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Ph.D .(philosophy)

**EXPERIMENTAL PHILOSOPHY
IN A NEW KEY**

**THE SCOPE
OF THE INTERNATIONAL
KALOY PRIZE**

ATHENS-GENEVA-LAUSANNE

PREFACE

In one of our daily philosophical discussions, my professor at the University of Geneva, the late René Schaerer, told me "I envy my colleagues In the Physical Sciences. When they have the intuition of a novel idea, they can do an experiment, bring nature to bear witness, as Francis Bacon was the first to advise, and verify or refute their original intuition. We philosophers do not and have never had the good fortune to experimentally test the results of our various speculations". That was long before the practice of brain function experiments was introduced to the normal curriculum of University activities in wide scale.

It was the reminiscence of Prof. Schaerer's "envy" that later, when I concentrated my philosophical interest on the theory of knowledge, (and particularly on the theories of Plato, Descartes and Kant who were at the center of my doctor's thesis) that incited me to approach the Kaloy Foundation in Greece: my idea was to initiate an International Prize with the purpose to "confirm, refute or elucidate a philosophical theory of knowledge" by means of brain function research. I spoke of my idea to Prof. Evangelos Moutsopoulos, member of the Academy of Athens, who, much to my delight, immediately approved and then I wrote to Prof. Eric Kandel, Nobel Prize winner, who kindly replied by email saying "the idea is novel and much needed, you are far-sighted to conceive of it, please go ahead". Then, thanks to these invaluable encouragements the idea of the International Kaloy Prize was launched with my hidden hope that my Theory of Totalism (briefly exposed below as Introductory parenthesis) might one day find thereby its experimental confirmation.

The first laureate, under the auspices of the Geneva University, was the distinguished Director of the Max Planck Institut für Hirnforschung in Frankfurt a/M, Germany, Prof. Wolf Singer (2009) under the auspices of the Geneva University, Switzerland, followed three years later (2012) by two new laureates, collaborators at the Bloomington University, Indiana, USA, Drs Jerry-Michael Jesseph, MD, Ph.D. and Jill Bolte Taylor, Ph.D., under the auspices of the Research Center of Greek Philosophy, Athens, Greece.

The two Important works awarded the 2009 and 2012 Prizes are reproduced in this book together with my Comments and extrapolations and other relevant scholia. Announcements of the future Kaloy Prizes are regularly sent to Universities all over the world by email.

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Introductory

PROLEGOMENA TO A GENERAL UNIFIED THEORY OF PHILOSOPHY

TOTALISM IN A NUTSHELL

Dr. Kaloy's philosophical Theory of Totalism can be more briefly described as follows :

1. First is the Brain.

What is immediately given to human consciousness is Totality as a Unity (what Indian philosophy calls Brahman, Parmenides «One», Plato «Idea of Good», Plotinus «(Trend to) Oneness», Descartes “universalité des êtres”) i.e. a Unity not yet segmented into Forms (essences, ousiai).

The brain, as an electro-neurological machinery, is the center of both conscious and unconscious activity of a living organism. It is the center of a highly complicated operation that defines Man as a logical (rational) but also, and mainly, as a sentimental or emotional (irrational) animal. It is the brain's activity that has been called during the Ages, in vague terms, Mind (πνεύμα) or Psyche (ψυχή).

Kant was the first philosopher to have the insight that the “Mind” does not derive its laws from Nature but prescribes them to her. He also specified that “Nature is the synthetic unity of phenomena according to (the brain's) rules”. Such rules are either inherited concepts “a priori”, or acquired concepts which are transmitted to human generations according to the phylogenetic age-long evolution described by Haeckel's fundamental biogenetic law stating that “ontogeny recapitulates phylogeny”.

The brain consists of about 100 billion neurons (cells) each one being connected with its neighbors by 10,000 connections. Mathematically, this provides the fantastic capacity of an infinite number of combinations, unsurpassed by any computer of man-made engineering. These combinations and their synchronization, involved in and between various sections of the brain, are now subject to intense investigation by experiments in practically all important Universities and Institutes all over the World.

2. Fundamentals of the theory of knowledge It is the human brain (or Mind) that employs the “Categories” (i.e. a specific internal electro-chemical function) in order to «segment» the given Unity into a Multiplicity of various Forms or Ideas-Eidos which appear **as if** they were “clear and distinct” from each other. In this created multiplicity of Forms, each coupled with its opposite, everything is in a flux (as described by Heraclitus). Reason (Logos) then first appears as an act of combination (συμπλοκή, symploké) of these created Forms into unified partial wholes (bearing a permanent tendency towards the initially “given” infinite Totality) – hence Logic, Mathematics, Scientific Analysis, Dialectic methods etc., all disciplines tending to infinity. This purely rational activity of the human “Mind” (result of the brain-function) is what the theory of Totalism calls «the World of Strophe». It marks a turning point (=Strophe, ΣΤΡΟΦΗ) from Unity to an infinite Multiplicity.

Thus, the World of Strophe (i.e. the World of phenomena) is created within the human mind by the effective force (Wirkung) of the 12 Categories enumerated by Kant. The total number of the first three groups (Quantity, Quality, Relations) can be reduced to 3 main Categories i.e. Allheit, Limitation, Gemeinschaft (Totality, Limitation, Community). Notice that Plato employs the terms ΜΕΓΙΣΤΑ ΓΕΝΗ or ΟΝΤΑ (Soph. 254d, Phil. 28c-30b) and applies for each, the same terminology as Kant, where Allheit is Plato's ΑΠΕΙΡΟΝ, Limitation is Plato's ΠΕΡΑΣ and Gemeinschaft (Community) is Plato's ΚΟΙΝΩΝΙΑ (ΕΧΕΙ ΚΟΙΝΩΝΙΑΝ ΑΛΛΗΛΟΙΣ Η ΤΩΝ ΕΙΔΩΝ ΦΥΣΙΣ, Soph. 256a, 257a, 259e). The “Categories” or “ΓΕΝΗ » are applied upon the undetermined “given” which is sensibly presented as “phenomenon”, “spread” over the underlying internal “Forms of Intuition”, i.e. space and time (cf Plato's ΣΤΑΣΙΣ, ΚΙΝΗΣΙΣ in Soph.254d). Space and Time are not derived empirically from the outer experience but, on the contrary, it is

themselves that render outer experience possible at all (KrV A24-B38 et seq.).

We know now that what is first “given” as undetermined, is not the “unknown thing-in-itself” as it used to be in the time of Kant. The “given” (das “gegeben”) is the pre-physical world as revealed by what so far we know in Quantum theory, i.e. the “superposition of the wavefunction”, followed by the “de-coherence” (“collapse”) as a physical process that occurs on account of the environment or, in the absence of it, on account of the quantum gravitational effects. It remains as a possibility, not yet finally confirmed by physical science, that, together with the influence of the environment, we may even enquire on the contribution of the brain-function itself in the process of the collapse of the wave-function.

We may now further simplify this complex transformation of the pre-physical into the physical world of the phenomena of experience. In this sense, the Kantian “thing-in-itself” seems to be no other than the electromagnetic oscillations that affect the brain. The waves, caught in the brain by the senses, are subsequently transformed by the brain-function into “phenomena” (i.e. what sensibly “appears”, from the greek “ΦΑΙΝΟΜΑΙ”) by the effective forces (Wirkung) of the forms of intuition (space-time) and of the three main categories. Thus, the initially given “totality” (as an undetermined Allheit) is *segmented* into *clear and distinct ideas* by the category of “Limitation” (i.e. by the self-organized synchronization of the electro-neurological process as an act of spontaneity in the brain; (cf Kant KrV B131 et seq.). This process is proven by the fact that the third category, that of “Community”, is *a priori*. In fact, it would be impossible to know a priori that all things are interrelated in a perpetual four-dimensional nexus of universal causality unless the brain had retained in memory the work done by the category of Limitation on the initially given totality! Community therefore is *a priori* and cannot be considered as the result of empirical induction. It is the implicit memory storage of a series of operations that took place in the brain (cf in this connection (as given below) Wolf Singer’s “Large Scale temporal coordination of cortical activity as prerequisite of conscious experience” where we read: “*The contents of consciousness can also be processes initiated within the brain itself in the absence of external stimuli. Thus, conscious experience appears to involve a cognitive process that monitors neuronal activation patterns irrespective of whether these result from sensory input or are internally generated*”. (See below, the article “Comments and extrapolations” by Dr Nicolas Kaloy).

NOTE: *It is modern Physical science in its investigation of the brain function that can clarify the meaning of this so-called “Wirkung” of the Forms of Intuition and of the Categories. It is the electro-chemical interaction of the constituent elements of the brain (neurons, dendrites, synapses etc) which “synchronize their activity in segmenting the undetermined continuum of sparse sensory signals into clear and distinct ideas corresponding to objects” and, hence, being applied on the empirical admixture (Eindrücke der Sinne in Kant’s words) to form the World of Appearances.(see below, “Comments and Extrapolations” inter alia §§ 2,5,8,12).*

A further remark is necessary. As made clear by the theory of Totalism, the so-called by Kant “given”, can no more be considered as an external *discontinuous* “cause” of the phenomena. This view, is incompatible with Kant’s system where causality is an “internal” Category. The whole process, as described by the theory of Totalism, is *continuous*, unique and whole, developed in a sequence of degrees, in the manner, so to speak, of Plotinus’ “aporroae” from the original “hypostasis” (i.e. the undetermined Allheit). The world of phenomena as presented in the sphere of the Strophe, cannot be taken as the result of an external cause but merely as the *presentation in us (in uns)* of the “thing in itself” in such a manner as it may be made possible by the rules and capacity of the brain-function. Hence, Kant’s definition that “Nature is the synthetic unity of phenomena according to rules”. In other words the “given” is the content of Allheit waiting its segmentation by the brain process, to “appear” as phenomenon.

NOTE: *This “Wirkung” may clarify Fichte’s vision that it is the Ego that produces the Non-Ego from within. In simpler modern terms, it is the working of the brain function which makes that the Manifold of the empirical world appears as a mass of “external objects” - an Illusion that can enable Descartes to speak of “distinct ideas that the one may exist without the other”. In reality, no concept would exist without the brain function (usually called “the Mind”) which produces it. This interpretation given by the theory of Totalism further clarifies the idea put forward by*

Berkeley that esse est percipi meaning, in modern terms, that without the working of the brain function no “esse” such as external object really exists. To put it bluntly, “reality is a soup of electromagnetic waves or of strings and superstrings that require a brain function to be segmented into (fictitious) individual concepts”. The fact that the World of Experience is a phenomenal illusion will have important behavioral and moral consequences as we will see at the end of this exposition.

The above considerations place the theory of knowledge in a new key. They refute the argument charging the Kantian theory with contradiction by supposedly placing the thing-in-itself as a “cause”, when causality is simply one of the internal Categories. Moreover, and this is very important, they explain why the category of Community (Gemeinschaft) is known a priori. In fact, we discover a unified continuity as a “growth”, from the unity of the pre-physical world of “superposition of the wavefunction”, throughout its transformations into the physical world and thence to “phenomena” created by the function of the brain according to its own rules, i.e. the Forms of Intuition and the Categories (cf Shakespeare’s “*we are such stuff as dreams are made on*”). Subsequently, such a created state of affairs, must be followed by its necessary *homecoming* to the initial Unity which marks the metabasis to the metaphysical world of the sphere of Antistrophe. This continuous circular sequence (pre-physical, physical, metaphysical), is nothing else but a unique *continuous* process in the brain, a series of “*aporroae*” in the Plotinian sense of the original “*hypostasis*”, and not a cause-to-effect *discontinuous* sequence. In other words, the Thing-in-itself is not “other” than this continuous operation upon itself. The rose is not the cause of the perfume but the perfume is the rose as conceived by the olfactory function. Thus, pre-physics, physics and metaphysics is a totality that governs the physical, logical, sentimental and moral nature of human beings. Excluding “Metaphysics” and the “Absolute” (i.e. Plato’s ἀνυπόθετον) from human consideration is like severing Man from the most substantial root and source of his existence. The *continuous* process realized by the brain-function, forms the basis of my theory of Totalism. It is the process of a necessary evolution tending to the “fulfillment” or “Wholeness” of existence on its way to happiness and freedom. Thus, the term Totalism must not be confused with the term “totalitarianism” in politics or “dénombrement” in the Cartesian methodology.

