THEOSOPHY AND THE CHANGING OUTLOOK IN SCIENCE

THE BLAVATSKY LECTURE
1943

BY

CORONA TREW

THE THEOSOPHICAL
PUBLISHING HOUSE, LONDON
68 GREAT RUSSELL STREET
LONDON, W.C.1

Price 1s.

THEOSOPHY AND THE CHANGING OUTLOOK IN SCIENCE

The Blavatsky Lecture, 1943

By Corona Trew, B.Sc., Ph.D., London

We are, in the fifth decade of the twentieth century, living in an age when events move so fast that the living experience of to-day has become history almost before we are aware that it has moved into the past. In the midst of the most terrible war the world has seen, a conflict that includes all nations, the world has terribly become one; for actions planned in London, Moscow, Berlin, Tokyo or New York to-day may have far reaching effects in the remotest parts of the globe to-morrow. Mankind has conquered space with the perfecting of the aeroplane and the radio, and this conquest has not only made the world a unit but has speeded up the experience of time. We seem to move ever faster through the shifting pattern of events, like Alice and the Red Queen of Looking-glass world. Man has indeed conquered space and accelerated time, and is well on the way, if he would have it so, to control the physical environment in which he lives. These achievements are the result of the progress of science in all its branches during the last thirty-five to forty years, a progress so great as to constitute a scientific revolution.

Scientific thought is only of interest to the student of Theosophy in so far as it influences human progress and has a bearing on man's attitude to himself and the world in which he lives. It is not pure science, as such, which concerns us, but rather the impact of science on society and the part that it plays in shaping man's picture of the universe and his relationship to that universe. In this Blavatsky Lecture we may compare the attitude and outlook of present-day scientific thought along these lines with that which was current in the early days of the Theosophical Society, when Madame Blavatsky was first

giving out the teachings which we know as Theosophy. A vast change in scientific outlook has occurred since the 1880's, the decade of the early years of the Theosophical Society. Such a change we believe to be due largely to the impetus given by H. P. Blavatsky under the guidance of those Teachers who inspired her, and it is fitting that in this lecture, which commemorates and honours her, we should review the relationship between Theosophy and Science. Looking back to the years of the 1880's, we may get a picture of the scientific world and thought of those days, so violently attacked by the Masters of the Wisdom and H.P.B. herself; may then trace in outline the changes that have occurred, and see whither the scientific thought of our day is tending.

One has only to pick up *The Secret Doctrine*, or the letters of the Masters to Mr. Sinnett and others, to find an account of the entrenched position of the science of that day—largely arrogant and opinionated; dogmatically proclaiming a materialism, based on its concepts of matter, that may well have needed an impetus from the Great Brotherhood to break it up successfully. Speaking of this dogmatic and materialistic attitude in *The Secret Doctrine*, we find H.P.B. saying: 'In our days (the 1880's) Scientists are more self-opinionated than even the Clergy. For they minister to if they do not actually worship, "Force-Matter", which is their "Unknown God." '[1]

From the occult point of view, then, Science was attacked for its dogmatism and materialism, and that the attack is on these grounds alone is shown by the following:

> 'There can be no possible conflict between the teaching of Occult and so-called exact Science, wherever the conclusions of the latter are grounded on a substratum of unassailable fact. It is only when its more ardent exponents, overstepping the limits of observed phenomena in order to penetrate into the arcana of Being, attempt to wrench the formation of Kosmos and its living Forces from Spirit, and to attribute all to blind Matter that the Occultists claim the right of disputing and calling in question their theories. Science cannot, owing to the very nature of things, unveil the mystery of the Universe around us.'[2]

CHANGING OUTLOOK IN SCIENCE

Turning to present-day science, we find the measure of the success of H.P.B. in her attack on the bigotry of scientific thought in an extract from a modern scientific writer, which shows a striking change in point of view:

> 'It must be clearly understood that scientific naturalistic description does not imply what is called philosophic naturalism which denies the validity of all transcendental or spiritual interpretation. For science answers the question What? Whence? and How?, it never asks the question Why? In other words Science does not raise the philosophical or religious question of the meaning, significance or purpose behind the world of the measurable. It does not enquire into the original Beginning and the Essence of Things.'[3]

Even more recently, Sir Richard Gregory in a letter to *The Times*, on May 11th, 1943, says that 'Science is concerned with the advancement of natural knowledge by observation and experiment and the use of the mind to interpret them . . . No claim is made that the pursuit of verifiable knowledge of this kind, or its application, can fully satisfy "the cravings of man's nature". The endeavour is to understand natural events and processes without probing into their ultimate causation or purpose.'

Science, in our day, has indeed become humble and accepts a limited field of action for its researches. So much is this the case that many scientists, especially during the last ten years, would omit all philosophical speculation or any attempt to build a world picture by the scientific method, and confine science to that which is susceptible to experiment. Professor Arthur Eddington and Sir James Jeans have been widely criticised for their attempts to build a philosophy of life from the discoveries of physical science. Many would agree with H.P.B. that 'The most science can do is to assume and to maintain an attitude of agnosticism',[4] and are prepared to accept such loss of prestige and of infallibility that this attitude involves. The infallible dogmatist of the 1880's has become the humble agnostic in the 1940's. While this swing of the pendulum carries many scientists too far in the negative direction—so that they cease to have any influence on scientific thought

