helmholtz and Tyndall and Mach we remember, on the other hand, the names of Faraday, of Clerk-Maxwell, of Kelvin, of Stokes and of the late Lord Rayleigh, who were indeed far removed from irreligion. And while, among the biologists, we have Huxley and Haeckel, and perhaps, in later life, Darwin, we remember also Agassiz, and Pasteur, and Owen, and Mivart and Wallace.<sup>2</sup> The fact is that these naturalistic theories were, relatively, indeed very much more widely current among the “camp-followers” of science, to quote Professor Macalister, sometime Professor of Anatomy in the University of Cambridge, than among the scientists themselves ; though the further question arises as to how far the anti-supernaturalistic theories were themselves in consonance with the *Zeit-geist*, or “spirit of the

<sup>1</sup> But *not*, perhaps, with the “man in the street,” even today.

<sup>2</sup> Those interested in finding out for themselves the actual state of religious opinion amongst eminent scientists towards the end of the nineteenth century may with advantage consult *The Religious Beliefs of Scientists*, by A. H. Tabrum.

age,"—a spirit due perhaps rather to industrial and material "progress" than to increasing knowledge, whether philosophical or scientific. These considerations are adduced here, not as proving very much with regard to the impact of science upon religion, but merely as showing the religious beliefs of scientists; although we confess to a feeling that it would be passing strange if religion and science were altogether and necessarily in antagonism with each other while yet the men who did so much to advance science held the views which we have indicated. But it is necessary to keep these facts in mind if we would come to some understanding of the change which, it is alleged, has come over the scene in our day.

And now, we may ask, in what precisely does this change consist? Is it that new *facts* have emerged which *prove* the doctrines of religion? This we can scarcely hold. Or is it that old and imagined "facts," themselves in conflict with religious doctrines, have turned out, on further investigation, to be no facts at all? This again we can hold, if at all, only in a limited sense. But the truth would appear to be that the old dominant *theories* are, for the most part, dominant no longer; and, as we have sought to indicate, they never were held universally. To return, for example, to our consideration of the realm of biology; we saw that the view was held that biological organisms obey only the "laws" of the physical realm, that the phenomena of life, and indeed those of mind also, are but expressions of the properties of matter in motion; that biology and psychology are but subsections of dynamics. But it is more generally realised in our day that biological organisms obey, in addition, "laws" quite other than those which hold within the purely physical realm; that biology *cannot* be deduced from physics and chemistry. Biological organisms have a peculiar type of co-ordination; they interact with their environment in a peculiar manner—for example, they become "acclimatised" to their environment; they reproduce their kind and, if damaged only to a limited extent, they "heal" themselves. And none of these properties appears to hold within the dynamical realm, or the realm of physics. In short, biology is an *independent science*<sup>1</sup>

<sup>1</sup> For a presentation of facts bearing upon this topic we may refer to the Gifford Lecture on the *Sciences and Philosophy*, by Professor J. S. Haldane; but Professor Haldane seeks to turn the tables upon the mechanists, and to force upon the physical realm a biological interpretation; and upon both realms a psychological interpretation. This would appear as little justifiable as the reverse process; and, of course, Professor Haldane pursues his course in the interests of a pantheistic system of philosophy, and of religion.

and must be studied as such if we are in any measure to understand it. And how much more is psychology an independent science—the realm of mind ?

