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HOLISM AS THE RECONCILING PRINCIPLE OF SCIENCE AND RELIGION

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I Universe as a Life--Review of Paradigms--What is Evolution?

Are science and religion, appertaining to quite different domains of thought, hopelessly at variance with each other? Is there no way of reconciling them, except by a kind of prevarication or by violently forcing one into the domain of the other? There certainly are attempts to harmonize them which in essence are forcible coalitions.

But it seems to me there has recently appeared a breakthrough in this problem through a philosophical groundwork providing a unified perspective to the two ways of looking at reality. We are now beginning to recognize that both science and religion have long been understood in a wrong way. We are freeing ourselves of the notion that they can only thrive at the expense of each other. We have come, I hope, to look at them as opposed paradigms, but opposed in a meaningful way.

Science can be said to have long been imperious, unable to look at itself objectively. In order for science to know its own self, quite naturally there is needed another light to be cast on it, and that light I should like to call religious paradigm as against scientific paradigm. (I am using the term 'religulous' rather in a new sense.) Science and religion should no longer be mutually discrediting principles but complementary ways of looking at the same reality. As one integrated thing, science and religion should give us a complete, full picture of reality just as the two eyes can focus on an object.

The issues of science versus religion converge on the issue of life, most typically on the problem of evolution. I think it is a matter for congratulation that there seem to be less people than before who think of the concept 'creation' as if it were inimical to scientific spirit. Die-hard few still maintain a Darwinian, purely mechanistic view of evolution, to be sure, but it seems to me they are growing less confident. A world-wide review or change of paradigms, however quietly, seems to be so irresistibly under way.

The creation-evolution conflict, which in fact is not at all a conflict, comes from the difference of assumptions that we make. By assumption I mean our fundamental attitude toward the universe, or let us say rather, toward the

reality in which we are involved--our philosophy uncritically and naively adopted first of all. We only have the fact of the ascent of life, which no one can deny. The rest is all our interpretations. The question of 'how' or 'why' does not belong to 'objective' facts scientifically handled. It all depends on how we face the world, how we interpret life, how we think of history.

This prolific universe, of which we are undeniably the last product, is to all appearance 'ascending the ladder,' that is to say, producing more and more complex and elaborate (we may call it higher) forms of life. So, without offending either materialists or religious devotees we can say that this universe as a whole is a self-organizing, self-realizing, self-heightening system, with something like a design, purpose or will. (Whether the affix 'self' is justified or unjustified because religious assumption of a transcendent agent is possible, is not in question here.)

This picture of our universe as itself a life will be easy to accept, with the slightest adaptation of our mind. Such a view of the universe will only be bizarre and unacceptable when we have an ungrounded belief that it is a machine. To accept the universe as essentially a life should require no special stretch of imagination. But to many of us who have been taught to believe that the Cartesian extension is the basis of reality, such a picture of the universe would look like a fantasy. Moreover, to people with materialistic bias there is no such thing as life apart from matter, life being merely a state of matter exceptionally complicated.

What should not be forgotten is that life as such is invisible though it does exist, and that it is only living things that are visible. It may be asserted that life is perfectly simulated or simulatable on a computer, so it is nothing but a machine, but it is living things, not life, that can be simulated on a computer.

What must further be admitted as *scientific* truth is that life is something that somehow transcends scientific reasoning. The identity of a living thing is unidentifiable, untraceable *ad infinitum*. Furthermore, for a thing to be living is not just to keep alive, but to die every moment to itself to realize its higher self. The very idea of purpose inherent in life lies outside our formal logic or scientific reasoning. Life, taken as a whole, is an unrepeatable, untraceable historical process, creating itself, improving and heightening itself in the hope of realizing some 'good' in the future. Evolution or the history of life must be viewed from such an angle.

