Uroboros, or biology between mythology and philosophy
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PHILOSOPHY-SCIENCE FROM THE BIOTIC STANDPOINT

Amor magnus doctor est
St. Augustinus

1. THE PROCESS OF HUMANIZATION

1.1. HOMINIZATION-HUMANIZATION COMPLEMENTARINESS

As Stefan Zweig expressed the situation of mankind succinctly: There are key moments in history (*Sternstunden der Menschheit*). Because of their paramount importance their events are minimal. Moreover, among them there are those which are greater in calibre than the ones quoted in Stefan Zweig's "Sternstunden der Menschheit". These are the turning points of history. At first glance we can enumerate four major events: first and foremost, the enormous shift of certain communities from food-gathering to agriculture around 8000 BC mainly in Southwest Asia (Mesopotamia). Second, the introduction of the writing system at circa 3500 BC by the Sumerians again in Southwest Asia. Last but not least that tremendous innovation, maybe the greatest in history, once more in western Asia, the emergence of monotheistic religions based on revelation, and the origination of philosophy-science within the realm of the Antique Aegean civilization.

The first cultural revolution brought about a brand-new situation: after having roamed around in pursuit of bare living for tens of thousands of years man eventually took roots in a patch of land he began to call his home, his hearth. This was not simply an economic event as certain Marxist thinkers would like to make us believe. The transformation in question marked a milestone in mankind's humanization process. The very patch of land endowed man – and most certainly still does so – with a spirituality that expresses his most human

characteristics. So then, what is spirituality? Briefly and simply all the capabilities he possesses beside and beyond his biotic reality.

Man's basic reality is biotic. He shares this very particularity with all other living beings of this world. *Livingness*, so far as we know, is a peculiarity of our planet, the Earth. The unfolding of livingness and ultimately the emergence of man as a living being is apparently covered by *evolution. Hominization* is the *biotic*, whereas *humanization* represents the *cultural* (or *spiritual*) aspect of becoming the human being. Hominization and humanization complement one another to bring about the human wholeness. Hominization, or put it in another way, the evolutionary aspect is, indeed, not the beginning of the story. There still remains a lower layer, in the ontological sense of the term, to be tackled; and that is the physical one. Just as with every living thing, man's most fundamental building blocks are of a physico-chemical – i.e. subatomic, atomic and molecular – nature[1].

In addition to the biotic one, like all other living beings, man finds himself surrounded by the physico-chemical environment. Thus briefly stated, in due course he has got three main aspects to be taken into account: the physico-chemical, the biotic and finally the cultural one. If one of these happens to be missing, we will get an incomplete, nay, a shattered picture of man.

1.2. THE ANTECEDENTS OF HUMANIZATION: THE COSMIC AND BIOTIC FORMATIONS

If asked to qualify the phenomenal layers of the world, one can begin by stating that the underlying material stratum, taken up by the physico-chemical sciences, consists of depictable and quantifiable phenomena which can be analysed down to their most fundamental components. Then, starting from these, one can securely proceed to the higher structures. Why? Because a depictable phenomenon, studied within the bounds of physico-chemical sciences is accepted as a material object which in turn assumes in principle the aspect of a static or inert entity.

Matter[2] is an utterly abstract, generic term. It comprises bodies, macromolecules, micromolecules and atoms. Atoms in turn are protons and neutrons

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[1] Compare: J. Ortega y Gasset, Historia como sistema, Madrid 1971 Espasa-Calpe, p. 27, 28, 89, 90; compare also: X. Zubiri, El origen del hombre, "Revista de Occidente" 1964, v. 2, no. 17, p. 147, 149.

[2] The Latin *materia* meant timber, hence stuff of which a thing is made – the Doric Greek 'νεοματος': newbuilt, the Latin 'domus' and English 'timber' are cognate with materia, – subject of discourse or consideration. The sense-development of the word in Latin was influenced by that of the Greek 'υλη', and this became the accepted equivalent in philosophical use – refer: Oxford English Dictionary ("OED"), Oxford 1971 Oxford University Press, v. I, paragraph 240, p. 1745.

bound together in a nucleus, which is surrounded by a 'cloud' of electrons. Individual elements are distinguished by their number of protons; and these together with neutrons appear to be composed by elementary particles known as quarks. An individual quark is not expected to be isolated or observed alone; quarks are always part of composite particles known as hadrons. They, in turn, include the proton and neutron as well as the more exotic pion and kaon. Electrons are part of another family of so-called elementary particles known as leptons. There are flavours of leptons too: the electron, the muon, the tau particle, the electron neutrino, the neutrino and the tau neutrino. All interactions between leptons and quarks can be accounted for by four kinds of force: gravitation, electromagnetism, the strong force, the weak force. The electromagnetic force binds electrons and nuclei to make atoms. The atoms, although electrically neutral, interact through a residual electromagnetic force to form molecules. The strong force binds quarks to make protons, neutrons and other hadrons, and the residual strong force between protons and neutrons is the so-called nuclear force that binds them into nuclei. The weak force is responsible for such phenomena as some nuclear decays and aspects of the fusion process that releases energy from the sun.

