

## CHAPTER IV

### SCIENCE AND RELIGION

We have in an earlier part of this volume shown that the miracles of our Lord are not an accidental but an organic part of that view of the world which we find in the Bible. The world according to the uniform witness of the Bible is created by God, is dependent on God, and is plastic in the hands of God. The last of these truths is the one which is most difficult for the modern mind to believe and to realise.

The difficulty has been created mainly by the rise and development of physical science, which appears to demand that the realm of physical nature shall be considered as rigid to all influences other than physical, in other words that it shall be regarded as a completely self-enclosed and self-explanatory system. This is what lies behind the whole conception of the Reign of Law and of the Uniformity of Nature.

What is meant by the term "self enclosed" and "self explanatory"?

That view seems to many to imply that nature is absolutely rigid to any influence beyond itself. In other words, the entire realm of nature, by which I here mean the world to which we have access through the senses, is a self-enclosed and self-

explanatory system, in which every event can be explained in terms of its physical antecedents and physical consequents. It is, of course, clear that if nature be of this type, it is absurd to suppose that there can be any intervening influence from a spiritual world deflecting or influencing any physical event whatever.

The whole literature of Revelation proceeds on quite another view. It invariably regards nature as a plastic medium through which God works out His purposes in the lives of free human spirits. The world to Him is, as it were, not like a gauntlet of steel, far less of stone, but like a silken glove.

This is the fundamental difficulty which the rise and development of modern science has created for personal religion in our modern world. The controversy over miracle is simply part of a much wider whole, and can only be understood in that larger context. The real matter at stake is the Christian doctrine of the world. We can put the issue more broadly still. It is, or rather it appears to be, between the scientific and the religious interpretation of life.

How far-reaching is this apparent clash between the scientific and the religious interpretation of life we can realise if we go into any one of our great public libraries, open to the public, according to the new system, in all its departments. On one side of a corridor we find textbooks of science in every one of which it is assumed as a matter of course that only physical forces are at work in its special domain—physics, chemistry, biology, geology, and so forth. We step over to the religious

department, and we find there the unvarying assumption that God is at work as an efficient influence and causality throughout His world, as a Providence controlling not only humanity as a whole, but individual lives through natural incidents, and as a Divine Spirit changing the psychical life, and through it influencing alike men's bodies and their outer environment.

We seem to find, in a word, two different and conflicting interpretations of the world, the one impersonal, general, and abstract, which seeks everywhere for causality and law; the other, as William James has said, "personal and romantic." This, to-day, is the real "conflict between Science and Religion," a battle along the whole line, instead of such outpost affairs as the conflict between the scientific account of man's origin and history, and the Biblical narratives of the Garden of Eden, the six days of Creation, and so forth, about which our fathers were so deeply concerned. The settlement of such outpost skirmishes, and the drawing of a distinction between what is important and what is unimportant on either side has been hailed as a reconciliation between science and religion. I think all such rejoicings are premature until a clear understanding shall have been reached on the far deeper and wider issue. That such an understanding is in process of being realised is the ultimate argument of this chapter. But we have first to dispose of some of the premature attempts at a concordat which have been attempted and which still cumber the road to a final reconciliation. The older traditional apologetics, to

begin with, drew a distinction between Divine providences and Divine answers to human prayer on the one hand, and miracles on the other. The former were in strict conformity with the "Reign of Law," whereas the latter were something more, they were direct interventions of God. The Divine action in the first two was illustrated by the action of a human father, who, it was assumed, could supervise and provide for his children without deflecting the system of natural "law." Miracle was something over and above this, to which there was nothing strictly parallel in ordinary human experience. The very fact that it was of this unique kind made it the more convincing as an unmistakable Divine confirmation of the truth of the accompanying revelation. The extension and tightening-up of the whole scientific conception of nature have made this older apologetic distinction obsolete. The Reign of Law is to-day assumed to prevail everywhere. In the earlier stages of the debate the map of the world drawn by science was only very partially filled in. It was like the old charts of Africa that some of us remember, with a thinly peopled coast-line; definite courses of rivers mapped up to a certain point inland, and then running out into dotted tracks, marking conjectures and inferences; mythical "Mountains of the Moon"—survivals from the old charts with their pictures of lions, and legends in crooked script, "Here there is much gold." There was a general idea of the prevalence throughout all the unmapped land of nature of a "reign of law." But the many gaps in the scientific account left room for

both human and Divine freedom as well as "natural law." On the other hand it was believed that wherever science had given its account of any region, it gave the complete and final account of all that was in it, and the educated man's account of the world was thus a blend of the scientific and the religious interpretation, with elements from the latter filling in the gaps of the former, and with frontier controversies about the undetermined boundaries where the two interpretations seemed to conflict. Similar controversies occurred between Science and Art.

