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**PHILOSOPHY-SCIENCE  
FROM THE BIOTIC  
STANDPOINT**

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Amor magnus doctor est.  
St. Augustinus

## I. THE PROCESS OF HUMANIZATION

### A. 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<sup>1</sup>.

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.

#### B. 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 analyzed 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*<sup>2</sup> is an utterly abstract, generic term. It comprises bodies, macromolecules, micromolecules and atoms. Atoms in turn are protons and neutrons 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 muon 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<sup>3</sup>. The interactions among the various particles are symmetric (that is, invariant, or unchanged) in the face of a number of subtle interchanges.

### C. 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*, *skeptical 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 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<sup>4</sup>.

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.

#### D. 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 the 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 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 lack 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 center belongs to the physicosphere, it is, at least, not feasible to explain away the subsequent ones by depending only on the physicosphere center. 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 circle 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, take one of these three as it epicenter. 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"<sup>5</sup>. 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* or society. Furthermore, a philosophized culture gets the upper hand in determining the whole development of the humanity.

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.

#### E. 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 preexisting vacuum or state of nothingness. Central to the conjecture was a hypothesis that the universe has zero net values for all conserved quantities. 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<sup>6</sup>.

Thus, the 'de-velopment', the 'un-folding' of organization from 'dis-organization' in the most general, universal term is the *cosmic evolution*<sup>7</sup>. It is presumed to take its start from *pristine primordium* (chaos)<sup>8</sup> to achieve a mature order (cosmos)<sup>9</sup>. 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<sup>10</sup>. 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.

## II. 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. 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 contained 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 mechanist reductionists, another group of philosophers – spiritualists and idealists – chose man's so-called 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<sup>11</sup>. 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 moulds all, at first sight, disparate, but nevertheless intrinsically affiliated achieve-



ments 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 of 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"<sup>12</sup>.

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, agonizing death or a person's feelings of gnawing guilt, shame, doubts, or the composition of a melody... of all these cases<sup>13</sup> some are concrete but rather unrepeatable, apparently happening fortuitously, which we call 'events'<sup>14</sup> 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. Whereas *events* in daily life supply us with our *experiences*, *facts* form 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<sup>15</sup>. 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 organized animals' *instincts*, we do not find *beliefs* ready 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 ever 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 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 at 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*)<sup>16</sup>.

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 run 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 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 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<sup>17</sup>. 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 structure 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 clearcut, 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, evolved into disbelief, irreligion, cynicism and ultimately solipsism, toward the close of the second millennium, humanity's most crisisladen 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 information 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 the 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.

The term *metaphysics* evokes mainly two meanings. The first can be accepted on par with *culture*<sup>18</sup>, while the second overlaps with philosophy as such. It is altogether erroneous that as a sociocultural being the human outsteps the bare physical frame underlying 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.

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*<sup>19</sup> *metaphysics*. However, the special systematization attempted, whereby the explanatory power is absorbed from empirical grounds, and in particular, from a scientifically 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 analyzing, evaluating and ultimately synthesizing 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 mechanistic-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 mechanistic-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