From life's invisibility and unidentifiability, we can make an assertion that life is not a closed system, whether considered at the heart of cosmic reality or actualized in the individual or in human kind. It is not a self-sufficient, self-contained system, but is open to infinity or eternity, a religious concept if you like to call it. Life is oriented to some condition that can be called 'good' but is really unknown to us mankind. This seeming vagueness or mystery might be taunted by positivist 'scientific' thinkers, but I am not speaking of mysticism or even of religion, I am just speaking of a fact as it is given to us. It is this unknown ultimate reality which can give everything material or immaterial its meaning and value which science excludes. If we did not accept that fact, there would be no ground for ethics or guiding principles in our life, and our life would be meaningless. Only if the universe has a direction, our life on earth, too, will have a direction in which to proceed. If, on the other hand, the universe had no such thing, there would be no meaning, no value, no direction in our life, either. Nihilism, therefore, must be thought *scientifically* ungrounded.

Because the concept of life inevitably presupposes mind, life as the basis of cosmic reality may better be called in a compound form 'life-mind.' Evolution, accordingly, can be interpreted as a process of the cosmic 'life-mind' gradually awakening from a dormant state to a higher awareness, realizing its own better self. Evolution as it is usually interpreted as the complication and elaboration of bodily structures is, in this light, only an incidental aspect of the matter. Those who think of evolution only as physical changes would deridingly say, "How can mind exist without brains?" But, as easily seen, they are entrapped in their own scheme of thought. With equal right we can retort, "How can brains come into existence without mind?" Paradox is inherent in the problem of life or evolution, as I have suggested, and without suspending the Aristotelian logic we cannot hope to get at the heart of the matter. "How is seeing possible without the eye?" you can also reasonably say. But in the same breath you can as well say "How can the organ eye come into this world without a will or intention to see?" 'Buddha,' as it is well-known, means 'one who has awakened,' so our duty on earth may be said to be to become a Buddha in accordance with evolution, with no particular religious implication. Scientist, artist, statesman, man in the street, all share one aim: to reach a higher and fuller state of wakefulness.

What I have called 'religious paradigm' must by now be clear, I hope. It

is a paradigm set against the materialistic paradigm of conventional science, centered on the concept of 'life' as an unrefutable heart of reality. It is 'religious' without being specially religious, but then it may be called deeply religious since 'life' reaches into realms too deep to fathom. Religion, then, should be given a new concept, as science should be rid of its old concept. Obstacles to the harmonization of scientific and religious views of the world, then, reside mainly in our being entrapped in their old concepts, in the lack of imagination, in not reviewing our first assumptions.

II What is Holism?--Aristotle versus Modern Science--What's Gone Wrong?

When I speak of harmonizing science and religion, I am not trying to find some common points mutually vanishing into each other and 'weld' the two things together as if there were no joint. For instance, there are attempts to point to the 'weirdness' of the quantum theory to relate it to the esotericness of religion, or attempts to find in the ultimate reality of matter something that could be related to old Oriental philosophies. Those may be wonderful feats in their own right, but I think there must remain some element of dubiousness. Besides, the two ends of the bar remain untouched. When I hear the often-used term 'life science,' I feel uneasy as if I was told about 'religious science.'

I start with the assumption that scientific and religious ways of thinking are diametrically opposite disciplines. How, then, to reconcile them? There I find the concept 'holism' coming to the rescue. Holism is a richly connotative concept. It can be either broadly or narrowly interpreted. For instance, 'holistic paradigm' can be used for what I call religious paradigm. It is noteworthy that the Greek root of this word *holos* also produced 'holy' as well as 'whole' and 'heal.' We say 'make whole' meaning 'heal,' which should suggest that the wholeness implied in 'holism' is qualitative, not quantitative. On the other hand, holism can be a term simply to mean the well-known fact that the whole is something more than the sum of parts.

Holism as a concept (first used by Jean Smuts in 1926 in his *Holism and Evolution*) is very convenient and useful because it can be a concept claimed on both sides. Religion, to shake off its musty flavour and mystifying element, and science, to find a way out of the impasse of reductionism, mechanism and self-confined logic, should find in this concept a great value.