outside the four walls of their laboratory—we need to recognise as important a present-day tendency to divide the scientific field into two parts. Exact science is considered to include all that can be established as ' observed phenomena', to use *The Secret Doctrine* phrase, while beyond this there lies a further field of philosophical enquiry on which a world-picture, based upon science, may be built. This latter is of a more speculative character than the first, more susceptible to personal predilection on the part of the individual scientist, and naturally more liable to change. The mass of new scientific discoveries in the first field, during the fifty-five years that have elapsed since *The Secret Doctrine* was written, have led to a radical change in the scientific world-picture that belongs to the second field ; so that this picture is now vastly more in keeping with that which is called ' occult science ' by H.P.B. Furthermore, in this second field of scientific philosophy, that of the ' arcana of Being ', there is a wide variation of opinion among men of science to-day. The more conservative are little less materialistic in their approach than those ' potentates of science ' so scathingly attacked in *The Secret Doctrine*. The more progressive are illumined by a spiritual vision that sees life at the centre of the universe and regards all scientific discovery as a progressive revelation of the consciousness and mind of a great living Being, a vision that has very much in common with the occult view of the living universe with its vast hierarchy of Being.

In the same way that the bigotry of science has given place at best to a search for truth and at the least to a scientific agnosticism, so has the materialism of nineteenth century science upon which H.P.B. led the attack, yielded place in our times to a living dynamism which is vitalistic in its highest manifestations and anything but materialistic even at the lower extreme.

Middle nineteenth century science built up a world-picture that was a kind of engineer's paradise—one that has been graphically described in retrospect by Sir James Jeans : ' It reduced the whole physical universe to a vast machine in which each cog, shaft and thrust-bar could only transmit what it received and wait for what was to come next . . . the human race also seemed to be reduced

to cogs in the wheel. . . . Our minds could only register what was impressed on them from an outer world over which they had no control.'[5] The measure of the change in view point may be seen from the same scientist's attempt to give a popular description of a world view based on present-day scientific conceptions. 'The universe is no longer a deluge of shot from a battery of machine guns, but a stormy sea with the sea taken away and only the abstract quality of storminess left . . . or the grin of the Cheshire Cat if we can think of a grin as undulatory!' The mere absurdity of the analogies that he is forced to use, to convey any clear picture of modern mathematical theories of the structure of the universe, shows how far indeed present-day views have travelled from the concrete engineering structure of the late nineteenth century. The modern scientific world-picture cannot truly be termed materialistic, for in the words of General Smuts, 'A new space-time world has emerged which is essentially immaterial, and in which the old-time matter, and even the scientific mass, gravitation, and energy, stand for no independent entities, but can best be construed as configurations of space-time.'[6]

This change in view point has been brought about by striking discoveries in physical and biological science during the past fifty years; in particular the breaking down of matter into electrical particles, radiation and energy, now found to be the entities underlying the substantial matter of the nineteenth century scientist. The attempts to build a picture of the structure of the material universe upon these ultimate particles led to radical changes in scientific thought, and relativity and the quantum theory emerged in the second and third decades of the twentieth century as part of the physicists' attempt to understand the physical universe. These theories, as such, do not concern us here except in two aspects, but these are fundamental and revolutionary. Whereas the nineteenth century views of matter and the physical universe were static and fixed, and the universe—including life and man—appeared as a vast machine built up of various parts each with its fixed and unchanging structure and function, the modern view sees everything in terms of a dynamism that is startling to minds trained in the older views. Matter is no longer

looked upon as dead and inert material, but as the manifestation of an infinitely rapid pulsation of energy or force. This strikingly verifies *The Secret Doctrine* view that 'Atoms are called vibration in occultism', and 'The waves and undulations of science are all produced by Atoms propelling their molecules into activity *from within*. Atoms fill the immensity of space, and by their continuous vibration are that Motion which keeps the wheels of life perpetually going.'[7]

One needs constantly to bear in mind that *The Secret Doctrine* was published in 1889 when such a statement had no parallel in current scientific thought. To-day atoms of matter are seen to be dynamic patterns of force, shifting into new configurations as conditions alter, and only differing from each other in the nature of the rhythmic pattern that energy sets up. Such a picture is difficult to describe exactly in non-scientific language and perhaps the best account is that of the great Indian poet Tagore, who has seen the vision of the new scientific view of the universe and translated it into words:

> 'Has not science shown us the fact that the ultimate difference between one element and another is only that of rhythm? The fundamental distinction of gold from mercury lies merely in the difference of rhythm in their respective atomic constitutions, like the distinction of the King from his subject, which is not in their different constituents but in the different metres of their situation and circumstance? What is this rhythm? It is the movement generated and regulated by harmonious restriction.'[8]

Thus the dead, inert matter, which was the foundation-stone of all materialistic views of life and of the universe has been swept away and in its place we find rhythmic patterns of energy. Tagore, being a poet, has been swift to see the significance of the change. For the force which creates the pattern that we call matter, and life itself behave in exactly the same way. Pointing out this parallel Tagore says:

> 'Life which is an incessant explosion of freedom finds its meter in a continual falling back in death.

> So life is Maya as moralists love to say. It *is* and *is not*. All that we find in it is the rhythm through which it finds itself.'[9]

The poet sees the implication of the change in the scientific view of the structure of matter, and the startlingness of the resemblance between energy creating matter and the behaviour of life itself. The same is expressed scientifically by General Smuts who, in the presidential address already quoted, applies his theory of wholes, or 'Holism':

> 'When we ask what is the nature of life we are curiously reminded of the behaviour of the quantum [i.e. the unit in which energy manifests itself in making the pattern we term matter]. The quantum follows the all or nothing law and behaves as an indivisible whole, so does life . . . a part of a quantum is not something less than a quantum, it is nothing or sheer nonentity; the same holds true of life. The quantum . . . is a specific configuration and can only exist as such; the same holds true of life. . . . Apparently the quantum does not fall completely within the causal deterministic scheme: the same is true of life. Life is not an entity, physical or otherwise. It is a type of organisation; it is a specific principle of central or self organisation. If that organisation is interfered with we are left, not with bits of life, but with death. . . . In short, the quantum and life seem to have this in common, that they both behave as wholes.'[10]