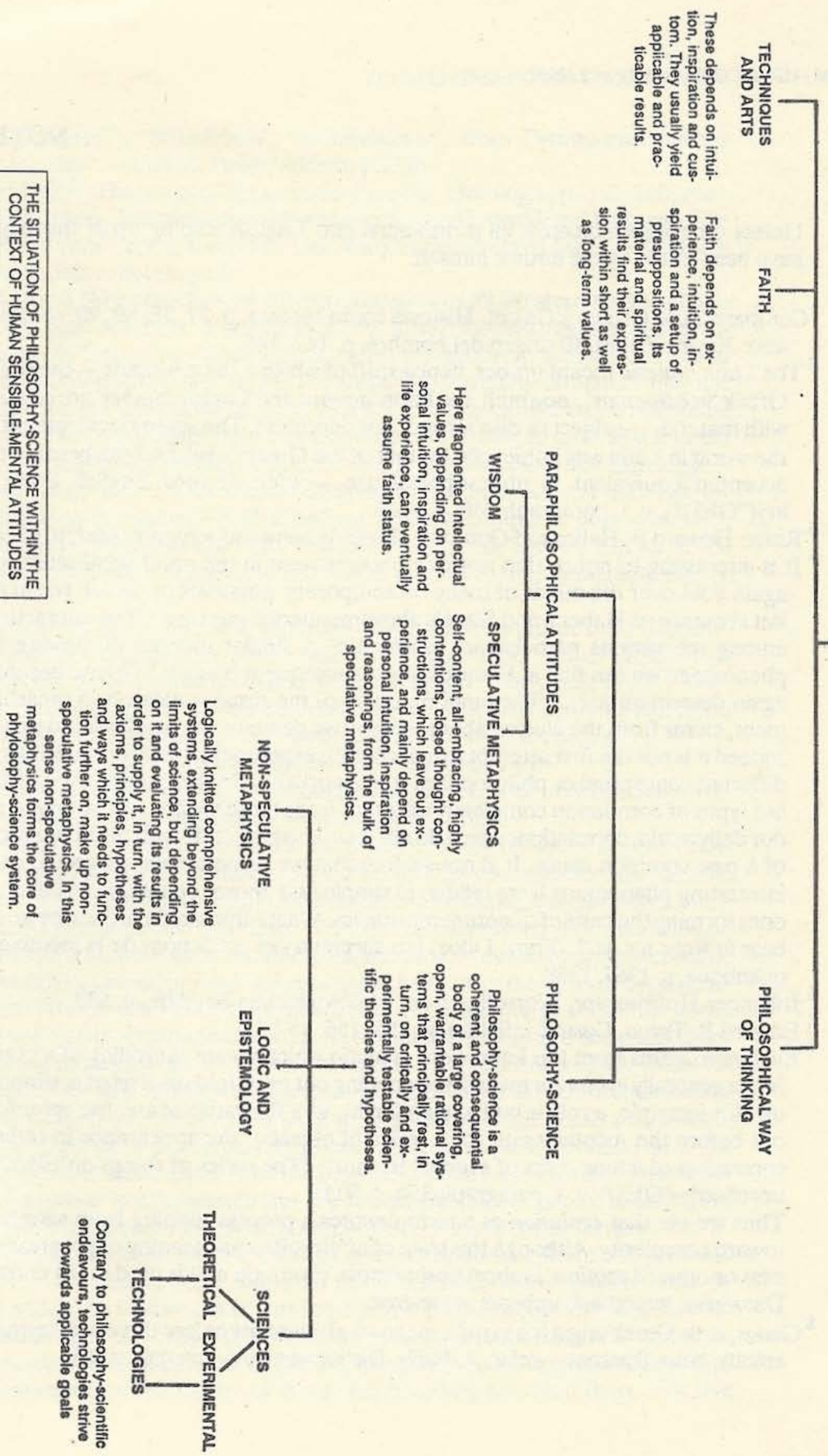
their due. In this case, since life, not in its biotic form of course, overrides many areas of reason, a comprehensive system of philosophy-science should never break its relations with domains lying beyond its confines. The most important of them is, no doubt, religion. While the system of philosophy-science 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, preceptive, 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.

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# HUMAN SENSIBLE-MENTAL ATTITUDES



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

Unless otherwise indicated, all translations into English coming up in this paper have been made by the author himself.

- <sup>1</sup> Compare: José Ortega y Gasset, *Historia como sistema*, p. 27, 28, 89, 90; compare also: Xavier Zubiri, *El origen del hombre*, p. 147, 149.
- <sup>2</sup> The Latin *materia* meant timber, hence stuff of which a thing is made —the Doric Greek *νεομοατος*: newbuilt, the Latin *domus* and English *timber* are cognate with *materia*, —subject of discourse or consideration. The sense-development of the world in Latin was influenced by that of the Greek *υλη*, and this became the accepted equivalent in philosophical use —refer: Oxford English Dictionary ("OED"), v. I, paragraph 240, p. 1745.
- <sup>3</sup> Refer: Howard E. Haber and Gordon L. Kane, *Is nature supersymmetric?*, p. 42- 44.
- <sup>4</sup> 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 abovementioned passage: " The interactions among the various particles are symmetric" A similar manner of viewing the phenomena we can find in Franck Laloe's subsequent pasage: " 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?" —Franc Laloe; *Les surprenantes prédictions de la mécanique quantique*, p. 1367, 1368.
- <sup>5</sup> Johannes Hoffmeister, *Wörterbuch der philosophischen Begriffe*, p. 633.
- <sup>6</sup> Edward P. Tryon, *Cosmic inflation*, p. 155, 156, 157.
- <sup>7</sup> *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, paragraph 354, 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.
- <sup>8</sup> *Chaos*, in its Greek origin *το χαος*, means dark immensity before there was anything, infinity, boundlessness —refer: A. Bailly, *Dictionnaire grec-français*, p.165.



