ESSEX HALL LECTURE 1951

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NOTE

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14 Gordon Square,
London, W.C.1

SCIENCE AND THE QUEST FOR GOD

DR. JULIAN HUXLEY begins one of his *Essays of a Biologist*—published in 1923—with an arresting quotation from Lord Morley: "The next great task of Science is to create a religion for humanity."

While I do not for a moment think that science alone can create a religion, I do believe it is well worth while to consider the question 'Can science help religion?' or more explicitly 'Can the scientific method be used to re-establish faith when hitherto the advance of science has done so much to undermine it?' I want to use the opportunity which I have been given in this lecture to try to go a little way towards examining this proposition. Nothing to my mind could be more important at the present time than a clearer understanding of the relations between science and religion. As a rule the questions asked take the opposite form to the one just suggested: such as 'Has science destroyed the basis of religion?' or 'Is materialism justified by the findings of science?' No one I think can doubt that the future of our civilization will depend upon what sort of answer the majority of people give to these questions. Already a large part of mankind is governed by a policy based upon materialism and has a desire to convert the rest of the world to its point of view. In this rest of the world we see a larger and larger proportion of thinking people who find it increasingly difficult to reconcile the findings of science with a faith in spiritual reality. It is a puzzled world; so many people still feel religion in their hearts but find their minds deciding that such yearnings must be the product of a childish wishful thinking.

It is only in the last three hundred and fifty years that the outlook of western man has changed; up to the beginning of the seventeenth century he was com-

fortable in a sure faith in the spiritual nature of the universe. Religion and philosophy were then firmly united. It is well, as we stand at the mid-point of the twentieth century, to look back; in 1651 Descartes had just died a year ago, Galileo had been dead but nine years and Newton was a little boy of eight. In the brief span of time since Copernicus and Galileo shattered the mediæval dream, orthodox theology has received blow after blow from science, and yielded each time more of her ground to the invader. The earth is no longer the centre of the universe and man no longer a special creation. You will not expect me to sketch, even in outline, the history of this main advance of science which is familiar to us all; but I do want to take up a little time in discussing the modern biological position. It is the biologists to-day who are usually more materialistic than the physicists.

The vast majority of thinking people have accepted the doctrine that man is a member of the animal kingdom—descended from more primitive forms of life. The fact of evolution cannot be denied; those who have religion in their hearts hope that somehow it may be shown to be the mechanism of God's creative act. When, however, so many of the recent advances of biology seem to show the working of the evolutionary process to be a mechanism depending entirely upon chance, the ordinary man must ask more urgently what room does this doctrine of evolution leave for faith in God. He must further doubt the reality of religion when he hears a number of eminent scientists implying that there is no radical difference between a living organism and a man-made machine: that the difference is just one of degree, not of kind. In the first quarter of this century many people who accepted the fact of evolution comforted themselves with the belief that most biologists had turned away from the doctrine of Darwinism as the main explanation of the process and had found other factors than the struggle for existence and survival of the fittest to be more important. We not infrequently hear these views

expressed to-day by those who are out of touch with modern developments; the fact is that the majority of biologists now regard Darwinism as more firmly established than it has ever been before. Because there is often a good deal of confusion when the matter is discussed, I think it will be well if I very briefly explain how it was that Darwin's theory went into eclipse but then emerged again with even greater brilliance.

The essence of the Darwinian doctrine is, of course, the principle of natural selection. Animals and plants tend to vary in all sorts of ways, and some of these variations are inherited from one generation to another. They reproduce at such a rate that there is intense competition for available supplies of food—only a very small proportion can survive to maturity. Some varieties will be more successful in the struggle for life than others; they will tend to survive—to be, as Darwin said, selected by nature—and so contribute more to posterity. The less efficient forms will tend to be eliminated, and consequently appear less often in the ancestry of future generations. Towards the end of the last century, when man tried to test Darwinism by experiment, it appeared to fail. It had been shown that animals and plants usually varied in all directions according to the laws of chance—in size, colour, shape, weight, etc.; it was thought that in each generation some of the offspring would by chance be a little larger and some a little smaller than their parents, some darker and some lighter in colour, and so on. Thus it was confidently believed that if we repeatedly selected for, say, larger size or depth of colour, we should be able to guide evolution, within the limits of an efficient working organism, in any direction desired. Was not that, they said, just what the stockbreeders had been doing? By the 'nineties of last century biologists had persuaded the thinking world, including many leaders of the Church, into accepting the general idea of evolution; they were then dumbfounded to find that when the simple Darwinian explanation of selection was put

to the test of experiment, it didn't work. They were in a most uncomfortable position.