NOTE: *Dr. Kaloy’s theory may be corroborated (or refuted) only by the experiments of Physical science as a result of research in the working of the brain function. In this context, the age-long classical **speculative philosophy** may henceforth proceed along the lines of Francis Bacon’s advice for the advancement of science (“bring to nature to bear witness”) and succeed in undertaking its modern vocation as a new direction of **experimental philosophy**”.*

3.

In view of the above, human consciousness is confronted with two «Worlds», the Parmenidian World of Oneness (being the Given Initial Condition of Totality) and the Heraclitian World of Multiplicity, i.e. the World of Experience at least for us human beings (*für uns Menschen wenigstens*, as Kant put it). In this dialectic, the opposites are not contradictory but *complementary* in the fulfillment of Wholeness, therefore both true from their own point of view. The human psychic element is thus dominated by the dialectic of Strophe-Antistrophe (thesis-antithesis), in the mutual (dramatic) interaction within human consciousness of these two Worlds. Modern society has evolved as to lay emphasis on the “Strophical” element, thus splitting the personality of modern Man (and to a lesser extend of the modern Woman whose Antistrophical element is still prevailing). The “entire man”, the *homo universalis*, is not only a **rational** animal as Aristotle wanted to define him, but also, and mainly, a **sentimental** animal. This unity-in-duality, disturbed by the brain-washing of modern societies, explains the “kairicity” (variation in time or “kairos” as defined by the Greek philosopher Moutsopoulos) as well as the necessity of a *separate* appearance in time of two prevalent historical movements in recent times i.e. *Enlightenment* (pertaining to the empirical and rational – Apollonian - sphere of Strophe) and *Romanticism* (pertaining to the metaphysical and irrational – Dionysian - sphere of Antistrophe).

NOTE: *Enlightenment, dominated by the idea “tout est raison” and Romanticism by the idea “alles ist Gefühl” (tout est sentiment), constitute a fictitious dichotomy of one and the same process within the Ego in its absoluteness. This “dichotomy” was constructed by the very nature of the human brain in its tendency to spontaneously create isolated and discontinuous “atomic”, clear and distinct, concepts out*

of One and Single Whole.

4.

Now, the *artificial* World of created Multiplicity (i.e. The World of Strophe) results to frustration and anguish. It is self evident that the world of “otherness” is dominated by strict *determinism*. The existence of otherness creates interdependence and therefore absence of freedom. The individual human consciousness, aspires to a return of the Initial Oneness which preceded the fictitious creation by the brain of fragmentary isolated and distinct “essences” (ideas-eidos). Oneness excludes the “other” and therefore releases the feeling of freedom (cf Sartre’s “l’enfer c’est les autres”!). This passionate *homecoming* is what Indian philosophy has called Brahman, Parmenides “the One”, Plato “the Idea of Good”, Plotinus «(tendency to) Oneness» and Dr. Kaloy’s theory calls, in opposition to Strophe, **Antistrophe, ΑΝΤΙΣΤΡΟΦΗ**. Strophe, is the *Rational* (Apollonian) World of Logic and Science and Beauty – hence Plato’s definition that “it is from the combination (symploké) of ideas (eidos) that Logos is begotten” (ΔΙΑ ΓΑΡ ΤΗΝ ΑΛΛΗΛΩΝ ΤΩΝ ΕΙΔΩΝ ΣΥΜΠΛΟΚΗΝ Ο ΛΟΓΟΣ ΓΕΓΟΝΕΝ ΗΜΙΝ, Soph. 259e). Antistrophe is the *Irrational* (Dionysiac) World of Aesthetics and of Ethics, of the Sublime and of the Good. The attainment of Oneness is what the theory calls «totalisation» or, in Greek, Ολοκλήρωσις (hence Totalism) because the individual is thus «totalised», i.e. fused with the “Other” into the universal Whole of the initial Existence. Totalism, therefore, is a *metaphysical* term.

5.

The a priori concept of Illusion.

The perennial human bondage that is the Will to transition (*metabasis*) from the fictitious “otherness” of the sphere of Strophe created by the Category of Limitation, to the sphere of Antistrophe, constitutes the tragic element in human existence, hence all existential Anguish. Now a difficult question arises: how is it possible to de-activate the basic function of several sections of the cortex of the brain and extinguish the process of the Category of Limitation? How is it possible, as Kant says, “to provoke a presentation of *limitlessness*, yet with a super-added thought of its totality”? (cf KdU, Bk II, §23). How is it possible that the Irrational may overcome the Rational? How is it possible to attain the wished-for Totality which is enthroned as the ultimate finality of the all-powerful basic instinct called the Will to Happiness, Bliss and Freedom?

The possibility of transition to the Antistrophical moment could be better understood if we consider certain passages from Kant’s observations in the Transcendental Dialectic (KrV, Book II, A339-B397 ff) and in particular his treatment of the **Transcendental Paralogism** (A341-B399). Kant says: “A transcendental paralogism is one in which there is a transcendental ground, constraining us to draw a *formally invalid conclusion*. Such a fallacy is therefore grounded in the nature of human reason, and gives *rise to an illusion* which cannot be avoided”. Kant further specifies that “in the first kind of dialectical syllogism I conclude from the transcendental concept of the subject, which contains nothing manifold, *the absolute unity of this subject itself* of which, however, even in so doing, I possess no concept whatsoever – this dialectical inference I shall entitle **transcendental paralogism**” (A340-B398). As it will be shown below, the Illusion created through **Love, Art and Religion** bears the characteristic of a transcendental paralogism in the Kantian sense i.e. “a dialectical inference which possesses no sensuous concept whatsoever” but only the **sublime** feeling of Bliss in the realm of fusion with limitless Totality. What Love, Art and Religion have in common is the longing for Wholeness in fusion with the universality of beings. This desire of transcendental Unity goes beyond the sphere of Strophe. It is the moment for “a formally invalid conclusion” when the *particular* imperfect concept of a Cartesian “clear and distinct idea” (designed by the Category of Limitation) becomes perfect when fused with the limitless *universality of beings* (cf Descartes, Méd. IV). As we shall explain below, this desire can be accomplished in the World of Phenomena only by means of an **Idol which serves as the Symbol of Totality**. Then we experience the wished-for oblivion that releases us from the world of multiplicity and from the “Hell of otherness”. The Idol can relieve mankind from the necessity of the

oblivion by Death (the Freudian Thanatos) as is sometimes the case in romantic love.

The active and passive mode

The Idol as Symbol of Wholeness is what keeps us humans alive in illusionary utmost rapture. The **Beautiful** “in nature is a question of the *form* of the object, and this consists in Limitation” (cf Kant, KdU, BkII,§23). The Beautiful therefore pertains to the domain of the Strophe; it is superseded by the **Sublime** as described by Kant in his KdU (*Critique of Judgment*, reflective judgment). The fusion with the Idol as Symbol of Totality can be attained by any human being in two ways according to one’s individual idiosyncrasy or history: Fusion is attained either by the *active* mode (you obtain and conquer) or by the *passive* mode (you give yourself up in voluntary surrender). The modes, maybe called the “masculine” or the “feminine” element. They both refer to Aristotle’s division of mankind into “Masters and Slaves *by nature*”. The two natural modes, extended to aberration, correspond to Sadism or Mazochism and both to Fanaticism. The Idol maybe anything as e.g. person, object, habit, political party, political person, clan etc.

6.

Indian philosophy, in order to achieve the “extinction” (Nirvana) of Multiplicity (Otherness), proposes various special exercises that liberate the individual from the mundane existence in the World of Phenomena. The answer given by Dr. Kaloy’s theory of Totalism is that Totality and Oneness, can only be attained through the “*aesthetic category*” of Illusion. In this manner, an isolated «object» corresponding to a clear and distinct idea, taken haphazardly from the manifold, is serving as “Idol” on which all attention is focused. Such an Idol, acquires a dominant spatio-temporal dimension covering the entire screen of consciousness, thus becoming a Symbol of limitless Totality. Human consciousness localizes its attention unto this very Symbol, it fuses itself with it (through the mimetic process) and therefore it attains the desired Unity of Totality (cf the description of the Sublime in Kant’s Critique of Judgment and his reference to the «*reflexive judgment*» where, contrarily to the logical judgement, the particular is not subdued to the universal but *it becomes universal*). This is the illusion of a *transcendental paralogism* (see supra). The “Idol” Taken-As-The-Whole”, creates the illusion that all “otherness” is eliminated and Union with the Desired Initial State of Oneness (cf. Descartes’ “universalité des êtres”) is thus attained. In Hindu philosophy, the guru who concentrates all attention on his navel (*omphaloscopy*), attains the same result. The total extinction of “otherness”, creates the Feeling of Happiness and of Bliss in an atmosphere of Freedom. (Cf. the Spinozian sense of the *idea adequata* where the *ideatum* is not the sensible form of the idol but the expression of the suprasensible essence of Infinity or of the *fusion* with what Descartes calls *the universality of beings* (see Méd. IV). The procedure is a “Salvatory Lie” which justifies Plato’s observation on «ΤΑ ΠΕΥΔΗ ΤΑ ΕΝ ΔΕΟΝΤΙ ΓΙΓΝΟΜΕΝΑ» (Rép. 414b).

7.

The tragic destiny of human consciousness which enhances the existential anguish, is that the Idol as Symbol of Totality may be any sensible object, chosen within the World of Multiplicity, which eventually will disclose its illusionary status. The tendency to Oneness is the absolute and irrevocable human bondage. It determines the Will not by the “*cogito*” but solely by the “*volo*”. It provides the dynamic that can annihilate the Rational Process (i.e. the sphere of the Strophe) by the de-activation of the self-organized synchronization of neuronal responses conventionally called “Category of Limitation”. Thus, the World of Strophe being the (Apollonian) “*rational*” sphere of logic and of science, is substituted by the World of Antistrophe which is the (Dionysian) “*emotional*” sphere of the Irrational, of Bacchian Drunkenness, through the Illusion created by the process of what Kant will call “Transcendental Paralogism” (see above §5). At this stage, the human being can no longer tolerate logical thinking and analysis. The sphere of Antistrophe is the absolute extinction of Logos (Strophe). Sentiment, Feeling, Emotion, cannot be subject to reasoning. We are at last in the domain of Freedom.

8.

Of Love, Art and Religion

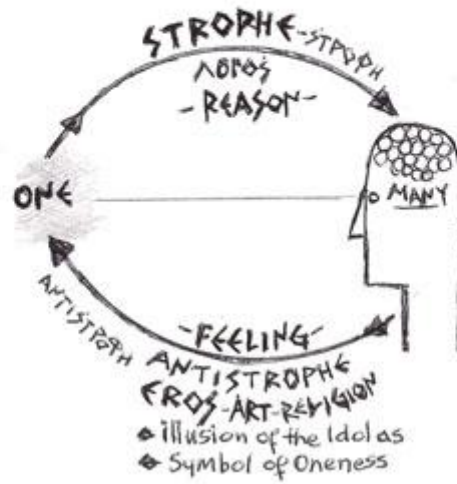
The theory of Totalism discloses, as we have seen, three sorts of Idols acting as Transcendental Symbols of Oneness each one upgraded to an absolute *idea adequata* in the Spinozian sense. If the chosen Idol is a Person, we are in the domain of **Love**; if it is an Object, we are in the domain of **Art**; if it is an idea (i.e. a concept without a corresponding object in sense experience) we reach the domain of **Religion** (e.g. “*credo* in the resurrection of the dead and in an endless life in *secula seculorum*” – an emotional belief of perfection which extends the individual mortal to Infinity, in the “perfection” of the Cartesian *universality of beings*). These three spheres of “Salvatory Lies”, covering the Antistrophical process, **Love, Art and Religion**, are interrelated. All three are dominated by the God **Eros**! In all three, the prevalent mood is fanaticism, i.e. the entire extinguishment of rationality, In all three, any intrusion or attempt of rational analysis is impossible. In all three, the Kantian category of Quality (Limitation) and its corresponding lobe in the brain, is de-activated and extinguished. Human beings are in a trance of bliss having thus attained the Ultimate Finality of the inner Will, i.e. the fulfillment of absolute Oneness. In the state of “Salvatory Lies”, in Love, Art and Religion, the humble Man is identified with GOD! (cf Plotinus, ΕΦΕΣΙΣ ΠΡΟΣ ΤΟ ΕΝ, ΘΕΩ ΟΜΟΙΟΘΗΝΑΙ). As Descartes felt in a moment of ecstasy, the *imperfect* clear and distinct idea has become *perfect*, “as a part of the universality of beings” (Méd.IV). The de-activation of the process of Limitation arrives to a climax in Love with the sexual *orgasm*, in Art with *aesthetic appreciation*, in Religion with the *prayer* - where all surrounding objects are extinguished (*let it be observed that, at this stage, the performing subject has the tendency to close the eyes and prefer isolation and darkness!*). Thus Heaven can be obtained on Earth by means of a furtive illusion!

