JOURNAL OF

THE TRANSACTIONS

OF

The Victoria Institute,

OR,

Philosophical Society of Great Britain.

EDITED BY THE SECRETARY

VOL. XXXVI.

LONDON:

(Published by the Institute, 8, Adelphi Terrace, Charing Cross, W.C.)

1904.

ORDINARY GENERAL MEETING.*

REV. CANON GIRDLESTONE, M.A., IN THE CHAIR.

The Minutes of the last Meeting were read and confirmed.

The following paper was then read by the Author:—

TWO PATHS, ONE GOAL: Being an Examination of Bishop Temple's Bampton Lectures for 1884. By WALTER AUBREY KIDD, Esq., M.D., M.R.C.S., F.Z.S.

ILLUSTRATION.

THE course of the Ganges–Brahmapootra is without parallel among the rivers of the earth. Rising by two heads from a limited region of the Himalayas it pursues at first two opposite directions. The northern branch flows for 1,800 miles through Tibet, the southern through the great plain of Hindostan on its fertilising course for 1,500 miles, and this greatest of Asia's twin-streams unites to form the Ganges delta and flows into the Indian Ocean. A common origin, a parallel course, and a common destination may fitly illustrate the still more remarkable origin, course, and destination of Religion and Science as forces in human history. The parallel may be further pursued. How well does the long winding course, much of which is still unknown, of the Brahmapootra, resemble that of Science, and the open, long-known course of the Ganges, so important to Northern India that its work as water-carrier and fertiliser entitles it to rank as the foremost river of the globe, that of Religion?

With this illustration in view we may proceed to examine the *Bampton Lectures* of Bishop Temple on "The Relations between Religion and Science," which represent two paths of human progress with one common goal.

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* Monday, January 25th, 1904.

The time, the subject, and the writer of the *Bampton Lectures* for 1884 were alike noteworthy. The "Origin of Species" had celebrated its coming of age four years before, and Darwin's greatest champion and swordsman in many an encounter had proclaimed "Evolution is no longer an hypothesis but an historical fact." The challenge of Huxley, for it was no less than a challenge, was couched in his customary trenchant terms, but the saying if it did not then echo the united voice of Science of 1880 fairly well anticipated that of 1903. The year 1884 was one in which it had been recently declared orthodox from the side of Science to hold the general truth of the doctrine of evolution. But for a Bishop of the Established Church to hold this doctrine so publicly announced, still required not less knowledge of the two great subjects of Religion and Science, than of courage. Even so late as 1894 at Oxford, Lord Salisbury, as President of the British Association of Science, made a very powerful attack on natural selection. Here it may be allowable again to state that evolution as now conceived is not Darwinism, or natural selection, though the latter is reckoned as one of its great factors. To the end of his life even Huxley was cautious and slower than many to acknowledge the paramount power of natural selection in organic evolution; too slow for what are called by Weismann "the Hotspurs of biology." So much so that Lord Kelvin, on the occasion of presenting to Huxley in 1894 a medal of the Royal Society, was justified in saying how great was the pleasure all present must feel to have among them the advocate of "the origin of species by natural selection," who once bore down its foes "ready if needs be to save it from its friends." The year 1884 was a critical time for a Bishop to choose for a declaration of his adherence to evolutionary doctrines. To-day such a thing would be received as a matter of course, and probably the accepted views of evolution approach much more closely than ever before the teaching of Scripture as to the origin of the world and the things that are therein.

If the time was critical the writer was noteworthy as the protagonist on the Episcopal Bench of the present friendly and candid claims of Science to be attended to by religious and educated men. Here was the contributor to *Essays and Reviews* of an earlier date, in which he foreshadowed the line of his *Bampton Lectures*, again speaking in advance of his times! When first he came to the See of Exeter he brought with him a certain cloud of suspicion as a churchman too broad to be safe and sound. But suspicion was slowly disarmed by his wise,

strong, and successful administration of his diocese, and a reputation grew up around him for sound sense, clear-headed justice, and energy, and he for long retired from anything of a controversial nature. He appears to have been one of the men who find early in life the conclusions of their maturity, and questions which were burning ones for most religious people in 1884 had been settled by him for himself long before. He lived, and died in 1902, in the intellectual as well as the religious faith of his early manhood. Such a man was well calculated and fitted to deliver these *Bampton Lectures.*

Of the subject itself it is enough to say that all the mental, moral, and spiritual life of man, as well as the physical, is embraced by the two related spheres of Religion and Science. The Lectures are in the nature of an *eirenicon,* and we are well aware that in 1884 this was the needed attitude of a religious teacher. To-day the two friends need hardly more than to know one another better. Except among extreme men on each side estrangement and antagonism should exist no more. The Rev. H. E. Fox spoke some very wise words which are applicable here, and it were well for us if we could keep them in mind as a motto in the discussion of Religion and Science, he said: "*Our duty is to find, if we can, what agreement lies behind our differences, and use the one to get rid of the other.*"

Religious Belief.

The eight *Bampton Lectures* are marked by openness of mind, great knowledge, and a clear grasp of the principles of both Religion and Science, and by a devout piety. In the first place the origin and nature of Religious and of Scientific beliefs are discussed. The former is traced to the voice within, that moral law which exists and operates apart from, but not in contradiction to, the teaching of Revelation. It is shown that this law in its government of the world reveals itself as possessing the distinctive mark of personality, or purpose and will, giving no countenance to the theories of Hartmann, that the Divine Being is an unconscious Being, or of Schopenhauer which identifies Him with Will. The moral law has final supremacy in the life of man; and later, in Lecture V, it is pointed out with great force that the means of developing and completing spiritual knowledge is Revelation.

Scientific Belief.

The origin of Scientific belief is traced to the Great Postulate of Science, the Uniformity of Nature, which grows in validity with every advance of knowledge, and which though it is known to be so general, can never be shown to be universal. An important point is brought out in Lecture I, viz., that the process of scientific thought derives its early beginnings and primary sanctions from the exercise of the will. In fact, without these two data, the Human Will and the Uniformity of Nature, Science could not even begin to work, its great superstructure would never begin to be reared.

Free Will.

Four lectures are devoted to the "apparent collision" of Religion and Science on three matters. Two deal with the apparent collision or conflict of Religion with the doctrine of evolution, one with the doctrine of Free Will, and one with the claim to supernatural power. These three "conflicts" the lectures show to be apparent and not real. Temple maintains that Free Will conflicts profoundly with rash conclusions of Science, and boldly asserts his conviction that the will of man is free, in despite of all the sophistication to which this deep subject has been subjected at the hands of philosophers and metaphysicians, and latterly of scientists. With his usual moderation he reminds us that interference of the human will with phenomena is always possible, but that the more closely it is examined the more rare is found to be its exercise. In connection with the subject of Free Will we are reminded forcibly of the necessity there is for us to have a fixed Nature in order that our self-discipline may be able to act intelligibly on us, and that from this basis each step upward may be secured before another be taken in the moral and religious life, and that attainment of growth by discipline is impossible without fixity in the thing to be disciplined. Here, as in the cases of the other conflicts between Religion and Science, opposition of Science to Free Will in man is apparent and not real: he says, "Science asserts that there is evidence to show that an exceedingly large proportion of human action is governed by fixed laws. Religion requires us to believe that the will is responsible for all this action, not because it does but because it might interfere. Revealed religion, indeed, has always based its most earnest exhortation on the reluctance

of man to set his will to the difficult task of contending with the forces of his nature, and on the weakness of his will in the presence of those forces."

The doctrine of evolution is discussed in two lectures marked by a thorough knowledge of the leading points of evolutionary teaching; and he proceeds to point out that it is not inconsistent with the account given in Genesis of the formation of the habitable world and its inhabitants, man included. He recognises the very natural difficulty so many religious men were feeling as to the acceptance of this doctrine, and shows with much insight how the great argument from Design is not weakened, indeed, that it is strengthened and widened by that doctrine. He refers to the growing adherence to evolutionary thought which was to be seen in 1884, and which is still more marked in 1903. He wisely commences the discussion of evolution by reminding us that its essential basis is that endless change of events, and flux of all things around us, the old πανται ρεῖ of Heraclitus. Evolution or transformation is writ large on the broad face of Nature, and many go so far as to say that it is bound up with every phenomenon, that it extends from star to soul, and ranges through all between; indeed, that it is co-extensive with all existence. Temple, however, accepts the general truth of the doctrine of evolution and its congruity with the teaching of Scripture; reserving the important provinces of the Divine and human will from its unlawful approach.

Supernatural Power.

The supreme difficulty of the subject, the apparent collision of Science with the claim to supernatural power is boldly faced, and is dealt with very much as it has been by others in past ages, and latterly especially by the late Duke of Argyll in certain of his works. The claim to work miracles, he maintains, is parallel to the freedom of the will of man. Different aspects are borne by miracles at the time of their performance from that which they bear in the light of modern scientific investigation. The suggestion is made that our Lord's miracles of healing and His Resurrection may have been parts of a great hitherto unknown law by which God works, and which will eventually be ascertained to be in accordance with scientific reason. If Science were at some future time to be able to show that, though the miraculous facts of the Bible history happened exactly as they were reported and yet were the result of natural causes, this would not affect their character

as miracles, or in any way asperse the truth of the revelation of which they form part. He compares the general resurrection of men to the first introduction of life into this globe, and says, with strict truth, if the latter was a miracle, as we believe, it is a miracle precisely similar in kind to the miracle which believers are expecting at the last day. Some minds are sufficiently convinced by beginning with the acceptance of the miracles as proved by external evidence, and going on from this to accept the conclusion that the teaching which was thus attested must be divine. Temple, speaking for himself evidently, says that it is quite impossible for most men to take to pieces in this manner the records in which the Revelation is contained, and to go from external evidence to the messengers, and thence to the substance of their message, by so easy a method of conviction. He shows how to most of us Revelation is a whole, and one which is found to be divine from whatever side it is looked at. He gives a short account, but a very forcible one, of the evidence for New Testament miracles, and replies to anticipated objections, showing the extreme scientific objector the limitations of his mental attitude towards the world as a whole. He bases his strongest line of evidence on the attestation to our Lord's miracles and character by the disciples in their teaching, their lives, and their deaths, and upon the moral and spiritual evidence displayed by His own character, which intentionally overshadows the rest, and declares it inconceivable that He should have made a false claim.