- <sup>9</sup> Cosmos (‘κοσμος’), ‘orderliness’, ‘establishment’; from Pythagoras onward ‘world’, ‘universe’ —refer A. Bailly, *ibidem*, p.1125.
- <sup>10</sup> Compare: Nicolai Hartmann, *Zur Grundlegung der Ontologie*, p. 239, 240; also: Nicolai Hartmann, *Teleologisches Denken*, p. 5, 6; and also: Emil Ungerer, *Die Wissenschaft vom Leben, Band III: Der Wandel der Problemlage der Biologie in den letzten Jahrzehnten*, p.60.
- <sup>11</sup> In Alfred North Whitehead's view the two founders of all Western philosophico-scientific thought are Plato and Aristotle (viz. p. v). "The safest general characterization of the European philosophical tradition", however, "is that it consists of a series of footnotes to Plato" (p.33). Of these two founding fathers of the, not only European, but the whole Western thought, it was after all Plato who leveled the ground whereupon philosophy and her shoot were going to grow and flourish —refer: Alfred North Whitehead, *Process and reality. An essay in cosmology*.
- <sup>12</sup> Immanuel Kant, *The transcendental doctrine of method*, chapter III: The architectonic of pure reason (A 832/ B 860), p. 653, in: *Critique of pure reason*.
- <sup>13</sup> Case from Latin ‘*casus*’, ‘*cassus*’: ‘fall’, ‘chance’, ‘ocurrence’, ‘case’. ‘*Cassus*’ is the noun form of the verb ‘*cadere*’: ‘to fall’ —refer: "OED", v. I, paragraph 144, p. 346.
- <sup>14</sup> Latin ‘*eventus*’: ‘ocurrence’, ‘issue’, from the verb ‘*evenire*’: ‘to come out’, ‘happen’, ‘occur’, which derives from ‘*e*’: ‘out’ and ‘*venire*’: ‘to come’ -refer:"OED", v. I, paragraph 338, p. 907; well understood, while defining hereby ‘case’, ‘event’, ‘fact’, I deviated somewhat from their vernacular as well as specialized terminological generally accepted usages. In other words, I modified their meanings.
- <sup>15</sup> Compare: José Ortega y Gasset, *Historia como sistema*, p. 115.
- <sup>16</sup> Refer: Paul-Heinz Koesters, *Deutschland, deine Denker. Geschichten von Philosophen und Ideen, die unsere Welt bewegen*, p. 82.
- <sup>17</sup> In a prior paper—Teoman Durali, *An introductory essay on the biological foundations of a priori cognitive faculties*—I tried to examine whether the Kantian assumption about the *a priori cognitive faculties* can be biologically founded. More precisely, my question runs as follows: ‘What is the substratum of our knowledge, taken within the framework of current biological data?’ A satisfactory and credible answer to this question may not only change substantially the current epistemology, but could alter the whole range of our picture, of our image about the world. If this picture is an outgrowth of our biotic constitution, what are the possibilities of discerning its genetic and evolutionary constituent parts? Moreover, today we know quite well that biological processes are fundamentally physico-chemical interactions. So, if our ‘knowledge-building’ apparatus is biologically constituted, then, there must be a *parallelism* between our *apperceptive syntheses* and the *sequence of phenomena*. Even Aristotle believed in such a world order. Immanuel Kant, on the other hand, rejected this, for the simple reason that we cannot have a warrantable insight into the innermost fabric of the world order. In other words, we are completely unable to peer through, thus perceive what there is beyond the appearance. We receive some scattered glints from the outside, out of which we build up within the framework of our intelligence, a meaningful entirety. Indeed, Kant asserts that "the order and regularity in the appearances, which we entitle *nature*, we ourselves introduce. We could never find them in appearances, had not we ourselves, or the nature of our mind, originally set them there. For this

unity of nature has to be a necessary one, that is, has to be an *a priori* certain unity of the connection of appearances; and such synthetic unity could not be established *a priori* if there were not subjective grounds of such unity contained *a priori* in the original cognitive powers of our mind, and if these subjective conditions, in as much as they are the grounds of the possibility of knowing any object whatsoever in experience, were not at the same time objectively valid".