NOTE: At this **sublime** state, which is the ultimate Man's destination, the transcendental concepts of *cogito* and *volo* reveal their nature so that it becomes clear that “*volo* without *cogito* is blind inasmuch as *cogito* without *volo* is empty”. This means that Man's imperative ideal is to attain *Totality* by the harmonious combination of his *Strophical* and *Antistrophical* nature, this being the very nature of a “*homo universalis*” who is complying with the social bondage but at the same time transcendently Free, In the History of Civilization, as stated previously, this double aspect of human psyche was separated in chronological sequence with the cultural movements of Enlightenment (*Strophe*) and of Romanticism (*Antistrophe*). If the harmonious combination fails and the crafty ruse of substitution of Wholeness by the Idol reveals its illusionary character then, as Semir Zeki writes in his marvelous book *Splendors and Miseries of the Brain* (p.136): “since wholeness and unity are not achievable on earth, lovers often look to another world. They hope to achieve what cannot be achieved on earth after death...the desire for the heavens and for God” - (or alternatively) “many have sought an artistic counterpart to these unsatisfied concepts, trying to satisfy them through Art”. I would add also through Religion. This brings forth the **interchangeability** of Love, Art and Religion as all three are dominated by the same God, the Hellenic First Born God **Eros**.

9.

The inter-relatedness of the three spheres (Love, Art, Religion) of illusionary Idols serving as Symbols, i.e. the fact that the chosen (or imposed by social or political brainwashing) Symbols may be **interchangeable**, is proposed as a new method in solving the psychic problems studied by psychoanalysis. The process of therapy is either the change of the Idol within the same sphere or the metabasis to an Idol of a different sphere. When the psychic problem arises in the sphere of Love, the subject may be directed to the choice of an Idol in the sphere of Art or of Religion and vice-versa. Dr. Kaloy's theory lays emphasis on the fact that the three spheres of Illusion are interchangeable. Thus, the Philosophy of Totalism also suggests a contribution to Depth Psychology.

MNHMONIKON EXHMA
 MNEMONIC SCHEMA
 of Dr. Kaloy's theory of
 TOTALISM



The International Kaloy Prize 2009, was awarded to Prof. Wolf Singer, Director of the Max Planck Institute for Brain Research, Frankfurt a/M, Germany

Prof. Wolf Singer's work is presented in what follows:

Large scale temporal coordination of cortical activity as prerequisite for conscious experience

By Wolf Singer

Summary

It is proposed that phenomenal awareness, the ability to be aware of one's sensations and feelings, emerges from the capacity of evolved brains to represent their own cognitive processes by iterating and reapplying on themselves the cortical operations that generate representations of the outer world.

Search for the neuronal substrate of awareness therefore converges with the search for the neuronal code through which brains represent their environment. The hypothesis is put forward that the mammalian brain uses two complementary representational strategies. One consists of the generation of neurons responding selectively to particular constellations of features and is based on selective recombination of inputs in hierarchically structured feed-forward architectures. The other relies on the dynamic association of large numbers of distributed neurons into functionally coherent cell assemblies which as a whole represent a content of cognition. Arguments and data are presented which favour the notion that the meta-representations supporting awareness are established according to the second strategy. The hypothesis is forwarded that such distributed representations self-organize through transient synchronization of the discharges of the participating neurons and evidence is presented that the prerequisites for the occurrence of these synchronization phenomena on the one hand and for awareness on the other are similar.

The term 'consciousness' has a number of different connotations ranging from awareness of one's perceptions and sensations to self-awareness, the perception of oneself as an agent that is endowed with intentionality and free will. Here the position will be defended that these various manifestations of consciousness should be tractable within neurobiological description systems, provided that it is possible to reduce the problem to the question how brains perceive and represent the contents of perception. If one is conscious, one is always conscious of something. The respective contents of conscious experience can be perceptual objects of the outer world or states of one's own organism, in which case information is provided to the brain by extero- and interoceptive senses. However, the contents of consciousness can also be processes initiated within the brain itself and in the absence of any external stimuli. Thus, conscious experience appears to involve a cognitive process that monitors **neuronal activation patterns irrespective of whether these result from sensory input or are internally generated. This suggests two conclusions: First, since sensory signals can be readily processed and influence motor responses without being consciously perceived, the cognitive operations leading to conscious experience must differ from straight forward sensory-motor processing either because they involve additional structures such as higher order cortical areas or because they are organized differently leading to more complex dynamical states of the involved networks. Second, because the primary sensory processes and the internally generated states can both be subject to conscious processing and then can coexist and be bound together, they must have the same format. In other words, the neuronal activation patterns representing the contents of conscious experience must have certain signatures in common, irrespective of whether they are due to sensory input or result from self-generated activity. These signatures should be identifiable by analyzing the differences in the spatiotemporal activation patterns associated with conscious and non-conscious processing, respectively.**

2

Two non-exclusive possibilities may be considered. Conscious and non-conscious processes could involve the same anatomical substrate but differ with respect to certain state variables such as temporal coherence or synchrony or they could require recruitment of additional structures, conscious processing necessitating the engagement of particular cortical areas or a minimum number of cooperating cortical areas. In any case a mechanism is required that is capable of monitoring both the results of primary

sensory processes as well as the results of computations based exclusively on information stored within the system. The most likely substrate for such cognitive processes of higher order are cortical areas that have been added in the course of evolution and that treat the results of lower order processes in the same way as these treat input from the sensory periphery. Part of the inner eye function of consciousness could thus be realized by an iteration of selfsimilar cortical functions. This interpretation is compatible with the neuroanatomical evidence that the phylogenetically more recent cortical areas are remote from primary sensory input and communicate mainly with one another and areas of lower order (Krubitzer, 1998). This scenario is also compatible with the graded emergence of the ability for conscious processing that is correlated with the graded expansion of the cerebral cortex during evolution and with the graded maturation of cortical areas during ontogeny. The evolutionary changes of the mammalian brain consist essentially of an apposition of new cortical areas and comparative behavioural studies suggest that this increasing corticalization goes hand in hand with the increasing ability to represent and combine information at a conscious level. During ontogenetic development the increasing differentiation of conscious processing from rudimentary awareness of sensations to the fully expressed self-consciousness of the adult goes in parallel with the gradual maturation of the phylogenetically more recent cortical areas. Several arguments let it appear likely that the computational operations performed by cortical modules always obey the same basic principles irrespective of the type of input that is processed. These arguments are derived from the evidence that the microcircuitry of different cortical areas is strikingly similar and that auditory cortex, if supplied with visual input develops functional properties that closely resemble those of visual cortex. Thus, it can be assumed that the phylogenetically more recent cortical areas which are receiving their input mainly from the older areas treat this input in very much the same way as the latter treat the input that is provided to them by the sense organs. If so, the ability of brains to become aware of their own operations and states would have to be attributed to an iteration of the same cognitive operations that support primary sensory processing. The explanatory gap in the study of the neuronal correlates of consciousness would then be reducible to the general question of how the cerebral cortex processes signals and generates representations. If this question is answered with respect to primary sensory functions, the discovered strategies should be generalizeable to the formation of the meta-representations, the coherent, global representations that are believed to be the basis of conscious experience.

Two representational strategies

If the argument is valid that the internal monitoring functions that lead to consciousness rest on the same cognitive operations as the sensory processes which deal with signals conveyed by the sense organs, the search for the neuronal substrate of phenomenal awareness converges with the search for the nature of the neuronal codes used by the cerebral cortex to represent and store perceptual objects. In the following paragraphs I shall, therefore, expose hypotheses on the putative nature of neuronal representations.

The hypothesis proposed here is that evolved brains use two complementary strategies in order to represent contents (see also Singer, 1995; 1999). The first strategy is thought to rely on individual neurons that are tuned to particular constellations of input activity. Through their selective responses, these neurons establish explicit representations of particular constellations of features. It is commonly held that the specificity of these neurons is brought about by selective convergence of input connections in hierarchically structured feed-forward architectures. This representational strategy allows for rapid processing and is ideally suited for the representation of frequently occurring stereotyped combinations of features; but this strategy is expensive in terms of the number of required neurons and not suited to cope with the virtually infinite diversity of possible feature constellations encountered in real world objects. The second strategy, according to the proposal, consists of the temporary association of large numbers of widely distributed neurons into functionally coherent assemblies which as a whole represent a particular content whereby each of the participating neurons is tuned to one of the elementary features of composite perceptual objects. This representational strategy is more economical with respect to neuron numbers because, as already proposed by Hebb (1949), a particular neuron can, at different times, participate in different assemblies just as a particular features can be part of many different

perceptual objects. Moreover, this representational strategy is more flexible. It allows for the rapid de novo representation of constellations that have never been experienced before because there are virtually no limits to the dynamic association of neurons in everchanging constellations. Thus, for the representation of highly complex and permanently changing contents this second strategy of distributed coding appears to be better suited than the first explicit strategy.

The meta-representations postulated as substrate for conscious experience have to accommodate contents that are particularly unpredictable and rich in combinatorial complexity. In order to support the unity of consciousness, the computational results of a large number of subsystems have to be bound together in ever changing constellations and at the same rapid pace as the contents of awareness change. It appears then as if the second representational strategy that is based on the formation of dynamic assemblies would be more suitable for the implementation of the meta-representations that support consciousness than the explicit strategy. Further support for this view comes from considerations on the state dependency and the non-locality i.e. the distributed nature of mechanisms supporting conscious experience. If conscious experience depends on the ability to dynamically bind the results of subsystem computations into a unified meta-representation, conditions required for the formation of meta-representations ought to be the same as those required for awareness to occur. Neuronal codes that are readily observable in deep anesthesia, or during slow wave sleep, or in the absence of attention should not be accepted as sufficient correlates of awareness or consciousness although they are likely to be necessary components of the more global states required for the manifestation of consciousness. In this sense the local codes would be a subset but not the full set of correlates of consciousness. At low processing levels, the response properties of individual neurons tend to differ only little in awake and anesthetized brains. Therefore, it is unlikely that the explicit representations encoded by these neurons are the substrate of the meta-representations that support consciousness. However, neurons in higher cortical areas that are part of attention controlling networks or participate in executive functions undergo drastic changes of their response properties during states in which consciousness is absent. This suggests that the activity of these neurons depends on cooperative interactions that only come into play when the brain is awake and attentive. As discussed later, such cooperativity could be the result of the coordinating mechanisms that are required for the dynamic binding of distributed neuronal responses into coherent representations. One candidate mechanism for dynamic binding is the synchronization of neuronal responses with high temporal precision.

Such synchronization raises the impact that the activity of distributed neurons has on common target structures and thereby enhances responses to distributed inputs. As synchronization is abolished in the same brain states that are incompatible with conscious experience, it appears that the organizing mechanisms that bind distributed responses and thereby enhance responses of cells at higher processing stages play an important role in the maintenance of consciousness. If the meta-representations postulated as substrate of conscious experience were indeed based on widely distributed codes rather than on responses of local groups of neurons then consciousness should be rather resistant to local lesions. While lesions in subsystems are expected to prevent conscious experience of the contents provided by the respective subsystem, consciousness per se should not be jeopardized. It should break down only if lesions interfere with the coordinating mechanisms that permit establishment of globally coherent cell assemblies. This prediction is by and large in agreement with the known consequences of circumscribed cortical lesions. They eliminate from conscious experience the specific contents processed by the lesioned areas but there is no distinct site of the neocortex whose destruction would lead to a loss of consciousness. It is only after lesions affecting the global coordination of cortical functions that consciousness is abolished. These considerations suggest that the contents of conscious experience are represented by distributed codes. The following sections will, therefore, focus on the evidence for such coding strategies.