There was another reason which made some of the more thoughtful biologists at that time doubt the Darwinian doctrine; that was the widely held conception of blending inheritance by which the influence of one parent was thought to blend more or less equally with that of the other. This made it very difficult to imagine how in fact a new favourable variation could, in nature, ever be successfully selected; for whenever such a new type occurred it would be most unlikely to find at hand another of the same new type to mate with, so the result at once would be a dilution of the valuable new character by half, then most likely by three-quarters and further by seven-eights in the next two generations.

Yes—at the beginning of the century Darwinism was certainly in eclipse. Some evolutionists turned back to the earlier doctrine, of Lamarck, that animals became modified in form by their own strivings and exertions: that *change of habit* gives rise to new needs, that the fulfilment of these new needs leads to the greater use of some parts of the body and the disuse of others, that the body is thus developed or reduced in accordance with use and disuse, and that such acquired modifications are handed on, if only in some small degree, to the next generation. Linked with the doctrine of Lamarck were the exciting ideas of Samuel Butler: the concept of a gradually developing subconscious racial memory handed on from generation to generation. But another and greater influence appeared in 1900; Mendel's laws of inheritance, neglected since 1865, were rediscovered.

Mendel had shown that inheritance was *particulate*. His first law states that every animal and plant carries two of each kind of a large number of different unit hereditary factors—or genes, as we now call them—and that when the germ-cells are formed, each such cell (e.g. egg or sperm) receives only one of each kind of factor or gene. The fertilization of the egg by the

sperm of another individual restores the double number of genes to the member of the new generation, which in turn becomes adult and forms germ-cells of its own; the process is repeated again and again, generation after generation. It is the united action of these hereditary genes which, together with the uninherited effect of the environment, governs the form of the body. The members of each pair of genes may take several different forms—they are found from time to time to mutate, i.e. to change the character of their effects. The discovery by Mendel of the particulate nature of inheritance at once swept away one of the two great objections to Darwinism; inheritance was shown not to be a blending, the genes being passed on from generation to generation *unaltered* except when occasionally changed by mutation. Sexual reproduction, instead of diluting the effects of variation, is seen now to be the all-important mechanism for the re-shuffling of the genes to produce the greatest possible degree of variability. Sex is seen to be a much more significant element in the mechanism of evolution than was hitherto imagined. In 1909 the Danish botanist Johannsen showed that there were two kinds of variation: those modifications produced by differences in the environment, such as temperature, moisture, food supply and so on, which are not inherited—and those due to Mendel's genes, which are. The second great objection to Darwinism was now removed, for the failure of the experimental test of selection in the 'nineties was explained: the experimenters then had been trying to select from the wrong kind of variations —those which could have no effect on evolution. The kind of variations which the stockbreeder and horticulturalist selected for were shown, in every animal and plant tested, to be governed by Mendelian genes.

While by 1910 the causes which had cast the shadow over Darwinism had actually been removed, it was not until the 'thirties that it was re-established in its former or a greater glory. The discovery of mutation, the fact that Mendelian genes may suddenly change

their nature to have a (usually) slightly different effect, held the attention of evolutionists; it was not surprising that at first they thought that natural selection could only play an insignificant part, and that the nature and direction of the mutation must be the all important factor in evolution. It is, of course, impossible to attempt in a few words to convey any idea of the vast amount of genetical and microscopical work of the last forty years which has thrown so much light on the physical basis of inheritance. You will all know how Morgan and his co-workers in America showed that the mendelian genes lie in the thread-like bodies, called chromosomes, in the nucleus of each cell and how they are arranged in a definite linear order along the threads. The chromosomes in turn have been shown to be part of a remarkable mechanism which (*a*) as the cells divide during development, reduplicates and distributes the sets of genes unaltered to all parts of the body, and (*b*) during the maturing of the germ-cells provides a means of bringing about a maximum re-assortment of the genes in the next generation. Our knowledge of the influence of the genes on heredity has also undergone a profound change. Instead of, as was at first thought, a single gene having an effect upon only one part of the body, say colour of eye or length of fingers, we know that *one* gene may have an effect upon *many* different parts and that these effects may be both structural and physiological, for example, controlling perhaps high- or low-temperature tolerance or resistance to certain diseases. We know, in fact, that the form of the body is governed by the interaction of the whole gene complex; that the *effects* of one gene may be modified in the presence of other genes in the system. The gene complex is so nicely balanced in relation to the external environment that only very rarely can we expect a new mutation—a change in a gene—to be an improvement. For the same reason, only mutations causing *very small* new effects are likely to be successful in improving stocks; those which produce sudden striking changes in garden plants and domestic