Summary.

The arguments are summed up in the statement that the great Postulate of Science, the Uniformity of Nature, is not demonstrated as universal, but as exceedingly probable, with the exception of two great instances, the Divine will and the human will, that these two exceptions are in no sense barriers to the onward march of Science with her ample powers, her free charter, and extensive field; that the moral law rests on itself, and that it requires no *imprimatur* at the hands of science, that the avowed purpose and the undeniable effects of Theism and its Revelation are manifested phenomena; that the results of Revelation, though not a *demonstration* of God's existence, are a full answer to those who ask, "If God made and rules the world, why do we find no signs of His hand in its course?" This answer is as old as that given by St. Paul on Mars Hill, and its fulness of meaning grows with the passing

centuries. Finally he shows that this moral law exists whether we accept and obey it or not. Our recognition of it depends on our character and free choice. It is personified in Jesus Christ.

Outward Relations of Religion and Science.

In the earliest and highest civilisations of mankind such Religion and Science as existed, and were then possible, were embraced by the Chaldeans, both in Babylon and Assyria. This separate and learned caste retained in their own power and transmitted from generation to generation the mysteries which they had inherited. Such a union of Religion and Science could be nothing but barren, for both would be of a traditional and fixed character, and if there be one characteristic more peculiar than any other to Science it is the continual development and change of its methods and results. And this is true to a less extent of Religion, and in a different way. The restless Greek mind, with its ever-active inquiry into new things and principles, introduced about the sixth century B.C. a more hopeful attitude of the learned towards the secrets of Nature and the growth of true Science. Such names as those of Thales, Empedocles, Heraclitus, Democritus, and Aristotle, and the Roman Lucretius, are landmarks in the history of Science. Of these, perhaps, Aristotle, the father of Natural History, is the most eminent, and has contributed a greater share to the impetus of experimental investigation than any of the ancients. But it is enough to mention such names to show that in that fertile period of the human intellect Science worked in a separate orbit from Religion. It were better if it had always continued so, until each of these had reached its maturity in Christianity on the one hand, and modern Science on the other. In the pre-Christian and early Christian times relations between Religion and Science could hardly have been said to exist. From the times of the Ionian philosophers to that of Roger Bacon in the thirteenth century, Science made little or no progress, but took rather a retrograde course, for the chains of authority were settling down more and more deeply on the necks of men. The work of Friar Bacon still did not bring Religion and Science seriously into conflict; still less did it open up the common ground which in modern days each has discovered, though his *Opus Majus* was important enough for Dr. Whewell to describe it as the "at once the encyclopædia and the *Novum Organum* of the thirteenth century." Still for two or three centuries more the astrologer, forerunner of the

astronomer, and the alchemist of the chemist, though frowned upon, were not seriously persecuted. When in the sixteenth century Copernicus reversed the Ptolemaic system, and in the seventeenth, Tycho, Bruno and Galileo completed his work, the theories of orthodox Science and the orthodox religious teaching on points of Science of that day came into serious conflict, and persecution according to sixteenth-century methods necessarily followed. Such a position as this could benefit neither Religion nor Science, and still the relations of the two were slight as a rule, or hostile from time to time. During the Dark Ages before the Renaissance one branch of Science, though it made little progress from the days of Hippocrates and Galen, remained like a small meeting-ground for Religion and Science; for the Church was ever ready to shelter medical science and to promote the practice of the healing art. In this we have a small glimpse of the better days to come, when Religion and Science are beginning to look upon one another as partners in the betterment of man in his whole being.

The work of Francis Bacon in the sixteenth and seventeenth centuries may fairly be reckoned as important an epoch as that of Aristotle in the fourth century B.C. He is one of the greatest pioneers of modern Science, and at the same time a man of profound insight into the truths of Religion, and in this respect a representative of the most modern man of Science. He may have underrated, indeed, the value of deductive science, and rejected too hastily some of the greatest discoveries of his day, such as those of Copernicus and the work of Gilbert on magnetism. But "it was the energy, the profound conviction, the eloquence of Bacon which first called the attention of mankind as a whole to the power and importance of physical research. It was he who, by his lofty faith in the results and victories of the new philosophy, nerved its followers to a zeal and confidence equal to his own. It was he who, above all, gave dignity to the slow and patient processes of investigation, of experiment, of comparison, to the sacrificing of hypothesis to fact, to the single aim after truth, which was to be the law of modern Science." A very significant and courageous exception was made by him in that he refused to include theology in the branches of knowledge contained in his system of Science, though he was the servant of a King whom theological studies especially delighted. He held that the premisses of the Church's teaching, or of Religion, were certain and fixed, and that his method of inductive inquiry was inapplicable to theology. This it certainly was in his day, and in many of her

articles Religion must ever remain outside the province of inductive Science, though it must be seen also that the number of those articles is diminishing as time passes. It would have been well for the relations of Religion and Science if the Church of Rome had recognised in the sixteenth and seventeenth centuries the truths that Bacon saw and taught. A pleasing exception to the strained relations between Religion and Science in the end of the sixteenth, and first half of the seventeenth, century was seen in the work and teaching of Harvey, the great physician who discovered the circulation of the blood.

Science made a great step in advance in the reign of Charles the Second, when the Royal Society was formed; but this in no way affected the relations between Religion and Science at the time. Doubtless as the mysteries of the natural world became more and more unfolded by such men as Isaac Newton, Halley, Linnæus, Buffon, and Cuvier, the ground was being prepared for a deeper and more reverent outlook upon the world around; and yet for a time in France and England there seemed to be a change for the worse in the relations between Religion and Science through the growing achievements of the latter. But such hostility as then existed was neither the fault of Religion nor Science, but of that sceptical spirit of the eighteenth century, which was glad enough to avail itself of the new discoveries of Science if only Religion, as represented by the Church of the day in England and France, could be injured. In the latter half of the eighteenth century Kant and Laplace and Hutton and Herschel opened up new fields of speculation and investigation into the origin of the world, the constitution of the heavens, and the structure of the earth's crust, all these subjects being necessarily such as would touch many of the articles of the Church's teaching, but, as we know now, not such as, in any way, should clash with the teaching of Scripture. A counterblast of great value and power was issued by Paley in the early years of the nineteenth century, in his *Natural Theology* and *Evidences of Christianity*, marking the need then felt by the Church for a reply to her numerous assailants. But then, as in previous generations, the spirit of Science was not that of Religion, and the two spheres remained much apart until again in the middle of the nineteenth century very hot conflict arose out of the work of Spencer and Darwin, and Bishop Temple took his part in it by contributions to *Essays and Reviews*. From those days to the present time the conflict has been growing less and less hot; and such lectures as those of 1884 by Temple have taken their share in

the improved relations which are manifest in the opening of the twentieth century.

From this brief review of the outstanding periods of the lives of Religion and Science, and a knowledge of the previous extent to which the adherents of each so generally misrepresented the cause they sought to promote, we can but be thankful that these two great branches of knowledge were not committed to a union before their maturity. If we imagine the injury to Religion no less than to Science herself which such a premature union must have entailed, we can well be thankful that the orbits of these two great lights have so long remained separated. What incalculable harm would have been done to the tender larval form of Science had it been encumbered with the ecclesiastical, political, and intellectual shackles which were weighing down the Church of the thirteenth century, many of which she threw off at the Reformation! And on the other hand, how the credit of the Christian religion would have suffered from any formal association with the pseudo-scientific teachings of the Science current in the thirteenth, fourteenth, and fifteenth centuries! For Religion to give the *imprimatur* of her great authority to *such* science would have been as disastrous as for Science in her swaddling-clothes to have been under the sway of the current Religion. It was better far that some of the apostles, martyrs, and saints of Science should be burned by the Church than that they should compel their Science to agree with the dogmas of the Church on those matters which concerned her teaching. It is only as a truer light shines upon Scriptural interpretation, and scientific knowledge grows more assured, that any true *rapprochement* can be desired.

The present position of the relations between Religion and Science may be symbolised by the illustration with which this paper opened, and we may fairly claim that, though these two great streams of truth, one in origin, have wandered far apart through the greater part of their remarkable course, they have united in the Ganges-Delta and are nearer to their common goal in the ocean of Truth.

"This convergence in their essentials of Religion and Science is not the least significant fact of modern thought and modern faith." *

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* *Spectator*, June 20th, 1903, p. 970.

THEISM

In considering Religion, Temple necessarily deals with it under the form of Theism, or that doctrine "that the universe owes its existence, and continuance in existence, to the reason and will of a self-existent Being, who is infinitely powerful, wise, and good—the doctrine that Nature has a Creator and Preserver, the nations a Governor, men a heavenly Father and Judge" *; and it is needless to say that the Christian form of Theism is alone considered. We should no more think of discussing as Religion the lower forms of polytheistic faiths than we should classify and describe a butterfly or frog from their larval forms. Whatever the importance of the lower faiths of man, and their interest to anthropologists, the gulf that separates them from Christian Theism is deep and wide. And whatever the ethical importance to mankind or the interest to philosophers may be found in the ancient faiths of Hinduism, Buddhism, and Mohammedanism, their almost complete alienation from modern Science put them at once out of court in such a discussion.

No definition of Science is needed. The simple statement that modern Science, youthful, vigorous, progressive, and yet cautious, is here indicated, suffices for the purpose.

CHARACTERS COMMON TO RELIGION AND SCIENCE.

What are the characters common to Religion and Science? The most prominent and important among these seem to be the following:—

1. Both are concerned with man and his welfare.
2. Both tacitly assume that man is the last and highest inhabitant of this planet.
3. Both contain revelations of mysteries, the first volume is that of Religion, the second that of Science.
4. Both show a slow progressive transformation and growth.
5. As each develops, a shrinking of the province of mystery takes place.
6. Both postulate a realm of order.
7. Both ultimately are based on faith.
8. Both postulate the uniformity of Nature.

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* *Theism*, Professor Robert Flint, p. 18.

What are the characters which distinguish Religion and Science from one another?