So far, it would appear, we are within the realm of *fact*; and now how shall we “explain” these facts? We live in a *Universe* and these three realms, the physical, the biological, and the psychological, must be thought of as standing in some relationship with each other: this is the problem of philosophy, and it is not our task here, perhaps, to enter very deeply into the problem. But one thing is clear; the older mechanistic theories will not stand. No longer need we be told that life, and thought, are themselves functions of matter in motion; and with the abandonment of this position vanish also the many conclusions based upon it. And it is in this sense, we feel, that scientific thought has moved from a former position of antagonism with religion and with religious beliefs. Certain widely-held scientific theories have broken down—scientific *facts* remain; nor is it altogether the case that new *facts* have emerged to help in the disintegration of the older theories. Results<sup>1</sup> inimical to the mechanistic theories were always known; only, their cogency and force were minimised, indeed they were ignored, in the all-pervading enthusiasm among biologists to explain *everything* on a dynamical basis—to regard all phenomena of life, and of mind, as being but expressions of the properties of matter in motion. In passing we may venture to suggest that, perhaps, there is, in addition, another reason for the widely-spread feeling of dissatisfaction with the naturalistic view of the Universe; and that is the realisation, by specialist and non-specialist alike, that these theories will not *work* in everyday life. For one thing they cut across too many fundamental convictions of human nature—not religious “prejudices” only—and they render human life barren and arid and meaningless. And may we not trace to this source the oft-expressed feeling after something more *definite* whether in religion or in theology; a feeling which would appear to underly not a little of the thinking of the comparatively younger generation of today?<sup>2</sup>

<sup>1</sup> But such phenomena have been studied more widely and more carefully of recent years: cf. Haldane: *The Sciences and Philosophy*: Gifford Lectures, Glasgow, 1927 and 1928. *passim*.

<sup>2</sup> We would express our conviction that the time is now ripe, to an extent greater perhaps than for a long period, for a forward movement in a direction towards a greater degree of definiteness certainly in matters religious if not, indeed, also in theology. The comparatively younger university teachers of our day are, we feel, in large measure profoundly dissatisfied with the atmosphere of barren negation, and of indefiniteness, which would appear to have been handed down as a legacy from the

But we detect a certain tendency to proceed further than this: it is admitted that certain definitely anti-religious theories of the nineteenth century are dominant no longer; may we not go further and hold that the newer scientific theories offer in themselves a foundation for a specifically religious view of the Universe; that indeed they not only admit of, but compel, such an interpretation? Now this is a view which we do well to examine with exceeding great care; for while on the one hand there is contained in it an element of truth—for we have no wish to deny the validity of Natural Theology within its own realm—yet, on the other hand, there are also elements of danger. We must realise, however, in the first place, that within the realm of natural science profound modifications have appeared during the last thirty years, and are appearing with ever-increasing rapidity at the present time; and nowhere, perhaps, is this more clearly shown than in the study of modern physics. The emergence of the theory of relativity is known to most, we take it, though we should scarcely venture to claim that the theory is understood by all; and it is realised that as regards the ordinary affairs of common life the theory makes no perceptible change. Indeed even in connection with the calculation of the orbits of the planets we can detect experimentally no difference from the corresponding results deduced from the classical Newtonian dynamics—save only in one exceptional case, that of the rate of advance of the perihelion of the planet Mercury; and even here the difference is only forty-two seconds of arc *per century*. Nevertheless the theoretical gulf between the old and the new dynamics is wide and deep—indeed it is complete. Our notions of physical time and of physical space are radically different on

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immediate past; we record this merely as our experience gained from various sources and we believe the feeling to be very widespread. Not indeed that the younger minds are moving in any one direction; their ideas and reactions are many and various, but all characterised by a dissatisfaction with vagueness for its own sake, with indefiniteness and with negation. The reply may, of course, be made that all this is but an example of the ebb and flow of thought, of those wave-like movements in men's thinking which have been witnessed all down the centuries; and this contention is not without an element of truth. But we must remember that there is always a *time-lag* between the emergence and dominance of scientific theories amongst circles strictly scientific and philosophical and the permeation of the lay mind by these same theories; so that frequently the basis of such theories has already crumbled among the scientists themselves while yet the "man in the street" has hardly become aware of their import. And further, the scientist himself, for the most part, pays such very little heed to the philosophical bearings of his own theories—as is perhaps not unnatural; it is only when these theories and postulates become beaten out in the wider realm of human life, in so far as they have any impact thereupon, that their inadequacy and insufficiency, and their assumptions, are made more definitely manifest. We believe that this, in no small measure, is the cause of the widespread dissatisfaction shown in our day with the materialistic and naturalistic views and philosophies so popular, in certain circles, during the latter half of the nineteenth century. It is realised that such theories cut across fundamental *facts* of human nature, that indeed they have quite definite implications and presuppositions on the basis of which everyday human life *cannot* be lived.