animals cannot play a part in *natural* evolution, as was thought in the early days of the century; they would be too disturbing to the general balance of the whole gene complex. All the evidence is in favour of the process being brought about by the selection of small favourable variations. The range in the effects of all the possible assortments of the different genes in the complex is vast; in an inter-breeding population (unless that population is very small) heritable variation will continually be occurring in all sorts of ways, so that selection comes back to be the major factor determining the course of evolution in place of the supposed direction of mutation. We are back to Darwinism, but with a difference; it is a Darwinism combined with Mendelian particulate inheritance. Small heritable changes are constantly occurring; these are partly due to occasional mutation, but far more to this remarkable re-assortment of the genes in every process of sexual reproduction, which is like the shuffling and re-deal of hands in games of cards.

Darwinism and Mendelism united together supply the explanation of evolution for the vast majority of biologists at the present day. The genes by governing the form of the nervous system, govern in turn instinctive behaviour, and perhaps a predilection for various activities. Many lines of evidence which I have not time to discuss have caused the doctrines of Lamarck and Samuel Butler to be rejected. It now seems likely, on physical and chemical grounds, that the Mendelian genes are elaborate molecules and that their change, their mutation, is due to a change in the arrangement of their atoms.

Modern biology certainly appears to present a very materialistic outlook; but don't let us be frightened of it. Traditional theology might indeed be afraid, but a free religious faith, I am sure, has nothing to fear. I fully accept the doctrine of evolution as I have outlined it—*as far as it goes*; but I do not for one moment regard it as the final position. My purpose in taking up time in sketching that outline was partly to present

the modern position, but partly also to show how in a brief space of fifty years the current ideas of evolutionary mechanism have changed and changed again. No one can surely imagine that in 1951, less than a hundred years since the publication of Darwin's *Origin of Species*, we have solved the whole problem. Thousands of years of science, if civilization lasts, lie in front of us. Who knows what new discovery or idea may modify the existing views; there is, in fact, an aspect of evolution theory which up to now has received very little attention by most biologists, but which I believe may possibly be shown in the future to have marked significance. I refer to the idea of organic selection put forward independently by Baldwin in America and Lloyd Morgan in this country at the turn of the century. Their views could, I think, if re-stated in modern terms, be expressed very briefly something like this : gene combinations better suited to allow a fuller expression of the animals' habits may tend to survive in preference to those gene combinations which do not give such full scope to its pattern of behaviour. Here we see coming back the idea of change of habit affecting bodily structure—but not, as Lamarck held, through use and disuse of the body, but through a form of Darwinian selection—an unconscious selection by the organism itself rather than selection by the environment outside. Here we see the possibility of *changing behaviour* modifying the course of evolution. I now want to repeat an argument I have used before : no modern biologist would doubt that if we knew as much about the genetics of man as we do about the genetics of some animals, then if mankind decided to control marriages by law, he could, by allowing some and prohibiting others, gradually, in the course of long periods of time, alter the human race. I am not for a moment suggesting that as something desirable, but merely pointing to it as a theoretical possibility : a logical deduction from the present position. We see, then, that it is possible to conceive of evolution as coming to be directed from *within the organism itself*. This would—in man—be

conscious directiveness, purpose, coming into evolution. Coming from where? The fact that it is possible to imagine such a situation as the logical development of the present ideas clearly indicates that there is more in the evolutionary process than has yet been discovered by science.