Wherein after all are we going to find Reality: does it coincide with the disparate single phenomena or should it be considered as one with the synthetical unity of all phenomena, formed by our understanding?

To this crucial question Kant gives the following answer: "Sensibility gives us form (of intuition), but understanding gives us rules. The latter is always occupied in investigating appearances, in order to detect some rule in them. Rules, so far as they are objective, and therefore necessarily depend upon the knowledge of the object, are called laws".

So we see that Reality is the objective product of the craftsmanship of the understanding. Objectivity does not entail at all that understanding dwell upon the *object as a substantial entity* in the metaphysical sense, but on the contrary, it means that it simply works on the *apparent object*. However, "the understanding is something more than a power of formulating rules through comparison of appearances; it is itself the lawgiver of nature." And *nature*, Kant maintains further on, is the "synthetic unity of the manifold of appearance according to rules... (appearances, as such, cannot exist outside us—they exist only in our sensibility); and this nature, as object of knowledge in an experience, with everything which it may contain, is only possible in the unity of apperception (...) This same unity of apperception in respect to a manifold of representations (...) acts as the rule, and the faculty of these rules is the understanding. All appearances, as possible experiences, thus lie *a priori* in the understanding, and receive from it their formal possibility, just as, in so far as they are mere intuitions, they lie in the sensibility, and are, as regards their form, only possible through it".

Ever since René Descartes the cleavage in the Westerner's world picture has grown steadily. With the occurrence, first, of the theory of evolution, and then with the relativity theories the breach reaches completion. On the one side, there is the outside world open to be experienced, but on principle sealed off from any cognition of whether it possesses an intrinsic order. On the other side, there is the 'knowing self' which, according to Kant, imposes its own order on the realm of exterior phenomena. Hence Kant does not investigate the experience-contents themselves, but just the mechanism of how we can conceive them, and then attribute to them a meaning. He says that we must learn about our understanding in order to grasp the mechanism of conception. Furthermore the study of the understanding is nothing but logic. While it is the physical sciences' task to investigate the apparent constitution of the experience-contents, logic's duty is to establish link between these in conformity with its own rules, not derived from any experience. In establishing links between the most various experience-contents the understanding or logic strives to form a meaningful entirety from which cognition arises.

Thus: "However exaggerated and absurd it may sound, to say that the understanding is itself the source of the laws of nature, and so of its formal unity, such an assertion

is nonetheless correct, and is in keeping with the object to which it refers, namely, experience. Certainly, empirical laws, as such, can never derive their origin from pure understanding. That is as little possible as to understand completely the inexhaustible multiplicity of appearances merely by reference to the pure form of sensible-intuition. But all empirical laws are only special determinations of the pure laws of understanding, under which, and according to the norm of which, they first become possible. Through them appearances take on an orderly character, just as these same appearances, despite the differences of their empirical form, must nonetheless always be in harmony with the pure form of sensibility—Immanuel Kant, Critique of pure reason", A 126, 127, 128.

After all that has been stated so far two principal question at stake assume an ever growing importance:

1. Can we biologically find out to what extent any given individual understanding is capable of putting forward an empirical law that is valid for other individual understandings too;

2. are there any means or basis for detecting how much the empirical laws, legislated by our intersubjective understandings, correspond with the factual processes running in and outside ourselves?

<sup>18</sup> From whatever society, from whatever cultural setting they may proceed, human beings usually live in a *normal* way. What first of all does this expression, 'normal way' mean? It means to be by and large in conformity with the biotic *norms*, and the avoidance of overstepping them. The norms indicate us the basic vital necessities, like the drive for eating and drinking, self-protection and reproduction. But even in trying to appease his aid fundamental needs the human is impelled to go beyond the bounds of the pure biotic domain. Being physiologically deficient, man is unable to sustain his existence in the midst of a physico-biotic environment. In and with him some processes have taken place which we so far have not come across in other living beings. These, known as the 'psychocognitive' processes, filled up the void crude physiological mechanisms have left over in man. Thanks to his psychocognitive capacities man has built up a second environment for himself, the *culture*. The threefold concepts—that is, *man, society, culture* (to these we may add, some sort of *religion* and *language*)—coincide in fact. To use any one of them in isolation of the other mentioned ones would not convey us its full meaning. As an indispensable condition man is born into a society-household, kinship, clan, community ... Without social care and upbringing he will not be able to develop into a fully-fledged human being and survive as such.