To this transition period belong these apologetic distinctions between Divine interventions and influencings of the "course of Nature" which were in accordance with the "reign of law" and those which were beyond it.

If we are to take it that from the scientific point of view, nature (*i.e.* the realm to which we have access through our senses) is a closed physical system, every event which takes place in the sensible world must be fully accounted for in terms of its physical antecedents, and brought within the causal nexus which it is the business of science to explore. Clearly, if this theory is to be taken as giving us a final and complete view of nature, there is no vital distinction between individual Providence, objective answers to prayer, and miracle. They are all in principle the same kind of thing. In each case something happens in nature that cannot be fully explained in terms of simple nature. There is in each of them something which implies that nature is not a closed system. The tightening-up of the

idea of a general "reign of law" in Nature into the idea that Nature is a completely closed physical system has thus made this older apologetic obsolete.

Modernist theology has more or less recognised this, and has abandoned not only physical miracle but also that view of petitionary prayer which holds that it can influence the outward course of nature. It is dubious even about individual Providence. But it draws a deep distinction between the world of nature and the inner world of the soul. The real concern of science, it holds, is with physical nature. The real concern of religion is with the soul. Why then should we not definitely assign the physical realm wholly to science; reserving for religion the world of the spirit, the world of Divine and human freedom, of personal communion, the come and go of prayer and its answers, the region of struggle with temptation and victory by the aid of the Divine Spirit, the region, as Eucken asserts, of the new birth? Modernism is diverse and many-coloured and often rather hazy in its statements here. But this, I think, is its general drift if we are to take it from such exponents as Jowett and Martineau in last century and Harnack in this. Now we may fully admit that in its desire to meet science in this way Modernism was dealing with a real difficulty and was endeavouring to conserve a great human interest. For certainly the constancy of nature, of which the closed system theory is one expression, is one of the greatest human interests. The whole world of human society with all its ethical and religious possibilities depends

upon our being able to count upon that regularity of natural process without which progress would be impossible. Yet, with all this, we must hold that the compromise which it has suggested and maintained is an impossible one, and is now definitely dated and in process of being transcended by the course of thought. It belongs to a certain definitely marked stage of scientific thought which it was designed to meet. At that period science was extraordinarily dogmatic and confident of her power to give a complete and final account of nature, to get deeper than philosophy, religion, or art in her account of reality. To-day, as we shall see, self-criticism has made her less sure of her powers in these ultimate regions.

In yet another way the situation has developed. Science has now passed definitely beyond the limits drawn by the Modernist compromise. She has, for a considerable time, been trying to fill up the blank spaces in her map of knowledge. She has carried her methods further and further afield into the psychological and sociological regions, and is endeavouring to bring them all within the causal nexus, and the reign of law. A reconciliation on the lines which the earlier Modernism suggested and which still linger in its later forms is therefore no longer possible.

A concordat which is definitely repudiated by one of the parties which it seeks to conciliate, has already become matter of past history. But, in truth, it was as unsatisfactory to religion as to science. The whole conception of physical nature as a closed system, if it be taken as an ultimate

account, is, indeed, fatal to any really religious interpretation of life. The failure to understand this is the gravest error of the Modernist compromise.

Let us examine what are the inevitable consequences of treating the closed system idea of physical nature as axiomatic and final. First of all, it is quite impossible to reconcile it with human freedom. According to this view, the whole world of human action as distinct from human volition is part of the causal system of physical nature. Every action of man's physical organs, as well as every change in the tissues of his body and brain, all nerve processes, must necessarily be as truly physically determined as the movements of the clouds on the face of the heavens. They are completely accounted for when we have determined their place between their physical antecedents and consequents.

What, then, are we to make of the psychical life of man, his emotions, thoughts, and volitions? So far as man's bodily life is concerned, there is obviously nothing left for his psychical life to do, every action being already fully explained otherwise.