Not only does such an imaginary consideration lead us to the conclusion that no mere material mechanism is sufficient to explain the evolution of life in all its aspects, but the consideration of artistic genius must also compel us to belief in something more. No one, of course, will doubt that up to a point the animal body—man's body—can be described in terms of physics and chemistry and that, as a one-sided abstraction, it can be looked upon as a machine; but equally no one with a balanced mind can surely be persuaded that a great work of literature, of painting or of music can be the product of mechanism as we at present understand the term. Yet if man is a part of the animal world, then his works of genius are a manifestation of organic activity.

Theology is usually on the defensive against science because theologians are usually dogmatic; science and dogma cannot go together. Dogma, as used in this connection, means an opinion which cannot be revised. A liberal and progressive theology need have no fear. The summary report of the Commission of the General Assembly of Unitarian and Free Christian Churches declares, "We welcome every discovery that scientists and others are making even though they bring with them new problems, because we are confident that when these discoveries are fully understood they can result only in a deeper sense of awe and reverence and gratitude before the great mystery of life." I want to suggest, as I indicated at the beginning, that a progressive theology might not only *welcome* the discoveries that scientists are making, but might itself adopt their methods and become part of the advancing scientific front.

The view is commonly expressed that science and religion can have nothing to do with one another.

It is true that at present the essence of religion does lie beyond the realm of science. But theology is not religion. What is it? Dictionaries often define it as the *science of religion.* How many people to-day really regard that as a true definition, using the term science in the modern sense, and not in the old sense of simply knowledge? Strangely enough, I think one of the principal reasons preventing theologians regarding their subject as a science in the modern sense is due to a dogma on the other side: I won't say a dogma of science, but one proclaimed or implied by many scientists. It is a dogma which has been widely accepted as a truth beyond scientific circles. I refer to the view that physics and chemistry are the whole of true science: the view that the branches of knowledge which deal with living things are partly natural history and partly science, and that the only parts that can be accepted as true science are those which can be dealt with in terms of physics and chemistry. It is true that the last hundred years has seen an enormous advance in physiology, which *is* an extension of physics and chemistry into the animal body and *is* providing us with a more and more exact knowledge of the working of the bodily mechanism. But to suppose, as many people have done until comparatively recently, that physiology is the only part of biology which can be called a true science, and not just natural history, is nonsense. Physical science is based upon statistical laws concerning the behaviour of electrons, atoms and molecules, or upon mechanical laws concerning the energy and mass of larger bodies. There has recently arisen in biology at least one branch—*ecology* it is usually called—which is science in *its own right* just as much as is physical science: it is based upon the statistical treatment of the behaviour and interactions of animals and plants, each considered *as living wholes.* It does not deny that the animal body is in part working as a machine; on the other hand, it does not accept as a dogma the at present unproven hypothesis that the organism as a whole is *nothing more* than a

physico-chemical mechanism. The fact that we do not yet know all about their inner nature need not prevent us from having a science of organisms; physics and chemistry were considered good science at a time when our ideas of the nature of atoms were quite different from what they are now. Ecology is only in its infancy; it is only just beginning to adopt the experimental method, but adopting it with brilliant success, as the students of animal behaviour are showing.

There are some people who, brandishing 'Occam's razor' and fascinated by it, think it right for science to ignore half the properties of living things because they seem to complicate the issue; Occam's excellent principle must be used with care and not, as so often, waved in front of us to introduce an entirely false simplification of the problem. In the first paragraph of his *Principles of Biology* (1930) Professor Lancelot Hogben writes:

> "Because economy of thought (William of Occam's principle: *Entia non multiplicanda praeter necessitatem*) is rigorously maintained in any enquiry which is truly scientific, the ultimate goal of biological enquiry is to find generalizations common to the realms of living matter and non-living matter."

In the name of William of Occam, such people would dogmatically limit biology to the physics and chemistry of life-processes; if they wish to do that, let them not call it an entire science of life. About two, at least, of the greatest attributes of life as we ourselves experience it—consciousness and sense of purpose—science either physical or biological, can as yet say absolutely nothing. There are other attributes of life that many feel to be just as real as consciousness: the sense of the sacred, the sense of mystery, the sense of communion with something in the Universe they feel to be greater than the personality of the individual self—the something they call God. The sense of the sacred, which has been at the heart of all the religions

of the world, is as much a part of the natural history of man as is sex, but it is a part of natural history which has not yet become the subject of science. It would not surprise me at all to find that biology is really just as closely linked with theology as with physical science.