Matter is thus seen, in our time, to be an expression at a lesser level of the same kind of phenomenon we find in life and even more subtly in consciousness itself. The profound importance of this from the theosophical standpoint can hardly be over emphasised. With the sweeping away of its foundation—inert, solid matter—materialism in its old sense is dead and the way is opened for a unified scientific world-picture which can include life and consciousness. The tendency of the human mind to seek a unity—the monistic tendency as it is called in philosophy—is a very profound one. So long as matter was enthroned as the absolute fundamental unit of the universe, scientists, in

their attempts to achieve a unified view, were bound to interpret all within that universe ultimately as manifestations of matter. Now that matter is seen as no more than an organisation formed by energy, much as the dancers in a ballet take up a given pattern for a given interval of time, it is possible to hold a new view of the universe in which consciousness and life may have the supreme organising role which previously was assigned to matter. We see signs of this tendency in the philosophies that are being tentatively expressed by many scientific thinkers to-day, although the full philosophical implications of the modern scientific outlook have still to be developed in the West. In India such a view has long been held. Speaking of Shiva, the eternal dancer and the destroyer of forms, a Tamil text says, ' Our Lord is a Dancer, who, like the heat latent in firewood, diffuses his power in mind and matter and makes them dance in their turn.' L. Adams Beck, in quoting this passage, points out the ' strange affinity of this conception with the discoveries of science relating to the eternal dance of the atom, and electron.'[11]

The second striking contribution of modern physical science that is of importance to the theosophical student is closely related to the first, and that is the unity of structure of the physical universe, summed up in the relationship of the whole and the part. Modern physics has shown that individual units such as atoms and electrons must be regarded both as entities and yet as influencing at the same time the whole of space.* Science has established as a fact of physical experiment the relationship that has been one of the riddles of the ages. Two ancient Greek philosophers standing on the seashore were said to have debated whether the ultimate nature of the physical universe was that of the wave of the sea with its infinitely spreading undulations, spatial and universal, or that of the grain of sand with its hard, clearcut separate individuality. Modern science answers that, as is so often the case, both are right; a view strikingly foreshadowed by one of the Masters in 1882. In a letter to Mr. Sinnett we find:

* The graph representing the distribution in space of the electrical charge that goes to make up an ' electron ' never becomes exactly zero however far we proceed out into space away from the point that represents the centre of the atom.

> 'You will have to bear in mind (*a*) that we recognise but one element in Nature (whether spiritual or physical) which as the Akasa pervades our solar system, every atom being part of itself, pervades throughout space and is space in fact, which pulsates as in profound sleep during the pralayas, and is the universal Proteus, the ever active nature during the Manvantaras, (*b*) that consequently spirit and matter are *one*, being but a differentiation of states not essences.'[12]

The philosophical and moral implications are obvious to the student of Theosophy. The physical universe is a whole, a unit in which all individual entities, by virtue of their mere existence, affect the whole of the space in which they inhere. So life is a whole, a unit, and no one can ever live to himself alone or shut himself off from any other. The brotherhood of individual men is rooted in the fact of that spiritual unity which is possessed by the parts of a whole. Spirit, the universal, and matter, the individual, are interlocked parts of one reality. 'That which in modern phraseology is referred to as spirit and matter, is ONE in eternity as the perpetual Cause, and it is neither Spirit nor Matter but IT—rendered in Sanskrit by *TAD*, " that "—all that is, was, or will be, all that the imagination of man is capable of conceiving.'[13] Or, as a mystical poet says, anticipating as poets so often do, the discoveries of science

> 'All things by immortal power
> Near or far
> Hiddenly
> To each other linkéd are,
> That thou canst not stir a flower
> Without troubling of a star.'[14]

Profound changes in physical science have naturally led to changes in philosophic thought, so that scientists such as Eddington and Jeans are known popularly for their application of scientific thought to a philosophy of life, while the philosopher, General Smuts, can mould a world-picture to which the underlying concept of wholeness gives the name of 'Holism'. It is part of the tragedy of human experience, however, that the moral and ethical

consequences of this unity are so much slower in realisation than the intellectual and mental understanding of it, but even here a beginning has already been made, as will be seen in considering the social application of modern scientific discovery.

In the region of biological and evolutionary science we find the application of this concept of ' wholeness ' of even greater importance. The tendency to-day is to study the living organism as a whole in relation to its surroundings and environment. Life is no longer regarded as an accidental property of some types of matter, but, as Smuts has expressed it, ' A living individual is a physiological whole, in which the parts or organs are but differentiations of this whole for purposes of greater efficiency. . . . They are parts *of* the individual, and not independent or self-contained units which *compose* the individual.'[15]

The discovery of growth-promoting substances and hormones together with the ubiquitous vitamin, entities which, although present in microscopic quantities, play a controlling part in the healthy growth of living organisms, has led to the extension of the concept of organisation to the biological field. For example, the living cell is now seen as a whole whose activities are organised through a central point within the nucleus.