The signature of distributed codes

In distributed coding an important constraint needs to be met. A mechanism is required that permits dynamic association of selected neurons into distinct, functionally coherent assemblies and labels

grouped responses in a way that assures their joint processing. Numerous theoretical studies have addressed the question how assemblies can self-organize through cooperative interactions among distributed but interconnected neurons (Braitenberg, 1978; Edelman, 1987; Palm, 1990; Gerstein and Gochin, 1992). Here the focus will be on the question how responses of cells that have been grouped into an assembly can be tagged as related. Such tagging is equivalent with assuring that responses are processed together, and this is best achieved by jointly raising their saliency. In principle there are at least three non-exclusive options. First, non-grouped responses can be inhibited, second, the amplitude of the selected responses can be enhanced, and third, the selected cells can be made to discharge in precise temporal synchrony. All three mechanisms enhance the relative impact of the grouped responses. The first two strategies, which rely on the modulation of discharge rates, have been thoroughly investigated and appear to be common at all levels of processing. However, they have certain disadvantages when used for the labeling of assemblies because they may introduce ambiguities (von der Malsburg, 1985) and reduce processing speed (Singer et al., 1997). Ambiguities could arise because discharge rates of cells vary over a wide range as a function of the match between stimulus and receptive field properties and these modulations would not be distinguishable from those signaling the relatedness of responses. Processing speed would be reduced because rate coded assemblies can only be identified after a sufficient number of spikes have been integrated to distinguish high from low rates. Therefore, they need to be maintained for some time in order to be distinguishable, which reduces substantially the rate with which different assemblies can follow one another. Both restrictions, the ambiguity and the slow processing speed can be overcome if the selection and labeling of responses is achieved through synchronization of individual discharges (von der Malsburg, 1985; Gray et al., 1989; Singer and Gray, 1995). Expressing the relatedness of responses by synchronization resolves the ambiguities resulting from stimulus-dependent rate fluctuations because synchronization can be modulated independently of rates.

Synchronization also accelerates the rate at which different assemblies can follow one another because the selected event is the individual spike or a brief burst of spikes and saliency is enhanced only for those discharges that are precisely synchronized. The rate at which different assemblies can follow one another without getting confounded is then limited only by the duration of the interval over which synaptic potentials summate effectively (for a detailed discussion see Singer, 2000).

Experimental evidence for grouping by synchrony

Following the discovery of stimulus related response synchronization among neurons in the cat visual cortex (Gray and Singer, 1987; 1989), numerous experiments have been performed in the search for a correlation between the occurrence of response synchronization and cognitive processes. One of the predictions to be tested was that synchronization probability should reflect some of the Gestalt-criteria according to which the visual system groups related features during scene segmentation. Among the grouping criteria examined so far are continuity, vicinity, similarity and colinearity in the orientation domain, and common fate in the motion domain (Gray et al., 1989; Engel et al., 1991a,c; Freiwald et al., 1995; Castelo-Branco et al., 2000 for the cat; Kreiter and Singer, 1996 for the monkey). So far, the results of these investigations are compatible with the hypothesis that the probability of response synchronization reflects the Gestalt criteria applied for perceptual grouping. Stimulus-specific response synchronization has been found within and across different areas, and even between hemispheres (for review see Singer, 1999). Most importantly, none of these synchronization phenomena were detectable by correlating successively recorded responses to the same stimuli. This indicates that synchronization was not due to stimulus locking but to internal dynamic coordination of spike timing. The observed temporal coherence among responses was much greater than expected from mere covariation of event related rate changes. Studies involving lesions (Engel et al., 1991b; Nowak et al., 1995) and developmental manipulations (Löwel and Singer, 1992; König et al., 1993) indicate that the interactions responsible for these dynamic synchronization phenomena are mediated to a substantial extent by cortico-cortical connections. The criteria for perceptual grouping should then be reflected in the architecture of these connections and this postulate agrees with the evidence that cortico-cortical connections preferentially link neurons with related feature preferences (for review see Schmidt et al., 1997).

Response synchronization and behavioral states

Evidence indicates that highly precise, internally generated synchrony is considerably more pronounced in the awake than in the anesthetized brain (for review see Singer, 1999). Of particular interest in this context is the finding that response synchronization is especially pronounced when the global EEG desynchronizes and when subjects are attentive. Stimulating the mesencephalic reticular formation in anesthetized animals leads to a transient desynchronization of the EEG, resembling the transition from slow wave sleep to rapid eye movement sleep. Munk et al. (1996) and Herculano-Houzel et al. (1999) have shown that stimulus-specific synchronization of neuronal responses is drastically facilitated when the EEG is in a desynchronized rather than in a synchronized state. Direct evidence for an attention related facilitation of synchronization has been obtained from cats that had been trained to perform a visually triggered motor response (Roelfsema et al., 1997). Simultaneous recordings from visual, association, somatosensory and motor areas revealed that the cortical areas involved in the execution of the task synchronized their activity, predominantly with zero phase-lag, as soon as the animals prepared themselves for the task and focused their attention on the relevant stimulus.

Immediately after the appearance of the visual stimulus, synchronization increased further over the recorded areas, and these coordinated activation patterns were maintained until the task was completed. However, once the reward was available and the animals engaged in consumatory behaviour, these coherent patterns collapsed and gave way to low frequency oscillatory activity that did not exhibit any consistent phase relations. This close correspondence between the execution of an attention demanding visuo-motor performance and the occurrence of zero phase-lag synchrony suggests a functional role of the temporal patterning in the large scale coordination of cortical activity. It appears as if attentional mechanisms imposed a coherent subthreshold modulation on neurons in cortical areas that need to participate in the execution of the anticipated task and thereby permit rapid synchronization of selected responses. According to this scenario, the attentional mechanisms would induce what one might call a state of expectancy in the respective cortical areas by imposing on them a specific, task-related dynamic activation pattern. Once stimulus-driven input becomes available, this patterned activity would act like a dynamic filter that causes rapid synchronization of selected responses, thereby accomplishing the required grouping and binding of responses and in addition assuring rapid transmission of the synchronized activity (for more details see Fries et al., 2001).

Conscious perception

A close correlation between response synchronization and conscious perception and a remarkable dissociation between responses of individual neurons and perception has been found in experiments on binocular rivalry. When the two eyes are presented with patterns that cannot be fused into a single coherent percept, the two patterns are perceived in alternation rather than as a superposition of their components. This implies that there is a central gating mechanism which selects in alternation the signals arriving from the two eyes for further processing. Interocular rivalry is thus a suitable paradigm for investigating the neuronal correlates of conscious perception. Multiunit and field potential responses were recorded with chronically implanted electrodes from up to 30 sites in cat primary visual cortex while the animals were exposed to rivalrous stimulation conditions (Fries et al., 1997; 2001). In order to assure that the animals exhibited interocular rather than just figural rivalry they had been made strabismic shortly after birth as this is a condition that favors alternating use of the two eyes. Because the animal performs tracking eye movements only for the pattern that is actually perceived, patterns moving in opposite directions were presented dichoptically in order to determine from the tracking movements which signals were actually perceived by the animal. The outcome of these experiments was surprising as it turned out that the discharge rate of neurons in primary visual cortex failed to reflect the suppression of the non-selected signals. A close and highly significant correlation existed, however, between changes in the strength of response synchronization and the outcome of rivalry. Cells mediating responses of the eye that won in interocular competition and were perceived consciously increased the synchronicity of their responses upon introduction of the rivalrous stimulus while the reverse was true for cells driven by the eye that became suppressed. Thus, in this particular case of competition, selection of responses for further processing appears to be achieved by raising the saliency

of responses through synchronization rather than enhancing discharge frequency. Likewise, suppression is not achieved by inhibiting responses but by desynchronization. Thus, at least in primary visual areas, there is a remarkable dissociation between perception and the discharge rate of individual neurons. Cells whose responses are not perceived and are excluded from controlling behaviour respond as vigorously as cells whose responses are perceived and support behaviour. Another puzzling result of the rivalry study is that responses that win the competition increase their synchronicity upon presentation of the rivalrous stimulus. This suggests the action of a mechanism that enhances the saliency of the selected responses by improving their synchronicity in order to protect them against the interference caused by the rivalrous stimulus.

In conclusion, evaluation of internally generated correlation patterns permits the extraction of information about stimulus configurations, behavioural states and perception that cannot be obtained by analyzing the responses of individual neurons sequentially. The relevant variable containing this additional information is the rather precise synchronization of a fraction of the discharges constituting the respective responses. The data indicate further that responses containing synchronized epochs have a higher probability of being processed further and, eventually, of being perceived consciously.

The generality of synchronicity

Studies in non-visual sensory modalities and in the motor system indicate that synchrony and oscillatory activity are ubiquitous phenomena in the nervous system. Synchronization occurs in a variety of distinct frequency bands and has been found in all sensory modalities. Synchronization in the high frequency range (beta and gamma oscillations) has been observed in the olfactory system, the auditory cortex, the somatosensory system, the pre-frontal cortex, the motor cortex and the hippocampus (for review see Singer, 2004). Synchronization also seems to play a role in the linkage between cortical assemblies and subcortical target structures such as the superior colliculus. This possibility is suggested by the existence of precise temporal relationships between the discharges of neurons in areas of the visual cortex and the superior colliculus (Brecht et al., 1998). In these experiments, it could be shown that corticotectal interactions are strongly dependent on the temporal coherence of cortical activity. If cortical neurons engage in synchronous oscillatory activity either with partners within the same cortical area or with cells in other cortical areas, their impact on tectal cells is enhanced, indicating that tectal cells are driven more effectively by synchronous than by asynchronous cortical activity. This finding is consistent with the idea that the temporal organization of activity patterns plays an important role in defining the output of the cortex. Taken together, the available evidence suggests that comparable synchronization phenomena are found in a large number of different functional systems. Thus, it seems justified to generalize the results obtained in the visual cortex and to suggest that temporal coordination of discharges may be of general relevance for neural information processing. Importantly, there is now abundant evidence that precise synchronization such as that associated with oscillations in the beta and gamma band occurs also in the human brain. EEG and MEG studies have provided evidence that these synchronous high frequency oscillations are related to cognitive functions such as feature binding, visual search, focussed attention, short- and long term memory and conscious perception (for reviewing see Tallon-Baudry and Bertrand, 1999; Varela et al., 2001; Engel et al., 1999a,b; Tononi et al., 1998).

Conclusion

The hypothesis proposed here is based on the following assumptions: i) phenomenal awareness emerges from the formation of meta-representations, ii) these are realized by the evolutionary addition of higher order cortical areas that process the output of lower order areas in the same way as these process their respective input, iii) in order to account for the required combinatorial flexibility these meta-representations are likely to consist of the coordinated responses of dynamically bound assemblies of distributed neurons rather than of the responses of individual specialized cells, iv) the selection and binding mechanism that groups neurons into assemblies and labels their responses as related is the transient synchronization of discharges with a precision in the millisecond range, v) the formation of such dynamically associated, synchronized cell assemblies requires activated brain states characterized

by „desynchronized“ EEG and is facilitated by attentional mechanisms. The data reviewed above support these premises and define conditions that need to be fulfilled in order to allow for conscious experience. Obviously, for a content to be perceived consciously it is a prerequisite that neurons coding for this content are active. However, by measuring responses of individual neurons it is impossible to decide whether a recorded response is just a necessary or whether it is a sufficient condition for conscious experience. If neurons in a particular transmission chain stop responding, the content conveyed by that group of neurons cannot be perceived. Hence, correlations between perceptual awareness and cellular responses indicate only that the discharges of cells at a particular processing stage are necessary for a particular content to reach the level of awareness. In order to find out whether additional prerequisites have to be fulfilled, e.g. the binding of these responses into widely distributed assemblies, variables need to be determined that permit assessment of order parameters beyond the level of single units. This can only be achieved with recording techniques that disclose the spatio-temporal activation profile of large numbers of neurons. In this context it is noteworthy that methods such as EEG and MEG recordings which assess global activation patterns and monitor only activity that is sufficiently synchronous to add up to a measurable signal, differentiate best between brain states where consciousness is or is not possible. This favors the hypothesis that the generation of the metarepresentations that support conscious experience requires temporal coordination of activity well beyond the level of single cell firing. Consciousness manifests itself only during brain states characterized by „desynchronized“ EEG. These states, in turn, favour the occurrence of high frequency oscillations and long distance synchronization of neuronal responses with a precision in the millisecond range. It seems not unreasonable, therefore, to pursue the hypothesis that the meta-representations required for consciousness to manifest itself consist of large assemblies of distributed neurons whose signature of relatedness is the internally generated synchronicity of discharges. Thus, consciousness, rather than being associated with the activation of a particular group of neurons in a particular region of the brain, appears to be an emergent property of a particular dynamical state of the distributed cortical network – a state that is characterized by a critical level of precise temporal coherence across a sufficiently large population of distributed neurons.