There are two ways in which I believe theology might develop as a science. The first is along the lines of ecology and behaviour studies. Ecology, as we have just seen, is only just beginning to emerge as a true science from a former descriptive natural history; inter-relationships in nature which were first recorded in qualitative terms are now becoming the subject of statistical analysis. From such quantitative studies it is hoped in time, step by step, to discover more of the laws operating in the world of living things. Cannot more be done by a number of trained investigators working among different communities to record the effects of the working of the religious spirit among men? It would perhaps begin by building up a very extensive 'natural history' of religious experience; it should study the normal as much, or even more, than the abnormal. Lord Elton, broadcasting recently on "The Human Need of God", said

> "Perhaps the most obvious argument for Christianity is the argument from experience: 'it works'. . . . Countless very ordinary Christian citizens have been conscious of the overruling of their lives by God, or of an overwhelming sense of His presence, which, they would tell you, the argument of a man who has never known God can no more discredit than the argument of a man who has never seen a car could persuade a life-long motorist that cars do not exist. . . ."[1]

Is it not possible to devise a method of investigation into the extent of this phenomenon among the population and to train a number of people to take part in such a research? Beginnings in this direction have

[1] See the *Listener*, January 4, 1951.

already been made; such as the survey of popular attitudes to religion carried out in a London borough by Mass-Observation and published in the book *Puzzled People* (1947). I do not wish to under-rate such very interesting pioneer ventures, but surely the matter is of such importance that it should be the subject of a much more prolonged, extensive and scientific enquiry. If in time of war the safety of our country depended upon some such research being adequately carried out, it would be done. Is not the safety of our civilization at stake before the advance of materialism? Are there not sufficient people in the country interested in religion to support progressive theology in setting up research groups to investigate and demonstrate the extent of religious experience?

I do not wish to disturb or hurt the feelings of those who have certain fixed convictions, nor to try to convert them to a different point of view. I cannot, however, help feeling it is likely to be more important for religion in the future to have a theology that is founded on the reality of religious experience, than to have one that builds its doctrines upon supposed events in the past: supposed events which some of the best scholars of history are unable to regard as established beyond doubt by the rules of evidence accepted in other fields of historical research. The fact that men will die for their faith in the way of life as taught in the gospel of Jesus is, to my mind, a far more substantial foundation for a theology than the blind acceptance of the supposed bodily resurrection of Christ—a supposition which, if taken in its literal (i.e. *physical*) sense, must seem to many to be not only a biological impossibility, but spiritually unnecessary.

A scientific theology would, with the help of anthropologists, trace out the far earlier beginnings of this feeling of Divine guidance which shines out in some of the Psalms of David as brightly as in later Christian writings. I will quote a passage from *Head, Heart and Hands in Human Evolution* by the late Dr. R. R. Marett where he is discussing primitive religion.

> " When it is a question of a more or less definitely religious rite of the primitive pattern, we should be wrong in assuming any consistent doctrine to underlie the performance. . . . It is a common fallacy to suppose that the savage has forgotten what it would be truer to say that he never tried to understand. A play of images sufficiently forcible to arouse by diffused suggestion a conviction that the tribal luck in taking a turn in the required direction is the sum of his theology; and yet the fact remains that a symbolism so gross and mixed can help the primitive man to feel more confident of himself—to enjoy the inward assurance that he is in touch with sources and powers of grace that can make him rise superior to the circumstances and chances of this mortal life."

Biology must be prepared to consider the influence of this feeling of the sacred when discussing the evolution of modern man, and theology in turn should not ignore the possible truth of the opinion of leading psychologists. A progressive theology need not be afraid of those psychologists who maintain that Man's conception of God as a super-personality is explained as a projection of our childhood fear and love relations to our parents, extended into adult life. Perhaps I may be excused for repeating what I have said on this subject in another address [1]; I find it difficult to put what I want to say into very different words. It would not surprise or dismay me if there was much truth in this idea of the psychologists. If established, it would not, to my mind, destroy the reality of spiritual experience—the reality of a spiritual Power in the Universe. It would simply mean that for this great truth, which we cannot understand, we have a simple childlike image : " Our Father which art in Heaven ". Much of religion may be shown to be linked with sex. The desire for self-sacrifice and self-abasement, so