Every sort of society is a cultural niche. Society and culture, furthermore, embody the concept 'human'. Briefly reiterated: whereas society without humans and culture without society are meaningless, the human cannot exist outside society, hence cultural environment. Given the fact that the human is basically a living being, he must first and foremost respond to vital requisites and urges. But even his response to vital requisites and urges is not any more in a purely biotic manner. Almost all of his actions and reactions are culturally tinted. This shows us clearly enough that the human is part of the physico-biotic (natural) environment as well as the member of cultural circumstances.—Refer: Juan Rof Carballo, *Violencia y ternura*, p. 190-191.— Thus, the human is basically a biocultural being.

From food cooking to skyscraper construction, from haircut style to superconductor technology, everything man does is *culture*. He takes whatever nature offers him as raw material. Out of this raw material he is eventually going to produce that his *physico-bio-psychocognitive* urges ask him to do. Usually he does not find any model for his productions ready at hand in nature. That is to say, almost whatever he produces is peerless in the universe so far known to us. 'To produce' in fact is a purely human deed. This point can already be conceived out of its lexical definition as "to compose or bring out by mental or physical labour (a work of literature or art); to work up raw material, fabricate, make, manufacture (material objects)..."—"OED", v. I, paragraph 2315, p.1422— The word itself is composed of two parts *pro*: "forward", "forth"; and *ducere*: "lead". In case we redefine "to produce" in accordance with its radical meaning in Latin, then, we will come closer to our original determination concerning human nature, "to lead", 'to have the lead over', so to say, 'to change the world by what is brought forth'. Furthermore, everything the human brings forth is a 'value'. Because whatever man brings forth, or more plainly said, produces is the result of an 'evaluation'. There we comprehend that in the human being an aesthetico-ethical dimension runs along the biotic one. The biotic dimension forms man's fundamental reality without which the aesthetico-ethical one could never be materialised. On the other hand, without the aesthetico-ethical dimension in him, he could never have conceived the reality of his existence as well as that of its surrounding. Thus using the Cartesian terminology we could say that *res extensa* is the groundwork from which only *res cogitans* could ontologically arise. On the other hand, it is solely through *res cogitans* that man becomes conscious both of the physico-biotic and psycho-cognitive realms. Accordingly, so long something remains there beyond consciousness, it cannot attain 'reality-value', although ontologically it may of course be real. Hence, anything that is being come across, perceived, afterwards worked out by man's psychocognitive machinery will obtain the status of 'value'. Consequently, 'real' is all that has 'value'. Furthermore, all that has 'value' is 'meaningful'. Accordingly there is nothing exempt of meaning where ever humanity is to be found.

These most fundamental themes around which all human activities and existential questions turn compose the problem-bulk of *metaphysics*. 'Metaphysics' in particular and *philosophy* in general inherited most of them from its matrix, that is, 'wisdom', out of which it had arisen in about the fifth century BC in western Anatolia. Herakleides Pontikos (388-312) cites Pythagoras (582-507) invent the word, and expound it in a conversation with Leon, tyrant of Sikyon.—John Burnet, *Early Greek philosophy*, p.278.— Iamblichus (Iamblikhos, 250-330) also tell us that it was Pythagoras who used for the first time the term 'philosophy'.—Refer: Sir Paul Harvey, *The Oxford companion to classical literature*, p.219.— "Philosophy" said Pythagoras, "aims at purifying and conducting human life toward its end purpose. It purifies by freeing life from the confusing disorder and passions of perishable body; it conducts life toward its end purpose by enabling it to recover, rendering it to the God resembling state. This is finally the pure bliss of which life is susceptible. Thus, truth and virtue are the particular efficient means to obtain this double result by proceeding along a natural way. Virtue damps down excesses or passions, whereas truth gives to the all along ready ones the possibility

of regaining the divine form.—Pythagore. Les vers d'or, p.37-38, commentaire par Hiéroclès.