Practitioners in science in their laboratories, especially biologists, may find as yet no *practical* value in it, I should suppose, but if a scientist hopes to be a philosopher too, as certainly he should, he is required to know what it is that he is doing, how and where he is situated in the whole map of human knowledge. Scientists have a very effective and powerful method to probe nature, but they should not be deceived into the notion that there is no other way of looking at, dealing with, and identifying nature.

Molecular biology, for instance, is supposed to deal with the mechanism of life after physicists' way. Because living things do have a mechanistic side, this science is a respectable discipline, and, no doubt, their works are valuable. But because life has a *side* of physical mechanism, it does not follow that life *is* a machine. The matter side or machine side is certainly a necessary condition for life on this earth, but it is not to be taken for the sufficient condition. If this is accepted, as I hope it will be, even on the biological level, we are led to a greater working hypothesis that there are two sides to this universe, the mind side and the matter side. And we are further led to the idea of the Aristotelian *form* and *matter* with its possibility of being revived in our time. Aristotle's world view is said to be biological, while modern science's is mechanistic. Aristotle saw this world in terms of life, even seeing life in inanimate things, while our modern science after Newton has seen the world in terms of mechanism, even reducing life to a machine.

We cannot revive the philosophy of Aristotle in its old form, but can estimate it as a corrective to our scientific paradigm which has long blinded us to something momentous. As is well known, Aristotle postulated four causes to explain the changing phase of the world, whether it is of natural phenomena or of artificial work: formal cause, material cause, efficient cause, and final cause. Formal cause and final cause refer to the design and purpose of this world, that is, its mind side; material cause and efficient cause refer to the mechanistic or matter side of it--what we usually understand as cause. The Aristotelian scheme is called teleology, a concept long despised and discarded by the moderns. It can assume a naive sense and can simply be a mechanism reversed in time, to be sure. But we are required today to construct a philosophical-scientific scheme at least as inclusive and 'holistic' as that of Aristotle. Undoubtedly something has gone wrong since we threw away Aristotle and started modern science some three hundred years ago.

III Do We Know What Life Is?--Aristotelian *Form* To Be Revived

For all that can be pointed out as defective of Aristotle's philosophy to the modern eye, the postulation of *form* and *matter* seems to be as valid today as at any time. *Form*, the design or blueprint for future materialization, is the mind side of the universe as a whole reality. Though it is not visible, being not extended in space, it *must* exist as the most substantial basis of this world. Aristotle contended that it is immanent in individual creatures, as against Plato who maintained it is transcendent. That is not in question to us. Transcendence or immanence, in our eye, is a futile discussion bound by the notion of space. *Matter*, the recipient of *form*, is what I call the matter side of this reality. Our modern science is a discipline to explain the world exclusively from the matter side of it. The problem is that it somehow forgot its own choice and began to take that side for all of reality. Darwinian theory of evolution was a typical case. It thought material and efficient causes were enough to explain life. As if pen and ink and physical exertion were enough to compose a poem!

Still, it is quite understandable that people, whether the moderns or the ancients, find it hard to believe in the *form* side of reality. It is invisible, not extended in space, not immanent nor transcendent, not located anywhere. For one thing, *form* is a concept we are not accustomed to, not taught at school. But it can be translated into an extremely familiar thing called 'life.' Life itself is invisible, not anywhere found; it has to wait for matter or body to make itself visible. We are so accustomed to it that we overlook that fact, or we are unknowingly trained to think in such a materialist way that we tend to think mere complication of matter is enough to produce life. We mistake necessary conditions for the sufficient condition. The existence of life as *form* should be accepted into scientific paradigm. As it is, it is excluded as if it were something weird or superstitious, a discredit to the respectable science.

Form as well as life are not usually taken to be religious concepts, but they are not understood as scientific terms, either. My proposal is that they should be integrated concepts unifying religion and science, that is to say, accommodating both religion and science in a single perspective. Otherwise, the alleged *natural* science would be a study of nature only in its defectiveness and not in its wholeness. We want to know nature in its wholeness and not its

severed or abstracted parts. So long as science and religion are holding an attitude of discredit toward each other, they seem to me certain to suffocate themselves in their respective closets.