The theory that describes the quarks and the leptons and their interactions has come to be called the standard model. An important unifying element of the standard model is the concept of symmetry defined by H.E. Haber and G.L. Kane[3]. The interactions among the various particles are symmetric (that is, invariant, or unchanged) in the face of a number of subtle interchanges.

1.3. THE FURTHEST STAGE OF HUMANIZATION: *MENTALITY*

With the advent of Modern secular European civilization in the fourteenth and fifteenth centuries, the hitherto unitary human *soul* started to be splitted mainly into two halves: while in these new tides of storm and crisis *faith* went on abiding in the *spirit*, *sceptical reasoning* found its dwelling in the *mind*. In spite of the apparent antagonism between these two sides, a stern belief in deterministically running world order remained as the sole crossing. Since religiosity came to be considered anachronistic and therefore an obstacle in one's advancement in society in Europe for more than two hundred years, those who tried hard to dissimulate their religious sensibilities or conventions switched from destiny or fate to determinism. It almost shares fatalism's connotation. Only, contrary to fatalism, determinism has no immediate moral denotation. In view of all that has been said, determinism is not a conception that

[3] Refer: H.E. Haber and G.L. Kane, Is nature supersymmetric?, "Scientific American" 1986, v. 254, no. 6, p. 42-50, refer: 42-44.

has roots in the phenomenal world. We assume that the world is an orderly entirety: cosmos. There is no hard evidence that can document to us whether a cosmic rule prevails or not. We project upon the universe the cosmic rule we think prevails[4].

Presumably it is the human soul – mainly the mind – which holds the lever that transforms chaos into cosmos. Moreover the structure of the cosmos, that is, the universal order is to some extent engraved in our mind. To what extent? If we could ever find the answer to this question, we could seal our destiny! However, the above-mentioned state of affairs does not exclude the existence of the outside phenomenal world. It is this world, after all, that forms the pattern, the prototype of mind images. Thus the basic components of our mind images must correspond with the outside phenomena. In René Descartes' terminology, the structuring capacity that brings forth the mind image is *res cogitans*, whereas *res extensa* expresses the quantitative structuring of our world at large.

1.4. THE DEVELOPMENT OF MENTALITY: *HISTORY*

Herewith we see that the world is neither given to us nor the product of our mental forging. In other words, the world, whatever it is as such is not an aggregate of the sense data we receive from the outside. If it were so, individual differences would shrink to such a degree that they could not be noticed any more. In this case, *history*, which stands for the process of humanization that brought forth for specifically human feature *culture*, could not emerge. On the other hand, the world does not merely consist of my will and representation. If it were so, I could never communicate and thus interact with anyone either contemporaneous or foregone. Unlike other living beings man's constitutive and regulatory inbuilt mechanisms – generally labelled as 'instincts' – are too

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[4] It is interesting to notice that a strong undercurrent in the ontological sense gets again hold over the minds of many contemporary physicists as we can see in the last sentence of Haber's and Kane's above-mentioned passage: "The interactions among the various particles are symmetric". A similar manner of viewing the phenomena we can find in Franck Laloe's subsequent passage: "Physics becomes again deterministic (...) The random aspect of the result, yielded by a measurement, stems from the illusion about the way we perceive the result we obtain (...) Indeed it is not the first attempt to incorporate experimental data or theories into different conceptual or philosophical frameworks (...) In the quantic world there are types of correlation completely different from those we are accustomed to in our daily world, correlations which do not have anything to do with the fluctuations of a past common cause. It is not seldom that we come across unexpected and interesting phenomena lying hidden in simple and known equations just like the ones forming the basis of quantum mechanics. What surprises, then, does the future bear in store for us?" – F. Laloe, Les surprénantes prédict ons de la mécanique quantique, "La Recherche" 1986, novembre, p. 1367, 1368.

few and weak for his survival. This, in fact, is the key to the human problem in general. History is the whole story that mankind has attempted and achieved in order to substitute for that which it lacks biotically. History seems to some people, including myself, to be a rather particular continuation of evolution. Unlike evolution it is driven by the will of reason and sentiment, which after all has not got an evolutivo-genetic aspect. Over and above this, the most basic features of history depend still on the genetically encoded information-gathering and cognition-forming capacities stretching over a tremendously vast temporal – i.e. evolutionary – scale.