COMMENTS AND EXTRAPOLATIONS

By Dr. Nicolas Kaloy

Wolf Singer's «Large-Scale Temporal Coordination» Revisited.

1. Comments on Prof. Singer's work.

Prof. Wolf Singer's paper on "Large-scale Temporal Coordination of Cortical Activity as a Pre-requisite for Conscious Experience" is, to my knowledge, the first successful attempt to fill the gap between theoretical and, what I shall call,

"experimental" philosophy. We underline some extracts of Prof. Singer's paper and insert our comments and extrapolations.

Consciousness, as Brentano put it, is always consciousness of some "thing" (intentionality). Hence, the definition of the "thing" is important in connection with the question of conscious experience. The "thing", i.e. the "object", of which we are aware, may be either aroused by external stimuli or by the brain itself in the absence of any immediate external stimuli. It seems that "the internal monitoring functions that lead to consciousness rest on the same cognitive operations as the sensory processes". In both cases, a content of cognition is established according to the dynamical association of large numbers of distributed neurons in coherent cell assemblies. Such distributed assemblies **self-organize through transient synchronization of the discharges of associated neurons.** In both cases the neuronal activation patterns as contents of conscious experience must have certain signatures in common, irrespective of whether they are due to sensory input or the result of self-generated activity of inner sense. This common format should be identifiable by a mechanism that can be seized by consciousness and is capable of monitoring this double operational process.

A most likely substrate, says Prof. Singer, is cortical areas which have gradually developed in the phylogenetic evolution correlated with the graded maturation of cortical areas during the later ontogeny. This brings us to the continuous "historical" process of Haeckel's recapitulation theory or fundamental biogenetic law according to which ontogeny recapitulates phylogeny going back to a common ancestor. It is thus becoming evident that the conscious processing in the brain-function can be subject to experimental investigation. It can then be assumed, according to Singer, that "the phylogenetically more recent cortical areas receiving their input mainly from the older areas, treat this input **in similar way as that provided by the sense organs**".

This leads to the important conclusion that the same cognitive operations which support primary sensory processing, explain the **ability of the brain to become aware of its own operation and states.** It is the *reminiscence of this inner operation* that may well explain the fact that the Kantian "category" of Community (Gemeinschaft) is *a priori*. In this sense, apriority is endogenous, deriving from the mechanism of the phylogenetical evolution of the brain function, retained as implicit memory storage. It is self-evident that this analysis **elucidates** the age-long controversy on the origin of *innate ideas* but also of Jung's *archetypal* forms, in which case the Cartesian "innate ideas" constitute the implicit memory storage of a long historical operation of the brain function in the course of a creative evolution. According to Singer "the explanatory gap in the study of the neuronal correlates of consciousness would then be reducible to the general question of how the cerebral cortex processes signals and generates representations. If this question is answered with regard to primary sensory functions, the discovered strategies should be generalizable to the formation of the meta-presentations, the coherent global representations that are believed to be the basis of conscious experience". It is evident that the "reminiscence" (ἀνάμνησις) is now deprived of its platonic occult connotation. Singer points out that "most of the a priori knowledge required for the interpretation of sensory signals is implicit as we are unaware of the fact that the process of perceiving is governed by priors that are highly idiosyncratic". He then makes the important remark that "had our cognitive apparatus adapted to the quantum or cosmic dimension, the definition of an object would have been quite different and the same holds for the many other priors that the brain applies". We may add that the definition of an object would have been so radically "quite different" that there might be no "object" at all. This is an echo of the basic tenet of Kant's

first Critique, that cognition is the result of a historical process valid only “für uns Menschen wenigstens” (at least for us humans).

Now, a most important elucidation is necessary on the crucial point of **what is an “object” and how it is formed by the brain process**. It will then become clear that the formation of the object out of the undetermined manifold Allheit is **a process of segmentation effected by synchronization of the activity of two populations of neurons**. This is an experimentally detectable operation corresponding to what is called vaguely “Category of Limitation” in the Kantian scheme. As it seems, it is the implicit memory storage of this process of segmentation which accounts for the apriority of the Category of Gemeinschaft. In fact what is meant by Gemeinschaft (Community, Plato’s κοινωμία), is the *reminiscence* of a long operation which took place in the inner sense. In order to bring to consciousness this historical process it suffices to follow Professor Singer’s account of experiments elucidating the formation of the “idea” which corresponds to a specific “object”, as being the creation of the brain function; the key-word being the “Category of Limitation”. All these are most fertile seeds that lead to a productive interpretation of the philosophical Theories of Knowledge.

2. Conclusions.

It is my considered opinion with regard to existing theories of perception that Singer’s experiments lead to the following (briefly stated) conclusions with regard to certain philosophical aspects of the theory of knowledge:

1. The introduction by Kant of the “a priori concepts which contain nothing empirical (KrV, A 95)...forming the a priori foundation of all possible experience (A 97)”, called “forms of intuition” and “categories” is now **elucidated** and **confirmed**. What is elucidated is that the “*a priori*” (i.e. “absolutely independent of all experience” (KrV B3) and “given prior to all thought” (B132)), refers to the very mechanism of the cognitive *continuous process* in the brain. Considering that the (human) brain consists of about 100 billion neurons, each one connected with its neighbours by approx. 10,000 connections, we arrive mathematically to a possibility of combinations which go beyond the capacity of any computer so far realized by human engineering. The so far abstract meaning of the term “a priori category” as mere “form of thought” (Gedankenform), becomes now an object of sensation i.e. an experimentally observed *living* mechanism of the brain which obtains an absolutely necessary objective reality.

2. It is according to these a priori elements of the functional architecture (structure) of the brain that the experimentally observed by Prof. Singer inner process of *self-organized synchronization of neuronal responses* can take place. Here, we have *in concreto* what Kant calls (in A 105) “the formal unity of consciousness in the *synthesis* of the manifold of representations”. It is the very process which Kant describes in abstract terms as “the combination (*conjunctio*) of a manifold in general (which) can never come to us through the senses, and cannot, therefore, be already contained in the pure form of sensible intuition, for it is an act of *spontaneity of the faculty of representation*” (KrV B-130). The experimental proof of Singer’s “self-organized synchronization of neuronal responses” is no other, in Kantian terms, than this “inner act of *spontaneity*” which Kant calls “*pure apperception* to distinguish it from empirical apperception” ...“a self-consciousness generating the representation *I think* (cogito)... in the same subject in which this manifold is found” which accompanies all other representations in a *unique* consciousness (B132, cf A103). Further, “the unity of this act is at the same time the unity of consciousness...(being) an objective condition of all knowledge” (B 138). The scientific proof of “*self-organized synchronisation of neuronal responses*” as shown by Prof. Singer’s experiments, is the objective confirmation and **elucidation** of Kant’s lengthy description of such act of *spontaneity* as the transcendental unity of apperception in A103 to A110 as related to the pure synthesis of imagination (Einbildungskraft) (cf A121,122) or of the original (*ursprünglich*) *synthetic unity of apperception* in KrV B131et seq.

2a. {NOTE: We may add here with reference to Francis Crick’s “astonishing hypothesis that each of us is the behavior of a vast interacting set of neurons”, that the “**spontaneity**” of the continuous process excludes any attempt towards a purely “materialistic” interpretation. Prof. Singer’s “Large scale temporal

coordination of cortical activity” implies a coordinator! Read in KrV B133: “...The relation comes about not simply through my accompanying each (separate) representation with one another but only in so far as I conjoin one representation with another and am conscious of the synthesis of them...(and) I can unite the given manifold in *one consciousness*}. (All references to KrV from Kemp Smith’s translation, 1964) Two populations of neurons synchronize their activity with electrical discharges, participating in the elaboration of mental images. (Is it the “photography” of the so-called “Category of Limitation” producing the world of phenomena “at least for us humans”?)

Insert photo.

3. Philosophy which so far was an ambiguous play of Gedankenformen can now obtain solid bases *in concreto* married, as it were, with scientific experimental methods and thereby be confirmed and elucidated. What, in the Theory of Knowledge, was so far theoretical philosophy may now become “scientific” or “**experimental**” philosophy.

4. The experimental evidence has shown that the brain is not a passive looking glass capturing the outside world. The first attempts of “naive” empiricism, of strict “materialism” and of the identification of “science” with “sensation” in Plato’s Theaetete (οὐκ ἄλλο ἐστὶν ἐπιστήμη ἢ αἴσθησις, 151de) are fundamentally **falsified**. The same experimental evidence has also falsified Plato’s conception of the Idea as “already constituted” (*Urbilder der Dinge selbst*, B 370) outside and independently of the subject’s brain-function. Both, the empiricist theory and Plato’s “realistic” conception of the theory of Ideas are definitely **falsified** with scientific evidence. (Note the fundamental difference between Plato’s πρότερον ἄρα in Phed. 76c and Kant’s *a priori*).

5. Berkeley’s theory that *esse est percipi* is brilliantly **elucidated** by Professor Singer’s research. Experimental evidence has shown that *esse* is constructed by the mechanism of the brain-function and therefore it only exists **as such**, i.e. as an object, **after** it has been so constructed by the brain. Hence, in as much as it is not yet so constructed, it does not exist (as such). In other words, the object outside the brain does not exist as such because it is the brain that produces the object in perception by the application of the process of “Limitation”. Berkeley’s proposal is correct although its author “spoke in opposition to his own intention”. This is an example of Kant’s phrase that “we can understand a thinker better than he understood himself”. Cf Kant KrV A104 “objects of representation as such and in themselves must not be taken as objects existing outside our power of representation...” a premiss which is now experimentally **confirmed**.

6. The ontological status Descartes seems to have attributed to “clear and distinct ideas” is likewise **falsified**. It is experimentally verified that all ideas are constructed by the brain function with the application of the *process of synchronization* called “Category of Limitation” which determines in shape and form what hitherto was sensually undetermined as Allheit (Totality). Ideas (hence, “objects”) do not exist prior to their being constructed by the brain-function. Thus, the “cause” of determination is the *cerebral activity* or “Wirkung” summarily described in Kant’s theory of knowledge as “category” of Limitation. Note that the ambiguous term “category” (actually meaning in Greek “classification”) is borrowed from Aristotle but Plato uses more appropriately the term “gender”, (γένος). The **elucidation** of this process which, as it is shown, consists in the segmentation of Allheit and the creation of a fictitious distinct idea of an object (as a << fragment >> of Allheit), sheds a new light and **confirms** a passage in the 4th Méditation where Descartes says: << la même chose qui pourroit sembler fort imparfaite si elle étoit seule dans le monde, ne laisse pas d’être très parfaite étant considérée comme faisant partie de tout cet univers...en sorte que j’existe et sois placé dans le monde comme faisant partie de l’universalité des êtres >>. In this passage, Descartes seems as if he had conceived the Universe as an undetermined One but it is only now that we can “understand him better than he understood himself” (cf Kant’s KrV A314-B370).

7. Compare to this, Plato’s Sophist 259d : <<ΤΟ ΓΕ ΠΑΝ ΑΠΟ ΠΑΝΤΟΣ ΕΠΙΧΕΙΡΕΙΝ ΑΠΟΧΩΡΙΖΕΙΝ ΟΥΚ ΕΜΜΕΛΕΣ ΑΛΛΑ ΚΑΙ ΠΑΝΤΑΠΑΣΙΝ ΑΜΟΥΣΟΥ ΤΙΝΟΣ ΚΑΙ ΑΦΙΛΟΣΟΦΟΥ

8. The so far vague as mere Gedankenform “Category of Allheit” (Plato’s ἀπειρον) is now **elucidated** as being the undetermined continuum of what we can describe, in Singer’s words, as “**sparse sensory signals**” or oscillations. This “material” constitutes the initial acquaintance of the brain apparatus to be subsequently segmented by the *process* of the so-called “category of Limitation” (Plato’s πέρας) to appear as Multiplicity (of ideas-objects, Plato’s πολλά). Hence, the *ex nihilo* emergence (απορροή) of the notion of “otherness” (alterity).