[1] " The Faith of a Scientist ", published in *Faith and Freedom*, Vol. II, part 2, 1949, and also as a separate publication by the Lindsey Press.

frequently found associated with a devotion to God, has merged again and again into the practice of self-torture—as in the flagellants of the Middle Ages—a practice well known, in the psychology of the abnormal, to be a sexual deviation. It should not alarm us if it is found that in some way the spiritual power of the Universe is linked with sex, which is, after all, one of the greatest forces in the mechanism of organic evolution. If it should be so, it would not be so much the worse for the Spirit, but so much the better for sex: that thing of love and beauty which has inspired the poets and artists, but which, in his weakness, Man has so often degraded and made base. There is still so much mystery in the Universe lying uncharted before us. Biology and psychology are but in their infancy, with an almost endless time before them. No one in his senses can imagine that their findings up to date are the last word. The bringing together of biology, psychology and a progressive theology into one scheme of activity must bring a new light into the darkness.

I now come to a second way in which I believe religion might be helped by research—a branch of research which has not been admitted by many to be called a science. I refer to psychical research. I have already shocked many scientists by suggesting in my presidential address to Section D of the British Association in 1949 that biology should take this new branch of knowledge in all seriousness. I do not doubt that in what I say now I will shock some of those on the side of religion.

Many people are inclined to think that psychical research is essentially connected with spiritualism; this, of course, is far from being so. It is true that a good deal of this research has been concerned with investigating the claims of mediums, some fraudulent and some genuinely believing themselves to be under the control of discarnate personalities. It is not to the question of the survival of human personality I wish to refer—although, of course, this is a most important issue—but rather to that part of psychical research

which I believe has now yielded definite proof of the existence of what is usually called telepathy: the communication of one mind with another by means other than through the ordinary senses.[1] I believe that no one who examines the evidence with an unbiased mind can reject it, particularly the evidence of the vast number of experiments of the last twenty years which have been subjected to and have successfully passed the statistical tests regarded as decisive in other fields of scientific enquiry. In believing this I am glad to find I have good support on the theological side; the Dean of St. Paul's has recently laid particular stress on the importance of these studies in his Maurice Lectures: *The Problem of Christ in the Twentieth Century*.[2] In introducing the subject he says:

> "I believe that it is foolish not to recognize that Psychical Research may have much to teach us about our mysterious selves. We should not rule out the possibility that the next great advance in our knowledge will come in this part of the field. Eminent philosophers are now aware of the need to take account of the phenomena and their interpretation; it seems that theologians cannot long remain indifferent. . . . The case for telepathy is so strong that one is tempted to say that the only way to retain disbelief in it is by steadily ignoring the evidence."

I cannot go into the evidence here—but I believe there are good reasons for believing that telepathy and other allied phenomena cannot be explained in terms of present-day physics; radiations, etc.[3] I think it likely that we are at last just opening the door to a new aspect of the life process—one which will supply part at least of those missing elements, I have referred to, in

[1] I use this definition to cover any type of extra-sensory perception, direct or indirect.

[2] Oxford University Press, 1950.

[3] The best sources of evidence are given or referred to in the publications of the Society for Psychical Research.

our account of life : opening the door, I believe, into that part of nature in which religion lies.

The discovery that individual organisms are somehow in psychical connection one with another across space is, of course, one of the most revolutionary biological discoveries ever made : so revolutionary that few biologists until recently have regarded it as even a possibility worth investigating. Such a faculty—a property as fundamental as gravity between physical bodies—can hardly be peculiar to a relatively small proportion of one species of animal, Man; surely it is more likely that only a relatively few individuals are usually conscious of what is really a general property of organisms.

This discovery, I believe, is going to be of tremendous importance to religion.

I began with Lord Morley's saying taken from Dr. Julian Huxley's essay on " Religion and Science ", in which he is feeling his way towards the outline of a religion based upon scientific ideas; later Huxley enlarged the theme in a very remarkable book, *Religion without Revelation*. It is impossible in a few words to give any true idea of its scope; but, for those who do not know it, I feel I must give some indication of its deep religious feeling by the following short quotations :

> " But the essential religious reality, the experience which seeks to embody itself in symbols and to find intellectual expression in theologies—what is it? Is it not the sense of sacredness? And is not this sense of sacredness, like the feeling of hunger or the emotion of anger or the passion of love, something irreducible, itself and nothing else, only to be communicated to others who have the same capacity, just as the sensation of colour is incommunicable to a blind man? " (p. 41). . . .
>
> " The only possible solution, save an indefinite prolongation of the conflict, is for religion to admit the intellectual methods of science to be as valid in theology as everywhere else, while science admits

the psychological basis of religion as an ultimate fact" (p. 50). . . .