Until now our discussion wheeled about three concentric circles: the physico-, bio-, and anthropospheres. Although the innermost centre belongs to the physicosphere, it is, at least, not feasible to explain away the subsequent ones by depending only on the physicosphere centre. On the other hand to obtain a full picture of the world, including the bio- and anthropospheres, we must primarily get deep into the core of the first 'circle'. By slowly moving onto the other two circles and studying them too, we may gradually work out a general picture of the world. Nevertheless, every systematic general world picture, especially one that stems from a scientific basis, takes one of these three as it epicentre. In addition, a world picture with a positive countenance assumes as its basis a corresponding phenomenal sector of the whole circle accepted as the focal point.

World picture, which in fact is the English rendering of the German *Weltbild*, "is our entire knowledge about the world, particularly the knowledge we get from natural sciences concerning the constitution and structure of as well as the forces and laws prevailing over nature; and as a consequence is our unitary and vivid (*anschaulich*) view of everything that we call in turn cosmos"[5]. So we can rightly reach the conclusion that world picture is the total synthesis that can be made of all observable as well as hypothetical facts. In this sense world picture is synonymous with cosmos. Consequently cosmos is that total synthesis we construe out of the fact we can perceive and those we could conceive by analogy of the already perceived ones. There is not one unified global world picture. Any world picture throughout the ages displays the mental attitude of the universally reflecting thinker – the most systematic and logic-bound one is known as philosopher-scientist. Eventually the philosopher-scientist affects the very culture he has grown out of. On that account, any such culture or society which has been endowed with a philosophically tinted world picture I qualify as a *philosophized culture* gets the upper hand in determining the whole development of the humanity.

[5] J. Hoffmeister, Wörterbuch der philosophichen Begriffe, Hamburg 1955 Meiner, p. 633.

In fact each culture permeates its constituent members with a certain set of values which altogether form the world view of every individual belonging to that culture. It was only with the advent of philosophy-science that – especially the Occidental – man began vehemently to research whether he could establish a concordance between his value judgement based on the cultural background and the factual reality.

1.5. HISTORY'S SEQUENTIAL ANTECEDENTS: *FORMATION* AND *EVOLUTION*

So then, when and where did this so-called factual reality begin? According to our present-day knowledge, the universe, which represents the totality of all that has been, is being and is expected to be given to us, presumably came into being so about fifteen to twenty billion years ago as a result of a huge explosion, the *big bang*. This explosion was followed by a steady expansion lasting for fifteen to twenty billion years and that is still going on.

All existence sprang from an initial homogeneous puree void of any organization – i.e. the level of organization was zero. The array of existence comprises first of all the simplest building blocks of subsequent gaseous, liquid and corporeal beings. As we have seen, the observable universe may have emerged from an extremely tiny region that experienced inflation and then populated the resulting cosmos with particles and radiation created from the mass-energy of the vacuum. An ancient question emerges in a new context: how did that tiny region come into being from which the observable universe emerged? Is it possible to understand the creation of a universe *ex nihilo*?

Current scientific speculation about "the ultimate origin of the universe" appears to have begun in 1973, with a proposal by Edward P. Tryon that the universe was created from nothing as a spontaneous quantum fluctuation of some pre-existing vacuum or state of nothingness. Central to the conjecture was a hypothesis that the universe has zero net values for all conserved qualities. Accepting the conventional wisdom of that time, Tryon believed that baryon number was strictly conserved, hence that a universe created from nothing would contain equal amounts of matter and antimatter. He therefore predicted equal numbers of matter and antimatter galaxies, which was then marginally consistent with observations simply because ground-based data remained inconclusive of distant galaxies.

It is obvious that inflation greatly enhances the plausibility of creation *ex nihilo*. There remain, however, profound questions about which one can only speculate. At what stage did the primordial quantum fluctuation occur? What is meant by a vacuum or state of nothingness prior to our universe? What is meant by laws of physics predating the universe? These and other questions

lack compelling answers, and may well defy resolution. It is nevertheless interesting that quantum uncertainties suggest the instability of nothingness, in which case inflation might have converted a spontaneous microscopic quantum fluctuation into our cosmos[6].

Thus, the 'de-velopment', the 'un-folding' of organization from 'disorganization' in the most general, universal term is the *cosmic evolution*[7]. It is presumed to take its start from *pristine primordium* (chaos)[8] to achieve a mature order (cosmos)[9]. Hence we see that the farthest away background of our 'human-beingness' is the cosmic process. This background we share with everything that there is. Except, in cosmic terms, a tiny segment of the universe, everything that there is, has to be of physico-chemical texture. Now, here comes the crux of our problem: our 'human-beingness' consists of three ontic layers, the physico-chemical, the biotic and finally the psycho-cognitive one respectively. In spite of the fact of our supposition that every layer ontically depends on the foregoing one, each is autonomous in its own right[10]. Since the 'human-beingness' covers the three consecutive layers, it is the richest and most complex of entities we have come to know so far.