An important aspect of the evolutionary theory of biology is the concept of biological levels—each more organised and more complex than the one of which it is formed. Thus, in the process of evolution, groups of electrons and radiation quanta organise to the dynamic patterns we know as atoms. These atoms and molecules form a larger integrated unit, the cell, the basis of life ; cells integrate into a pattern called an organism and this is the basis of sentient and thinking beings. Groups of organisms form a social group or society—so that all is a graded unity of organisation. As expressed by General Smuts, ' We have seen matter and life indefinitely approaching each other in the ultimate constituents of the world. We have seen that life is a principle of organisation whereby the space-time patterns are arranged into organic unities. The next step is to show that mind is an even more potent embodiment of the organising whole-making principle, and that this embodiment has found expression in a rising series, which begins

practically on the lowest levels of life, and rises ultimately to the conscious mind.'[16] Or, as a zoologist says, ' Seeing the whole sweep of evolution ; the wonder of regulation amid the immensities of the universe, beyond the reach of the most powerful telescope, the equal wonder of regulation amid the minutiae of atomic structure and behaviour, far beyond the penetration of the microscope ; the emergence of life on the Earth, on that speck of the universe of which we know most ; the gradual development of intelligence, of reason, of appreciation of beauty and of power to create beauty, even the transcendent beauty of personal character. . . . It is all one, beginning in the dust and reaching up into persons who can appreciate and create beauty, and feel love—a constantly changing whole, alive, personal.'[17] Another biologist, Professor Lloyd Morgan, the founder of the philosophy of emergent evolution, says, ' What I find in evolution is *one great scheme from bottom to top, from first to last.*'[18] These are startling echoes of *The Secret Doctrine* and might have been written by the same pen :

> ' From Gods to men from worlds to atoms, from a star to a rush-light, from the sun to the vital heat of the meanest organic being—the world of Form and Existence is an immense chain, the links of which are all connected.'[19]

Professor J. Arthur Thomson has developed the idea of biological levels in an article on ' Biology and Human Progress '[20] and allows for three great levels of organisation, although smaller ones may be found within these. Thus, there is the cosmosphere, the domain of non-living (in the biological sense) things and forces, which may be represented as a sphere ; within this and smaller in extent, but interpenetrating it over its sphere of influence, is what may be termed the biosphere or the realm of organisms. Within this again, and more specialised still, is the sociosphere or the realm of the kingdom of man, smaller in extent than the first two, but more complex in organisation since it is interpenetrated by the other two. Many problems of biology may be considered as involving the interaction of one of these spheres with another. Thus an earthquake, tidal wave or sunspot, may be seen as a sudden impingement

of the cosmosphere upon the biosphere and sociosphere. An epidemic of disease may represent the influence of the biosphere on the sociosphere, and the destruction of natural conditions by the building of cities and towns and human communications is an impact of the sociosphere on both biosphere and cosmosphere. Over a period of time these interactions again appear as expressions of a vast dynamic pattern-making process with its action and interaction, ebb here, and flow there ; and this process moving always from less to greater organisation is what we term evolution.

Professor Birkhoff of Harvard, in 1938, in his Presidential address to the American Association for the Advancement of Science, developed a similar idea, even more strikingly parallel to that which forms one of the basic concepts of *The Secret Doctrine*. This 1938 meeting was an important one for two other reasons. It was the first at which a close collaboration was achieved between the American Association and the corresponding British Association for the Advancement of Science. It likewise marked the first attempt on the part of scientists in Britain and America jointly to approach present-day social and international problems, in a spirit of scientific enquiry and detachment, and hence marked an epoch in the history of western civilisation. Sir Richard Gregory, the chairman of the newly formed Division for the Social and International Relations of Science of the British Association, was officially present and delivered an important lecture on ' Religion in Science '. The Presidential Address itself was entitled ' Intuition, Reason and Faith in Science '. The nature of the subjects chosen for the chief addresses at this important meeting is worth noting. The significance of the occasion was, unfortunately, overshadowed by the outbreak of war in the following year.

Professor Birkhoff in his address suggested that there are certain axioms one may state about the universe seen from the scientific viewpoint. His first axiom was expressed as follows : ' Let us observe in the first place that our universe presents antipodal aspects—the objective and subjective, the impersonal and the personal. If we take the objective aspect as more fundamental we put our emphasis on the notion of reality ; and if we start from the subjective, we prefer to speak of knowledge. In either case we are able

to discover a kind of nature-mind spectrum.'[21] Startlingly enough, therefore, he starts with the first axiom of *The Secret Doctrine*, for the Proem of that book gives us the following :

> 'The Secret Doctrine establishes three fundamental propositions : (I) An Omnipotent, Eternal, Boundless and Immutable Principle. . . . It is " Be-ness " rather than Being. . . . This Be-ness is symbolised in The Secret Doctrine under two aspects. On the one hand absolute Abstract Space, representing bare subjectivity, . . . On the other, absolute Motion representing Unconditional Consciousness. . . . Just as pre-cosmic Ideation is the root of all individual Consciousness, so pre-cosmic Substance is the substratum of Matter in the various grades of its differentiation. Hence it will be apparent that the contrast of the two aspects of the Absolute is essential to the existence of the " Manifold Universe ". . . . The Manifested Universe, therefore, is pervaded by duality, which is, as it were, the very essence of its Ex-istence as " Manifestation ". But just as the opposite poles of Subject and Object, Spirit and Matter, are but aspects of the One Unity in which they are synthesised, so, in the Manifested Universe, there is " that " which links Spirit and Matter, Subject and Object.'[22]

The idea of the nature-mind spectrum is then further developed by Professor Birkhoff, so as to show five levels of experience within the dual universe. ' For there appears a roughly given hierarchy of five ascending levels—mathematical, physical, biological, psychological and social. Each level has its appropriate special language. The basic corresponding concepts are respectively : *number* at the mathematical level ; *matter* at the physical level ; *organism* at the biological level ; *mind* at the psychological level ; and *society* at the social level. If we choose to select one of these as somehow more real than the others a great distortion arises in our point of view. . . . It is desirable to accord reality in equal measure to all kinds of knowledge everywhere, and so to view the universe as broadly and impartially as possible.'[21]

Here again one is reminded of the central theme of *The Secret Doctrine* that there is but one energising force in nature—Fohat, the One Life—which, striking down into the various levels of cosmic manifestation, organises the root matter into vehicles characteristic of each level: the various sheaths (*Koshas*) of esoteric and oriental philosophy, each corresponding with a plane (*loka*). In the seventh, or lowest and physical plane, we find all the subtler manifestations of this one force expressed. This is indicated by the following extract from a commentary on the Stanzas of Dzyan, given by H.P.B. as a summing up to the first section of *The Secret Doctrine*.