1. Science deals mainly with phenomena which are open to the senses of man. Religion with spiritual and moral phenomena.
2. Science proceeds by inductive methods and by experiment when it is possible. Religion makes no experiments with definitely arranged conditions, but observes the undesigned experiments in the sphere of moral law.
3. Science postulates, without attempting to prove, the universal uniformity of Nature, whereas Religion claims two exceptions, the Divine will and the human will.

When these few characters, which join, and the fewer still which divide Religion and Science, are looked at, it is difficult to see where at the present time serious disagreement can arise.

Is Science Bankrupt?

There are certain preliminaries which must always be observed by individuals or nations, formerly unknown to one another or estranged, if any partnership, treaty, or common undertaking is to last. From the time of the ill-fated and hasty compact between the Israelites and the Gibeonites, history is full of the dangers which arise from a failure to base friendship, treaty, or co-operation upon sound lines. This remark applies with special force to the modern reconciliation between Religion and Science and their drawing together for practical purposes in the betterment of man. Religion as the older of the two friends is entitled to ask of her younger auxiliary before anything in the nature of a partnership be entered upon—"Is Science bankrupt"? We need hardly apologise for the form of this question. It cannot be imagined that the great house of Rothschild would propose to take into equal partnership a younger, great, energetic, and wealthy banking firm without the most searching inquiries. Indeed the question has been asked in this very form for some years in France* and elsewhere, and that in no spirit of impertinence or condescension. Religion as a business concerned with the whole welfare of mankind, and especially with the highest part of man, is entitled to ask this question, "Is Science bankrupt"? Has Science outstanding liabilities to the world in which she

* *Revue des deux Mondes*, tome cxxvii, 1895, p 98.

works which some day she must fail to meet? Has she taken into account all the conditions of the phenomenal world, including in this the moral nature of man?

Yes, and no, must be the answer. Science is potentially bankrupt if she demand to grasp with her single hand the three data of real existence, *Ego, External Nature, God.* Science is not and never can be bankrupt so long as she concerns herself with the two first of these primary data, leaving to Religion the task of co-ordinating the three by her expert assistance. It may happen that the department of business hitherto exclusively conducted by the old firm will be encroached upon by the extension of the powers and field of operations of the younger, as the ages roll on, even as we see at present in the great field of psychical research. But when the last word of Science has been spoken on any subject, if that should ever be, Religion must still make heard her voice as to the ultimate meaning thereof. It were almost impertinence in this twentieth century to proclaim the validity of Science in her own great territory, the limits of which no man knows, when so recently Sir William Turner could, from his presidential chair at Bradford, say, uncontradicted: "Great is Science, and it will prevail," or, Sir Michael Foster, at Dover, make even more far-reaching claims for the work of Science. A mere list of the fresh verifications of the data of Science were enough to stop the mouth of any who might raise a suspicion of the financial stability of the new partner. The works of Science have stood the test of constant, able, and often hostile inspection of her assets. Indeed, so convincing to many of her votaries have been the proofs of her wealth, and power to employ that wealth, that a man so generally candid as Professor Huxley was led in a moment of triumph to say that if certain of the branches of the theory of evolution were true, "the frontiers of the new world, within which scientific method is supreme, will receive such a remarkable extension as to leave little but cloudland for its rival." *

Such a statement savours of vapouring, a proceeding so unlike the writer's usual habit of thought and speech that one would not allude to it were it not for the important purpose of showing a truth brought out very forcibly by Professor Campbell Fraser in his *Gifford Lectures.*† Referring to the three primary data of real existence, the Ego, Nature, and God, he points out the

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* "Past and Present," *Nature*, 1st November, 1894.

† *Philosophy of Theism: being the Gifford Lectures for* 1894–96.

danger which always exists, and has been abundantly exemplified in human history, of a person being absorbed in the contemplation of one of these data to the exclusion of the others. Hence have arisen from time to time the various forms of Monism which he terms Pan-Materialism, Pan-Egoism, Pantheism, each having its solid substratum of truth, but each inadequate to explain and illuminate the whole of existence. He sums this up by saying, "Unbalanced recognition of one of the three over the other two, in thought, feeling, and action, is the chief source of intellectual error and moral disorder; and that life is good and happy in proportion to the due acknowledgments of all the three. Confused conceptions of the three are an inexhaustible source of two extremes—superstition and scepticism."

We may take it that neither Religion nor Science need for a moment hesitate to make that unwritten, but all the more valid, treaty of peace and interdependence, which shall advance the physical, mental, moral, and spiritual welfare of man and the world over which he finds himself, without his own desire or seeking, appointed vice-gerent.

The Three Data of Reality.

In the *Bampton Lectures* before us the three data of the world of reality, the individual, outward things, and God, are dealt with, especially the last. The conviction of personal identity is shortly considered as proof that our knowledge is not all relative, as Spencer would have it. But under the terms Science and Religion, Temple fully considers Nature and God in their relations to one another, and he shows the philosophical bearings of the study of these two greatest of the data, and demonstrates the essential harmony and growing *rapprochement* of their findings.

But it may be well for us to take up one aspect of these two great branches of knowledge, and ask what it is that articulates them, and them with the Ego or the individual; or, to employ another metaphor, what is the cement which must unite them, in our survey of existence, unless the superstructure raised laboriously, and now in process of completion, be doomed to totter at the first strong blast? I submit that nothing less than a teleological conception of the planet on which we find ourselves, and of the universe as far as it can come within the range of our mental vision, is that which alone binds me to Nature as one of her natural products, and Nature and me to

God, whose increasing purpose in the whole grows ever clearer as the clouds of ignorance or error are rolled back.

PURPOSE.

The position here assumed in behalf of Theism against her many assailants is that Purpose links the three essential data of existence, the Ego, External Nature, and God. The precise meaning of the term must be considered before one can expect opponents even to listen to the line of argument.

DEFINITION.

Purpose is a better term for such a discussion than Design, though the latter is an honoured one in Christian apologetics. Design comes from an old French word, signifying *a drawing* or a representation made with pencil, and has been much associated with architecture, though in some of its later and derivative uses it is equivalent to purpose. It was a term that lent itself very naturally to the older views of Divine Purpose, and described even better than Purpose what the teachers of earlier times wished to convey. Plan and Purpose were almost less in their minds than immediate designs, methods, contrivances for certain ends.

Purpose is a wider term as to its primary meaning, "a thing proposed or intended," an object to be kept in view or subserved in any course of action, *an intended or desired effect.* This wider term fits more accurately the wider view of Nature and its origin, formation, and working processes than the older views of Paley and the writers of the *Bridgewater Treatises* could possibly entertain.

CHARACTER OF THE COSMIC PURPOSE.

The ground may be cleared at once by two statements as to the purpose in question. In the first place the character of the purpose can only be of a benevolent nature. Whether with our finite minds we can or cannot recognise benevolence at all the stages of the long-drawn drama of organic existence, it is mere waste of time to discuss any other than a benevolent purpose of a non-human or Divine Mind. In the second place the purpose in question is one, not of methods and details by which ends are arrived at, but of Intention. It is to be hoped that thus we may avoid much misunderstanding.

Purpose, then, or *Intention* is the metaphysical warp and woof of the time-vesture of Nature, or that part of a vast system

which concerns man, as a being with finite powers. We have evidence on all hands that teleological interpretations of existence are permeating the most modern systems of thought, even among those who would declare that the argument from Design for the existence of God is dead and buried. The wider teleology of which Huxley spoke was prophetic of the present views of purpose in the whole.

In this study before us of purpose as articulating God, nature, and the individual, it is not sought to adduce any proof of the existence of God and Providence by more or less evidence which shall demonstrate the theistic position in the same degree as those of mathematics, or by pure logic. Many from the days of Kant onward have found the Design Argument insufficient to bear alone the weight of proof which would compel the atheist once for all to abandon the old cry, "There is no God." They have turned to other lines of evidence, and still the succeeding generation of philosophers have found some hiatus in their chain of reasoning. To refer with any value to these would be to review the contributions of a century of acute intellects ardently applied to the greatest of ever-absorbing themes. But we may profitably see how *Purpose*, benevolent, wise, and finally interpretable, runs through the whole scheme of nature presented to our minds. Though we may not demand assent to this conception of purpose in the whole, as we do to the axioms of mathematics, we may fearlessly claim that its validity as an incomplete induction is as great as any of the natural laws which it has been the glory of modern science to establish, as great as that of the uniformity of nature, of gravitation, the conservation of energy, the indestructibility of matter, the atomic theory, the theory of a universal ether, or the theory of evolution. Indeed, at the very basis of the modern conception of natural law is found the implied element of intelligible purpose. Whether we all know it or not, and whether we like it or not, we are in "a realm of ends."

The very terminology of our sciences, especially those concerned with life, connote purpose or intention of some kind. Even a thinker so far removed from Theism as Mr. Herbert Spencer cannot work without the assumption of what he prefers to call a First Cause, seeing that all the phenomena which a scientific man ranges under the imposing name of "natural causation" are themselves caused causes. Such a universally-used term as "adaptation" is not thinkable apart from the pervading conception of purpose of some kind. The unconscious adaptations made by plants, animals, and man

to their surroundings and the needs of their lives, their unconscious *response*, which affords a field in which selection may work, no less than the conscious adaptations of man to his home, speak irresistibly of a grand scheme of purpose underlying the mechanisms, by which the adaptations are effected. This flow of purpose through the Ego and nature cannot have its source either in that great system of "molecules in motion" which is called nature, or in an individual man who represents but an infinitesimal proportion of those molecules at some particular brief period of the history of a very small planet. The flow can neither start from me nor from nature, but must be of a kind, whether we call it Divine or supernatural, which transcends any purpose which could originate in me or in nature. Looking metaphorically at the trio of existences, may we not consider Purpose under the aspect of a stream which flows *from* God *to* me *through* nature as a veritable garden of the Lord, fertilising nature in its passage to me? Such a view of the Cosmos, whether demonstrable or not, does not glaringly sin against the law of the conservation of energy.

It is necessary now to trace through such provinces of nature as are open to our observation the presence of Purpose, remembering ever that this closely resembles a river of which we can never see the whole—we may see the source, we may admire its ocean-mouth, we may follow and lose, and follow again its windings, some of which even seem retrograde, and some of which will even pass underground—but the evidence of its source, progress, and destination we never for a moment question, even though we never have traced and never shall trace its complete course.

Evidence of Purpose.