2. THE TOP STAGE OF HUMANIZATION: THE EMERGENCE OF *PHILOSOPHY-SCIENCE*

The three-layeredness of the human being misled the greater part of the philosophers or philosophizing thinkers, from the dawn of Modern times, and especially since René Descartes until the first half of the present century.

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[6] E.P. Tryon, Cosmic inflation, in: R. A. Meyers, Encyclopedia of astronomy and astrophysics, San Diego CA 1989 Academic Press, p. 155-157.

[7] Evolution, stems from the Latin word *evolutio* which means 'unrolling of a book'. More generally *evolution* means 'the opening out or unfolding of what is wrapped up (for example, a roll, a bud and so forth); in a figurative sense, the spreading out before the mental vision (of a series of objects); the appearance in orderly succession of a long train of events'. In short: "The series of things unfolded or unrolled" – "OED", v. I, p. 911. Thus we see that *evolution* as a term denotes a process running from simplicity toward complexity. Although this state of affair reflects a meaning of progressiveness or onward motion, in short positiveness, evolution as it is used in the current Darwinian hypothesis appears value-free.

[8] Chaos, in its Greek origin 'το χαος', means dark immensity before there was anything, infinity, boundlessness – refer: A. Bailly, Dictionnaire grec-français, Paris 1963 Hachette, p. 165.

[9] Cosmos ('κοσμος'), 'orderliness', 'establishment'; from Pythagoras onward 'world', 'universe' – refer A. Bailly, op. cit. , p. 1125.

[10] Compare: Nicolai Hartmann, Zur Grundlegung der Ontologie, Berlin 1941 W. de Gruyter, p. 239, 240; also: Nicolai Hartmann, Teleologisches Denken, Berlin 1966 W. de Gruyter, p. 5, 6; and also: Emil Ungerer, Die Wissenschaft vom Leben, Band III: Der Wandel der Problemlage der Biologie in den letzen Jahrzehnten, München 1966 Alber.

They assumed that the puzzle surrounding the human could be solved by breaking his structure to its presumptive minutest building blocks. They tried to explain everything by taking the most elementary particles. According to their assumption every structure was a more or less complex outcome of a machine-like interplay of these basic elements. Thus as long as we remained on rational grounds and empirical evidence we could offer a tenable account of all sets of event occurring in nature – and also in society, being an integral part of nature. So far as a case was analyzable to its basic elements, it could be considered to be apt to investigation, and thus contain nothing mysterious. Rational attitude, as it was accepted, barred us from taking any other way of investigation as this implies that there may be other ways of asking "how?" and getting a 'causal' account. Moreover the results of our investigation had only one legitimate manner of being expressed, and that was a normal and preferably numerical formulation.

In contrast to these physicalist or mechanicist reductionists, another group of philosophers – spiritualists and idealists – chose man's spiritual aspect or his closely related psycho-cognitive features, as their focal point. Some among them see mankind and through it the whole world as a reflection of their own mental faculties – subjective idealists and solipsists.

All of these philosophical trends and their originators to be sure brought forward a certain aspect of the truth. There are, nonetheless, those outstanding paradigm-makers, such as Plato, Aristotle, Galileo Galilei, Immanuel Kant, Charles Darwin and Albert Einstein, rather who furthered humanity's only respectable addiction, the one that urges us to pursue and research the truth. Above all it was Plato who composed for the first time virtually the entire array of the principal problems on which philosophy-science still works for more than two thousand years. And Aristotle was the first to set out to define the main features of the scientific research mentality, known thenceforth as methodology[11]. The third milestone in philosophy-science's long adventure is Kant. He prepared the groundwork of the philosophy-science system which has prevailed throughout recent history. This system sprang mainly the Newtonian version of classical mechanics and comprised as many contemporaneous achievements as possible. Accordingly, in the Kantian sense, a system

[11] In Alfred North Whitehead's view the two founders of all Western philosophico-scientific thought are Plato and Aristotle. Of these two founding fathers not only of the European, but the whole Western thought, it was after all Plato who levelled the ground whereupon philosophy and her shoot were going to grow and flourish. "The safest general characterization of the European philosophical tradition", however, "is that it consists of a series of footnotes to Plato", A.N. Whitehead, Process and reality. An essay in cosmology, Cambridge 1929 Cambridge University Press, p. 33.

moulds all, at first sight, disparate, but nevertheless intrinsically affiliated achievements into a cohesive and coherent whole. Such a cohesive and coherent intellectual whole he called an *architectonic structure*.

"By an architectonic structure", says Kant, "I understand the art of constructing systems. As systematic unity is what first raises ordinary knowledge to the rank of science, that is, makes a system out of a mere aggregate of knowledge, architectonic is the doctrine of the scientific in our knowledge, and therefore necessarily forms part of the doctrine of method.