the newer view from those obtaining on the older view. Our conceptions of force and, to some extent, of matter are modified profoundly. But it is not clear how far philosophy itself is affected by the theory of relativity, still less that religion is in any way concerned. Or again as regards matter itself; we believe that matter is a form of energy, and energy, of matter; indeed the current view is that the source of the vast quantities of radiant energy emitted by the stars, by the sun for example, is the annihilation of matter within them, and further the suggestion has been put forward, influentially, that energy is transformed into matter. And the law of the conservation of energy is widened correspondingly so as to include matter as a form of energy. Now some minds have seized upon this modern view of matter as in itself a refutation of the old materialism and materialistic theories; forgetting that, as someone has it, "matter in becoming thinner, does not thereby, and of necessity, become more spiritual." The feeling would appear to be that matter has become attenuated, and spirit is "thin," and therefore the Universe now calls for a spiritual interpretation; but the danger of such a view is surely evident, for it lies open to an immediate and easy refutation. Not by such "arguments" shall we do aught but disservice to the cause of religion.

The other direction in which modern physics has broken with the physics of the nineteenth century is concerned with the emergence of the idea of *discontinuity* as contrasted with that of *continuity*, which may almost be regarded as the dominating notion of the last century—as for example in the conception of Evolution (the magic word of the nineteenth century) and its unyielding application to widely dissevered realms of thought, biological, historical, that of literary criticism, theories of morals, and elsewhere. In the realm of physics, for example, energy was thought of as being emitted, and propagated, and absorbed, continuously, that is, there was no lower limit, it was held, to the quantity of energy which could be emitted by a radiant body; but now we believe that emission, and absorption, can take place only in definite quantities of energy, or *quanta* as they are named. In other words energy is emitted as "atoms" of energy and further, we believe, is propagated as "atoms" or "corpuscles" of energy. A still more modern theory, that of wave-mechanics, affirms that we have to deal both with waves *and* with corpuscles; instead of, as on the old theory, with waves only—waves in an

infinite and all-pervading medium, the aether. And for this theory of wave-mechanics there is no small degree of experimental evidence. But it is not clear that all this has any very definite or important impact upon religion or upon religious beliefs, save only, it may be, as an added element of uncertainty in the naturalistic theories of life and of mind based illegitimately, as these were, upon the laws of dynamics, which themselves turn out to be quite other than we thought them to be.

But now, since 1927, we have witnessed the rise of a conception of quite different order and one which, if indeed it possess any validity at all, cannot fail to affect philosophical thought, and through this must be considered as regards its relationship to theology—if not also to religion. We refer to the *denial of strict causality* within the physical realm, a denial which has been made by eminent thinkers; and this is said to follow from acceptance of the *principle of indeterminacy*, put forward by Heisenberg in 1927. The physical basis of these notions and the discussion of their dynamical details is, perhaps, too technical for treatment here; sufficient, for our purpose, to record the actual denial of strict causality within the realm of physics. We are told that we cannot predict the future—that is, within the phenomena of the physical realm—because the data required for the prediction include *unknowable* (not unknown only) elements of the past; again, “the question whether from a complete knowledge of the past we can predict the future does not arise, because a complete knowledge of the past involves a contradiction.” This, it is held, means a denial of Determinism; and so science thereby withdraws its moral opposition to free-will: further, we are told, those who maintain a deterministic theory of mental activity must do so as the outcome of their study of the mind itself, and not with the idea that they are thereby making it more conformable with our experimental knowledge of the laws of inorganic nature. And now what is the impact, we must enquire, of all this upon philosophy and theology, and upon religion? In the first place we must observe that while the principle of indeterminacy undoubtedly embodies a physical *fact* yet it does not, we feel, lead of necessity to the final denial of strict causality within the realms of physics; and not everyone is prepared to derive this conclusion from it.<sup>1</sup> We prefer to