This was the great perplexity of the Victorian naturalism, which, in order to find some way out, invented the extraordinary theory of epiphenomenalism, which taught that the entire psychical life was a kind of ghostly accompaniment of physical processes without any influence on these processes themselves, like the shadows which accompany a train passing along a mountain-side, but which have no influence whatever on its traction. This theory was framed in large measure in order to meet the physicist's demands that the law of the

conservation of energy should hold good for the body as a merely physical machine. But if the body was merely a physical machine, whence came the psychical life? It must either remain unexplained, or it must be physically caused. But if physical energy were expended in its production and maintenance, then the world could not be a closed system. It must leak energy at every pore of the human body. Space forbids further discussion of the theory. Dr Ward's annihilating criticism in his *Naturalism and Agnosticism* left little to be said of this crude first attempt to conserve the closed system and yet find a place for consciousness, thought, and volition.

It is impossible within the limits of this chapter to give even a summary of the various "parallelist" theories of body and mind which have endeavoured in a more thorough and plausible way to conserve the idea of nature as a closed physical system, while retaining a place for the autonomy of spirit. Modernism, in so far as it holds the closed system idea, must find its speculative basis in one or other of these. It is only possible here to give the common element in all the theories and to point out its fatal weakness at the critical point.

All parallelist theories hold that nature is a complete system which at no point is influenced by spirit or influences it. The two sets of processes, material and psychical, run parallel all the way, without interlocking at any point.

When expanded into a full speculative system and extended from the soul and body of man into a theory of the Universe, one aspect of which is

supposed to be Nature and the other Spirit, with an underlying, unknown substance manifesting itself in both, parallelism has an imposing appearance and a prestige lent it by the great name of Spinoza. It is impossible adequately to discuss this most ambitious of the theories, but like all the rest, it has for all coherent Theists more than one fatal defect. All genuine Theism demands that we shall look upon the Universe as a purposive system, directed towards the creation of free human souls. These souls are by the Theistic view made in God's image and capable of communion with Him. They are, like their Maker, free purposive agents, made to seek Truth, Beauty, and Goodness. Now, how can such free autonomous human life correspond point for point with a rigorously determined causal chain of physical processes? It is a sheer impossibility. Further, it would seem to follow that if man's psychical life runs rigorously parallel with its bodily counterpart, it must necessarily pass out of existence when the body dies and is resolved into its elements. Such are the insuperable difficulties which lie in wait for every Theist who plays with parallelism. There are many other equally unanswerable problems lying in wait for philosophy. Finally common sense rebels against the idea that the pleasures and pains which we experience have no influence whatever upon our bodily actions, that the volition which I make to raise my hand has no influence whatever upon the bodily action, and so on.

But these general absurdities must be left to the writers who have so thoroughly discussed the whole subject. The parallelist theory in all its

forms, like epiphenomenalism, is in fact a highly artificial theory invented to find a thinkable way out of a real difficulty. That difficulty is the direct consequence of the closed system dogma and the unworkableness of all the epiphenomenalist and parallelist theories is, in fact, a *reductio ad absurdum* of the theory that physical nature is a closed system. When any theory leads men to intolerably cumbersome and artificial consequences, the human mind retrieves the balance by examining its presuppositions. If it finds that any of these are questionable, it makes a fresh beginning.

This is the stage which progressive religious and scientific thought seems now to have reached, and with it to be passing away at once from the hard and fast scientific dogmatism of last century, and also from that premature attempt to effect a concordat which we have called Modernism.

In a series of striking chapters in his recent volume on *Science and the Modern World*, Professor Whitehead has shown how the growth of the mechanical scheme of science, based on the physics of Newton and the chemistry of Dalton, troubled and confused the whole higher life and thought of the nineteenth century. The scheme worked so well in the region of physical discovery and technical mastery of nature, that men thought that they had penetrated to the very heart of the Universe, and laid their hands on absolute Reality. That reality behind all the glory of nature and all the *Divina Commedia* of human life was a world of round, hard atoms like billiard balls, gyrating in space according to certain discoverable

uniformities. This was the objective truth, and all that the poets and painters and saints and prophets could tell us belonged to a purely human and subjective world. I remember once seeing a carefully painted picture of a human skull, with the grim title, "Behind the Mask." It was symbolic of the prevalent mechanistic view of the Universe of the mid-Victorian time. Behind the living and breathing earth and world of humanity men had discovered as the last reality the gaunt skeleton of Matter and Energy, or as Spencer said, "the Force from which all things proceed." To-day we have passed into a different world. It is not too much to say that the youngest and freshest thought of science itself discerns that the gaunt skeleton disclosed by the physical sciences is itself a mask of something or Some One deeper still, in other words, that in itself science can only give us an aspect of reality.