And yet, it may be objected, however basic or central life or *form* is to our actual reality, what is not amenable to scientific scheme, what is not observable or measurable, cannot be brought into science. I admit it. But that objection does not justify science's neglecting it as if no such thing *could* exist. Because your telescope cannot catch a far star, you cannot say no such star exists.

Putting *form* aside, life is so familiar to us that we are deceived into thinking we know something or even anything about it. Actually we know nothing about it. We must start with that admission. No illusion is to be allowed here. Then, how can what we know nothing about be asserted to be central or basic to our reality? This is a paradox with which we are challenged, but which we must somehow surmount. As I have already suggested, life is invisible, unidentifiable, not located anywhere, not immanent nor transcendent, not amenable to logical reasoning. Besides, it is inseparable from mind. And yet we know it is not something like a symbol or a name or abstraction. We know it does exist as the very basis of our being. We know we *are* it.

So the fact that we know nothing about it, which we must accept in order to be *really* scientific, does not mean we are utterly left in the dark as if we were imbeciles. We know how it is that we do not know anything about it. We know the nature of our ignorance. We know we only cannot have it as an 'objective' knowledge. Since science, as it is usually understood, is a scheme of 'objective' knowledge, it is in the premise that the problem of life is unmanageable there--excepting, of course, the *matter* (machine) side of living things. Hence the strange ring of 'life science.' As if life were some objectifiable, observable thing!

The problem, then, is how to connect the metaphysical sphere of being with the physical sphere, how to relate the spiritual with the material. It is there that the idea of 'holistic' structure of reality comes to help us.

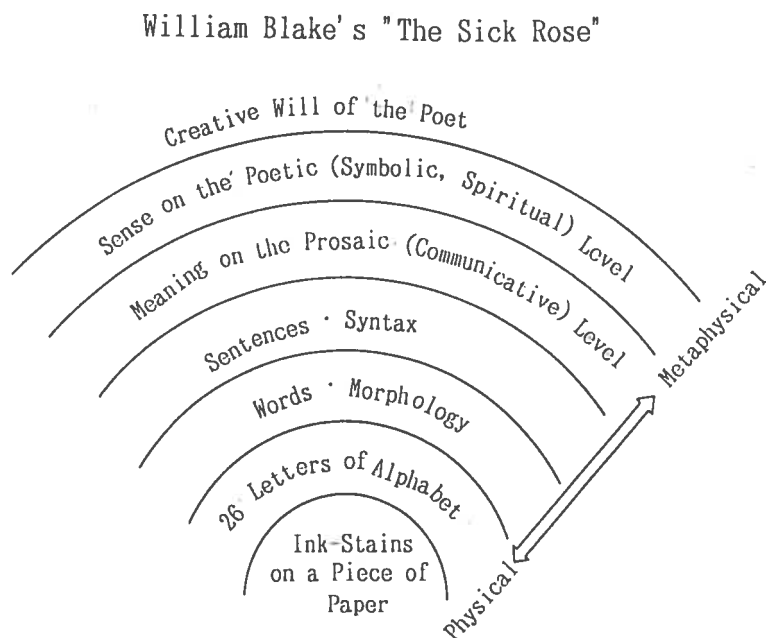
IV Hierarchical Structure of Reality--A Piece of Poetry as Analogue

The whole reality of the world is not a simple extension on a single plane: it has, so to speak, a vertical structure, as was imaged by Thomas Aquinas, by

Leibniz, or pictured in Arthur Lovejoy's *Great Chain of Being* (1936). This is an old truth renewed and reinforced in recent years by the holistic understanding of reality. This is a picture of the universe as itself a living being, with the inanimate matter level at the bottom, then the plant level over it, then the animal level, then up to the human level, and over them all, the spirit level and the level of a Being that transcends human beings. This is a rough sketch, but I think unless we envisage the whole reality in some such picture, we cannot hope to get near the truth. And this picture of the whole reality is well epitomized in a single human being. Hence the correspondence of microcosm with macrocosm.