> 'The One Life is, as explained, a Film for creative or formative purposes. It manifests in seven states . . . separating itself into its primary seven states, it proceeds down cyclically; when having consolidated itself in its *last* principle, as Gross Matter, it revolves around itself and informs with the seventh emanation of the last, the first and lowest element. In a Hierarchy, or Order of Being, the seventh emanation of the last principle is, (*a*) In the Mineral the Spark that lies latent in it . . . (*b*) In the Plant, it is that vital and intelligent Force which informs the seed and develops into the blade of grass, or the root and sapling . . . (*c*) In every animal, it does the same. It is its Life-Principle and vital power; its instinct and qualities; its characteristics and special idiosyncrasies . . . (*d*) To Man, it gives all that it bestows on all the rest of the manifested units in Nature, but develops, furthermore, the reflection of all its FORTY-NINE FIRES in him. . . . (*e*) It is the guiding Force in the cosmic and terrestrial Elements. . . .[23]

Two more manifestations of Fohat are then given but these are beyond our present-day knowledge.

Surely we may see in Professor Birkhoff's picture of a nature-mind spectrum of five levels, an intuition of the fact of occult cosmogony. Four of his five levels, the second to the fifth, corresponding with the divisions (*a*) to (*d*) from *The Secret Doctrine* extracts given above, represent the physical plane expressions of the organising power of the one force—

Fohat. His first, or mathematical level, with its associated concept of number, represents an earlier stage, one on what is termed the involutionary arc, corresponding, perhaps, with the fifth of the divisions mentioned in *The Secret Doctrine* extract: i.e. the guiding force in the cosmic and terrestrial elements. Modern science, with its discovery of the mathematical foundations underlying the material structure of the atom and the universe, has penetrated to a deeply hidden principle of the cosmic universe, for 'Number is . . . a Breath emanating from what . . . we call the All, the Breath which alone could organise the physical Kosmos.'[24]

When the scientific and occult statements are put side by side, the parallel between the two points of view is made clear (see p. 16).

From the standpoint of science, which is that of objective knowledge, the physical plane is the only level on which our knowledge of the subtler levels can be investigated. This point has been developed by Professor Marcault in an article on 'The Science of Theosophy' in which he says, 'We do exist, have principles of our being, on planes beyond the physical . . . but these principles and their respective planes are subjective. . . . What we do know is the effect of their activity on our physical consciousness, e.g. we know our vital energy, but not the etheric double; our emotions, but not our astral body; etc. . . . In other words, we are conscious of faculties but not of principles or bodies beyond the physical.'[25]

Each level beyond the physical is both inner and more subtle than the one below it (in Birkhoff's order); is more organised, and yet, so long as we are in a physical form, we know its expression most clearly at the physical level. Thus, physical energy or electricity, builds the mineral kingdom; vital energy builds the vital body of plant, animal and man, which determines the health of the dense physical form in waking consciousness. Psychic or astro-mental energy builds the sensitive mental-emotional animal psyche, but an animal expresses its emotions and rudimentary thoughts in action through its physical organism. In man, thought and emotion while directly experienced are chiefly a dynamic force for good or ill in so far as they are expressed in terms of action. Finally, the creative

SCIENTIFIC		OCCULT			
LEVEL	CONCEPT	KINGDOM	MANIFESTATION OF FOHAT	CORRESPONDING VEHICLE OF MAN	CORRESPONDING PLANE
MATHEMATICAL	NUMBER	PLANE OF COSMIC IDEATION			
PHYSICAL	MATTER	MINERAL	PHYSICAL ENERGY (THE SPARK-ELECTRICITY)	STHULA-SHARIRA (PHYSICAL BODY)	PHYSICAL
BIOLOGICAL	ORGANISM	PLANT	VITAL FORCE	LINGA-SHARIRA (VITAL BODY)	ETHERIC
PSYCHOLOGICAL	MIND	ANIMAL	PSYCHIC FORCE (MENTAL-EMOTIONAL)	KAMA-RUPA (ASTRO-MENTAL BODY)	ASTRO-MENTAL
SOCIAL	SOCIETY	TRUE HUMAN	HIGHER-MENTAL ENERGY	KARANA-SHARIRA (CAUSAL BODY)	BUDDHI-MENTAL

energy of the higher mind—the first really spiritual energy—manifesting through the human kingdom alone, is fully effective only as man learns to express that creative life in building a truly social environment around him.

Here, then, we have a statement of the form side that is the basis of the whole theosophical hierarchy of Being, the precipitated result, at various levels, of chains and rounds of experience, and scientists are beginning to map it out for themselves within their world-picture when any of them is prepared to take a universal view and pass beyond the narrow bounds of one individual science. The objective character of science, however, means that so long as it remains strictly scientific it deals only with *form*, a point we shall return to later. For the moment we only note that the structure is there, a vast interwoven pattern of levels, each at its own level constituting an organised but dynamic whole.