9. Prof. Singer’s experiments revealed that the so far as vague as Gedankenform “Category of Limitation” has now obtained objective reality *in concreto* as being **two populations of neurons in the brain which synchronize their activity in segmenting the undetermined continuum** of sparse sensory signals into clear and distinct ideas corresponding to objects. It is this mechanism of the creation of “objects” (by the working of a process conventionally called “Category of Limitation”) that constitutes the *very source of “consciousness”* since, as Brentano saw, consciousness is always consciousness of an object which in reverse order means “no object *ergo* no consciousness”.

10. We only perceive consciously the final result of the manifold computations where a priori elements in the brain structure combine with sensory signals in order to create what has the form of the outside **phenomenal** world “at least for us humans” (cf Kant’s “für uns Menschen wenigstens”). As Prof. Singer put it, “had our cognitive apparatus adapted to the quantum or cosmic dimension, the definition of an object would have been different” – or maybe, we may add, there would be no individual objects at all!

11. We have seen that the brain-function involves the *segmentation*, by means of the process of Limitation, of a spatiotemporal continuum called “category of Totality (Allheit)” into “clear and distinct” cognitive entities. We can therefore further assume that Plato’s notion of the “Idea” as pre-existing and as “having been seen” by the “soul” (cf εἰρακυία ἡ ψυχή, Men. 81c) is manifestly **falsified**. Plato’s error was due to the fact that the notions of “process” or of subjective idealism were entirely unknown in antiquity (cf C.A. Brandis, *Handbuch der Geschichte der griechisch-römischen Philosophie*, ii,a,297). This is made particularly clear if we read in Plato’s *Parmenides* (132 b) the immediate and vehement refutation of Socrates’ ingenious remark that ideas might simply be <NOHMATA EN ΨΥΧΑΙΣ> (NOHMA, KAI OYΔAMOY AYTO ΠPOΣHKE EΓΓIΓNEΣΘAI AΛΛOΘI H EN ΨYXAIΣ >>!)– noemata in the soul (read the ...brain!) and nowhere else!

12. Prof. Singer’s experiments, where the formation of the “object” by the brain-function is clearly demonstrated, may lead to an **elucidation** of the meaning of the Ding-an-sich or Noumenon in the Kantian scheme. Let us first point out that the notion of an undetermined Allheit prior to any representation, was first posited by Plato in his consideration of the <<ΑΝΥΠΟΘΕΤΟΝ>> as a first principle (cf Rep.511b). Further, Descartes observes in Med.III <<jusqu’à ce que de degrés en degrés on parvienne enfin à une dernière cause... >>. In all these cases the <<Undetermined>> prior, is conceived as a <<cause>> absolutely distinct and separated from the sensible world. This hypothesis of radical and abysmal “distinction” where the “unknown” Ding-an-sich is taken as “cause”, constitutes a problem in the Kantian scheme inasmuch as Causality is presented as a Category within the scheme. However, a most careful observation of Prof. Singer’s experiments may lead us to a novel consideration on the status of the Ding-an-sich. Such experiments provide the proof that the presentation of the sensible world as a series of “clear and distinct” ideas or objects is absolutely and exclusively a product of the brain function. If the “determined” is the product of the brain-function out of the original undetermined Allheit, there is no reason or evidence to suppose that the undetermined Allheit is “other” than the Ding-an-sich itself.

As Prof. Singer rightly observes “it is highly unlikely that our brains are able to access the “Ding-an-sich” and even the idea that there might be a “Ding-ansich” as a putative object of cognition might have to be questioned”. From Prof. Singer’s experiments we have seen that any “object” or “thing” whatsoever in the phenomenal world, is a creation within the brain by the “Wirkung” of the categorial scheme. If an “object”, as we have seen, is the product of the *process* called “Category of Limitation”, it is obvious that outside the system of categories (i.e. of “our power of representation” cf KrV A 104), there exist no “objects”. This may lead us to the

clarification of this old problem to the effect that the **Ding-an-sich is the Allheit itself** (prior to its segmentation) which may be considered, as a first “hypostasis” (ΥΠΟΣΤΑΣΙΣ) of which the subsequent transformations by the “Wirkung” of the Forms of Intuition and of the Categories are the “aporroai” (ΑΠΟΡΡΟΑΙ), in the very sense that these two notions may have in the system of Plotinus. In fact, a “hypostasis” is not the “cause” of the “aporroe” but the aporroee is but a different interpretation by the brain function of the original hypostasis. We may say in a figurative way that the “rose” is not the “cause” of the “perfume” but the perfume is the rose itself as conceived by the “olfactory sense”. In a supposed absence of any other sense the only “object” of consciousness would be the “rose” as perfume. Likewise, the “cause” of the phenomenal object is not the Allheit (or putatively a Ding-ansich outside the system) but the cause of such phenomenon is the Category of Limitation within the system which has fictitiously separated it (in fact “created” it) from Allheit thus altering its “appearance” in the sensible world. In this case, we see that the brain-function investigation as presented in Prof. Singer’s experiments may **elucidate** a chronic problem associated with the Kantian system. (This novel interpretation may also serve to elucidate the passage quoted in §5 above from Descartes’ Méd.IV).

13. A further **elucidation** deriving from Prof. Singer’s experiments concerns the *apriority* of the category of Gemeinschaft (community, Plato’s κοινωμία, Soph.257a). We have said in the foregoing that “a further combination of the main categories (Allheit, Limitation, Gemeinschaft) may be seen in horizontal order, inasmuch as the combination of Allheit with Limitation gives the dynamical Category of Gemeinschaft”. Kant points out that “the combination of the first and second concepts requires a special act of the understanding” (KrV B111) in that it implies an “influence” (Einfluss). Prof Singer indicates that “as we learnt from our work on the neuronal basis of conscious experience, the brain, once it has segmented the Allheit and delineated objects, (an Allheit which Plato more appropriately calls “infinity”, ΑΠΕΙΡΟΝ, with the precision ΤΟ ΑΠΕΙΡΟΝ ΠΟΛΛΑ ΕΣΤΙ 24a) again **strives for coherence** when representing these objects in consciousness”, the strife for coherence being, as it were, the annihilation of the act of segmentation. So, the brain binds again the objects into relational constructs with a unitary flavor – the so strongly experienced unity of consciousness. It may therefore be assumed that “the world is continuous, that all objects must somehow be connected and related to one another (and this) could provide the basis for the Category of Gemeinschaft”. However, in another passage of his article, Prof. Singer, indicates that <<the computational operations performed by cortical modules always obey the same basic principles irrespective of the type of input...(there is) evidence that the microcircuitry of different cortical

areas is similar and that auditory cortex, if supplied with visual input, develops properties similar to the visual cortex... the ability of brains to **become aware of their own operations and states** would have to be attributed to an iteration of the same cognitive operations that support primary sensory processing>>. These observations lead to the possible conclusion that the apriority of the category of Gemeinschaft, in its *synthetic unity*, may indeed be attributed to the “strife for coherence” as a return to the original state. This same strife for coherence in its “step by step” development, is the force that makes a syllogism possible, the syllogism “being itself a judgment determined *a priori* in the whole extend of its conditions” (A 321- B378). This whole operation may well have derived under the impulse of an **implicit memory storage** of the “brain’s own operations and states” which, as we saw, consisted in the segmentation of the original (*ursprünglich*) Allheit (*universalitas*) by the process of “Limitation”, resulting in the creation of the World of Multiplicity of appearances (alterity, otherness). The “strife for coherence” is therefore a return to the initial Allheit which as a “pure concept of reason or transcendental idea” (cf “since we can never represent it in image” B384) might be “objectified” in consciousness “*par procuration*” (by inference, *bei Schlüssen*) i.e. **only by the illusionary form of an Idol (“object”) serving as a Symbol of the “absolute whole of appearances”** (cf A321-B378 et seq.)

Assumptions and extrapolations

14. From these observations we may extrapolate towards the valid assumption that Parmenides’ conception of the World as One, Diotima’s ascending dialectic to the Idea of Good, Plato’s drive ΕΠΙ ΤΗΝ ΠΡΩΤΗΝΑΡΧΗΝ ΜΕΧΡΙ ΤΟΥ ΑΝΥΠΟΘΕΤΟΥ (Rep.511b), a similar conviction of Indian philosophy (Vedanta) in the accomplishment of Nirvana (i.e. extinction of Multiplicity) in the realm of Brahman, Plotinus’ “ΕΦΕΞΙΣ

προς ΤΟ ΕΝ” and Sartre’s admonition “l’Enfer c’est les autres”, reside deeply in Man’s subconscious implicit memory storage of what Descartes has called “l’universalité des êtres” (cf *supra* §5, Med. IV). Hence, the strife of Man for coherence and his *progressive* success in reaching eventually the illusionary bliss of union with all that exists (cf Descartes’ “universalité des êtres” and his statement that “knowledge of the finite presupposes the prior knowledge of the infinite”), is the very condition to achieving the aesthetic experience of the “sublime” (das Erhabene) as shown by Kant in his Critique of Judgment. We observe therefore a functional movement within the brain consisting in a **Strophe** from the primordial (*ursprünglich*) undetermined Allheit to its segmentation (by means of the *process* of Limitation) into “clear and distinct ideas” which form the multitude of fictitious entities in the *phenomenal* world of experience. The perennial combination (in Plato’s words ΣΥΜΠΛΟΚΗ) of these entities (in Plato’s words ΕΙΔΗ) constitutes the domain of Reason or ΛΟΓΟΣ (cf Plato’s Sophist 259e, <<ΔΙΑ ΓΑΡ ΤΗΝ ΑΛΛΗΛΩΝ ΤΩΝ ΕΙΔΩΝ ΣΥΜΠΛΟΚΗΝ Ο ΛΟΓΟΣ ΓΕΓΟΝΕΝ ΗΜΙΝ >> and Kant’s <<the transcendental concept of Reason is none other than the concept of the *totality* of the *conditions* for any given conditioned ... a pure concept of Reason can be explained by the concept of the unconditioned, conceived as containing a ground of the synthesis of the conditioned >> (A 322-B 379)). The “Enfer des autres” (in Sartre’s words) in the domain of **Reason** (ΛΟΓΟΣ) finally *strives for coherence* in a movement of **Antistrophe** in the domain of **Feeling**, as a homecoming to its original (*ursprünglich*) status of Einheit (ΤΟ ΕΝ). The intrinsic implicit memory is retained in the Category of Gemeinschaft and is “objectified” in consciousness (*intentionality*) in the form of an **Idol serving as a Symbol of Totality**. We may say that this two-way movement of Strophe and Antistrophe as in the chorus of an ancient Greek tragedy is now suggested in a scientific experimental basis as shown in Prof. Wolf Singer’s paper.

15. It would indeed be very daring (but not at all excluded) to suppose that Haeckel’s “phylogenetic evolution” mentioned by Prof. Singer (*see above*) and implied in Karl Jung’s “archetypes”, goes as far back in implicit memory as the stage of coherence *prior* to the Big Bang. In which case Gemeinschaft is the closing (as reminiscence (ΑΝΑΜΝΗΣΙΣ) within the brain) of the *unified categorial cycle* in a continuous process which started with the original (*ursprünglich*) Einheit (ΤΟ ΕΝ). If further studies of brain-function could ever prove these assumptions and extrapolations then Philosophy would have entered a new era.

Dr. Nicolas Kaloy, Geneva

THE INTERNATIONAL KALOY PRIZE

INTRODUCTORY ANNOUNCEMENT

The following Chapters (A) and (B) were issued as an introduction to the problem and as a guide to the interested candidates for the future.

Chapter A

The scope of experimental philosophy

By Dr. Nicolas Kaloy

The Kaloy Prize marks a new Orientation in experimental philosophy. The main subject remains: “*confirm, reject or elucidate a known theory of Knowledge*” but this time the steering Committee of the Kaloy Foundation in Greece decided to direct the research to the confirmation (or otherwise) of the WHY of Aesthetic Experience and with particular reference, as a first step, to the Sublime taking as a working hypothesis the relevant theory of Kant as exposed in his Critique of Judgment. Now a new question arose: is it possible to monitor brain function experiments on this subject and, in the affirmative, what kind of experiments may be proposed? This question justifies the purpose of the present “Introductory Announcement” in order to facilitate the orientation of prospective candidates.

The idea to apply Francis Bacon’s warning “bring to nature to bear witness” is as old as the time when an aborigine thought that the persistent friction of two stones or sticks may produce fire and he **proved** his thought by **experiment**. But is the role of the brain function appropriate? As the authors of “The Mystical Mind” (D’Aquili and Newberg) state,

“the brain is responsible for receiving input from the outside world, analyzing that input, informing us what that input is, feeling an emotional content toward that input, creating a behavioral response to that input and acting out that behavior”.