The evidence for the existence in the world around us of a purpose, which pervades the whole, may be summed up under five heads:—

1. The general order of Nature (the depth and extent of which grows with advancing knowledge).
2. The existence of life on the globe.
3. Special adaptations of means to ends in organisms.
4. Anticipation, preparation, and production of environments suited for the lives of organisms.
5. Earthly life a training-ground for the moral nature of man.

1. *General Order of Nature.*—In spite of much that conflicts with our limited knowledge of what is best for the existing world, in spite of seeming waste of life, and failure to live among lower organisms, in spite of the long-drawn tale of human woe so strangely mingled with human triumphs and happiness, it is impossible to contemplate the spectacle of the course of this world, illumined by the increasing light of Religion and Science, without a conviction which no arguments can shake, that order is the essential feature of the unfolding drama. The ancients required to describe this scheme of things, and they called it by a name which signified order; tacitly reasoning that, from the immense preponderance of order observed by them among natural phenomena, the remainder was certainly also governed by the same principle. It may be said that they knew so little of what modern Science has established, so little of the mode of production, the geography and geological history of this planet, to say nothing of the vast host of Heaven, so little of the structure and life-history of plants and animals, or of the laws of chemistry and physics, that we are not compelled to give much weight to their views of things. Nevertheless, for clear, deep thinking on the data presented to them the Greek and Eastern sages were giants to men of modern times. The whole course of discovery since the early philosophers has been to display a marvellous extension of the world of purpose, in the orderly development of the conditions of life, and of the inhabitants to require them, the interdependence of plants and animals, the regular march of the seasons of the year, the recurring round of day and night, varying climates of the globe, the due proportions of land and water, the fixity of the composition of the terrestrial atmosphere, and the general uniformity of nature. The very fact that with the exceptions of the Divine will and the human will the course of nature is uniform, that every new discovery only adds one more tittle of evidence to the overwhelming bulk which confronts the modern scientist; that a small group of human beings, existing during a few paltry hundreds of years on this particular small planet, are able to formulate laws of nature, which, whether invariable or not, are nearly so, and which dictate terms of existence and motion to the furthest stars—such a fact alone is an irrefragable proof that order, and calculated order of a transcendent kind, is immanent in the existing state of things. If it were really true that the globe and its inhabitants were pictured by the evolution of an individual ovum to a full-

grown organism, human or other, the argument for purpose that order affords would be the weaker thereby. But no such mechanical, fixed development of the world and its inhabitants as this much-vaunted picture is supposed to exhibit, is found in the world around. This fallacious conception of the picture of the phylogeny of living things which the ontogeny of a particular organism is held to illustrate might easily be dragged in by the teleologist as an aid to proving the agnostic evolutionist wrong out of his own mouth, when he denies the existence of order and purpose in the world. But for those who prefer to think for themselves, and only to avail themselves of the well-tried and matured conclusions of modern Science, it is a very dangerous thing to trust to the armour of Saul when the five smooth stones of the brook are at their service. The development of the individual organism is very interesting to the embryologist, and even to the biologist in general, and the history of the development of the race of plants, animals, and man is of still greater interest, but let us beware of resting any argument for the latter upon any supposed analogy afforded by the former. The general rational order of the world is also further illustrated by the slow process of mental development found to have taken place, until modern man has found himself surrounded, as in a fairy palace, with a profusion of beautiful, useful, mysterious, and yet progressively interpretable phenomena.

It was a foremost physicist, Professor Larmor, who proclaimed at the British Association of Science in 1900 the *rationality of natural processes*, and every notable man of science to-day will claim that Science has much more to do with phenomena than to observe, describe, record, and admire them, and that is to interpret them. I speak not here of final causes so abhorrent to the agnostic, and supposed, but wrongly, to have been entirely banned by Francis Bacon (as a matter of fact he only condemned the study of final causes as a barren one when it led the student to take his mind off the natural and discoverable links of causation), but it must be acknowledged by all that the final business of Science is to arrange in the order of nature the phenomena which they can reach; in other words to interpret their meaning with the powers of finite minds. This would be a fruitless or certainly most fallacious pursuit if there were no meaning in them; and, if an increased knowledge of nature were to reveal to them the fact that confusion and chaos had taken the place of that cosmos which they once had more or less clearly perceived; it were disastrous indeed to have been

heir of all the ages foremost in the files of time. Were it not better not to have been, or to have passed from the reptile to the bird stock rather than along the tedious, often painful course of mammalian development up to man, to end in this cruel fraud!

This great conception of order in the world is as essential to the scientific worker as to the far-seeing Sclavonic tribes in the ninth century, who sent to Ruric, a Swede, the momentous message: "Our land is large and rich, but order in it there is none. Do ye come and rule over us." Ruric came, the kingdom of Russia was evolved, and his descendants ruled for seven centuries.

2. The existence of life on *this* globe, whether it exists in Mars or any other planet, is a stupendous fact which demands to be heard in open court as to its evidence for purpose in this small corner of the universe. It is not here our business to inquire how and when life arose, or what is its destiny; but that at a certain past epoch life was introduced into a habitable globe, and that this became increasingly habitable and life increasingly complex, are facts eloquent of purpose.

Desperate attempts have been made to show that it is possible that, under certain past conditions of existence, protoplasm may have been endowed with life by the combination of certain chemical and physical laws. These attempts will doubtless continue, and will perhaps help to keep certain people out of mischief, but few persons now doubt that the further development of synthetic chemistry in pursuit of this object will resemble that long day's frantic work on Carmel of those 450 prophets of Baal who from morning until midday, up to the offering of the evening sacrifice, cried, "O Baal, hear us," but there was neither voice, nor any to answer, nor any that regarded. If life did at a certain epoch and under certain unique conditions arise from a combination of causes, the fact is a miracle none the less, and an incontrovertible argument for purpose, if we are prepared to acknowledge the growing orderly sequence of events which has issued from that primeval fact. To suppose that life, with all its consequent phenomena pregnant with meaning, and in the main with benevolent results, was the result of a series of happy accidents which only once in the history of this globe came into the necessary conjunction, is certainly not according to the principles of modern Science, according to which an intelligible fact must have an intelligible cause, whether or not we are able at present to discover it. Such notions are much too like the fairy tales

of childhood, where imagination runs riot. But if we recognise that there was purpose in a Mind which foresaw, calculated, and prepared the conditions of the origin of life, we are working at any rate in a rationally-conceived system of things.

Taking the lowest view of the purpose implicit in terrestrial life, we can affirm that life must have come into being in order to be *lived*, *propagated*, and *terminated*. Such an apparent truism cuts away the ground from under the feet of the agnostic in this second line of evidence, except he be an avowed Pyrrhonist.

3. The special adaptations found among organisms occupied most of Paley's natural theology, and his exposition of them remains most valuable. Temple recognises their value, and holds that the force of Paley's argument is strengthened by viewing adaptations in organisms as solved slowly rather than produced in the mechanical and more crude way believed in his day. No detailed reference can be made here to the amazing wealth of purpose enwrapped in the plants and animals of the globe. We may well conceive how vast it is when Weismann could say, "All animated nature is adapted, and has been so from the beginnings of life." Though he said once, in reply to Lord Salisbury, that we must not assume the existence of a designing force, for by so doing we should surrender the presupposition of our research, viz., the comprehensibility of nature; he also admitted that "there is nothing to prevent our conceiving of a Creator as lying behind or within the forces of nature, and being their ultimate cause."

We may briefly refer to plants and animals, and a few specimens of the adaptations found in them. In plants the innumerable special adaptations may come under three heads, those concerned with *relation* to the earth, air, or water in which they live, with their *nutritive* functions, their *reproductive* functions. Under the first consider the *root*, *stem*, *branches*, *leaves*, and *bark*, with the immense varieties of these, and their special adaptations to many differing environments. Under the second, what various processes subserving the nutrition of the plant are contrived and carried out in diverse ways, the absorption of nutriment through root-hairs and rootlets of the root to the stem, and its passage through the minute vessels of the woody fibre as sap to the leaves and other parts of the plant, the delicate chemical processes of elaboration of the sap in the leaves under the action of sunlight, where it meets with the carbon dioxide absorbed from the atmosphere. What important manufacturing processes are carried on in the leaves of plants,

and when the finished product has been reached, how wonderfully is this again distributed through the downward system of tubes contained in the veins of the leaves! Consider the importance to the life of the plant of the minute stomata or mouths for the respiration of the plant, and surrounding each of, generally, two special or "guard-cells," for the purpose of closing or opening the stomata, by means of which the discharge of moisture from the leaf is regulated!

Under the third head the *reproductive* parts of plants present a wealth of marvellous and diversified means to ends, the flowers and their parts, the fruit, the seed, each with their many forms of protection and means calculated to ensure their dispersal. In addition to all the incalculable numbers of individual adaptations coming under these heads, what ingenious defensive mechanisms are presented by plants for the general protection of the organism?

But any educated person has sufficient knowledge of elementary botany to appreciate the extent, variety, and value as evidence for purpose in the adaptations among plants. Yet this again does not exhaust the evidence, for not only is each species a witness, but each sub-species, genus, sub-genus, family, sub-family, order, sub-order, and class gives its independent and separate testimony that different adaptations appropriate to the needs of each have been produced. Further still does the testimony extend when we remember that each individual plant and each structure of each individual at all periods of its life, and every plant in all parts of the world, which has existed since the dawnings of vegetable life arose in the warm primeval seas, supplies potential evidence for the existence of purpose. The incalculable *repetition* of the evidence, and all of this harmonious in its tendency, is not often taken into account when the value of adaptations as evidence for design or purpose is assessed. In a human court of law when the object is to arrive at the substantial truth of the question at issue, a frequent repetition of the same evidence from credible witnesses could not fail to convince.

It may be mentioned that the number of the existing species of plants has been calculated roughly at 500,000.