In accordance with reason's legislative prescriptions, our diverse modes of knowledge must not be permitted to be a mere rhapsody, but must form a system. Only so can they further the essential ends of reason. By a system I understand the unity of the manifold modes of knowledge under one idea. This idea is the concept provided by reason – of the form as a whole – in so far as the concept determines *a priori* not only the scope of its manifold content, but also the positions which the parts occupy relatively to one another"[12].

So, according to Kant, an architectonic structure is a *system*. And after all, system is the most complex, most interwoven mental texture man has ever composed. At the one end, even if indirectly, it reaches the shores of *experience*, while at the other it draws its connecting and regulating capacity from its own *'a-prioriness'*. Thus, the system idea is, so to say, the farthest-ranging, most comprehensive intellectual network we can think of.

Science starts from *experience*, more specifically from experimentation, and attains its ultimate grade of generalization and abstraction at the theoretical level. Beyond that is the domain of *metaphysics* of which the constituting element is a system. So we see that system transcends the domain of science. With these wide-ranging connecting, regulating and finally transcendental characteristics in store, a system displays to us an illustrative and comprehensible picture of the world. Illustration and comprehension necessitate each other. While illustration has its roots in the empirical realm (a posteriori), comprehension's principal components emanate from mental sources (a priori).

Everything there is, is a case. We are born straight into a world of cases. There is absolutely nothing which might not be considered as a case. Whether it is a falling stone, an electron revolving around a nucleus, something happening in the heavens, the twittering of a bird, a wounded reindeer's slow, agonising death or a person's feelings of gnawing guilt, shame, doubts, or the composition of a melody... of all these cases[13] some are concrete but rather unre-

[12] I. Kant, Critique of pure reason, translated by N. Kemp Smith, New York 1965 St. Martin Press, p. 653 (A 832/B 860).

[13] Case from Latin '*casus*', '*cassus*': 'fall', 'chance', 'occurrence', 'case'. 'Cassus' is the noun form of the verb '*cadere*': 'to fall' – refer: "OED", v. I, paragraph 144 p. 346.

peatable, apparently happening fortuitously, which we call 'events'[14] or 'happenings'. Some others are similarly concrete, but apt to repeat seemingly regularly. These we may specify as *'facts'*. And those very facts with which we deal out of the urge for knowledge constitute the subject matter of our scientific researches.

Our daily lives pass through a torrent of events. Although many of the similar events seem to us the same and so render life routine, they are in fact usually one-offs. As already said, events do not recur in exactly the same manner. And those which do, as mentioned heretofore, are facts. Indeed those events we assume to recur in nearly the same manner are mostly contrived, and so their usual *milieux* of occurrence are laboratories where we try to replay certain aspects and segments of nature. Where as *events* in daily life supply us with our *experiences*, *facts* from the basis of the researchers' *experimentations*. Bygone experiences prepare us to encounter new events. And the more experiences we live through the less we will get astonished by coming across new and unexpected events and so be prone to commit errors out of sheer ignorance. The bulk of experiences one has gathered throughout a lifetime forms that person's life experience (what is called *Erlebnis* in German). It is composed out of the already encountered events as well as of presuppositions and ultimately of beliefs. The last mentioned ones are the building block of culture[15]. Right from the outset of our lives we perceive almost everything through the pane of beliefs. They are the guidelines which we follow in order to find out the right path. Beliefs replace those inborn mechanisms, the principal driving forces in other living beings which, in turn, we lack to a great extent. Contrary to the *inborn mechanisms*, and by extension to the highly organised animal's *instincts*, we do not find *beliefs* really made. They are the product of man's historical wearing endeavour. In the formation of beliefs, man's mental capacities play a role alongside his experiences.

In this process of formation of the beliefs, which of these two contenders bear the main burden: the mental capacities or the experiences? This has been the question that caused the principal dissent between philosophers since Plato's days down to the present age. While on the one hand there have been those defending the priority of mental capacities over the experiences, there have been philosophers, on the other hand, arguing in favour of the

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[14] Latin '*eventus*': 'occurrence', 'issue', from the verb '*evenire*': 'to come out', 'happen', 'occur', which derives from '*e*': 'out' and '*venire*': 'to come' – refer: "OED", v. I p. 907; well understood, while defining hereby 'case', 'event', 'fact', I deviated somewhat from their vernacular as well as specialised terminological generally accepted usages. In other words, I modified their meanings.

[15] Compare: J. Ortega y Gasset, op. cit., p. 115.

precedence of experience. To my view, neither group is right. The steady interaction between mental capacities and experiences bring forth the belief. Accordingly they can be seen as complementary to rather than adversaries of each other. There can be no belief without the appropriate experiences, and we cannot form experience if we lack the belief that enables us to link together the relevant events. Thus we receive the sense data and turn them into impressions that, in turn, we work up into events, the patchy pictures out of which we ultimately build a whole *'tableau'* of the world. Yet, we will never know to what degree the factual world corresponds even, if it does all to our mental *'tableaux'*. It is indeed a dramatic fact to admit that the *'tableaux'* we work out depend on the constitution of the human sensory receptivity and mental elaboration. They are, so to say, hammered out with our very own tools. We 'see', in repetition of Kant's imagery, the world through our own 'eyeglasses'. Without sensation (*Sinnlichkeit*) no object (*Gegenstand*) and without intellect (*Verstand*) no thought of any object (*Gegenstandsgedanke*)[16].