Pythagoras defined *philosophy* as an *effort toward wisdom, a love of wisdom*. According to him wisdom is the research of truth. Moreover, truth is in the beings. In his view beings are all that there is immaterial, eternal, essentially active, like the self-sufficient things endowed with a proper existence and remaining always as they are. This truth is attainable only with the use of intelligence. But, since intelligence is that Godlike attribute in us, "the more we get enlightened by relieving ourselves from the trouble caused by the passions, the more we will be purified through the intervention of dialectics and thus run closer to the purity and light of the Supreme Cause on which intelligence depends".—Pythagore, *ibidem*.

So we can see how philosophy, right at its birth from wisdom, was tightly tied to and influenced by mystical-religious considerations. "It would be wrong, however," said John Burnet, "to suppose that (...) philosophy took over any particular doctrines from religion"—John Burnet, *Early Greek philosophy*, p.83.—Moreover, the influence did not only proceed from religion to philosophy. Especially in Antiquity we see philosophy exerting some notable influences over religion. Nevertheless the more they drifted apart the more they could assume their essential and primordial countenance and functions. This, however, did not happen deliberately and consciously until Aristotle's middle aged maturity. Although it was Plato who construed the principal array of problems for philosophy and thereby for science, of course, he categorically refused to cut off the umbilical cord that used to bind philosophy to her mother *Wisdom* and in this way to *religion*. This was why he became the central figure of wisdom—comprising both the Christian and Muslim conventions—as well as of philosophy. Whence it gets so arduous to comprehend his system of thoughts—by the way, the first of its kind. This utterly deep-going and far-reaching system that pins down first and foremost the religious and ethical, then, the cosmological, epistemological and esthetic questions earned Plato the venerable qualification of "Divine Plato" (Eflâtun el-Ilâhî) in the Islamic tradition.—Refer: Semseddîn Sâmî: *Kâmûs-i el-Alâm*, v.II, p.1004 written in the ancient Turkish (i.e. Arabic) scripture; consult further on: *Islâm Ansiklopedisi*, v. IV, p.192.

Shortly after Pythagoras the term 'philosophy' appeared in texts of Heraclitus (Herakleitos: 535-475) and Herodotus (Herodotos: 484-425) before being treated in its full technical sense by Socrates (469-399) and Plato (Platon: 427-347). Like Pythagoras, Heraclitus too considered 'philosophy' within a mystical and sublime context, almost in the sense of 'wisdom'.

Thus spoke Heraclitus, the Delian diver in Socrates' word (Refer: Charles H. Khan, *The art and thought of Heraclitus*, p.95 ):

"Nature loves to hide" (X/D 123).

"Seekers of gold dig up much earth and find little"(VIII/D 22).

Who, then, are those seekers that dig up much earth in order to find out what nature hides? These are, indeed, the wise who have an insight into the cosmic order: "The wise one, knowing the plan (gnome) by which it steers all things through all" (LIV/D 41).

The endeavour most proper to humanness is certainly the desire for inquiry and consequently knowledge:

"Men who love wisdom (*philosophoi andres*) must be good inquirers (*histores*) into many things indeed" (IX/D 35).

As said before, in the specific sense of the term *philosophy* was born from *wisdom* at the hands of Plato, and *science* sprang from philosophy, its founding father being *Aristotle* (384-322). Thus it is plausible to assert that before Plato's—i.e. the first genuine metaphysical-system there was yet neither philosophy nor, prior to Aristotle, science. Both strive to acquire knowledge about the human in particular and the world at large by pursuing the critical, causal, inductive, deductive and discursive manner of reasoning. Their methods and purposes being alike, they only differ in what concerns the scale of abstraction and generalization. Accordingly they form the common structure we call *philosophy-science*. By applying the methods of philosophy-science and some of the most spectacular results to practical end *technology* came about, especially after the tenth century in the realm of the Islamic civilization. Technology, in turn, begot modern *industry* in northwestern Europe, particularly in eighteenth-century England. So, clearly enough, there was neither technology, nor the all-out mass producing mode, that is, industry, before the rise of the philosophy-science mentality.