Even yet we have not reached the end of the significant changes in modern scientific thought. Much of the preceding might have been written some ten years ago, but in the last decade or so two further trends have emerged. The scientific revolution first touched the two simplest of Professor Birkhoff's levels of organisation, the realm of mathematics and matter, then the biological, and it is now playing upon the psychological and sociological levels and beyond. Men of science to-day are deeply concerned with the social relations and applications of science, and even beyond this with the need for an ethical and even religious background for life consonant with scientific discovery and progress : a change in point of view the significance of which cannot be too highly stressed.

In regard to the social application of scientific knowledge, scientists are beginning to realise that they have it in their hands to eliminate want and poverty and to usher in an era of plenty and prosperity for the whole world. The knowledge is already theirs, but the application of it is still wanting. Professor Julian Huxley made this point very clear in summing up a recent series of broadcast talks on science. Having outlined the great increase in our knowledge, with its consequent increase in power to control, he made a third point : ' Our power of control has not been used to the full : our new knowledge has not been properly

applied. . . . What is the reason for this? Whenever you attempt to apply new biological knowledge to human life, the problem becomes a social problem and our control of these is only in its infancy. We have learned how to control external nature, but not human nature or social processes. . . . I expect that the next big step in human evolution will come through our control of social and economic processes.'[26]

The significance to us of this awakening of the scientific conscience, will be seen from the following extract. In *The Occult World* Mr. Sinnett quoted the views of one of the Masters of the Wisdom on the attitude of scientists to human problems :

> 'Exact experimental science has nothing to do with morality, virtue, philanthropy—therefore, can make no claim upon our help until it blends itself with metaphysics. Being but a cold classification of facts outside man, and existing before and after him, her domain of usefulness ceases for us at the outer boundary of these facts; and *whatever the inferences and results for humanity from the materials acquired by her method, she little cares.* Therefore, as our sphere lies entirely outside hers—as far as the path of Uranus is outside the Earth's—we distinctly refuse to be broken on any wheel of her construction.'[27]

With the change in scientific outlook, we may hope that there will come that help from the Inner Government which will make possible the next big step in human evolution envisaged by all progressive thinkers and expressed by Professor Huxley in his recent broadcast.

Scientifically speaking, concern with the social relations of science and the study of sociology arises out of the biological view that organisms should be studied in their interrelations one with another. This is the newest of all fields of scientific endeavour and much has been written on the subject during the last fifteen years. Present-day problems thrust it forcibly upon our notice. Many a scientist sees a vision and an ideal in a socially planned structure, in which the discoveries of scientists put into the hands of mankind blessings and benefits sufficient to

enable him to live in physical plane comfort and plenty. Yet sociology, being the youngest branch of science, is the least exact and perhaps the most susceptible to false ideas. As theosophical students, we should be careful, while appreciating that which is really progressive, to recognise that there are some real dangers in the trend of modern social applications of science. Some of the younger scientists, interested in the application of science to society, work from a purely intellectual and almost materialistic point of view. Many are admirers of the Marxist dialectical materialism, that curious system of inverted theosophical thought. They thus deny the necessity for, or validity of, any idealistic or spiritual view of the universe. Could they but achieve perfection of external conditions, destroy all class distinctions and create a classless society, they feel that the millennium would be established here on earth. Thus, although working at the highly organised level of the social group, they still tend to employ the 'outside' point of view characteristic of materialism. One is reminded of *The Secret Doctrine* judgment, that it is 'Kâma-Manas which does the thinking in Physical Science and on material things',[28] and the suggestion in the letter to Mr. Sinnett, quoted above, that science must blend itself with metaphysics before the next advance can come. 'Metaphysics are the domain of Higher Manas. . . . The Mathematician without spirituality, however great he may be, will not reach Metaphysics.'[29]

The theosophical student proclaims the fundamental spiritual unity of mankind with its consequence of universal brotherhood, but sees within that brotherhood inherent differences in the degree of unfoldment of individual capacity. He stresses the value of the spiritual individual and the efforts each can make from within to conquer his environment, while the social biologist tends to stress the external environment at the expense of the individual. This is perhaps, inevitable at the present time when so much adjustment is needed in the outer organisation of world society. The confusion of freedom with licence to exploit others, has blinded many a would-be reformer to the fact that individual freedom, together with individual responsibility to the social group, is a surer path to progress than mass organisation by external compulsion. As students of

the Ancient Wisdom, we seek for the key to progress at a deeper level than that of the sociologist. This inner level—the spiritual—is the key to all the rest. Man and the universe are both spiritually centred and this fact, unaccepted as yet by scientific thought, although intuitively grasped by some scientists, marks our special contribution. It may be that this level never will become the field of ordinary science, for it lies within the realm of experience and not in that of objective experimentation: its field is that of metaphysics, to use *The Secret Doctrine* phrase.