So if there is no positive evidence about any direct correlation between the so-called essence of sense object existing out and inside ourselves and the corresponding mental pictures we fashion out of them, how does it come that we are still able to establish a working communion with others as well as with our own selves? Are we after all involved in a dialogue of the deaf; do we talk about seemingly the same things but with completely different implications? "No!" said most of the leading thinker-researchers from Plato, and even before him, from time immemorial until Kant. According to them the world of facts runs a parallel course to that of our feelings and thoughts. Just as Descartes formulated this viewpoint so succinctly, factuality – in Descartes' terms, *res extensa* – and mentality – *res cogitans* – are the two equivalent aspects of the one and the same world-order, rooted in Divinity.

To a minor extent it was first Aristotle in the fourth century BC who shook systematically this age-old belief which finally endured a mortal blow at the hands of Kant in the eighteenth century AD. This overthrow of ranks with the achievement of Nicholas Copernicus and Galileo Galilei in demolishing the doctrine of the universe which hold that the Earth stood, in particular, spiritually, at the centre of world-all; and the achievement of Charles Darwin overturning the conviction that the human is a living entity occupying, more or less in a celestial sense, the optimum abode, cut off from everything else. These four thinkers are the forerunners out of whose mental schemes the Modern

[16] Refer: P.-H. Koesters, Deutschland, deine Denker. Geschichten von Philosophen und Ideen, die unsere Welt bewegen, Hamburg 1981 Stern, p. 82.

West European mentality was carved that, in turn, eventually rocked all the customary, conventional social textures worldwide.

With Kant we began to draw our eyes from the physical nature onto our minds[17]. Because the most age-old universal, absolute and highest unifying principle, God, has been withdrawn from the philosophico-scientific context, no chance remains anymore whereby we could affirm anything about the innermost true fabric of the physical bodies. There are no criteria that could empirically introduce these bodies to us. For instance to what extent do our sensory mechanisms and mental structures thanks to which we also produce the most complicated devices that lead us deeper and deeper into the core of nature, make us know those manifold cases occurring in and outside ourselves? This question is apt to lead us to a greater and more dangerous variety of new questions. Obviously, we can maintain that there are no clear-cut, empirically testable yardsticks that are capable of demonstrating to us how well or, better said, to what degree we can understand each other's feelings and thoughts. So, Relativism and Secularism which set in at the advent of Modern times, involved into disbelief, irreligion, cynicism and ultimately solipsism, toward the close of the second millennium, humanity's most crisis-laden period wherein man – particularly the Westerner – turns over a brand new leaf in his history. In the past even during the most critical times, societies master minds had certain reliable touchstones with regard to which they were nonetheless capable of evoking and judging short as well as long-term problems surrounding them, whereupon they could think well ahead of the period they were living in. Today, in contrast, the crunching problem is that we possess neither epistemological, thus, nor, most important, ethical touchstones ready at hand.

From all tedious and involved arguments we are led to the conclusion that the most urgent need of the present day is the formation of a new system of philosophy-science. In any event, a serious attempt to construct a new system, which tries its best to take into account the most essential requirements and necessities of our age, must start off from the few remaining valid elements of the previous one. In this context we conceive that Kant's ingenious differentiation between the transcendent and the transcendental should be considered as a very appropriate basis to set out with the aim of a fresh system of philosophy-science, with metaphysics again as its core.

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[17] In a prior paper – T. Durali, An introductory essay on the biological foundations of a priori cognitive faculties, in: Proceedings of the Sixth International Kant Congress, Washington 1989 The University Press of America, p. 455-469 – I tried to examine whether the Kantian assumption about the *a priori cognitive faculties* can be biologically founded.

The term *metaphysics* evokes mainly two meanings. The first can be accepted on par with *culture*, while the second overlaps with philosophy as such. It is not altogether erroneous that as a sociocultural being the human outsteps the bare physical frame underlylng and surrounding him. In this sense beside a physical, he is also a metaphysical being. These two features of his being are, as already indicated, not in complete isolation from each other. They do not cross each other out. On the other hand they are mutually irreducible. So then, what kind of link does exist between these two aspects of the human-beingness? Briefly stated it is over the *biotic* bridge that *physicality* joins the *metaphysicality* in the *human reality*. While it is the *life science*, i.e. *biology* that deals with the *ontico-physicality* of the human factual reality, *metaphysics*, as an epistemico-logico-ethical endeavour, studies, evaluates and takes care of man's truest attributes lying beyond his physicality. Thus the name of this gradually growing 'marriage' between *metaphysics* and *biology* appears to be the *philosophy of biology* that might eventually lead us anew to a universal system, one of philosophy-science[18].