Besides the human being as a faithful epitome, we find an apt analogue in a work of art (especially a piece of poetry or music), which is as holistically structured as a living thing, in hierarchy.

Now, let us take for an example a short poem of William Blake called "The Sick Rose." By envisaging a piece of poetry (or any literary work or any living being, for that matter) as having such a stratal structure, I hope we can get an approximate comprehension of how *matter* and *form*, the physical and the metaphysical, the material and the spiritual are *gradually* connected to form a whole piece and, by that analogy, how the whole universe is structured.



The Sick Rose

O Rose, thou art sick !
 The invisible worm
 That flies in the night,
 In the howling storm,

 Has found out thy bed
 Of crimson joy,
 And his dark secret love
 Does thy life destroy.

Suppose we were shown a piece of paper with this poem written on it in ink, and asked to investigate it without telling how or saying what it is. What would you do? Suppose for a moment you are a scientist trained exclusively in natural sciences, do not even know the English language, and still less of the existence of such a thing as poetry. You will probably start to investigate what the piece of paper and the ink-stains on it are, what they are made from, how they are composed chemically. Now, you are doing a right thing because you are being faithful to the requirement. People usually do not do that. But nobody has a right to laugh at you. What I am driving at will now be known: an obstinately materialistic scientist--and there are many such--would do that and laugh at any other way of investigation as 'unscientific' and, therefore, trash.

Now, the ink-stain (and paper) is the *matter* side of this poem at the farthest end and most fundamental. This poem could not exist at all without it (except phonetically, which I set aside). Therefore, it is absolutely necessary for the poem to exist. But to be absolutely necessary is not to be sufficient. People, often scientists with materialistic faith, are liable to mistake necessary conditions for the sufficient condition. The ink-spots on a piece of paper do not, by natural selection or anything, begin to compose themselves into a piece of poetry.

The ink-stains are there to compose the 26 letters of alphabet (phonetically considered, they correspond to phonemes, and this may correspond to the the 4 letters of DNA used in the natural world). Letters are nothing in themselves: they are there to compose the English words in your dictionary. But arbitrarily gathered letters do not form English words: there are rules to it called morphology, which letters themselves cannot produce. English words are many but limited in number (which may correspond in the natural world to 20 amino-acids, the fundamental material for organism). Those words go up to compose English sentences. But arbitrary arrangement of words does not make sentences: there is such a thing as syntax, which again words themselves cannot produce (this level may correspond to the level of protein as the basic material for organism, but I do not go farther).

But the syntax level of this poem is still nothing in itself: it must generate a meaning, which yet cannot be produced from syntactical structure itself. First, a prosaic level of meaning will emerge, which is essential to this poem, since without establishing it the poem as poetry will not

appear. But yet, the prosaic (or communicative) level of meaning is not itself poetry. A poem, if it is a work of art, as this particular poem is, must have a poetical level of meaning, which may be called a symbolic, spiritual, or even esoteric level of sense. And there we have at last found the poem in its fulness and wholeness.

But still, a poem does not make itself: there must exist a *maker* (meaning poet) over it all exerting his creative will. And this creative will is the 'formal cause' of this poem, without which it could not come into existence at all, and this (upper) side is the *form* side of the poem. It is where life starts with which the whole poem is informed. As the poet's will it exerts itself like a pressure down through levels toward the *matter* side to bring the whole thing to motion.

This is how Blake's "The Sick Rose" exists as poetry, that is, as a living thing: it exists as a dynamic multi-levelled structure with *form* side and *matter* side, mind side and body side. Or one may call it invisible side and visible side, metaphysical side and physical side. The point to be made is that the more you go down the ladder, the more you can be objective and 'scientific,' but you begin to lose hold of the poem, getting impersonal, until you kill the poem. Conversely, the more you go up the levels, the more you get personal, coming nearer the heart of the poem, but you feel things more impalpable, subtle, unsubstantial.