<sup>1</sup> e.g. Einstein (*Nature*, 1927, March 26, p. 467): “It is only in the quantum theory that Newton’s differential method becomes inadequate, and indeed strict causality fails us. But the last word has not yet been said. May the spirit of Newton’s method give us the power to restore union between physical reality and the profoundest characteristic of Newton’s teaching—strict causality.”



regard it as expressing merely the lack of refinement of our physical tools—as due indeed to the finite, though relatively small, size of the quanta of light energy; for even if we banish strict causality from the physical realm we have still to remember that the fundamental postulate of reason is, that whatever exists has some rational explanation of its existence, and that whatever change takes place there is always a reason which explains this change. Either, we have the case of a self-determining agent, having the reason of the change within himself; or, the change in the object is determined by something beyond itself—and by hypothesis we are debarred from assuming a physical cause. Now the former alternative would imply that we endow our electrons with *volition* or *will*—and this assumption we decline to make; and as regards the latter alternative—we believe indeed that the final explanation of the causal order of nature must lie, not in an infinite regress of finite causes and effects, but in a principle upon which the whole depends; a principle rational, self-conscious and personal. But are we seriously intended to believe that at last, in the quantum jump of the electron, we have reached the stage at which this final principle acts directly upon the “natural” order? This again is a position which, we feel, we cannot maintain, and therefore we prefer to regard the whole basis of these conceptions—the principle of indeterminacy—as expressing merely the lack of refinement of our physical tools, and as having no implications with respect to the final denial of strict causality within the physical realm. But even allowing all that is claimed for the principle of indeterminacy, as leading to the denial of strict causality within the realm of physics, we may ask—what is gained thereby in the interests of religion? Is it equivalent to a disproof of determinism in the realm of mind? No doubt the theory of mental determinism was based upon deterministic physics, but we have seen that the weakness of this position has already been exposed.<sup>1</sup> And, indeed, the argument can only be cogent, in any possible sense, if we hold that complete determinism in the physical realm implies necessarily complete determinism in the realm of mind; and this is a proposition to which we cannot assent. Nevertheless it is of interest to observe that some thinkers, not unknown in the world of science, are favourably disposed to the doctrine of

<sup>1</sup> Cf. for an able treatment of the problem, on the basis of nineteenth century physics, the Gifford Lectures of the late Professor James Ward, of date 1898, entitled *Naturalism and Agnosticism*.

the denial of strict causality in physics, because of the reflection that the idea of mental determinism is, in fact, a denial of our deepest consciousness, and its passing would appear, in some vague manner, to be facilitated by the newer physical speculations.

#### MODERN IDEALISM

The characteristic of modern movements of thought in scientific circles is, as has been mentioned, the disintegration and decay of materialism as a philosophy; we may pause here to inquire what has taken its place in the scientific and, to some extent, in the popular view. And we may introduce the inquiry in this way: our experience of the world presents to us two "things," namely *matter* and *mind*, and the modes of manifestation of these are, at first sight certainly, widely different; so different indeed that for practical purposes we may fairly speak of them as two different "things." But, again as a fact of experience, there *is* some relation between mind and matter; how are we to conceive of this relationship? Moreover we have a deep conviction that we live in a *Universe*, and, as the very name implies, these two "things" must stand in *some* relationship; ultimately we seek a Unity, though not, of necessity, a Unity of "stuff." We feel that some of the Unities which have been sought are altogether too grossly material. In passing, we must remember that this problem has not been reserved exclusively for the nineteenth and the twentieth centuries, but has been present with the greatest intellects of all ages: and it is well that we should bear this in mind when we are in danger of being carried away by modern utterances,—ill-considered as they sometimes are and not followed out to their conclusions,—made by those whose undoubted eminence lies in the field of scientific studies rather than in that of philosophical speculation. Now during the centuries which have passed since the dawn of philosophy right up to our own day every possible shade of opinion has existed as to the relationship between *matter* and *mind*; from the materialism which regards mind as merely a function or property of matter, that is, which explains away mind altogether, leaving matter as the sole ultimate reality; to the idealism which explains away matter in terms of mind—matter being merely "a dream of mind"; or, again, to the monism which regards matter and mind as merely co-ordinate aspects, or manifestations, or functions, of one reality. Each of these views, we must insist