Among *animals* a mere mental survey of the fringe of the subject of adaptations and their meaning is enough to bewilder. It may be taken as generally true that the variety, number and complexity of adaptations among animals vastly exceed those among plants, and there is no need for surprise at this when we consider the more complex life, especially arising from the

development of a nervous system, found in an animal. The greater number of animal adaptations is in proportion to their higher scale of being. Again, the three elementary groups of structures subserving *Relation*, *Nutrition*, and *Reproduction* suffice to group simply the bulk of adaptations found in the animal world. Here, again, most of the evidence is too familiar to need more than a brief reference, and so familiar also as to make one commonly omit to observe the vast potential evidence for purpose comprised in any individual and well-known animal. We may allude to—first, the bones, muscles, skin, hairs, feathers, scales, spines, claws, teeth, horns, any single group of which would afford material for a short treatise; second, the nutritive functions of animals necessarily require much more complicated contrivances and structures to carry them out than the simpler processes sufficient for plants. Between the absorption of nutritive matter by a protozoon through its ectosarc from its watery surroundings and the digestive apparatus of man, we have to take a mental journey which is indeed immense. Thus the whole ascending series of animal forms shows so simple an arrangement as that of the sponges, and so complicated a group of mechanisms as the fourfold stomach of a ruminant. But in addition to the absorption and comminution of nutriment in the mouth, gullet, stomach, and intestine, there are such important structures in all degrees of development as salivary glands, liver, spleen, pancreas, and kidneys, their perfection rising with the general ascent of the individual form, organs for excretion and assimilation being in some cases put to work of both kinds. But nutrition in the proper sense of the word includes the process of obtaining the required amount of oxygen from air or water for the due maintenance of the purity of the blood, and this brings in the wondrous groups of mechanisms by which, for example, the insect will absorb gases from the air through its trachea, the fishes from the water through gills, the amphibia by gills at one period and lungs at another period of their lives, the mammal by a varied and ascending scale of respiratory arrangements culminating in those of man. Third, the methods by which the propagation and perpetuation of the species in animals is secured are not less varied or wonderful than those to which allusion has been made. The former were primarily for the benefit of the individual, these are for the benefit of the succeeding race. They include the gemmation and fission of the protozoon and the myriads of forms of reproductive apparatus intervening between such primitive contrivances and those of the higher mammals. To

touch on these at all fully would overweight the argument without rendering the general drift of all the lines of proof more clear. It is enough to remark that purpose is implicit in each and all of the vast number of plans adopted in different ranks of animal life for the one object. To imagine that these or any of the two preceding groups of adaptations could be the results of clumsy gropings at the best apparatus, with here and there a successful discovery, and that the former were eliminated and the latter perpetuated by a purely mechanical selection, the most generally fitted organism surviving, is to stultify imagination not less than reason.

The number of species of animal forms has been but roughly estimated and, perhaps, may reach 2,000,000. But to take one group out of the whole animal kingdom, we know that there are not fewer than 50,000 species of mollusca.

When such approximate calculations are made and we reflect that each individual out of the species of animals, or of the 50,000 species of mollusca, has teeming evidence of purpose in each part of its body, we still have not sounded the depths of the matter; for, as was observed in the case of plants, there is *potential* evidence for purpose in every dead, destroyed, or fossil animal that has lived and died since the first division of the living world into plants and animals took place. Such evidence as this may be "taken as read." It is not direct evidence, but its value depends upon an inference so cogent that it can only be ignored for the sake of getting the case into Chancery, so to speak, and thus putting off the real question at issue till a more convenient season—which will never come. The evidence afforded by one particular species of animal, highest of the Anthropoidea, man, is, if possible, more weighty, because the physical and mental contrivances of this "paragon of animals" are more familiar and perhaps more deeply understood, and themselves more subtle, than any to be found in the lower ranks of animal life. The twin sisters of anatomy and physiology, which might philosophically be termed biology, are even at the present time profoundly occupied with problems at present mysterious, but whose margin of mystery is slowly and surely receding before inductive research, as at a falling tide the solid shore encroaches upon the waters. A life time and the highest mental faculties directed by modern methods is all too little to enable man to say of human physiology anything more than "now we know in part." Every year adds to the immense mass of physiological knowledge (much of which has first to be unlearning) based upon scientfic experiment. And

this wealth of learning and labour is but for the unravelling of mysteries locked up in the functions of one animal species. There are some 1,500 millions of this species at the present time inhabiting this planet, and every tissue and organ of each of these individuals might be subpœnaed as a witness for the immanence and universality of purpose in the world of man. Surely a staggering mass of testimony for purpose is forthcoming and must be estimated!

4. Great as is the strength of the chain of evidence for purpose in Nature, it is but half of what we may adduce in open court. It is impressive to see how organisms are adapted to their needs and surroundings, but we double the strength of the evidence at one stroke if we show the close correlation between the environments and the organisms which inhabit them. We may take as an illustration, but not as a proof, of purpose, the making of a garden. It may require a few months or many years to bring a garden to its particular kind of perfection. It may be a piece of ground reclaimed from primeval waste, and no more than a few simple clearances of ground and sowing of hardy plants and planting of a few trees are possible or desired. Or it may be an extensive, luxuriant, and varied domain, for the perfecting of which half a lifetime of man is insufficient, and the highest skill required. But preparation of the ground piece by piece, levelling, draining, enriching of the soil, division of the space into others appropriate for different purposes, are all in their measure present in the making of a garden. The conditions of nature—sunlight, warmth, moisture, natural composition of soil, level, exposure, and shelter—are all required to contribute to the ideal result, and can all be utilised or checked according to the purpose in view. When all the preparation and planning of the *environments* or the garden itself have been carried out, there still remains the equally difficult task of adapting the seeds and plants to the conditions already foreseen and produced, and the period in the life of the garden must be taken into account, and appropriate plants grown; the seasons of the year and the climate of the place will determine much that is done, or that will be possible in future years, to bring the garden to its ideal.

If this slight analogy be followed, it is seen to be a very fair picture of the double process of anticipation, preparation, and making of this globe for the plants and animals that are to be, and of the plants and animals that shall in their suited time and place occupy the environments so slowly but wisely provided. To unfold the great plan as a grand whole is impressive,

but to see how piece by piece the purpose in creation is worked out in the divinely-wrought preparation of environments for organisms and organisms for environments is more conclusive still, if not more interesting. The astronomer, chemist, physicist, and geologist can give us expert information as to the secondary causes by which this globe has passed from the molten and liquid mass that it may have been 100 million years ago to what it is to-day. The manner of production of the atmosphere of our globe, the oxygen probably derived from the living processes of lowly plants (such as confervæ) in the warm primeval seas, may be expounded, but in all such cosmic matters which are great enough to give him enough occupation, the scientific observer may be reminded of the old saying, "Ne sutor ultra crepidam."

The whole duty of the scientific man is to contribute his quota of expert evidence in the subjects of his choice, and to bring them to that great assize with which Philosophy is concerned, and where her voice is ever the last to be heard.

On former occasions I have dealt more fully with the known geological history of the globe and the changing environments in successive epochs.* It is not needful to do more here than to refer to the warmth, equability, and homogeneous character of the primary, the increasing definition of land and sea still with excessive moisture, warmth, and equable conditions of the secondary, closing with a period of greater cold and more severe conditions of life, the slow development of more complex climates, continental areas increasing by elevation, diminution of the previous excessive warmth and moisture, more volcanic action with its profound effects upon the face of the earth, the gradual cooling of Pliocene times characteristic of the Tertiary Period, until the present geological epoch was ushered in by the glacial period of the Quaternary Age, this again subsiding and allowing the present state of the globe, with all its adaptations to man and the existing fauna and flora, to take its place.

It is enough to state that the four successive groups of environments, which we call geological ages, are wonderfully matched by the plants and animals which in due time were produced to fill them. We cannot conceive the tender infancy of the living world to have arisen and have prospered even under the guiding hand of the Creator during the glacial period, or that the age of mammals could have been placed on the stage of this world during the sub-carboniferous times, or the age of reptiles to have found its suited home and cradle in the Laurentian period.

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* *Trans. Vict. Inst.*, vols. xxxii, xxxiii, xxxiv.

This we can all allow. But the agnostic evolutionist would claim that this immense bulk of evidence is as much on his side as on that of the teleologist, though the former does nothing more than record the facts, whereas the latter sees the facts equally, and *in them* a wealth of meaning. He asks, "Is it enough to adduce 'natural laws' to account for the production of environments, and on the other hand of organisms, and simply to leave the stupendous correlation of facts lying over against one another as if they had nothing to do with one another, except that somehow they seem to fit one another rather remarkably?" Science is well within her province when she takes these past facts as data and unfolds with her marvellous precision the story, until a vivid picture is presented to the science-informed mind of what must have occurred during many millions of years. Each fact great and small, and each group of facts becomes fitted into the natural order of things, and yet the last word has not been said, for it remains for Philosophy informed by Science to co-ordinate the great congeries of facts and introduce some guiding principle into the whole—that principle can be nothing more nor less than the conception of purpose. The interrogator of nature must push his inquiries beyond the How, When, and Where, to the Why of all this "great progression of Nature."

5. The fifth line of evidence is largely referred to by Temple under the supremacy of the moral law, chiefly to show its position towards Religion, not as a branch of evidence for purpose.* It is under the aspect of evidence for purpose in the world that I would briefly refer to it.