One cannot organise spirituality, but can look forward to a time when the living spiritual view illumines all the rest. We should be content were science to accept its limitations and leave the rest to the intuitive comprehension of the religious point of view. That many scientists to-day are doing so is evident by the expression they give of their personal faith. Sir Arthur Eddington concludes *The Philosophy of Physical Science* with the words: 'The realisation that physical knowledge is concerned only with structure points the way by which the conception of man as an element in a moral and spiritual order can be dove-tailed into the conception of man as the plaything of the forces of the material world.'[30]

A psychologist, R. B. Cattell, has expressed the view that 'The brotherhood of man' [the ultimate to which the present day scientific method can lead] 'is not a full expression of the moral trend which exists in living matter. . . . The love of God includes the love of men, heightened in so far as they strive towards what is God. But the love of man need not include the love of God; it may be arrested at a mutual condonation of man as he is, pleasure-loving, static, semi-bestial. We are part of a great mental and spiritual life that goes forward with increasing vitality towards goals we can only surmise, bearing with it our contribution of life and thought.'[31]

So the changing currents in scientific thought are leading on to the heights of human experience and we should welcome the advances that have brought science to this altered view. Much, however, still remains to be added and we need to look to the future. This imposing mansion; atoms organised to cells, cells to organisms, organisms to human beings, human beings to social groups, and social

groups to world structure, is but an empty house seen from the strictly scientific point of view. In the long run it is the attitude of the individual scientist to life that makes of the structure a dead and empty city, uninhabited and silent, for no life is found therein, or a living expression of a great divine creative being, pulsing with life at every level. This idea of the living universe is the great contribution of the writer of *The Secret Doctrine*, and it may be long before science accepts it to its fullest extent. For science is the product of Manas, and so lies below Buddhi, the plane of life. But the universe is a living universe, as *The Secret Doctrine* tells us:

> 'What is called unconscious Nature is in reality an aggregate of forces manipulated by semi-intelligent beings (Elementals) guided by High Planetary Spirits (Dhyan Chohans), whose collective aggregate forms the Manifested Verbum of the Unmanifested Logos and constitutes at one and the same time the Mind of the Universe and its immutable Law.'[32]

Religion and art, by direct intuition, unite with that living power, and so transcend science as modes of human experience. The great scientist who sees the vision of life as a whole manifesting through the forms of nature, goes beyond his science and must express himself in poetical or mystical terms. Can life ever be placed within the framework of observation and become science? Not at least in the old sense, but only as direct and first-hand experience by those who will make a new experiment and use all their bodies as instruments for experimentation and research. Eddington has, significantly enough, pointed out that the so-called subjective levels of human experience, to which our realisation of life itself belongs, are, in point of fact, the only objective regions in our experience. 'The only subject presented to me for study is the content of my consciousness.'[33] When he is able to live with his consciousness centred in Buddhi-Manas, the truly *human* being works through his organised personality as an instrument, and may then know as experience the universe of life, the essence behind all forms, directly at first hand. It is well known that human beings, scientists included, can be

coldly scientific and objective about all of the universe except that which is within the warm immediacy of personal experience and desire. By a curious reversal of this, the occult scientist, the adept human, lives in the vivid and radiant communion of conscious unity with all other centres in the living universe, but is analytically and dispassionately scientific—strictly impersonal—in the use of his organised instrument, the personality. This element of impersonality is probably the quality that gives so great a potency to those who possess the true scientific spirit. The true scientist as well as the true occultist thus becomes a conscious co-worker with those great intelligences who build, and express themselves through, the world of forms. In *The Key to Theosophy*, H.P.B. gives us a hint of the truly scientific approach of those mighty exponents of the science of the living universe who inspired her throughout her life. Speaking of the evidence for the occult interpretation of the universe, and in particular for the existence of living beings in other parts of it than on the earth, she says that the occult view is founded on

> 'the cumulative testimony of an endless series of Seers who have testified to this fact. Their spiritual vision, real explorations by, and through, physical and spiritual senses untrammelled by blind flesh, were systematically checked and compared one with the other, and their nature sifted. All that was not corroborated by unanimous and collective experience was rejected, while that only was recorded as established truth which, in various ages, under different climes, and throughout an untold series of incessant observations, was found to agree and receive constantly further corroboration. The methods used by our scholars and students of the psycho-spiritual sciences do not differ from those of students of the natural and physical sciences. . . . Only our fields of research are on two different planes, and our instruments are made by no human hands, for which reason perchance they are only the more reliable.'[34]

When we can achieve this we shall indeed have become true scientists at another level, no longer using external physical plane instruments, but the living material of our

own subtle bodies, to understand and work within the universe of life. When that is achieved, the scientist will have become the occultist.

For the present, most of us must content ourselves with the vision of the mystic or the artist for an experience of the living forces of the universe. To the occultist it is a reality of experience that 'the whole Kosmos is guided, controlled, and animated by almost endless series of Hierarchies of sentient Beings.'[35] We can touch this reality best through the eyes of the poet and the mystic. A.E., the Irish poet-philosopher, shows us this world when he writes :[36]

> 'The Gods are still in the divine household, and the radiance over the palaces of light appears at times to seers as dragon-crests of flame or rivers of light running out to the stars.'
>
> 'He knew he was, however humbly, one of the heavenly household. In that new exaltation, the lights above, the earth below, were but motions of a life that was endless. He almost felt the will that impelled the earth on which he stood on its eternal round. Through earth itself as through a dusky veil the lustre of its vitality glowed. It shimmered with ethereal colour. Space about him was dense with innumerable life.'

REFERENCES

1. H. P. Blavatsky : *The Secret Doctrine*, Third Edition, I, 555 ; Adyar Edition, II, 234. Theosophical Publishing House.
2. *Ibid.*, Third Edition, I, 517-518 ; Adyar Edition, II, 199-200.
3. Professor J. Arthur Thompson : in an article 'Biology and Human Progress', in *The Outline of Modern Knowledge*, p. 232. Gollancz, 1931.
4. H. P. Blavatsky : *The Secret Doctrine*, Third Edition, I, 566 ; Adyar Edition, II, 244.
5. Sir James Jeans : *Presidential Address to the British Association for the Advancement of Science*, 1935.
6. General the Rt. Hon. J. C. Smuts : *Presidential Address to the British Association*, Centenary Meeting, 1931, p. 6.
7. H. P. Blavatsky : *The Secret Doctrine*, Third Edition, I, 694 ; Adyar Edition, II, 358.