We may call this manner of existence 'holistic' existence. The lower levels constitute the composing parts of the upper levels: the former is contained in the latter. Hence this fan shape. You can reduce the upper levels down to the lower levels for the sake of observation, but the qualities of upper levels are then lost. Descartes taught in his *Discourse on Method* that if we want to know complicated things we must break them into the smallest possible parts. Called reductionism, that is the method handed down to this day and still dominating us. Holistic way of study teaches just the opposite: in order to know something exactly we must look at it in its wholeness and place it in the whole reality. Now, each level of this diagram, even the lowest ink-stain level, is an autonomous way of existence in its own right. So coming back to the request to investigate it without affording any preconception, you can hit on any level of the hierarchy and believe you are the sole right researcher. A syntactical study or a word-level morphological study without knowing, or ignoring it is a Blake poem, is not only possible but may win you a

fame as a scholar. There *may* actually be not a few scholars who will not accept the existence of such a thing as a piece of poetry. They will not accept it because a work of art is not located anywhere, not a thing extended in space, like some spirit pervading anywhere. Certainly, a work of art is such a thing. A Beethoven symphony certainly exists. But where is it located? Not in space. Not on the full score, nor in the body of people and instruments called orchestra. You may say "in your heart," but you do not mean by your heart anything visible. Moreover, for a thing to be 'objectively' verifiable or mathematically describable so much reassures you that you are allured to find there a basis of existence.

You are free to choose for study any level of existence of the whole reality. But you must not be led to imagine that your choice is paramount, that any other choice is unwarrantable and to be discouraged. Unfortunately this is what often happens in every quarter of our world. The whole truth is found not on either level of the hierarchy, not even on the uppermost level alone, but in and as the hierarchy itself.

V Religion and Science: The Two Sides of One Coin

To interpret this universe as essentially a life, as I have suggested we should, is the same thing as to interpret it as a work of art. There are many philosophers and scientists who maintain this universe is essentially a work of art. Both life and a work of art are something *in themselves* not located in space: they are something within our heart and not 'objectively' knowable. Moreover, both life and a work of art have a holistic structure: they have a hierarchical or vertically complex way of existence, with a physical or tangible side on the one hand and a metaphysical or intangible side on the other. The one is the *matter* side and the other the *form* side. *Matter* is absolutely necessary, but without *form* penetrating it like a pressure from above nothing will come into existence. Both life and *form* are concepts with religious as well as scientific connotations.

Now, it must be remembered that as we climb the ladder of the hierarchical levels, we grow more and more *personal* ('subjective' we may call it but 'personal' may be better, meaning 'more closely related to one's own self'). Down about the bottom of the ladder we can be 'objective,' and therefore 'scientific.' But as we go up the levels we begin to feel the matter more and

more *personally* (or we might say *intersubjectively*) important. Now, one must remember that religion is such a thing. There is no such thing as an 'objective religion,' any more than there is an objective love affair. Appreciation of art is such another.

The spheres of ethics and beauty could, thus, be naturally connected with the 'objective' spheres. Ethics and beauty appear (or *emerge*, to use a key word of holism) as we go up the ladder of being, as subjects to be studied but not as you study physical sciences. These are levels of being not included or expected on the lower levels, just as the the level of the organic being is not included or expected on the inorganic levels, or as the symbolic meaning of a poem is not included or expected on the communicative level. Religion as well as art, belonging to purely *personal* domains, cannot be talked about except metaphorically or in an inspired language, but if anyone, on that account, thinks of them as something dubious, he is under a flagrant delusion.

Such a comprehension of the whole reality as one essentially divine continuum (holism is holy-ism, as I suggested earlier) will be made possible if we reflect on what evolution really is. Evolution, if we interpret it rightly, must be the absolute *and* personal affair at the same time. Being a continuous striving of the universe to realize some 'good,' it presents itself as *par excellence* a religious problem. We are intimately and inextricably involved in it. It is actualized *through* us. We have to have an imagination to find everything, and ourselves most of all, penetrated by the mind of God.