"Prayer of this contemplative type is one of the central kernels of developed religion. It permits the bringing before the mind of a world of thought which in most people must inevitably be absent during the occupations of ordinary life: it allows the deepest longings of the soul, driven down below the surface by circumstance, to come into action: and it is the means by which the mind may fix itself upon this or that noble or beautiful or awe-inspiring idea, and so grow to it and come to realize it more fully" (p. 70).

It is indeed a book of deep and sacred feeling—yet it appears to present a religion which is confined within each individual, something developed as he grows and something which dies with him. While each person may give or receive religious influence, in speech or writing to and from others, there is no extending relation with a Deity outside the self. To make this clear I will quote now from his preface:

". . . this question of God or no God, external Power or no external Power, non-human absolute values against human evolving values—this question is fundamental. Until it is settled, and the idea of God relegated to the past with the idea of ritual magic and other products of primitive and unscientific human thought, we shall never get the new religion we need. . . . Once we have rid ourselves of this doctrine of a Divine Power external to ourselves, we can get busy with the real task of dealing with our inner forces."

I cannot think that such a religion can satisfy those who feel that they *are* in touch with *something beyond* and *greater* than themselves in the Universe. They may perhaps readily understand that their conception of this Something Greater as a super-personality may indeed be governed psychologically by a childish idea based upon a parent–child relationship; this, however, need

not destroy their conviction of the reality of their contact with some deep spiritual element beyond themselves. To them this revelation must be the essence of real religion.

This is where I think psychical research may be so important. It looks to me as if it may in time give back to man a reasonable faith in communication with something beyond himself. This might, *to put it at its very least*, be a sort of Group Mind, perhaps more like that suggested by the late Mr. Whately Carington (in his book *Telepathy*, 1945) than that of McDougall (*The Group Mind*, 1920), or something like the racial unconscious postulated by Jung: something made up, wholly or in part, of elements present in all the members of the species. This is, of course, at present but a fanciful speculation. Such a conception of God, however, should not shock us: a Deity which we think of in our childish way as a Father out beyond us, and which for the greater part is *really out beyond us*, yet is also in part *within each one of us*. Such a Super-personality, if we became used to the idea, should be no less the object of our love and devotion than was God as thought of by earlier theology. It is within the non-material realm indicated by extra-sensory perception that I believe what we call prayer may be found to lie. Not petitionary prayer for the alteration of physical events, such as rain, or even of personal safety, but prayer to receive help and guidance for a better way of life.

Can there possibly be a greater quest than the securing of evidence which will demonstrate beyond all reasonable doubt the existence of an extra-sensory world about us in which our consciousness is somehow in touch with something greater than our individual selves—some power from which we can receive strength and support? Could not the results of research perhaps reveal to others what to some is a profound conviction? If such studies showed that contact with some power beyond the self seemed a likely possibility, would not many, who had not hitherto had the faith to make the experiment, be induced now to try to reach that power

in prayer? Might not many find that it worked? Might it not generate a new experimental faith?

It is just fifty years ago that William James delivered his celebrated Gifford Lectures on *The Varieties of Religious Experience*; here indeed is a pioneer natural history of this subject. In a postscript to the published lectures he briefly explains his philosophical position. After explaining that he cannot accept either popular Christianity or scholastic theism, he goes on to express his belief that communion with the 'Ideal' (or God) brings into the world 'a new force' which 'alters events in it'. It is particularly illuminating to see how he thinks this comes about; he writes (p. 523) as follows:

> "If asked just where the differences in fact which are due to God's existence come in, I should have to say that in general I have no hypothesis to offer beyond what the phenomenon of 'prayerful communion', especially when certain kinds of incursion from the subconscious region take part in it, immediately suggests. The appearance is that in this phenomenon something ideal, which in one sense is part of ourselves and in another sense is not ourselves, actually exerts an influence, raises our centre of personal energy, and produces regenerative effects unattainable in other ways. If, then, there be a wider world of being than that of our every-day consciousness, if in it there be forces whose effects on us are intermittent, if one facilitating condition of the effects be the openness of the 'subliminal' door, we have the elements of a theory to which the phenomena of religious life lend plausibility. I am so impressed by the importance of these phenomena that I adopt the hypothesis which they so naturally suggest. At these places at least, I say, it would seem as though transmundane energies, God, if you will, produced immediate effects within the natural world to which the rest of our experience belongs."