again, is as old as philosophy itself. Now there is a widespread movement of thought amongst the physicists of our day towards some form of idealism, though not to the radical idealism popularly associated with the name of Berkeley. The most fundamental and intimate (indeed the only) knowledge which we have, it is argued, is of our own being; let us then conceive the psychical to be the innermost essence of existence—the “thing-in-itself”—and the material to be an outer sensuous form of the psychical. We have here the “mind-stuff” of certain popular speculations of our own day, as the background and basis of the physical world; but again this view is modern only as regards its recent popularity. Similar views were held by Schopenhauer, by Clifford, and by many others, and indeed they appeared much earlier in the philosophy of the Vedantas (the Upanishads) of the Hindus. What is it all but a conjecture? And, incidentally, we gain the conviction that the doctrines of religion are not necessarily in any way to be proved on such a basis since, where these views did in fact prevail, the doctrines were not so proved. We confess to some degree of hesitation before giving assent to this solution of the whole problem—if solution it be. From the point of view of the present article this, perhaps, is as far as we need go; but if we are asked for something more positive we would make, tentatively, a suggestion somewhat as follows. We believe that, in some sense, mind exists over against matter and matter exists over against mind, that is to say, we adopt a realist view; although, it may be, the force of the predicate *exist* is not the same in the two cases. But, it will be asked, how is it possible for the two realms, the realm of mind and the realm of matter, to enter into relationship with one another? How can a real world which is not ourselves enter as a real factor into our knowledge? How can mind and matter exist together in a *Universe*?<sup>1</sup> We may suggest that the division of Being into matter and mind *only* is empirical, that no proof can be given that Being is exhausted in these two forms of existence; that there may be—possibly, with Spinoza, infinitely many—other forms of existence; that “the distinction between ourselves who know and the world we know is not after all final—that there is a deeper ground and ultimate unity, that the universe, including ourselves, is a single system the parts of which stand in reciprocal relation through the spiritual principle on which in the last resort the whole

<sup>1</sup> Cf. Höfding: *The Philosophy of Religion*, p. 72 et seq.

depends."<sup>1</sup> And this position, we think, is at least as capable of justification as that upon which the idealistic conception of the world is based.

### RELIGION NOT TO BE DISTILLED OUT OF THE THEORIES OF NATURAL SCIENCE

We have sought to indicate our conviction that any attempt is to be deprecated which seeks to derive religion from the abstractions dealt with in scientific investigations, whether physical or biological, or even psychological; and this if only for the very evident reason that scientific theories change so rapidly. The science of yesterday is not the science of today, and still less that of tomorrow, and to base any permanent conclusions on such a foundation would indeed be precarious.<sup>2</sup> But the whole notion underlying the attempt is weighted with difficulties of quite another kind. To put the matter briefly: we can never hope to derive the idea of God, for example, or the conceptions of religion, from the abstractions of scientific theories—the idea of God, that is to say, as it is known amongst men, and in particular in religion, and more particularly still in the Christian religion. Not a few such attempts have been essayed, attempts to construct a scientific religion and to “purge away” from Christianity, for example, ideas and doctrines which find no place therein—so “purifying” Christianity, as we are told; and sometimes the problem is attacked from the other side and doctrines are eliminated from the Christian religion which are deemed incompatible with some particular view of Man and the Universe, such view being, at the same time, labelled the “scientific” or “modern” view. We are of course familiar with the determined efforts made to eradicate the *supernatural* from religion,<sup>3</sup> and even where these efforts do not seek to go the whole way, there is yet in evidence a very definite minimising tendency. In a short article we cannot enter with any fulness into the ideas and meanings associated with this word “supernatural.” Suffice it to say that science cannot, on any fair reading, negative the *idea* and *possibility* of the supernatural,<sup>4</sup>

<sup>1</sup> Cf. Orr: *David Hume*, p. 163; and the whole idea may be studied in Lotze; see *Microcosmus*, Bk. IX., *The Unity of Things*.