8 and 9. Sir Rabindranath Tagore : Article in *Contemporary Indian Philosophy*. Allen & Unwin, 1936.

REFERENCES

10. See reference 6, p. 8.
11. L. Adams Beck : ' The Pilgrimage to Amarnath,' *Dreams and Delights*, p. 232. Benn.
12. *The Mahatma Letters to A. P. Sinnett*, Letter XI, p. 63. T. Fisher-Unwin.
13. H. P. Blavatsky : *The Secret Doctrine*, Third Edition, I, 595 ; Adyar Edition, II, 269.
14. Francis Thompson : ' The Mistress of Vision.'
15. See reference 6, p. 11.
16. *Ibid.*, p. 12.
17. Professor M. M. Metcalf : in an article ' Intelligent Plan in Nature ', *The Great Design*, p. 222. Duckworth.
18. Professor C. Lloyd Morgan : in an article ' The Ascent of Mind ', *The Great Design*, p. 132.
19. H. P. Blavatsky : *The Secret Doctrine*, Third Edition, I, 662 ; Adyar Edition, II, 328.
20. See reference 3, p. 205.
21. Professor Birkhoff : *Presidential Address to the American Association for the Advancement of Science*, 1938. Printed in *Nature*, January 14th, 1939, p. 60.
22. H. P. Blavatsky : *The Secret Doctrine*, Third Edition, I, 42-43 ; Adyar Edition, I, 79-81.
23. *Ibid.*, Third Edition, I, 310-311 ; Adyar Edition, I, 331-332.
24. *Ibid.*, Third Edition, I, 96 ; Adyar Edition, I, 135.
25. Professor J. E. Marcault : *Theosophical World University Quarterly Bulletin* 1932, No. I, p. 8.
26. Professor Julian Huxley : Broadcast Talk, published in *The Listener*, April 8th, 1943.
27. A. P. Sinnett : *The Occult World*, 1921 Edition, p. 111. Theosophical Publishing House.
28. H. P. Blavatsky : *The Secret Doctrine*, Third Edition, III, 540 ; Adyar Edition, V, 512.
29. *Ibid.*, Third Edition, III, 539-540 ; Adyar Edition, V, 512.
30. Sir Arthur Eddington : *The Philosophy of Physical Science*, p. 223. Cambridge University Press, 1939.
31. Raymond B. Cattell : *Psychology and the Religious Quest*, pp. 140, 180. Nelson, 1938.
32. H. P. Blavatsky : *The Secret Doctrine*, Third Edition, I, 298 ; Adyar Edition, I, 320.
33. See reference 30, p. 195.
34. H. P. Blavatsky : *The Key to Theosophy*. Abridged Edition, pp. 49, 50. C. W. Daniel Co. Ltd., 1938.
35. H. P. Blavatsky ; *The Secret Doctrine*, Third Edition, I, 295 ; Adyar Edition, I, 318.
36. ' A.E.' : *The Avatars*, pp. 50, 188. Macmillan, 1933.

HEADLEY BROTHERS, 109 KINGSWAY, LONDON, W.C.2 ; AND ASHFORD, KENT

OTHER BLAVATSKY LECTURES

INDICATIONS OF A NEW CULTURE. By ADELAIDE GARDNER. A Comparison and a synthesis of Eastern and Western Yoga in the light of modern investigation. Price 6d. Post 1d.

THE ETHICS OF THE SECRET DOCTRINE. By SIDNEY RANSOM. "Behold the truth before you ; a pure heart ; an eager intellect ; an unveiled spiritual perception. . . ." H.P.B. Price 6d. Post 1d.

THE OCCULT TEACHINGS OF THE CHRIST according to the Secret Doctrine. By Mrs. JOSEPHINE RANSOM. An illuminating view of the Path of Initiation and the Mystery Teaching. Price 4d. Post 1d.

THE SELF AND ITS PROBLEMS. By CHARLOTTE E. WOODS. A very fine Theosophical, Mystical and Philosophical Treatise. Price 2s. Post 4d.

NATURE SPIRITS AND THE SPIRITS OF THE ELEMENTS. By D. N. DUNLOP. Price 6d. Post 1d.

THE SECRET DOCTRINE AND MODERN SCIENCE. By B. A. TOMES. Price 6d. Post 1d.

PERSONAL PSYCHOLOGY AND THE SUB-CONSCIOUS MIND. By ERNEST WOOD. Price 6d. Post 1d.

THE EVOLUTION OF MAN : INDIVIDUAL AND SOCIAL. By PERCY LUND. Price 6d. Post 1d.

THE DISTINCTIVE CONTRIBUTION OF THEOSOPHY TO CHRISTIAN THOUGHT. By Rt. Rev. J. I. WEDGWOOD, Docteur (Sciences) de l'Université de Paris. Price 6d. Post 1d.

THE PERSONALITY OF H. P. BLAVATSKY. By C. JINARAJADASA. (With seven illustrations.) Price 1s. 6d. Post 2d.

MANKIND TO-DAY AND TO-MORROW: or, Progress Towards the Sixth Race. By IWAN A. HAWLICZEK, B.Sc. Price 9d. Post 1d.

THE CONTRIBUTION OF THEOSOPHY TO FREEDOM. By E. WINTER PRESTON, M.Sc. Price 7d. Post 1d.

THE DIRECTION OF THE THEOSOPHICAL SOCIETY BY MASTERS OF WISDOM. By JOSEPHINE RANSOM. Price 1s. Post 2d.

THE THEOSOPHICAL PUBLISHING HOUSE, LONDON.
68 GREAT RUSSELL STREET, LONDON, W.C.1