Let us compare this view, derived from his study of the religious experience of civilized man, with the

conclusion which Dr. Marett drew in his study of primitive religion and which I have already quoted; I will repeat one phrase of it—" the inward assurance that he (the savage) is in touch with sources and powers of grace that can make him rise superior to the circumstances and chances of this mortal life ". Who can doubt that there is something here of profound significance for Man : something to be studied, and developed, something quite as important as the secret of the atom ? Since we saw that there was room for changing behaviour to influence Darwinian selection, is it not conceivable that this inward assurance may have developed from a factor—perhaps an unconscious factor —taking part in the shaping of organic evolution ? [1]

I believe that in future scientists may once more set out in search of God, as they did in the past. We are apt to-day to forget that science was largely founded by men who were doing just this. In the past they were astronomers; in the future they will be psychologists and psychical researchers.

I will make one final quotation, from that exciting study *Man and his Universe* (1930) by John Langdon-Davies :

> " The whole history of science has been a direct search for God, deliberate and conscious, until well into the eighteenth century. . . . Copernicus, Kepler, Galileo, Newton, Leibnitz and the rest did not merely believe in God in an orthodox sort of way : they believed that their work told humanity more about God than had been known before. Their incentive in working at all was a desire to know God; and they regarded their discoveries as not only proving his existence, but as revealing more and more of his nature. Had not men wanted to know about God, it is highly doubtful if they would have worried to know about nature."

[1] I have discussed such an hypothesis in greater detail in an article : " Telepathy and Evolutionary Theory " in the *Journal of the Society for Psychical Research*, Vol. XXXV, pp. 225–238, 1950.

Our present civilization was founded in the days of a sure faith in God and a belief in the importance of spiritual values; to-day only to a minority is God a living reality. We are, as Lord Elton said recently, "for the present living on our spiritual capital". Those who are concerned lest our civilization will change its nature under the influence of a materialistic philosophy might, I believe, do well to consider how they might encourage further research into the nature of human personality in the hope of finding more about the nature of God. The great institutes for scientific research having a bearing on man's bodily comfort—upon medical problems, direct and indirect, agriculture and fisheries, food, transport and so on—are dotted about the country, and are as symbolic of the present age as our glorious cathedrals and parish churches are symbolic of our spiritual past. If only one per cent. of the money spent upon the physical and biological sciences could be spent upon investigations of religious experience and upon psychical research, it might not be long before a new age of faith dawned upon the world. It would, I believe, be a faith in a spiritual reality to match that of the Middle Ages; one based not upon a belief in a miraculous interference with the course of nature, but upon a greatly widened scientific outlook.

What might mankind not do if he used the tools of modern science with the faith and inspiration of the cathedral builders? Can the scientific method help to re-establish such a faith? Let us have the faith to try.

ADDENDUM—Since sending this lecture to press I have read the important Riddell Memorial Lectures for 1950 by Sir Frederick Bartlett, C.B.E., F.R.S.: *Religion as Experience, Belief, Action* (Oxford University Press). I would particularly call attention to his section on the power of religious action (p. 35):

> "I confess," he writes, "that I cannot see how anybody who looks fairly at a reasonable sample of actions claiming a religious sanction can honestly refuse to admit that many of them could not occur, or at least that it is highly improbable that they would occur in the forms in which they do, if they were simply the terminal points of a psychological sequence, every item in which belonged to our own human, day-to-day world. I am thinking not of the dramatic and extraordinary actions which people who write books about religion mostly seem to like to bring forward. They are rare anyway. I remember the ways of life of many unknown and humble people whom I have met and respected. It seems to me that these people have done, effectively and consistently, many things which all ordinary sources of evidence seem to set outside the range of unassisted humanity. When they say, 'It is God working through me,' I cannot see that I have either the right or the knowledge to reject their testimony."

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