Many factors have contributed to this conclusion. The world of values has asserted itself. No system of cosmic interpretation that is in fundamental strife with the highest intuitions of the artist and the prophet can permanently hold the mind of man.

Moreover, the mere growth of scientific knowledge, the new developments in physics, and in particular the expansion of biology and psychology have strained the mechanistic theory, under which science has achieved many victories in other spheres of inquiry, beyond the breaking-point. The present condition of chemistry for instance has been compared to that of the Ptolemaic

theory of astronomy, which became so complicated and difficult by the mere growth of knowledge and the framing of subsidiary hypotheses to restore its validity, that the simpler Copernican theory had an easy triumph.

Finally, we may fairly claim that the mere advance of Epistemology has given the final blow to the dogmatic tyranny of the mechanistic Victorian science. Yet it was with a view to conciliate this now weakened dogmatism that the Modernist concordat with its rejection of miracle, of special Providence, and of outward answers to prayer came into being, and it bears therefore on its very face the marks of this vanishing order of thought. It is as clear as daylight that we must reconsider the whole position relative to miracle not only in the light of the whole Christian doctrine of the world, of which it was from the first a part, but in the light of that fascinating but as yet inchoate world of new scientific outlook which is coming into being.

But, to return, it is necessary to reiterate that what religion has to think of first is not the specific question of the miraculous, but the much larger question of the Christian doctrine of the world, of which the other is only a part.

With that doctrine we cannot realise too clearly that the dogma of the closed system of nature is in diametrical opposition. Both cannot be true. Now, in what way does the modern movement in science and in philosophy ease the tension of the whole situation, and open up the way for final reconciliation ?

It is, of course, impossible here to give anything but a bare summary of the difference between the scientific outlook half a century ago and to-day, as it presents itself to one who is interested mainly in the epistemological side of science, and has no claim to be anything but an outsider in the realm of science itself.

In the closing years of the Victorian period the dispassionate scientific outlook was contrasted by many of its supporters with the religious outlook, which was simply the pathetic illusion created by man's hopes. God, said Feuerbach, was the projection on the heavens of man's own shadow, the Brocken phantom of his desires. To base one's beliefs on one's emotional needs, said Huxley, was "immoral." Over against this interested view of the Universe stood the absolutely disinterested, final, and demonstrated interpretation of science. We have the same contrast asserted to-day by the Marxian materialism. Scientific knowledge gives us reality. Religion is "dope," the opiate invented for the proletariat by capitalism.

The poets mirrored the difficult position.

Tennyson, in *In Memoriam*, elected for faith, but obviously was gravely troubled by the supposed conflict with "freezing reason."

"Like a man in wrath the heart  
Stood up, and answered, 'I have felt.'"

In the last issue he accepted the position that religion was a matter of feeling, but asserted its rights none the less as based somehow on true knowledge.

Matthew Arnold elected for doubt—

“Nor does the being hungry prove that we have bread.”

To-day we can give a much more adequate vindication of faith as the highest reason, and on the other hand the whole scientific method has been exposed to rigorous analysis by some of its own leading exponents. The general result of that analysis has been that, far from being an absolutely disinterested instrument, the scientific method is much liker a calculus than a philosophy. In its formation, and in the formation of ordinary common-sense knowledge, of which it is only a more fully developed form, two practical aims have all along been prominent, the description and the forecasting of phenomena.

Man finds himself in the heart of a vast phantasmagoria of sense phenomena of infinite variety and complexity. He has the will to live, but he very soon discovers that in order to live he must do something much more than stand passively contemplating the great sense-pageant which is continually sweeping over and around and beneath him. He must in some way devise means to ward off those painful and destroying phenomena which we call hunger, disease, pain, and, above all, that termination of his experience which we call death. He must for this end be able to share his experiences and thoughts with others, in other words to describe them; and together they must also learn to forecast what is coming next in the great phantasmagoria, and make provision for it. Out of these two necessities, description and forecast, arises our

ordinary conceptual "common-sense" knowledge, and the scientific view of things which is only a greatly refined and developed form of the other. To this latter we shall in the main confine ourselves, as the greater includes the less.