Due to its almost limitless expressive peculiarity, *metaphysics*, the midpoint of philosophy, always faces the risk of slipping away from its firm empirical ground into boundless speculation. Hence it can eventually be dragged into far off confines of mythico-mystical discourses where it will, just as Kant indicated, engender antinomies, and so lose all its philosophico-scientific legitimacy. Such a metaphysical order I call *speculative*[19] *metaphysics*. However, the special systematization attempted, whereby the explanatory power is ab-

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[18] Compare: T. Durali, Preliminary remarks on the philosophy of biology, "Hamdard Quarterly Journal of Science and Medicine" (Carachi) 1984, v. 27, no. 3, p. 3-36; T. Durali, Biyoloji felsefesi [Philosophy of biology], Ankara 1992 Akçag.

[19] Speculate (Latin: *specular*i) initially meant to watch, to spy out, examine, to observe especially from a height. Subsequently it came to mean to observe or view mentally; and its noun form *speculation* (Latin: *speculatio* from *speculum*: 'mirror') began to denote a 'conjectural' or 'baseless consideration' which in turn attributed to the term a pejorative sense. For St. Augustine (354-430) 'speculation' was synonymous with 'contemplation' and 'meditation'. Boethius (480-524), on the other hand, used it as a rendering of the Greek 'theoria'. For St. Thomas Aquinas (1225-1274) to see through a mirror ('*speculum*') meant to conceive the cause by perceiving the effect. Thus 'to speculate' was in his view to think and know God by contemplating His creation the nature – refer: "OED", v. II, p. 2952; also: J. Ferrater Mora, Diccionario de filosofía, Madrid 1976 Edhasa, p. 146; furthermore: J. Hoffmeister, op. cit., p. 570. As with almost all other philosophico-scientific terms, *speculative* got its definite modern version from Kant: "Theoretical knowledge is speculative if it concerns an object or those concepts of an object, which cannot be reached in any experience. It is so named to distinguish it from *the knowledge of nature*, which concerns only those objects or predicates of knowledge which can be given in a possible experience" – Critique of pure reason, A 635 or B 663. Meanwhile in my paper *speculative* is used in the above-mentioned Kantian sense.

sorbed from empirical grounds, and in particular, from a scientific domain, I qualify as *non-speculative metaphysics*. This, in turn, forms the very science through which it receives its 'livelihood', that is to say, the raw material it evaluates and elaborates on.

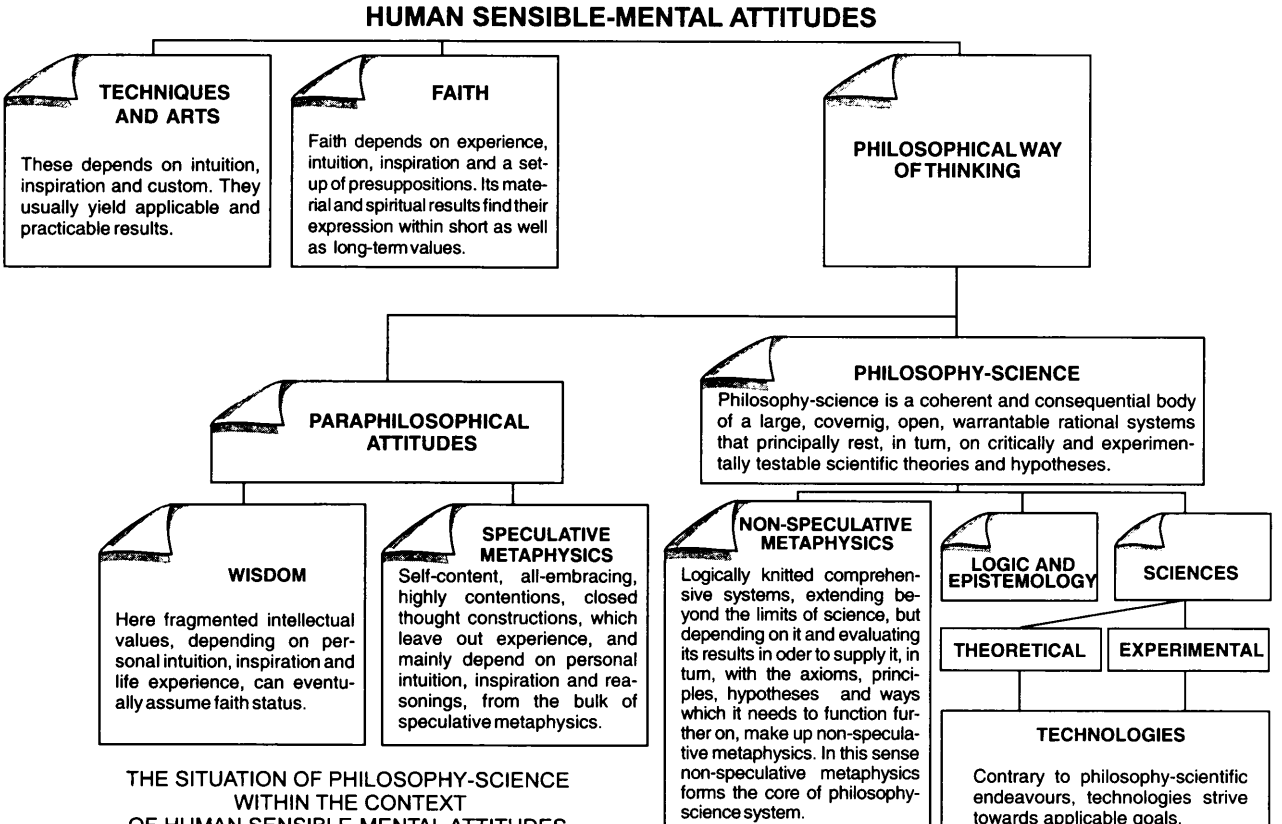
Figuratively speaking we can liken a philosophy-science system to an organism wherein the non-speculative metaphysics may represent the central analysing, evaluating and ultimately synthesising power, so to say, the brain of the system whose outstretching sensory organs are the scientific disciplines. Consequently science lacking non-speculative metaphysics would appear like eyes, ears, nose, fingers and feet abandoned by the brain, and non-speculative metaphysics, missing the relevant disciplines, were to resemble brain without the apposite sensory organs. Therefore science is the sine qua non condition of non-speculative metaphysics and vice versa. Both form that couple which I name philosophy-science. Its first and foremost objective is to establish and safeguard a world order, both in the mental as well as material sense, built upon reasoning, experimentation, and as a result of these, cognition.