It is true that all existing theories of knowledge have so far been the result of “thought” and the substantive underlying part of all human thought has no other mechanism than the one provided by the brain function. The “brain” is, of course, a material entity but sheer materialism is not the attribute proper to its “function”. The Cartesian *cogito* is a *process of thoughts and feelings* taking place in the brain. What we call “the Mind” is considered to be these thoughts and feelings themselves. Therefore Mind and Brain-function are different word-sounds denoting the same thing – in same analogy as light is explained sometimes as “wave” and sometimes as “particle”. There is no other mechanism to account for the existence of Mind except the brain function and this is an absolute statement. We can repeat here Kant’s assertion that all knowledge comes from experience but it does not necessarily derive from it. In fact all knowledge, whether it “comes” or it “derives”, whether it is thought or felt, it happens and takes place in the brain; here again we have announced an “absolute statement”. Despite the immature knowledge on the working of the brain in his time, Leibniz was farsighted to add to the empiricist precept “*nisi intellectus ipse*”.

It is obvious that when Kant, refusing “illusionary knowledge” (KrV A,XI) resorts to a “*call to reason to undertake anew the most difficult of all its tasks, namely that of self-knowledge and to institute a tribunal which will assure to reason its lawful claims not by despotic decrees but in accordance with its own eternal and inalterable laws*” he installed his Critique of Pure Reason independently of all experience... “to determine its sources, its extent and its limits”. Kant is attempting to go deep into the matter of the creation of knowledge by exploring by introspection the working of his own brain function. All knowledge, all emotion, all feeling, all reasoning emanates from the brain function. The fact that we lay stress on the “function” and not on the “brain” excludes any incrimination about a sterile “materialism”. The complexity, the evolution and the secrets of this function can be explored and discovered by the advancement of experimental methods, a discipline unknown in Kant’s times.

In our time we are confronted with the necessary completion of the Critique of Pure Reason, as investigated by Kant, in order to **confirm, reject or elucidate** the former abstract speculation of philosophers by a series of **experiments on the brain function** as proposed for the first time by the initiative of the Kaloy Prize. We now know it is an “absolute statement” that the brain underlies all experiences of living human beings. The various concepts of the theories of knowledge, so far designated by pure speculation and a play of thought alone, can now be *verified, rejected or elucidated* with the contribution of what I have called **experimental philosophy in a new key, specifically oriented to this purpose**. We must see, however, how the problem of verification was also present in Kant’s mind when writing his Critique. In fact, in KrV,Bxxxv, he is careful to assert,

“this Critique is opposed to dogmatism, that is to the presumption that it is possible to make progress with pure knowledge according to principles from concepts alone (those that are philosophical) as reason has long been in the habit of doing; and that it is possible to do this without having first investigated what way and by what right reason has come into possession of their concepts. Dogmatism is thus the dogmatic procedure of pure reason, without previous criticism of its own powers”.

The advantage of our age today is that we know that such “criticism” as he meant, can be more fully attained by *experiments* which are “bringing nature to bear witness”, a practical method of neuroscience that was unknown in the time of Kant’s long examination of this crucial problem.

Planning for the future development of the International Kaloy Prize.

In the preceding Chapters I have formulated, as a combination of various systems (e.g. Plato, Kant, Nietzsche, Schopenhauer, Western and Indian philosophy...), a general theory I call “Totalism” (in Greek θεωρία της Ολοκληρώσεως). It starts, as a *working hypothesis*, with what Plato calls “anhypotheton” (ανυπόθετον, cf Rep. 511b) which is identified with Kant’s primary “category” of Totality, (Allheit)- which Plato calls Infinity, (άπειρον, cf *Philebus* 28c) and which, may also be identified with the *undetermined* in Quantum Physics (which, as a working hypothesis, may be considered as the Kantian Thing-in-itself). I suggested the triple “pre-physical, physical, meta-physical” state of human existence (where,by pre-physical, I mean the state prior to the collapse of the wavefunction). I maintain that, after the collapse of the “wavefunction” (for whatsoever still unknown reason), the human brain (*cerebral cortex*, in Singer’s words) proceeds to the “*segmentation*” of the undetermined “Manigfaltiges” (called by Kant Allheit and by Plato Infinity) into what Descartes has called “clear and

distinct ideas” and common sense calls “objects” (*“processes signals and generates representations”* in Singer’s words). Generator of this operation is the Category of Limitation (called by Plato *“gender of peras”*, Philebus 28c, *“πέρας* in Greek meaning Limit or end). This operation or process is particularly important because it generates conscious experience (if we maintain Brentano’s view that consciousness is only “of objects”). I note here a remark suggested by the author of the paper that won the first Kaloy Prize, Prof. Wolf Singer (see above), who points out that *“had our cognitive apparatus adapted to the quantum or cosmic dimension, the definition of an object would have been quite different..”*. to which I added that “the definition of an object might have been so radically different that there might be no object at all”).

It has become clear that the formation of the object out of the undetermined Allheit is **“a process of segmentation effected by** synchronization of the activity of two populations of neurons” (see adjacent photo in my “Comments...”) and all this I identify with what Kant calls vaguely “category of Limitation”. I further say that “the implicit memory storage of this process of segmentation accounts for the apriority of the Category of Gemeinschaft”. I firmly believe that the abstract term “category” (which Kant copied from Aristotle) must have a concrete explanation of what it really is. This having been said, I think we may arrive at a conclusion which, if accepted, may clarify a lot of what was left unexplored by Kant.

The conclusion is that the world of phenomena, *initially and prior* to the “collapse of the wavefunction”, is a global, Undetermined Allheit or the “unknown” Ding-an-sich, more appropriately called “Infinity” (ἄπειρον) by Plato. This, is fictitiously “segmented” by the brain-function process into a Multiplicity of entities (objects) which *appear* to us as “clear and distinct ideas” thus creating the notion of “otherness” (alterity). As the Cartesian method points out, these “ideas”, we strive by means of the rational process to combine (by the syllogism) into wider “wholes” which we call “concepts” and “propositions” involving a “meaning”. This meaning is actually “what we do with them”, a view first proposed by Socrates with the key word ΧΡΗΣΙΜΟΝ (see Xenophon’s Memoirs, Bk Δ, Chap. VI,9) and later taken by Charles Sanders Pierce and William James to form the philosophical foundation of Pragmatism. It seems to me that this “saga of creation” elucidates Plato’s definition of Logos i.e. a symploké (synthesis) of “eidos” (entities) (see Sophist,256e-257, 259e, ΔΙΑ ΓΑΡ ΤΗΝ ΑΛΛΗΛΗΝ ΤΩΝ ΕΙΔΩΝ ΣΥΜΠΛΟΚΗΝ Ο ΛΟΓΟΣ ΓΕΓΟΝΕΝ ΗΜΙΝ.

Kant’s version is: *“If the manifold of pure intuition is to be known, the spontaneity of our thought requires that it be gone through in a certain way taken up and connected -this act I name synthesis....synthesis is the mere result of the power of “imagination” (Einbildungskraft), a blind but indispensable function of the soul”* (the “soul” or “mind” nowadays meaning ...the brain function and “synthesis” meaning as Singer rightly says “synchronization”) (KrV B102 – B103). This conclusion also clarifies Descartes’ observation in Méditation IV that “the clear and distinct idea is imperfect but it becomes perfect if viewed as part of the universality of beings”. In other words, the “first given” (das gegebene) is the undetermined Totality (Allheit) or the Parmenidian One (cf the Hindu Brahman). In this manner we may putatively unify the various aspects sparsely enumerated by various theories of knowledge and thus approach gradually a unification of Western and Eastern philosophical trends.

In Singer’s exposition (see [above](#)) we observe another important remark: “as we learnt from our work in the neuronal basis of conscious experience, the brain, once it has segmented the Allheit and delineated objects, **again strives for coherence** when representing these objects in consciousness”.

The “strife for coherence” what else can it be but the “will” to return to the original state, the

reminiscence of which it retains? Indeed, even within the rational sphere of the nexus of the “categories” (where in each group, as proposed by Kant, the third is a combination *in vertical order* of the first with the second), Kant is obliged to retain the Category of *Gemeinschaft* (Community, Plato’s “KOINONIA”) which is the combination, *in horizontal order*, of the categories of Allheit and of Limitation, as a “*special act of the understanding that implies an influence*” (*Einfluss*, KrV B111). Likewise, in modern terms, Singer observes that

“the computational operations performed by cortical modules always obey the same basic principles irrespective of the type of input... there is evidence that the microcircuitry of different cortical areas is similar...the ability of brains to become aware of their own operations and states would have to be attributed to an iteration of the same cognitive operations that support primary sensory proceedings”.

This observation leads to the conclusion that the *apriority* of the category of *Gemeinschaft*, in its synthetic unity as a *reminiscence*, may be attributed to the Strife of Coherence (*cf* Freud’s “*compulsion to repeat*” see below §6) as a return (Antistrophe) to the original state of the Allheit, which, in Kant’s words is “a pure concept of reason or transcendental idea (inasmuch as we can never represent it in image, KrV B384)”. Such pure concept, by means of a “transcendental paralogismus” leading to *illusion* (*cf* Kant, KrV A340-B398), can be retained in consciousness *only in the form of an “object”* (since consciousness refers only to objects. *cf* Brentano). This is possible only “bei Schlüssen” (by inference) realized with the *illusionary* form of an IDOL (i.e. any object of the senses) serving as SYMBOL of “the absolute Whole of appearances” (*cf* A321-B378 et seq.) i.e. of Totality (Allheit). Here, “Symbol” is taken in the sense of “a concrete sign evoking something absent or impossible to perceive” (*cf* Lalande, A). Now, this makeshift “**Symbol of Totality**” or “**Idol**”, maybe a **person** (as in Love, e.g. Shakespeare’s “what light through yonder window breaks, it is the east and Juliet is the sun”), an **object of nature** (as in Art, e.g. *anima rerum*) or an **idea** (as in Religion, e.g. “resurrection of the dead”, “life in secula seculorum” etc.). The “paralogismus” consists of the fact that the Idol-Symbol, by means of the “**extinction**” of the **process of Limitation during its contemplation, is taken as the wished-for Totality (Allheit)**. Compare to this, Kant’s observation

“Find for the conditioned knowledge given through the understanding the unconditioned whereby its unity is brought to completion (A308-B364). [see further (B) §8 *in fine*, §9] This state of “Oneness”, the presence of which is described by various authors in the succeeding Chapter (B), is called “Absolute Unitary Being” (AUB) by Eugene d’Aquila and Andrew B. Newberg in their book “The Mystical Mind” (p.110) and described as

“A state in which the subject loses all awareness of discrete limited being and of the message of time, and even experiences an obliteration of the self-other dichotomy”.

This is the feeling called by Plotinus “θεῶ ὁμοιωθῆναι” (“resemblance with God”); identical with what we call “Sublime in Aesthetic experience”. Here, a long road as it is described above, leads us to the understanding of aesthetic experience. Thus, “*aesthetic experience derives when the circle of the strife for coherence is accomplished* . **In other words the prerequisite of aesthetic experience is the extinction of “otherness” and the feeling of Oneness or the deactivation of the Category of Limitation.** [It seems to me that we have here a clearer interpretation of Kant’s words in KUK, Bk II §35:

“the judgment of taste is differentiated from the logical judgment (which subsumes a representation

under a concept) in that it does not subsume under any concept at all” or when he speaks of “free play because no determinate concept restricts the cognitive powers”].

The problem of the Aesthetic Experience.

The above considerations, if based on philosophical speculation or on experiments on the brain function, may provide a basis for the examination, in a new key, of the aesthetic experience of the Beautiful and of the Sublime, notions very adroitly and so radically differentiated by Burke and Kant. The Beautiful, (as *pulchritudo adhaerens*) may be adequately defined by the old Greek definition “*symmetry of the parts with one another and with the whole*” (Plotinus). Kant notes in his *Kritik der Urtheilskraft* (KUK) that “*the beautiful in nature is a question of the form of the object, and this consists in limitation*” (Kant, KUK Bk 2, §23). It is a **feeling of pleasure** which belongs in and refers to the sphere created by the Category of Limitation which derives from the vertical combination of the “categories” of Reality and of Negation as per Kant, or “entity and non-entity” (ον-μη ον) the non-entity being the “other” (ἄλλτερον) as Plato insists (still within the rational Sphere of the Strophe).