The evidence in favour of purpose in our whole scheme of things would still come far short of completion if it could not be shown that the marvellous series of adaptations provided throughout nature were produced for the benefit and improvement of *persons* rather than *things*. This distinction, applied by Professor Campbell Fraser to man as opposed to non-conscious organisms and inorganic phenomena, is of great importance in this connection. Indeed, it touches the very basis of Theism. However beautiful in their order and adaptations to needs, may be the most nearly perfect plants and animals, they at any rate know naught of the voice within, the infinite nature of duty, and the beauty of holiness. No endeavours, however successful, to trace the moral law to a lower origin alters the fact that an ethical sense *exists now* in all men, and it distinguishes the

* *Ante*, p. 101.

genus homo from the other groups of the Anthropoidea more notably than any specific physical character. On the theistic, no less than the scientific, theory of things, "Nature's great progression" from the inorganic to the organic, the formless to the formed, the simple to the complex, the protozoa to man, exhibits manifold degrees of feeling and thought. The senses, intellect, and will show themselves with increasing definiteness throughout the great ascending scale of being up to man, and not to man as one of the genera of the anthropoidea, which, in the glacial period, might perhaps have sufficed for his classification; but to modern man, though not to modern man alone, but modern Western civilised and scientific man. What chasms there are, not only in physical characters, but in mental ascent, from protozoa to metazoa, from invertebrates to vertebrates, and from the earliest of these to man! It would be hardly more strange than sad that ever an "excelsior" should mark the ascent of animal mind, that it should be crowned in the noble attributes of man, that the topmost branches and finest fruit of the tree of knowledge which has grown up and round and in him should culminate in this refined and well-informed character of conscience, this chiefest taxonomic distinction of the *genus homo*, and that the last great fruit of a long evolution should be a fatal illusion—a will-o'-the-wisp which has led him far from the safe and solid ground of nature and her phenomena into the regions of religion, morality, and ethical goodness. This strange "illusion" has at any rate been the efficient factor in the course of human evolution which has availed to prevent the earth from becoming a shambles, and its highest ideals no more than those of hunger and animal love. Is it, can it be, the part of Science to destroy with pitiless logic and triumphant discoveries in her own sphere the supremacy of the moral law in the hearts and minds of educated men; to show that, however useful in the childhood of man has been the assumed relation of the moral law to the Unseen and Infinite Being, it must now be discarded as a creed outworn, and that now under the newer regulative system which Mr. Herbert Spencer declared to be the pressing need of the age, the laws of comfort shall be the laws of conduct? One can but remark here that if the links of man with the Infinite Being, postulated by the theistic position, be the childish illusion which the agnostic declares it to be, it is the only phenomenon recorded in the book of nature and the history of mankind, of a vast benefaction to man and his subject creation being produced by fancy and promoted by fraud. Taking the ground of

nature alone we may say it fails. Nature knows no "single instances."

Surely the conception of this order of things as a training-school for the higher faculties of the highest of living things meets the facts of the case with a completeness which cannot be ignored in open court. The reign of moral order, however yet imperfect, is extending its conquest on all the frontiers of barbarism and lower human life, and this is the one witness which was needed to complete the chain of evidence for purpose. Here, too, we see the double side to the evidence as in the adaptations and organisms before considered. The moral *persons* on the one hand, and on the other the surroundings of growing complexity, the advancing solidarity of the human race, which furnish to the former a scene in which their moral faculties may be exercised, supply this double line of testimony.

The five classes of evidence for purpose in this globe on which the lot of man is cast may be objected to as being confined to the conditions and inhabitants of one small planet. From the nature of the case *evidence* is not available for any others of the host of heaven, but our evidence is valid as far as it reaches, and no contrary evidence outside or inside this sphere is forthcoming. Nevertheless such scientific proofs as are available for other worlds than ours points clearly to a general order under partially ascertainable natural laws.

Degrees of Purpose.

We have seen the sense in which the term Purpose is here employed, but it remains to ask not only for its verbal definition but its limits in the scheme of things around us, in other words, "Where does Purpose begin and where does it end?" The answer to this question has been enormously widened since the researches of modern biology have shown the presence of a nervous system in an increasing series of animals far down the metazoa and the borders of the protozoa, for wherever the most rudimentary and elemental nervous apparatus is found there must Mind be considered to be present in embryo. The gradations which are shown to exist in the ascending scale of animal life up to man are so immensely numerous and yet so minute, that no valid evidence is forthcoming which can prevent our looking upon mind as a phenomenon, on its physical side, continuous and growing in complexity from the sense-organs of a polyp to the brain of a man. Even where a nervous apparatus of the simplest kind is not to be discovered at present, as in

a bacterium, the modern tendency is to attribute even to such lowly creatures a measure of purpose or will in its humble life.

Even in plants it has been shown by Francis Darwin * that a mechanism for the transmission of stimuli is to be discovered. This mechanism cannot truly be called a nervous apparatus, and yet it furnishes means by which the purposes of a higher apparatus are subserved. If we start from the rudimentary actions of a bacterium which may be watched under a microscope, and trace the growing complexity of the life-processes and actions of a hydra, sponge, medusa, sea anemone, worm, starfish, crab, mollusc, fish, frog, reptile, bird, or mammal, we cannot refuse the conclusion that the enlarged conception of will and intelligence is applicable to each and all, though between the actions of a bacterium and those of a mammal a seemingly infinite gulf is fixed on the older theory of the production of animal and vegetable forms of life. It may be urged that this graduation of nervous and mental phenomena from the lowest to the highest forms of life destroys the distinctive properties of the human as distinguished from the lower animal mind. But it is far otherwise when we take the view that the highest not less than the lowest is but the expression of divine and infinite mind, and that though between man and the highest ape there is that "vast gulf" which Huxley so freely acknowledged to exist,† the physical medium through which God manifests Himself in living beings is of the same essence in the lower as in the higher creatures. We cannot now look with minds dominated by materialistic views upon consciousness in man as a "secretion of the brain" in the same sense as the gastric juice is a secretion of the stomach, nor as a mere mode of motion. No view of thought meets fairly the requirements of modern knowledge which does not look upon the matter of our earthly bodies as that which *limits* consciousness and confines its intensity within certain limits rather than that which *produces* consciousness.

Purpose may be truly said to begin where the rudiments of mind first appear, and to end with God the First Great Cause, or more correctly to begin at the centre with God and to end at those lowliest of creatures which require a microscope for their detection. It will be useful here to follow out in some

* *Nature*, 1901, November 14, p. 40.

† *Man's Place in Nature*, p. 153 : "At the same time, no one is more strongly convinced than I am of the vastness of the gulf between civilized man and the brutes, or is more certain that, whether *from* them or not, he is assuredly not *of* them."

detail one particular line of the works of man in which the limits of purpose are very wide. Among the important agencies of human intercourse and development roads of various kinds are prominent. Roads are obviously the products of purpose, and if we trace briefly some of them in an ascending scale, we trace at the same time a very definite gradation of purpose on the part of man. Pre-historic man can have had little more than a few beaten tracks, hardly differing from the tracks of goats on the side of a mountain, by which he would wander from one locality to another. In such a roadway it is hardly possible to trace purpose, for it would be formed in a subordinate way by his finding this path the line of least resistance to his movements from place to place. With growing intelligence and power of associating with his fellows, he would come to see the results of his half-conscious purpose exhibited in a path which it would be to his interest to keep open. A pathway of this kind must have been for an immense stretch of time the precursor of Watling Street, that great trunk-road which from pre-Saxon times cut a diagonal course from the south-east to the north-west of Britain, or the Icknield Way, another of the earliest lines of British communication, crossing at right angles the former great road. From primitive pathways like these, gradually converted into highways, it was a great advance when the Romans ran their great military roads through the country, ignoring natural obstacles with masterful wisdom, and leaving behind them these monuments of their power and greatness. Beyond these developments of roads the growing needs of man and his increasing skill slowly produced still higher forms. Thus in the coaching days of 100 years ago a high degree of perfection for the purpose in view was attained. Then, again, further improvement in the surfaces of roads was reached by the teachings of Macadam, and yet such roads as these could not meet the further development of traffic which came with railways as they covered the country in the first half of the nineteenth century. Thus railway lines grew and progressed towards their present perfection, until we reach their present development which carries them up mountains and through mountains, underground, over rivers, and over the heads of dwellers in great cities.

These marvellous changes and advances beyond the primitive pathways of our rude prognathous hair-clad ancestors embody a world of growing purpose, and we may, in this simple illustration, read even among this one class of work, on the

part of one animal, albeit the highest of all, an extensive series of ideas carried out and of purposes portrayed. An illustration of this kind reminds us of the numerous *degrees of purpose* manifested by man in his teeming works. But in addition to such degrees of purpose as these we find that there are very great diversities of intelligence in the carrying out of the same purpose and plan.

A few instances of this may be given. The masons and carpenters employed in the construction of a great Gothic cathedral are but dimly conscious, if conscious at all, of the architectural plan and the religious conceptions embodied in the slowly-reared structure to which the skill, knowledge, and taste of some old architect of the thirteenth century has given birth, and yet they are concerned in the carrying out of his noble scheme which shall delight future ages of men, not alone by its great purpose and plan, but also by its delicate workmanship.

Again, a highly-trained chemist will dispense with skill and accuracy the prescription of a physician, and yet be far from any true conception of the purpose immediate or remote, kept in view by the latter. It is far short of the physician's knowledge of the individual patient and his physical state for the chemist to be well acquainted with the ordinary uses of the individual drugs prescribed.

A navvy employed in making a new railway will be practically acquainted with the laborious details of his manual work, and see much of the crust of the earth in which he works; but how different is his limited knowledge of the purpose of the whole from that of the chief engineer, the financiers, and the geological adviser, from whose expert knowledge a great pioneer railway shall arise to open up new centres of human life!

A shipwright employed in the construction of a battleship will tell one much that is of importance and interest as to the mechanical details of his work, and in such a man honest, careful work is most necessary to the perfection of the whole; but the gulf between his technical knowledge of his own department and the profound calculations, scientific and pecuniary, of the chief constructor is immense, and yet each is concerned in the great purpose of the whole.

Again, how far removed is the daily work and knowledge of a British private soldier from that of the commander who for weeks has been maturing a strategic plan which shall at one stroke turn the flank of a formidable army and settle the issue of a campaign! Each fulfils his portion of the purpose, and yet

how different the knowledge of the private soldier from that of his chief leader!

In July, 1870, one evening Bismarck, with Moltke and Roon, were dining together in Berlin in gloom and anxiety, when the famous and fateful telegram from Ems was received. The subtle statesman saw that the moment for which he had prepared his nation had come. He amended and expurgated the sentences of the telegram so that they should explode the train he had been preparing, with the result of precipitating that war which was to change the map of Europe and weld the States of Germany into an Empire. How far removed from the deep calculations of the statesman was the understanding of the telegraph operators who transmitted to the Embassies of Germany the words of this telegram!

Such illustrations might be greatly multiplied, but enough has been said to show the line of argument.

We see, then, in regard to the conception of purpose among the inhabitants of this planet, that two facts stand out—

1. Purpose is displayed in all ranges of living beings, from a bacterium at one end of the scale to a man at the other end, the gradations in the upward development being almost imperceptible.
2. Degrees of purpose in the various human agents concerned in any of the great works of man are numerous, and the extremes great.