There are three outstanding methods of scientific knowledge by which these practical ends of description and forecast are attained—classification, analysis, and the discovery of uniform processes, analogically called "laws."<sup>1</sup>

(1) *Classification*.—The human mind would be absolutely overpowered and paralysed by the multitude and variety of the phenomena which are continually appearing and disappearing, and it would be utterly unable to have any social life or community of thought with others unless it had invented the process of classifying and conceptualising. An infinite Intelligence would have no need of any such device as conceptual thinking. It springs from man's finitude, but none the less it is an immense advance upon mere instinct and automatic reaction. By it man is able to form concepts and common terms. He groups certain things or persons together, by observing similarities and ignoring differences, and he arranges the whole under common terms, so that he can talk rationally about them with his fellows. Conceptual thinking thus marks man's advance beyond the animal, the instinctive, and the automatic.

Scientific classification is a great extension of this

<sup>1</sup> See Canon Streeter's volume on *Reality*, chapter iv. to which in this section I am indebted for frequent clearing of my own thoughts.

method. Every new science must necessarily begin with this ordering and arrangement of its data, by this device of finite thought. Its purpose is defined by Mill (*Logic*, book iv., chap. vii., section 1) as follows: "to secure that things shall be thought of in such groups, and those groups in such an order, as will best conduce to the remembrance and the ascertainment of their laws."

Now it is quite clear that this can only be done by ignoring certain differences and by emphasising similarities in the phenomena classified together—*i.e.* by a certain suppression of what is really there. At the bottom of the scale of existences, in the purely physical region, where there is far more resemblance between the objects classified than there is higher up the ladder, this may not matter much, but the higher up the scale of being we go, the more does individuality count. There is, for instance, a far greater difference between one animal and another than there is between two molecules of a material substance, and *a fortiori* there is incomparably more difference between one human being and another.

We have here, it is clear, a grave limitation of the purely inductive method which inheres in its very nature, the inability of a method which is continually in quest of general truths and laws to deal with individuality.

Why is it that any one of us would feel insulted if he were told that he must think so and so, or act in a certain way because he belonged to a certain nationality or social class? Is it not because we feel that the offender is deliberately ignoring our

individuality? Yet in doing so, he is following the inductive method of classification. Be it noted, that the defect inheres in the method as such. The failure in any case lies not in bad classification, nor in an incomplete classification. It lies in the fact that, as regards the point at issue, there is a classification at all. Every rational human being knows that, for good or ill, he is not quite the same as any of his fellows. We seem, then, to have discovered at the very roots of the inductive method clear indication of the impossibility of science giving us a final and complete account of any man.

(2) We pass on to another essential of scientific method, *Analysis*. Still pursuing its quest for the power to describe and forecast phenomena, science follows the method of analysis. This is as essential a part of its method as the synthetic process of classification. An apparently simple phenomenon baffles it in its quest for a law. But it lays siege to it and shows that it is made up of parts, and then is able to bring the parts under the law. So science has worked its way back from the molecule to the atom, and from the atom to the electron. Whether it will stop there, who can say?

Now it is often possible to divide inorganic things without getting away from reality. We can usually assemble the parts again. But we cannot do that with living things without losing something irreparable. Wordsworth felt that of the living world of nature, and, as Professor Whitehead has shown, was deeply at odds with the scientific spirit of his time, and put his indictment in a pungent line, "We murder to dissect." That is to say, when we try

to dissolve a living thing into parts, its essence disappears. So is it always with individuality, as the very name should show us. It cannot be divided. So it eludes both classification and analysis. It cannot be completely divided any more than it can be generalised. Whatever pathological states of a human being may alternate in the field of a human consciousness so that a man thinks himself "legion," as in the Gospels, or as in the well-known instance of "divided personality" recounted by Dr Morton Prince, the personality is never really divided into other personalities. No sane observer of either case partook of the same illusion as did the patient. You cannot really divide a personality without annihilating it.

(3) *Law*.—Finally, the ultimate aim of all science is to forecast the future and so to win control over nature. It seeks the power of prevision with a view to provision. Its aim is therefore to discover uniformities or "laws" in nature such that, when we can bring any one phenomenon under them, we shall be able to count on its recurrence and prepare for what is coming next. These uniformities by analogy with human society are called "laws" of nature. The sovereign importance of this orderliness in nature, indeed its absolute practical necessity for human life and for the very existence and growth of all forms of rational society, is clear. If the same food sometimes poisoned and sometimes nourished life, if fire did not always warm, if harvest did not result from sowing, in a word, if nature were capricious instead of orderly, how impossible civilised existence would be! Science is

thus always seeking for laws of phenomena, and when it has found and formulated them, it is always seeking to bring new facts under them, by classification and analysis, and so to be able to predict or cause the succession of these facts in the future.