Another result emerging from all that has been stated so far is that wisdom and *technique* are a lot more ancient than philosophy-science and technology. Although all societies brought wisdom and technique forth, only a handful of them arose to a pre-eminent status in the course of time. These were notably societies belonging to the community of the Oriental civilizations (refer: José Ortega y Gasset, *Qué es la Filosofía*, Lección IV, p.78) starting with the Chinese and going on with the Indian, Persian, Central Asian Turkish and Mongolian, Tibetan, Mesopotamian, Arab, Jewish, Phoenician, Egyptian, Anatolian; then crossing over to Europe: the Greek of the pre-philosophy-science period, archaic Latin and Teutonic; not to forget, of course, Africa where for instance Mali; and America with its Aztec, Maya, and Inca civilizations were outstanding too.

So is evident that the greatest, the most eminent human achievement, the philosophy-science system mentality is after all not the success of a single civilization; all societies coming down through the ages have more or less their grain of salt in this wonderful soup!

<sup>19</sup> *Speculate* (Latin: *speculari*) 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, paragraph 558, p. 2952; also: José Ferrater Mora, *Diccionario de filosofía*, p. 146; furthermore: Johannes Hoffmeister, *Wörterbuch der philosophischen Begriffe*, 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, The dialectical inferences of pure reason, A 635 or B 663.

Meanwhile in my paper *speculative* is used in the above-mentioned Kantian sense.

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## ABSTRACT

## PHILOSOPHY-SCIENCE FROM THE BIOTIC STANDPOINT

At the turn of the century, in the wake of the general disintegration of the traditional cultural life in the West, philosophy and science got completely separated. While *philosophy* was losing its unifying and catalysing capacity, *science* was drifting away from its primary aspiration, that is, research and establishment of knowledge within an empirical framework. Instead of establishing coherent and meaningful *cognitive systems*, *science* has since turned into a *pragmatic* or *utilitarian* endeavour. Thus, especially after the Second World War, *philosophy-science*, as an institution disappeared and was superseded by *technology* which has got an almost absolute grip on the whole of humanity. At present, every statement that claims to be scientific must be verified and explained according to criteria set by the established physico-chemical science, otherwise it is liable to face the charge of being unscientific and unobjective, fully confused and confusing. The case, however, is not as simple as that. The universe, at any rate, is so amazingly manifold that it would be utterly nonsensical to approach it with a single and clearcut presupposition. Even the most intelligible of concepts would be extremely far from enabling us to completely cast light into the most diverse corners of the universe. The life sciences present us with the chief example of this difficulty. That we can explain some biochemical interactions in accordance with physico-chemical principles and laws, certainly does not mean that we can reduce all biotic phenomena to mechanistic patterns of explanation and definition. To the existing physico-chemical axioms, principles, nomologies, explanatory and definitional patterns and theories we must add new ones in response to the necessities emerging from the biosphere. Moreover, biology's patterns of description, definition, explanation and law-formation can by and large be adapted to be used in the humanities. All the arguments presented in this paper show us that at present life sciences assume the function of a link between the physical, biotic and cultural layers of being. Accordingly, a well-founded philosophy of biology may do as a scaffolding of a would-be philosophy-science that could reinstall our chaotically dissociated world picture and answer the questions proper to our times.

El perfil de la Revista UROBOROS lo constituirán los problemas ontológicos y metodológicos de las ciencias contemporáneas de la vida, vistas desde la perspectiva no-positivista, con especial atención a los fundamentos filosóficos de las teorías contemporáneas de la evolución prebiológica y biológica. También se tomará en cuenta la presencia de la idea de evolución en la física, cosmología y otras ciencias naturales, así como las raíces filosóficas de la visión procesual del mundo en la ciencia moderna. Se publicarán artículos que expongan el desarrollo de la filosofía de la biología en diferentes países, así como breves reseñas de libros sobre el tema.

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#### Ejemplos/Examples:

<sup>1</sup> B.-O. Küppers, *Der Ursprung biologischer Information. Zur Naturphilosophie der Lebensentstehung*, München 1986 Piper.

<sup>2</sup> L. Peliti, *L'evoluzione prima della vita*, "Sapere" 1989, v. 55, no. 9, p. 9-21.

<sup>3</sup> K. Matsuno, *Protobiology. A theoretical synthesis*, in: K. Matsuno, K. Dose, K. Harada, D.L. Rohlring (ed.), *Molecular evolution and protobiology*, New York 1984 Plenum, p. 433-464.

# INDICE

GERHARD VOLLMER  
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