The bearing of these two aspects of purpose upon the question of a Divine Intelligence which forms and guides the universe is very clear, and it constitutes one of the main converging lines of proof of the truth of Theism. If the highest intelligence of the highest of earth's creatures be led to trace, as knowledge grows from more to more, a measure of purpose in the creatures beneath him, till the lowest of all is reached; if he sees in them not only the purpose of their production, but the purpose ceaselessly displayed in their life-processes; if he be forced by the necessities of thought to refer all this wealth of life and purpose to a Great First Cause, it becomes impossible to deny to that Cause a purpose and plan such as the highest human mind can in part comprehend. As modern man studies the book of nature, the course of human history, and the workings of human mind, he comes to the irresistible conclusion that he is reading, in hieroglyphic characters it may be, but with growing certainty, some pages of the great plan and purpose which a benevolent and infinitely wise Being is unfolding.

It has been seen that a growing knowledge of living nature has served to enlarge enormously the sphere of purpose. The old controversy on the subject of free will or determinism can never again engage the minds of men with the fervour and passion seen in the past. No longer now need this controversy divide even religious men into hostile camps. It has no *locus standi* in a practical age like that which is upon us. No civilised community would venture to act for 24 hours as if determinism were true in ethics even though the prevailing fashion among ethical teachers still seems to be to deny that man is free. If governments could be induced to govern their people on the theoretical lines of the non-religious experts on ethics, a very little time would have passed before the survivors in the progressive nations of the world would be longing for that "friendly comet," referred to once by Huxley, which should resolve them and their earthly abode into their original elements. But the degrees of purpose which have been reviewed, as passing through the whole scale of living beings, and the irresistible evidence which is forthcoming, that man at least is free to make himself bad or to make himself good, raise a very important point to which, in his *Gifford Lectures*, Professor Campbell Fraser frequently refers.

Men are Persons not Things.

He shows that the only intelligible conception of the world in which we live requires us to look upon men as *persons* and not *things*. All scientific progress, all secular business, all moral progress requires that this view of men as moral beings be acknowledged. It appears to lie at the root of all human life, and to be frankly admitted by all except by the learned and comparatively small coterie of scientific experts on ethics who have captured the minds of their fellow scientists. If this be formally granted, the whole of terrestrial existence gains enormously in interest and importance, and the dark mystery of evil becomes less and less oppressive to the human philosopher. It is appalling to contemplate in thought what the condition of mankind and his subject creatures would be if it were not almost universally acknowledged in civilised countries. History, fortunately, gives us one object-lesson of the results which would follow if mankind were to hold the view that men are things and not persons, and therefore irresponsible agents. The lesson is writ large in the page of modern history. One of the greatest geniuses ever seen was that man who has been called "the Scavenger of God," of whom it was said that "nothing where

he had passed was as it had been before." It is not for us to appraise the amount of evil or of good which emerged after his marvellous career was ended. A military genius unequalled since the times of Alexander the Great and Julius Cæsar, a statesman of the greatest prescience, of immense political insight, a conqueror with world-embracing visions, a man of dazzling abilities of many kinds but without a vestige of moral principle or unselfish aim, Napoleon stands as the exemplification of the doctrine that men are *things* and not *persons*. We know it from his own published correspondence that he looked upon himself not as a person to whom the ordinary laws of conduct applied, but as a "force," a "movement," a "phenomenon" in Nature's drama. He knew no law but that of might; considered no will but his own, was without conscience, without pity, and without remorse. He could come with glowing sentiments as a deliverer to the cities of Italy and mulct them of millions of gold, stealing art treasures from their churches in the guise of a friend. He could be a Mohammedan or a Roman Catholic while at heart an atheist, as it served the immediate purpose. It is not going too far to say that one good result at least has followed from his career, and that is to show what a giant intellect divorced from any moral principle can do when the man himself has brought himself to think that he is a *thing* and not a *person*.

With this view of purpose in the whole embedded in our minds we can the better understand the meaning of life, though "we know in part" must ever be the conclusion of the human mind. Thus do we find it possible to regard our earthly life as a probation and education, this earth as God's school or, perhaps, one of His schools, and are prepared no more to question His methods of teaching us than a young child those of his schoolmaster.

Theism an Induction.

Since Temple wrote, the claims of Religion need no fresh enforcing, even if those of Science have grown greater and more cogent. But there is a point which should be raised as between Religion and Science to which he does not refer. It is this, that the evidence and reasoning by which the Theistic position is supported is a nearly completed induction, and this, as it has been observed, is the most that Science herself can say of any of her great generalisations or laws. It may be objected that in the sphere of religion we cannot conduct the exact experi-

ments of the chemist and physicist, or the much less exact experiments of the biologist. If it were true that Religion can conduct no experiments, any claim on the part of Religion to rest on an induction would necessarily fail. But in the process of theistic proof there are all the stages of an inductive inquiry, *Observation, Hypothesis, Deduction, Verification,* including *Experiment* in a delicate and subtle region of phenomena, the human soul and human conduct. Christianity has indeed been called "the greatest experimental Science of all." Theism claims to rule the conscience of man and so his actions, and has stood the test of many ages, and has more profoundly modified the course of human history than any other force except those of hunger and animal love. It has been one long course of *undesigned experiments* to show what spiritual energy can do in modifying and even transforming the life of man. The higher the form of the theistic faith the more marked are the effects on human life, until we come to that form of Theism which all modern enlightenment allows to be its highest form, viz., Christianity, and this has gone immeasurably beyond all other forms in its great transforming power. What more significant experiments can Science make in her line than Christianity is continually making in a higher province still?

I would submit that the validity of Religion and its postulates rest upon a basis as strong and sound as those of Science, but that both must wait for *proof* till some immensely greater range and depth of knowledge is reached by man. The "venture of Theistic faith" is no greater than the venture of Science. Science no more than Religion can afford to think it possible that the great order of nature in which we live and move and have our being is the outcome of blind chance on the one hand or of a malevolent power on the other. It is the stultification of all the triumphs of modern Science to suppose it possible that the apparent order around may at any moment become disorder, and the seekers after truth and light be suddenly put to confusion.

Discussion.

The Chairman.—I am sure I may thank Dr. Kidd, in all your names, for the paper he has so carefully prepared and read to us.

You observe that Dr. Kidd has taken a book for his text and I

think it is a very good plan. I was privileged to hear the Bampton lectures referred to and took careful notes of them. I also heard, when an Oxford undergraduate, a sermon on the human race, afterwards published as the first of "Essays and Reviews," which was not so much on science as on the claims of conscience in man. Certainly there was no one who could combine so much dogged courage and great clearness on such a subject as Dr. Temple. He did his work as a Bampton lecturer splendidly. I think the lecture that impressed me most was the third lecture on Will. He reduced Will almost to a minimum, showing that a great deal of what we should imagine to be "free will" was the result of environment and habit, automatic action and sub-conscious action and so on; in fact we wondered, some of us, if he would leave anything; but he did, he left a minute residuum of human will, and on that residuum he built an argument for Divine will; for, after all, though God undoubtedly exercises will, yet will is that, in God, which goes under the name of force in nature, "will force," and if we recognise that we are creatures of God, then we recognise that there is something in the human will which is analogous to the Divine will, for we are made partakers of His Divine nature. What is true of will, is true also, I suppose, of purpose.

I will, if I may, refer to the passage of the paper under the title of "Characters common to Religion and Science." I am not quite certain whether I agree with the sentence as it stands. Perhaps I misunderstand it. "As each developes, a shrinking of the province of mystery takes place," p. 95. "Shrinkage" may happen in one direction; but I think when you lose the sense of mystery in one direction you get it back again in another. I do not think that any discoveries of modern Science have really reduced mystery. I think it is rather the other way. I daresay most of us have read Professor Oliver Lodge's speech at Birmingham the other day on the mystery of radium. He tell us how many millions of atoms and trillions of electrons, if placed in a row, would occupy one inch. I do not know where the mystery lies more, whether in the fact he asserts, or in the possibility of his having a brain to affirm it as a discovery. But when you get the idea of millions of things, in a row, occupying an inch, one feels at once that we are close to an exceeding mystery; and when we are told that the atoms that make up creation are nothing more than positive and negative electrons, I do not think

we come very near the solution of the mystery of creation. Others may feel differently, or perhaps I have not quite taken in what Dr. Kidd meant.

I remember Professor Jowitt preaching a sermon in Westminster Abbey in which he said, "It is the function of science to do away with the sense of wonder." I do not believe it. I believe the sense of wonder becomes stronger as we see the vastness of creation and the minutiæ of creation governed by the numerous forces that permeate the whole of creation. But I think the main body of Dr. Kidd's address has been on Purpose, more on Purpose than on Archbishop Temple, and we read Purpose into nature because we have Purpose in our own nature. We are always reading ourselves into Purpose. I believe behind your face is the human soul, taking in what I say. You do not tell me you are human beings; but I infer it. I read humanity into you; and so there is something that entitles us to read Deity into God, and amongst the things we thus read into God is Purpose.

Dr. Kidd has thought out what, to me, is a very important point, that it is not a single cause producing a single effect; but a combination of many causes producing one effect; many causes, sometimes far-reaching and leading on to something far ahead. This is what tells us of Divine purpose in creation.

Some of us may have read Dr. Chalmers' Bridgewater Treatise where he deals with collocation in nature, and shows that the purposes of God can be seen not only in things He does, but in the preparation of material in such places as would call them into action when required for their different purposes.

Perhaps as we meditate on Purpose we ask more and more, what is, then, the final purpose of a human being? which it all leads up to. Is it physical, or is it spiritual?

Again and again I think Dr. Kidd, in his paper, speaks of the training of the physical as the scaffolding and the mind as a building. There is a great difference between the two. The early Christians discussed whether the oyster made the shell or whether it was the shell that made the oyster. Some still say, now, that the shell makes the oyster. But I think the early Christian writers knew better than that; they saw there was something which developed certain forces and so brought the oyster into being, the shell acting as the environment. So it is that in a human being

there is something from birth, or preceding birth onwards; and if one might venture to look into the New Testament to see if there are any passages which show what the purpose of God in the creation man is, I would venture to point to two, one in the second chapter of Hebrews, which says, "For it became Him, for whom are all things, and by whom are all things, in bringing many sons unto glory, to make the Captain of their Salvation perfect through sufferings," and the other, in the eighth of Romans, that we should "be conformed to the image of His Son." If that is not a great purpose, I do not know what purpose is.