Another way of putting the same thing is to say that science is always seeking for causes. It has long been shown that so far as strict science is concerned, this means simply uniform sequences. Cause is a metaphysical idea.

Now the more we study all the forms of the inductive arguments, the more clear does it become that every one of them and the whole process of induction rests for its validity upon one great conviction, the belief in the Uniformity of Nature. In all induction we start out from the conviction that, however disordered and mixed up the processes of nature may appear, they are in reality all ordered, and in all our classifying, observing, and analysing, our persistent motive is to discover that order.

The strength of this fundamental conviction is forcibly brought out by Sigwart in his great treatise on *Logic*.<sup>3</sup> "However we may fail in our attempts to subordinate the world of perception to a complete conceptual system and to deduce all events from universally valid laws, we never doubt the truth of our principles. We still maintain that even the worst confusion is capable of being resolved into comprehensible formulæ; again and again we start our work anew and believe—not that nature opposed an inexorable refusal to our endeavours—

<sup>3</sup> Vol. ii. p. 17, E.T.

but only that as yet we have failed to find the right way; but this perseverance is due to the conviction that we ought not to despair of the accomplishment of our task, and the energy of the explorer is sustained by the obligatory force of a moral idea."

Now what is the origin of this rooted conviction that, however chaotic she may appear, Nature is really orderly, which makes us assume this and stick to it in spite of constant frustration? To point to the advance of science and the gradual discovery of order in those parts of Nature where the hypothesis of uniformity has been put to the test, and to argue that therefore the same uniformity will be found everywhere else, is to beg the whole question. We can show no sufficient logical reason at all for our faith in the universal uniformity of nature. Who can tell but that beyond the relatively small mapped-out region we may at any moment come upon tracts of pure chaos? Why in all the laboratories and observatories of the world are thousands of investigators still going on attacking that chaos sustained by that brave and persistent faith of which Sigwart speaks?

It is a truly wonderful spectacle, and it becomes not the less but the more wonderful when we realise the fact on which I think logicians are now generally agreed,<sup>3</sup> that this great sustaining condition

<sup>3</sup> Professor Whitehead has recently made the interesting suggestion that in Europe we owe the peculiar intensity of this confidence in the rationality of nature out of which science has sprung to the medieval schooling in the rationality of God. This is probably true, but I believe the roots lie deeper in universal common-sense knowledge.—*Science and the Modern World*, pp. 14, 15.

is in truth a postulate, that we owe it to the will, and to a certain deep and vital faith that nature is on the side of all that man counts most dear in his earthly life. Have we not here that same primitive "trustfulness" which, as Dr Ward has said, leads all living things to make adventures, and has impelled them to advance from the waters to the land and from the land to the air?

But assuredly the assumption that the whole vast natural Universe must be orderly is seen to be an adventure of singular audacity when we think of the tiny little "home-farm of Earth," which is our abode, and the enormous Universe of which it is an infinitesimal fraction.

But if such be the nature of the very foundations of science, it will clearly not do for us to claim for its account of the Universe that complete disinterestedness and finality which the Victorian scientific age claimed for it, or to treat it as more than one way among others of conceiving and of handling the world. The marvellous success of the postulate indeed shows that there must be something in the very construction of nature, so far as we know her, friendly to human interests and akin to human thought, something deeply encouraging to those who desire to make further assumptions of faith in the moral purpose of the Universe. But in the light of the disclosure of the real nature of the postulate which underlies all scientific thought, it does not lie with science to arrogate to itself the claim to be more than a successful method of describing and forecasting the processes of nature. Does it carry us further? Can we say that it can

completely explore and describe and forecast "the abysmal deeps of personality" ? That it has been endeavouring to extend our knowledge of that microcosm within the macrocosm, we know. But of psychology, both old and new, we can say two things. First of all, like biology, only in a greater degree, inasmuch as it too is concerned with general concepts and laws, it can never fully explain any human being. Laws can only deal with uniformities of action. They are, indeed, as has been said, simply uniformities formulated in order that we may bring new facts under them for description and for forecast.