<sup>2</sup> “. . . the scientist as a rule pays so little heed to the philosophical implications of his own discoveries.” Eddington: *The Nature of the Physical World*. And see more especially pp. 243-253 of this book.

<sup>3</sup> We may, of course, fall back upon the method of Matthew Arnold and assert that “miracles do not happen”; this, however, is not science, neither is it reason nor argument—it is *mere* assertion.

<sup>4</sup> On the contrary, the holding of a Theistic position, to which we believe the mind to be led by the results of Science (indeed by the mere *possibility* of Science), is itself an affirmation of the supernatural on a grand scale.

taking this word to have its commonly accepted meaning, though it may look askance at records of sporadic wonders. But turning to the attempts to build up religion on a basis of natural science : we are presented, not infrequently, with the idea of " God " as an all-embracing Unity—embracing sometimes the Evil as well as the Good ; and the ideas of religion, and even its nomenclature, are taken over and forcibly implanted in a soil from which they certainly did not spring, and to which they are foreign. At times the teachings of religion are deduced from this construct, but only after having been inserted more or less surreptitiously, and perhaps quite unconsciously. " God " as an all-embracing unity is *not* the God of, at all events, the Christian religion ; for the first affirmation of the Christian religion is the *existence* of a Personal, Ethical and Self-Revealing God, and thus Christianity, at the outset, is a system of Theism, and as such is opposed to all systems of Pantheism, or mere Deism. While to adduce the conception of " wider interests " as the reason why men should act honestly, when dishonesty would appear to be to their own individual interest,<sup>1</sup>—the notion being that all men and all things are bound together in one all-embracing unity ; this palpably is *not* the reason given in religion as we know it. Real religion takes an altogether higher and deeper view than this and a " religion " based only on such conceptions of " wider interest " must break down and vanish amidst the troubles and difficulties of the world in which we live : in short it will not *work*. The religious conception of God cannot be deduced from scientific theories, and this because the conception is *not there*.<sup>2</sup>

#### SCOPE AND LIMITATIONS OF NATURAL THEOLOGY

In reaching this conclusion, however, we must guard ourselves from even seeming to impugn the validity of Natural Theology, within its own realm.<sup>3</sup> Men have at all times had

<sup>1</sup> Cf. Haldane : *The Sciences and Philosophy*. Gifford Lectures, Glasgow, 1927 and 1928 ; Ch. XV. ; *Interest and Values*.

<sup>2</sup> " A besetting temptation of the scientific apologist for religion is to take some of its current expressions and after clearing away crudities of thought (which must necessarily be associated with anything adapted to the everyday needs of humanity) to water down the meaning until little is left that could possibly be in opposition to science or to anything else. If the revised interpretation had first been presented no one would have raised vigorous criticism ; on the other hand no one would have been stirred to any great spiritual enthusiasm." Eddington : *The Nature of the Physical World*, pp. 348-349.

This, which Professor Eddington describes is, we may add, what is sometimes known among scientists and theologians alike as the process of " purifying " Christianity ! And we are pontifically assured that we lose nothing thereby !

<sup>3</sup> We believe that science has much to contribute to Theism ; indeed we feel that scientific study leads to a Theistic position. From the idea of order in nature the mind is led to the affirmation of a First Cause (first in *order of importance*, as well as in *time*) and to some such view the great majority of

some idea of God, who have never heard of Christianity ; and it may be, we believe that it is so, that from the contemplation of the Universe around him, and of the make and constitution of human nature, man is led to the notion of, and the feeling after, Nature's Cause. For in the presence of Nature man feels, and at all times has felt, himself in the presence of a Greater than Nature and frequently has not shrunk from attributing Personality to that Greater.<sup>1</sup> Moreover, the cause of Theism has been well sustained by philosophical thought in all ages—numbering amongst its advocates not the least influential thinkers ; and further we feel that we must allow some force and cogency to the classical arguments for Theism, namely, the cosmological, the teleological and the ontological arguments<sup>2</sup>—and this despite the destructive criticism passed upon them by Kant. The mind, we feel, in its contemplation of Nature, and of Man, and of Human History, is led beyond Nature to Nature's Cause. And how should this be otherwise if, as is the affirmation of the Christian religion, God is the Creator of us and of our Universe ? Can we deem it likely that no traces of His work should be discernible by us ? Nevertheless, allowing these considerations the fullest possible scope and validity, it yet remains that we cannot derive from them the idea of God which, for example, is presented to us in the Christian religion ; God is indeed all that we may deduce from the results of Natural Theology—and He is much more also. Again, while we see everywhere around us