In contrast to the world order that ensues from the mechanicist-materialist world view which as a matter of fact is derived from the philosophy based on physics, the emerging new one will grow out of the organicist world picture, depicted so succinctly by José Ortega y Gasset as *razón vital* that in turn can only be the product of the philosophy of biology.

Present day man, an outgrowth of the Modern mechanicist-materialist Western (West European-American) civilization, has lost his "*vital*" side, and nothing remains to him any more than to cling except his mutilated *razón*. The biotic developed into the human life after it evolutively brought about reason. Thus human life and reason are coupled to one another; you cannot think the one by omitting the other. Reason and the ensuing knowledge are derivations of life. We can, however, approach life and think of it only through our reason. In order to be in a state to *cogitare* Descartes had first to be *sum*. But what does *sum* serve him if he had no *conscientia*, and subsequently no power to *cogitare*? A future system of philosophy-science that will strive to grasp man and the world respectively in their integral form, must give life as well as reason their due. In this case, since life, not in its biotic form of course, overrides many areas of reason, a comprehensive system of philosophy-science should never break its relations with domains lying beyond its confines. The most important of them is, no doubt, religion. While the system of philosophy-science works with confirmable beliefs – i.e. hypotheses – and converts them into knowledge, religion has no need of warrantable beliefs, because it is the principal signpost whereby you can distinguish good from evil, right from wrong,

bliss from suffering, and is itself not a knowledge-forming system. Whereas a system of philosophy-science should be considered on principle as worldly, time and space-bound, secular, hypothetical, regulative, analytical, experience-dependent, explanatory, knowledge-seeking; religion ought to be seen as absolutist – initially you are free only to accept it or not – divine, holy, integrating, instructive, intuitive, perceptive, value-laden, eternally valid, caring and devout. Since religion stands on life's side it has got intermingled with daily affairs and so sits very close to human practices from the very distant past onward.

In contrast, the system of philosophy-science as a tradition that has emerged comparatively recently in history appeals to reason, and therefore falls quite far apart from the human heart and soul. Both directions, however, embrace man in his totality. This will be the more so as the new system of philosophy-science takes biology and the philosophy of biology as its basis, while religion already runs through life. In order to find back our lost human integrity both must proceed on parallel lanes. It is in our highest interest not to confuse the one with the other, which confusion has driven us humans so many times to disaster. While on the one hand religion provides us, as beings conscious of our finiteness, with the most intrinsic moral principles and guidelines, in other words, our elixir of life; philosophy-science, on the other hand, functions as the supplier of the necessary systematic knowledge of our biotic groundwork and of the mechanism of the universe.



THE SITUATION OF PHILOSOPHY-SCIENCE
WITHIN THE CONTEXT
OF HUMAN SENSIBLE-MENTAL ATTITUDES