Now let us take our most intimate friend and try to describe him in terms of all that physics, chemistry, biology, anthropology, psychology, and sociology can do. As we build up our portentous description of abstractions, we may recognise that each particular specification contributed by all the relevant sciences is true, and when we add them all together they may enrich to a large extent our knowledge of him. They are all true, so far as they go, but can any human being say that this complex of abstractions is the very man ? Something vital and momentous has slipped through all the meshes of all the nets. Something, it is true, remains ; something which he has in common with a multitude of other men, but the man himself is not there ! The description has failed. This is verified when, in the second place, we turn from description to forecast. Has science succeeded here ? We all know that science has done nothing of the kind, that all our knowledge of all the relevant sciences cannot

enable us definitely to predict what any waking and rational human individual will be thinking, saying, or doing in an hour, still less a month, and still less a year from now. This is the more remarkable when we think of the astonishing accuracy of scientific precision in physical matters. You can tell with absolute certainty what a planet will do, but what transit instrument will reveal the journey of a man?

Now there are still highly intelligent people who cherish the idea that this admitted uncertainty as to what human beings will do or become is due to the fact that as yet we do not know all the laws of psychology.

Herbert Spencer compared this uncertainty to the uncertainty we have as to the precise pathways that will be taken by the fragments of a bursting shell. We can tell where the shell will fall, but we cannot beforehand locate the shards. The uncertainty in the latter case, he said, is plainly due simply to our own ignorance of many facts about the explosive and the shell. But if we knew these, as we can learn to know them, we would be able to locate each pathway to a certainty. So is it with human beings. If we push on with the various sciences involved, we shall in time be able to forecast human action as accurately as planetary movement. Do not insurance tables imply that we know what men in the mass will do? Push the method further and you will be able to forecast everything that the individual will do, also.

This is a mere dream. The same reason which prevents the scientific description of your friend ever being anything but a cumbrous and lifeless

model of him, will absolutely preclude all the scientific knowledge of him which you can acquire from enabling you completely to forecast his actions and thoughts. The reason of this is, as I have said, that in the very nature of the case no abstract scientific description can ever give you the individuality of the man, and without knowing that you cannot predict what he will do.

But, it may be said, I am not so ignorant as all that of what my friend is, and to a certain extent, of what he will do. I have a knowledge of him other than that cumbrous scientific model, and I do know his character, so that, barring my uncertainties as to the environments in which he may be placed, which uncertainty is largely due to my (removable) ignorance, I can tell, generally, how he will respond to them. I know his individuality and his character, and these give me confidence.

That is, of course, perfectly true. But the essential point is that you do not have that individual knowledge through science. It comes to you in quite a different way, through what Bergson calls intuition. We know our own personalities not through generalising about them but by immediate knowledge, and through that knowledge we have the clue to other personalities, and are enabled thereby to interpret their actions and characters and truly to know them as individuals like ourselves, though so unique a thing is individuality that even with this new source of knowledge we can never exhaustively fathom or truly, definitely, and completely forecast the action of even our most intimate friend.

To sum up the argument, science has wonderfully extended the range of human knowledge. By its means we have immensely developed our power of describing and of forecasting and controlling nature, and secured so great an increase of comprehension, and of enjoyment of life, that men have been led gravely to exaggerate its possibilities. But in its very nature it is subject to certain uncertainties and limitations. It cannot give us final truth about anything, and by its very nature, also, it cannot explain so great a reality in human experience and in the higher range of nature as individuality. Yet individuality is unquestionably there functioning in all living things, and above all in human life, reacting on the living body, and through it upon the spatial and ponderable world of nature.

It is as certain that we act as that we are. Personality certainly functions in the nature world. We do not simply contemplate, we influence or change nature. I can move my body and alter the physical dispositions of the objects around me, and my individuality counts in this. But if that be so, clearly, then nature is not a completely closed system. It is to a certain extent plastic to the influence of my personal volitions. Either this is true, or, to reason back, science can completely explain personality, and in that case each of us can be completely described in strictly general terms, can be wholly subsumed under universal laws, and in spite of the clamant witness of language the individual can be divided. Dissection can in a word be done without

murder. We can completely describe each man without going beyond what is common to him and other men, and sooner or later we shall be able to predict what any man will do at any moment as accurately as a transit instrument can track the path of a planet. On such a view, of course, freedom vanishes. Either we must face these incredible consequences or we must abandon the idea that physical nature is a closed system, and must admit that up to a certain point she is plastic in the hands of man, because she does what cannot be fully explained in terms of physical law.