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thinkers in all ages have in fact been brought. And, if we please, we may name this First Cause God—to Which (or to Whom) we may attribute very large powers, but not, on this line of thought, of necessity *infinite* powers. And then too, more especially in the biological realm, we observe the adaptation of means to ends and derive the idea of *purpose* ; so that we feel that we may fairly postulate *Mind* as being " behind " the Universe. But, as yet, we are very far from the conception of God as known to us in religion. We cannot *worship* even the Infinities and Eternities of Carlyle. But beyond all this we have what has seemed the most compelling thought to some of the greatest minds—the *moral argument* ; man feels within himself the *moral law*, the *categorical imperative* of Kant ; he knows himself to be *personal*, and feels that he is *personally responsible*, and he is led to the conclusion that the First Cause, the Author of Nature, cannot be *less* than Personal. So we obtain a wider and deeper and fuller conception of " God "—but still this is *not* the God of, at all events, the Christian religion ; for the first affirmation, we take it, of the Christian religion is (as pointed out in the text) the existence of a Personal, Ethical and *Self-Revealing* God, so that man can *know* God ; and, further, one of the central doctrines is that God is *Love*. We desire nowhere to minimise the contributions to be made from the side of science whether physical, biological or moral ; only, we would protest against the notion that God as *known* to us in religion and in particular in the Christian religion can be deduced from the abstractions of scientific theories. But if we understand by a " religious view of the world " only that view which affirms a First Cause, Infinite, it may be, and Eternal, All-powerful and Everywhere Present, then we may agree that such a view may perhaps be based upon the results of science—only, this is not the God of religion as we know it. An essential part of the religious conception of God is that He can be *worshipped*.

<sup>1</sup> Cf. Illingworth : *Divine Immanence*, Ch. II, The Religious Influence of the Material World.

<sup>2</sup> Not, however, of necessity, in the form in which these arguments are sometimes presented. We record here merely our conviction that these arguments are in fact the expressions of a deep underlying truth.

the adaptation of means to ends, and these, as we feel, wise and beneficent ; while we may feel, in those well-known words of Adelaide Anne Procter,

My God, I thank Thee who hast made  
 The Earth so bright ;  
 So full of splendour and of joy,  
 Beauty and light ;  
 So many glorious things are here,  
 Noble and right,

—yet there is also Evil in the world, and Sin ; and though we deny these, as with some, or explain them away, as with others, they lose thereby none of their reality, nor even their reality *for us*. And though, as Bishop Butler maintained, the make and constitution of things be upon the side of virtue, it yet remains true that man, as we know him, is *not* always upon that side. In short, the arguments of Natural Theology are, *in essence*, not adequate to deal with these ever-pressing problems ; though, as we have sought to indicate, Natural Theology has large contributions to make to human thought. Or again, at the centre of the Christian view is the doctrine that *God is Love* ; and can we deduce this from Natural Theology ? It certainly is the fact that man has *not* so deduced it. And how should this be otherwise ? How, we may ask, will a child, in later years, think of parents whom he has never known personally ? He may observe their handiwork around him ; he may be fully conscious of their forethought and kindly intentions in providing for his education and general well-being, and ascribe to them in no small measure the health and strength of body and of mind which he enjoys ; but will he *love* them—*can* he love them ?