Rev. F. A. WALKER, D.D.—There are a few points that I should like to allude to in this very able and instructive paper for the purpose of information as much as anything else.

We have had a great deal of science brought before us in the course of this paper.

Dr. Kidd says, "Thus the whole ascending series of animal forms shows so simple an arrangement as that of the sponges, and so complicated a group of mechanisms as the fourfold stomach of a ruminant." I refer, of course, to Dr. Kidd's great knowledge of anatomy and scientific knowledge in respect of the sponges; but I would mention that as long ago as 1860 I was, in company with Dr. James Scott, the first to discover that the sponge was in no sense a plant, but an animal with organs of respiration, digestion, etc. There were several very local and rare sponges here, and he informed me that the sponge not only possessed organs of digestion, but a system of interlacing hairs that served to expel the water it had taken in, and also to intercept the minute animals that it received at the same time and which served it for food; so that its physical arrangement would not appear to be altogether of the simplest.

As it was said of old, in reference to the funeral pageant of a Roman Emperor, that the omission of certain statues from among those carried in the procession only rendered the said statues more illustrious, "Brutorum et Cassiorum imagines" (the Hampdens and Cromwells of that day); so that what Dr. Kidd leaves out is, on that account, all the more intentionally significant when he states, "we may allude to first the bones, muscles, skin, feathers, scales, hairs, spines, claws, teeth, horns." Nearly every physical organ is here enumerated, those which serve

the creature for a defence against the cold, those that constitute weapons of offence, and also the means of its nutrition. Teeth, in particular, are to be found in every organic being from man to the mollusc, and the garden snail is said to be possessed of 1,400 teeth. But the sting is altogether omitted, and this was, no doubt, intentional on the part of Dr. Kidd, who recognized its rarity; with the sole exception of that of the scorpion only occurring in one tribe of all living creatures, and only in one of the ten or more chief orders of insects.

Then on page 91 the author says, "Such names as those of Thales, Empedocles, Heraclitus, Democritus, and Aristotle, and the Roman Lucretius, are landmarks in the history of science." Aristotle, who flourished between 400 and 300 B.C., is mentioned last, and no Greek philosopher of later date is spoken of, and this is, perhaps, designedly so on the part of Dr. Kidd as recognizing in him the most versatile and voluminous of writers, and the greatest human intellect that the world has ever seen. It is not too much to say that, next only to Holy Scripture, the *Ethics of Aristotle* has had greater influence on the mind of man than any other one book whatsoever, forming the subject for commentators, repeatedly studied and thoroughly believed in by monks of the middle ages, and furnishing the basis of reasoning by such eminent theologians among ourselves as Hooker in his *Ecclesiastical Polity* and Butler in his *Analogy*.

The SECRETARY (Professor EDWARD HULL, LL.D.)—Perhaps I may be allowed, at this point, just to express my own very deep obligation to the author of this paper, which of course is only an echo of the feeling of us all here present.

I think I am the guilty person who had the audacity to suggest to my learned friend to handle the "Bampton Lectures" of the late distinguished Primate. It was just after the death of the Archbishop that the thought naturally occurred to me, and I am very pleased indeed that our Chairman concurs in the view, that occasionally, for the purpose of our discussions, some work of a deceased author of distinction and learning may be introduced as a subject for the purpose of keeping his works, to a certain extent, before the public mind; and, perhaps, of giving ourselves some knowledge of what he has written, of which we may not have had possession previously.

When I made the suggestion to Dr. Kidd to give us an Essay on these Lectures, I must state that it was with the greatest kindness that he at once assented, notwithstanding, as I was perfectly aware, that his time was exceedingly precious, and that I was throwing a great burden on his shoulders.

However, he did not allow these considerations to stand in the way of what I felt sure he wished to do for the benefit of the Institute, and for our own exceeding delectation.

I think, therefore, it is only right that I should express my feeling of gratitude to him for so doing.

Rev. F. STORRS TURNER.—Are there two paths, or streams, of human thought and activity, which flow in separate channels? Archbishop Temple said, "The scientific man often asserts that he cannot find God in science, and the religious man often asserts that he cannot find science in God." It is not religion and science which are at variance; but some of the men who study these truths. Their frequent disagreement is a fact, but it belongs to mental pathology; it exhibits the defects and distortions of human nature, not its normal and healthy development. Religion is sometimes regarded as a special product of the moral sense; while science is taken to be a purely intellectual product. But the latest and best psychology has discarded the notions of separate mental faculties. Intellect, feeling and will are inseparable and mutually interpenetrate. The intelligence is active in religion as well as in science. The will is equally manifest in the pursuit of knowledge and in the pursuit of moral goodness. Feeling supplies the data of both pursuits. The alleged conflict between science and religion really is nothing but misunderstanding on one side or the other, or more probably on both sides. If we consider the history of man, whether of the race or the individual, it seems that religion and science were born together and grew together. Later on, discord arose. It may be that the narrow-mindedness of religious teachers was the first occasion of this. Often enough have they been taunted with the persecution of Galileo and Bruno. But I think that, as impartial judges, we must condemn the scientific teachers as the chief offenders during the past half-century. Happily there has been a change for the better in recent years; but looking back upon fifty years, who of us does not see clearly that within this period what is called the *Zeitgeist* has been grievously led astray by a monstrous,

misbegotten spectre which has stolen the name of *Science*—though in reality it is a hybrid mixture of unjustified hypotheses and bad metaphysics. This unholy alliance has produced the irrational conception of a soulless, godless universe; a cold, dead mechanism, in which inexorable fate is somehow combined with blind chance. Shall we treat this pseudo-science leniently? To me it seems that Dr. Temple's treatment of this science falsely so-called, is not trenchant enough.

While his arguments are in the main good and sound, they seem to me open to criticism in more than one fundamental matter. While pointing out that the uniformity of nature is only hypothesis, he does not demand a precise account of what is meant by the phrase. Nature, as we see and know it, is *multiform*—not uniform. The uniformity is hypothesis: the multiplicity is an immediate and present fact. Surely just because it is hypothesis, science is bound to furnish an intelligible meaning for the phrase. And when the man of science runs the changes on other terms and phrases—such as order, the stability of nature, continuity, or the favourite phrase, the universality of causation—he should be followed, step by step, by a persistent demand for his *meaning*. It will be found in the end, that he can give no meaning which will agree with all the facts. Either he will fall back upon the intolerable assumption of an irrational mechanism or he will lose himself in utter confusion of thought. Science is not yet omniscience.

But Dr. Temple was content to accept this postulate of science without any definition; only contending for two exceptions, God's free will and His power to work miracles, and man's free will. The wisdom of this way of thinking is questionable. The *Hibbert Journal* for October, 1903, contains an article by Professor Jones which expressly combats this theory, not with any reference to the Archbishop, but in antagonism to Professor William James. Professor Jones says, "I am persuaded that this method of defending morality and religion is a wrong method, and calculated not only to perpetuate the contradiction between the theoretical and practical aspects of our life, but to injure religion in a fatal way. The true defence seems to me to be in a direction which is almost directly opposite. *Instead of their mutual exclusion, I should prefer a theory of their mutual inclusion.*" This pronounced disagreement between philosophers must make us pause before we decide.

Professor Jones's argument is too long and too profound to be reproduced here. But I venture to state that before reading his article I was dissatisfied with the Archbishop's doctrine. To me it seems that Dr. Temple conceived of the Deity as outside of the world, so that the two stand apart, as it were, God having once for all, long ago, created the world, and thereafter left it to go on by itself, governed indeed by divinely ordained laws, but not needing divine control and support from moment to moment. The world being thus conceived as in nearly the whole of its extent and course governed by the "uniformity of nature," the Deity is supposed to have made two exceptions to this general rule. These exceptions are human free-will, and divine intervention working miracles to attest revelation. This conception of the relations between God and the world is one which has long been held, and still widely prevails; but recent philosophy is strongly inclined towards another conception, a conception which, pushed to an extreme, has led to pantheism, viz., *the immanence* of God in the universe. To some minds it has seemed that the cosmos *is* God. God is all and all is God. But we are not obliged to go to the pantheistic extreme. We may refuse to *identify* the world with God; and at the same time may refuse to believe that God is altogether outside the world in some far-off region. We may believe that God is here and now, in an eternity which includes all time, in a proximity which fills all space.

"Nearer is He than breathing,
Closer than hands and feet."

And this belief in the immanence of God in all times and places, in all things and events, in all lives of all beings, seems to be the way in which Jesus thought of His Father; the God who sends the sunshine and the rain, without Whom not a sparrow falleth, Who clothes the lilies with their beauty, and of Whom He said, when He Himself was accused of sabbath-breaking, "My Father worketh even until now."

The CHAIRMAN then called on Dr. Kidd to reply.

Dr. KIDD, in response, said he was quite unable to deal with all the points that had been raised, and it was rather late if it were possible; but he would refer to one matter that Canon Girdlestone spoke of, viz., that the province of mystery does not shrink. I think, he continued, that is hardly correct. Mystery after mystery

has been made clear by science, more and more up till now. That does not exclude the fact that great mysteries remain, but when we compare our knowledge of to-day with that of fifty years ago, it is enough to say that mystery does shrink, even though greater mysteries may arise.

As to the question of sponges that Dr. Walker referred to, I think he is quite correct in what he says as to their organs of respiration and digestion.

I put the name of Aristotle last among the Greeks in order to point him out as the greatest of all—the greatest father of knowledge of those days. Many others might have been referred to, but I did not want to make the list too long.

The criticism we have just had of Archbishop Temple's lectures is very valuable; but I do not think, as to the last point, that the immanence of God is at all excluded by the way in which Dr Temple has dealt with the matter. As far as I can understand, it does not exclude the view of the immanence of God, but it is a mere recognition of the claims of science.

As to the two paths of mental progress, what has been said goes rather to confuse what is meant here, which merely represents the paths of religion and science in early times, which ought at that time to have been separated. Those two paths diverged for many centuries, just as in these modern days they are coming together again.

I thank you for the reception you have given my paper. I am sorry that I have dealt with the subject so imperfectly, but it is a very large one.

The Meeting then terminated.