This, I take it, is what Lord Kelvin had before him when he wrote the much canvassed opinion that from the point of view of science every free human action was a miracle. He meant that voluntary human action is inexplicable in scientific terms.

We pass here a step beyond saying that science can only deal with an aspect of reality, a truth which might be held by a parallelist, to a further statement of its essential limitations. Pure science cannot give us a complete account even of what goes on in what we know as the material world, as, for instance, my bodily actions. There are and must be events in the physical realm which cannot be exhaustively described in terms of physical causation, events which are fully historic, but of which science can never give an account. I see nothing in the methods of inductive logic to preclude this. If the uniformity of Nature be a simple postulate, and if the inductive methods be, as I believe they are, "a net to catch certain kinds of

fish, and to let other fish through," there is no antecedent obstacle to such a position. Among these escaping fish that argument would compel us to put many of man's physical actions and achievements in the physical regions. They do not contravene the natural laws, they simply elude them. They cannot be described fully by science, and, as we should expect, they cannot be accurately predicted by science. To this elusion of biological science by much of the realm of human action we may find a significant analogy in biology itself. Dr Haldane in his Gifford lectures, which are being delivered while these words are being written, finds himself compelled to discard both the mechanical and the vitalist theories of life. He is clear that the characteristics of living things cannot be fully accounted for in terms of physical and chemical mechanism. Yet, with the great majority of biologists, he discards the conception of a special vital force interposing to overrule chemical processes as too crude to account for the phenomena of life. How does he meet the situation? He supposes that the physical and chemical sciences do not give a complete account even of their own inorganic domain. Something is present even there that eludes their nets. We can at present give no adequate account of what it is. But when living things appear it manifests itself in their peculiar characteristics. It has escaped the meshes of the nets of the physicist and chemist, but it is detected by the biologist. Have we any reason to suppose that the nets of the biologist have captured everything that there is in man? If there is something

in man that stubbornly refuses to be described in purely biological terms and that cannot be predicted, have we not precisely the same right as the biologist has, as in the other case, to say that even his marvellous science cannot say the final word about humanity? We can, I believe, as has been said, go further still and say that no inductive science, not even psychology and sociology themselves, can ever give us an exhaustive account of human history.

Now if this reasoning has been sound, we must abandon the idea that it is any necessary dogma of science that nature is in itself a rigid system, impervious and inflexible to the spiritual world.

We shall see in Chapter V how the whole dogma originated from a very natural fallacy of reasoning. Meantime it is enough to say that it leads not only to other impossible conclusions, but that it fails to take any adequate account of individuality and the difference which individuality makes in nature. Finally we have seen that the real nature we know is to a great extent plastic to the influences exerted upon it by the free human spirit. Man can be a providence to his children within that realm of nature, he can hear and answer their prayers; and if Lord Kelvin was right, he can produce effects in nature which from the point of view of science are miracles. We press the question—If these things are possible to man, are they impossible to God? If He be the Almighty Father of Humanity, are they even unlikely?

It is along these lines, opened up by the development of scientific logic itself, and not imposed

upon it by the demands of theology, that there lies the real prospect of a definite and final reconciliation between the abstract and general view of science and the "personal and romantic" view of religion, between the view which holds that the world of nature is rigid, and that it is plastic in the hands of God. The necessity for supposing it rigid arises only when we insist that the scientific view gives a complete and final account of nature. When this is abandoned there is room for the poet, room for the moralist, and room for the whole religious interpretation of the world. There remains in a word no reason why both the scientific and religious views of the world should not be true. The scientific view corresponds to the Registrar-General's returns—so many births, deaths, marriages and so forth in the year. All such details are indispensable for a country's political, economic, and hygienic life. But over and above these how much there is that only the historian, the novelist, the poet, or the musician can teach us! Is that all? Surely the last and deepest word of all lies with the man of faith, who lives by listening for the Divine Voice and reaching out for the Divine Hand.

But if it be so the whole Modernist repudiation of the miracles of Jesus loses its real intellectual basis.

These unique deeds are seen to be the natural results within a Spiritual Universe of the appearance of a unique Personality. But they are unique in degree, not in kind.