#### CONCLUSION

And now what, we may ask, is the conclusion of the whole matter ? How shall we look upon science, and its findings, in relation to our religious beliefs ? We have seen that scientific facts and results are not likely to affect religion, but that scientific theories may, and from time to time have, cut across Christian foundations and, indeed, across the beliefs of all religion worthy of the name ; and further we have sought to indicate that these particular theories are dominant no longer in the realm of science. Indeed we observe in our day the disintegration of those nineteenth century mechanistic and naturalistic theories so dear to the hearts of some few scientists and of many " camp-followers "

of science, and the return to views wider and deeper and to an atmosphere more congenial to the make and constitution of human nature. But we must beware lest we mistake this for a "proof" of religion, or of any particular religion; lest we attempt to construct a religion out of the newer scientific theories, themselves fleeting and evanescent, of their very nature giving but partial aspects of Reality (whatever Reality with a capital letter may signify). We may venture to feel indeed that in our day as we move forward we are also moving backward, into a saner and more healthy atmosphere; and with the much new knowledge which we are acquiring we are returning, in no small measure, to the spirit of an age that is gone. But may not other and similarly destructive theories arise in the future, to create afresh an "opposition" between religion and science? We cannot tell; but at least we may hold that the trend of opinion in our day is certainly not in this direction. Further, we have sought to indicate our conviction that any attempt is to be deprecated which seeks to base religion upon the abstractions dealt with by natural science; religion *cannot* be distilled out of scientific theories. The ideas of "God" deduced therefrom are different from, but not incompatible with, the conception of God presented to us in the Christian religion; different from the idea presented by any religion worthy of the name; different, indeed, from the ideas commonly held amongst men, in all ages. And though we enlarge the basis to include the realm of Natural Theology in general, these and similar objections remain valid, in large measure; the reason being, not that the Christian doctrines, for example, are irrational—a position which would invalidate all Christian belief—but that "man by searching cannot find out God," as He is. We can, we believe, discover from scientific investigations, and from the considerations of Natural Theology, some of the attributes of the Creator; but real religion penetrates far outside these realms—certainly outside the range of any theories deduced from natural science. We have to remember that in natural science, for example, we are dealing only with *one* side or aspect of our experience; there is also the æsthetic side, and the religious side. And the attributes of God as known in religion cannot be *fewer* or *less* than those of "God" as deduced from natural science; on the contrary they must

<sup>1</sup> Lo, this only have I found, that God hath made man upright; but they have sought out many inventions. Eccl. vii. 29.



always be *more* and *greater* : so that while the God of religion, and of the Christian religion in particular, includes, as to His attributes, all that can be affirmed or postulated of "God" as known to us in scientific theories, the contrary or reverse proposition cannot be maintained. In short we *know* God in religion, and we discover *some* of His attributes in scientific investigations ; and still further attributes when we come to consider other sides of our experience ; but God as He is must be *revealed* to us. The fact is that real religion moves on an altogether higher level than that reached by any of the abstractions of, for example, scientific theories, while yet permeating and controlling every lower level—as indeed must be the case if religion is to have any validity at all. It approves itself to the heart as well as to the intellect, and to all men and not to some men only ; to all men that is to say, who are *willing*<sup>1</sup> to receive it and to *act*<sup>2</sup> upon it. And the man who knows religion in his everyday life, in all his interests whether great or small, is not likely to be moved from his *knowledge* by naturalistic or materialistic *theories* of any sort whatsoever ; and, we may perhaps venture to add, he will not be brought to real and lasting religion, if already he knows it not, by any scientific or æsthetic theories, tinged to however great a degree with a religious atmosphere. We hold further that the man who *knows* the Creator is thereby better equipped to understand the Creation ; for one reason he has a more lasting impulse to knowledge. Because, assertions to the contrary notwithstanding, the acquisition of knowledge for its own sake is *not* a pursuit which, for ever, can satisfy man ; a deeper and more lasting impulse and motive are required by the very make and constitution of his being.<sup>3</sup> And again man will know then, and feel, that in his study of the natural world he is at home in his Father's house.

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<sup>1</sup> If any man *will* (≡ willeth to) do his will, he shall *know* of the doctrine, whether it be of God, or whether I speak of myself. John vii. 17.

<sup>2</sup> If ye *know* these things, happy are ye if ye *do* them. John xiii. 17.

<sup>3</sup> Thou hast made us for Thyself and our heart is restless till it find its rest in Thee. Augustine, Confessions. Bk. i. Ch. i. i.