The Greek definition of the Beautiful implies that the forms (resulting from Limitation), if harmoniously combined into a sort of paradigm of a suggested Whole, do produce the feeling of pleasure. In this case the concentration of attention on the “Whole”, restricted to the dimensions of a work of art, is a paradigm of the Infinite Totality. On the other hand, the Sublime (as *pulchritudo vage*) “*is to be found in an object even devoid of form, so far as it immediately involves, or else by its presence provokes, a representation of limitlessness, yet with a super-added thought of its totality*” (Kant, *ibid*). Immediately, the metaphysical question arises: WHY the sensation of limitlessness produces delight? In final analysis, both the beautiful and the sublime produce a feeling of pleasure, be it of a somehow different degree. This is, most probably, because of the elimination of “otherness” which realizes the wished-for homecoming to the original Allheit. In fact, the contemplating subject feels liberated (cf the Hindu moksha) from the Sartrean “hell of otherness”, namely from a contrariety which, as Schiller has observed, “*breaks the inner union of human nature*”. Now, in the much less poetic terms of experimental neuroscience, the **deactivation** of the process of Limitation that occurs in the parietal lobe of the left hemisphere of the brain, brings forth a complete extinction of “otherness”. As a consequence, the absence of the dangerous opposition tranquilises the limbic system composed of the *amygdala* and of the *hippocampus*, effecting the fusion of the contemplating subject with the original and perennial Totality.

Let us then go back to observations made by the quotes of various authors (see more below **(B)** The Aesthetic experience in Literature).

As **Jill Bolte Taylor** observes,

*“my entire brain was swollen in response to the flow. Great spirit, I mused, I am now at one with the universe, my spirit was able to escape into bliss, I felt both **relief and joy**...my soul was as big as the universe and frolicked with glee in a boundless (cf “limitlessness”) sea---and the life force energy within each of us contains the power of the universe.... frankly, I did not want to give up **Nirvana**”.*

Compare to this Descartes’ remark in the 4th Meditation where he admits that the “*clear and distinct*

*idea” is imperfect but it becomes perfect when fused in the “universality of beings”. We saw further, **Semir Zeki**, in his treatment of romantic Love describing a similar intuition: “the state to fall-in-love leads to an all consuming experience of **estrangement from society** (cf extinction of otherness)-The concept of Love can be summarized in one word, “Unity”. It is the desire of lovers to be united with one another, to become ONE... the name Love (Έρως) is given to the **desire of Wholeness, for Unity**. In the end one finds that Love is an illusion in the form of a genie of unavowable beauty”.*

This aspiration (*conatus*) of a return to Oneness (called by my theory of Totalism “Antistrophe”) **Freud** comprehends as “the urge to restore an earlier state of things (**compulsion to repeat**)” and he insists together with Fechner on “the connection between pleasure and displeasure on one hand with stability and instability on the other... every psychological movement in consciousness is accompanied with increasing pleasure so long as it approaches a complete stability”. Obviously at this state, as described by Freud, the amygdala and the hippocampus have no reason to be disturbed !.

What is required

I suggest that the philosophical speculations on the Feeling of Aesthetic Experience, with concentration of our attention on the Sublime, be subjected to “the witness of nature” and **the appropriate experiments (new or old) be directed to investigate the reactions of the cognitive apparatus that may confirm or further elucidate the above speculations.**

The “extinction” of the process of Limitation.

My primary premiss is that, in the case of aesthetic appreciation of the Sublime, there are two centers of the brain that are involved: (a) the center of the activity of the “category of Limitation” (supposedly the parietal lobe of the left hemisphere?) and (b) the center of emotion located in the *Amygdala* and the *Hippocampus* of the limbic system.

The former, because the Sublime, as “devoid of form” is the “representation of limitlessness”, the latter because with the extinction of Limitation (and therefore of “otherness”) the *Amygdala* has no ground of being upset (extinction of “otherness” implies the absence of danger – hence the calmness and delight of peace!).

Now the function and location of the *Amygdala* is well known whereas we are not quite certain where exactly the process of Limitation takes place. My bold suggestion in my “Comments and Extrapolations (see above) was that the so-called “Category of Limitation” is no other than Singer’s process of “Synchronisation” whereby “two populations of neurons synchronize their activity with electrical discharges, participating in the elaboration of mental images” (cf Kant’s treatment of “imagination” – *Einbildungskraft* – *inter alia* A78-B103). *Ergo*, the “location” of the Category of Limitation must be at that part of the brain where the synchronization occurs. Now, what is that part? For this reason I made a compendium of quotations of pertinent observations made by various distinguished authors - see the following chapter **B, “The Kaloy Prize on Aesthetic Experience”** about which, I sincerely hope, that its long content with its intermediate remarks by myself (in brackets) will be carefully studied.

As it will be seen below in Chapter (B), the description of the experience of the stroke suffered by

Jill Bolt Taylor (involving her **left** hemisphere) might suggest that the activity of "Limitation", perhaps associated with the synergy of other centers, is likely to be located in the left hemisphere of the brain. In fact, such remarks of the author as the following must be noted:

"when incoming stimulation is perceived as familiar, the amygdala is calm"... "I am now at one with the universe, I have blended into the eternal flow"... "my soul was as big as the universe and frolicked with glee in a boundless sea"... "impossible to distinguish the physical boundaries between objects"... "you sense that you are as big as the universe"... "I loved knowing that my feeling was one with the universe" etc.

These remarks indicate a complete extinction of the Category of Limitation, namely a state of Nirvana. Compare Kant's remark in KUK (§25)

*"its (the Sublime's) mere greatness, regarded even as devoid of form, is able to convey a universally communicable **delight**"!*

Further, in **Semir Zemi's** account we read

"the state to fall-in-love leads to an all consuming experience of estrangement from society... the concept of Love, summarized in one word: "unity", is the desire of lovers to be united with one another, to become ONE". "The name Love (Eros) is given to the desire of Wholeness". "Lovers do not fond each other, they are in each other all along".

All this, (I maintain) involves a "de-activation" of the brain process of Limitation. And further,

"The first studies showed that when we look at the face of someone we are deeply in love with, a limited number of areas in the brain are especially engaged. Four of these areas are in the cerebral cortex itself and several are located in subcortical stations...the areas involved are in the cortex (the media insula, anterior cingulate and hippocampus)". "Sexual arousal (and orgasm) deactivates considerable parts of the cortex".

It remains to be seen, as experiments may disclose, "which parts of the cortex"?

Are they located in the left hemisphere as it appears to be the case by the preceding examples? If diffused all over, can they be localized? I will stress here the likelihood that Jill Bolt Taylor's narrative, supports the thesis that the working of the so-called Category of Limitation takes place in the parietal lobe of the left hemisphere. **This is a task that the successive candidates for the Kaloy Prize must fulfil.**

Freud,

accused of "often far-fetched speculations"(!) lays emphasis on the "**compulsion to repeat**" which he places on equal footing with the urge to **restore an earlier state of things**, ultimately of the original inorganic condition" and here we meet again Singer's "*strife of coherence*" or a return to the state of *undetermined* Allheit – a compelling process (cf Kant's Einfluss) which my theory of Totalism names "**Antistrophe**". This complete deactivation of all rational activity of the brain, led Freud to conceive the

“death instinct” (*Todestrieb, Thanatos*), so frequent in cases of “romantic love”; probably an exaggerated impulse towards a radical extinction of “otherness” and fusion with the original Allheit, i.e. an urge or **conatus of the self to return to the original state of undetermined Totality (Allheit)**.

It should likewise be noted that in the case of a sublime feeling such as **the orgasm**, the agent seeks darkness or closes the eyes. Same reaction (though to a much lesser degree than sex orgasm) is observed towards *extinction of Limitation and “otherness”* at moments of supreme enjoyment of music or any other kind of aesthetic experience where an Idol is involved (as e.g. political, social or revolutionary fanaticism, hysterical scenes of youth in admiration of artists or singers etc).

In the Elements of **Advaita Vedanta** we read,

“Brahman is the substratum on which all phenomena are experienced” ...“on Brahman-realization, the world of Multiplicity vanishes” or “the perception of multiplicity in the world instead of the One-Brahman, is due to avidya, i.e. ignorance and lack of moksha, i.e. salvation”. Brahman-realization, in Hindu philosophy, is accompanied by a feeling of **bliss** or, as Kant observed, “delight”.

Kant observes that

*“the pitch of a feeling which is sublime, because the mind has been incited to **abandon sensibility** and employ itself upon ideas involving higher finality”.*

Here, I may dare say, this “higher finality” is no other than the above “Brahman-realization” of the original state or, “the homecoming to the initial Totality” (cf the intuitive observations of Freud’s “*compulsion to repeat*” or Singer’s “*strife for coherence*” or the theory of Totalism’s irrational *tendency* of Antistrophe, first described by Plotinus as *ἐφεσις προς το Εν* – here we have the core of *affinity* that marries Western and Hindu philosophy!) The above quotations and others, appear in more detail in Chapter B that follows.

Kinds of experiments required

In accordance with the above considerations, prospective candidates know what is **the scope of the Kaloy Prize**. They may envisage a free original research by means of new experiments and/or old experiments that may be revised, analyzed and reconsidered so that they will “bring to nature to bear witness” such philosophical intuitions.

What is required is to investigate the status of the brain function in what concerns the activity of the limbic system (the *Amygdala, the Hippocampus etc.*) in conjunction with what may be the **centre of synchronization** (alias **the process** of what has been for so long vaguely called “the **Category of Limitation**”) in order to confirm, refute or elucidate philosophical theories of knowledge at moments of aesthetic experience of the Sublime.

Indicatively we may suggest a number of tests, as for example which can or maybe have been made:

enjoyment of music by a *melomane*,
a guru experiencing the state of Nirvana,
sex orgasm,
prayer by a religious devotee,

crisis of revolutionary fanaticism.

Such activation studies, could, as we believe, elucidate the WHY of aesthetic experience. Moreover, they can give a much needed deeper psychological meaning to religious, artistic, political or social experiences. It is further suggested that verification, by experiment on the brain-function, may eventually bridge the Kantian *abyss* that separates the Critique of Pure Reason from the comprehension of the Meaning of the Thing-in-itself as *undetermined Totality* (Allheit) within the Kantian system of knowledge.

It is hoped that these considerations may incite prospective candidates to participate with original contributions to the **International Kaloy Prize normally attributed every two or three years.**

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Chapter B

Aesthetic Experience in literature (quotable quotes).

The Kaloy Prize on Aesthetic Experience

(by Dr Nicolas Kaloy, Geneva)

A. COLLECTION OF QUOTES FROM IMPORTANT AUTHORS

1.-The interest is concentrated on the fundamental question of the origins and nature of aesthetic experience in connection with brain function experiments. The question thus posited is twofold.

Where this experience is located in the brain,

Why do human beings have the urge of aesthetic experience.

It appears that the first question (the “where”) is answered to the effect that the corresponding feeling is mainly (but not only) located in the limbic system (*amygdala* and *hippocampus*) and in the brain centers of the Limitation process which, most probably, is located in the left hemisphere as activity of the parietal lobe. Then, what remains to be answered, is the *origin and nature* of such experience, i.e the “why”. A working hypothesis is that the answer may be suggested when a complete experimental investigation of the functions of the brain is known and particularly, in what concerns the nature and the working of what is called, following Kant, “the category of Limitation”. This investigation may be guided by the suggestive observations and descriptions of this feeling encountered in literature. In what follows I quote some important passages, inserting my observations in brackets.

Let us first note that Kant, in dealing with the question of aesthetic experience, associates *pleasure* in conjunction with *pain* (Critique of Judgment [KUK], transl. J.C.Meredith, Intro. III.35). It seems to me that this association denotes an affinity between the two, putatively contradictory, sentiments the core of which remains to be investigated. We know that Plato makes an important remark in the Phedon (60b) when he associates pleasure (ἡδύ) and pain (λυπηρόν). Socrates says, in a facetious vein, while relieving his ankle from the chains, that when relieved from the one (pain) he at once is forced to receive the other (pleasure), the two being “as if they were attached to each other by one head” – ὥσπερ ἐκ μιάς κορυφῆς ἡμμένω δούοντε. Stephen Wright, in his article entitled “Le Corps Creatif” which appeared in UNESCO's “Journée de philosophie 2003” (p. 86 et seq) refers to Elaine Scarry's book “The Body in Pain” and quotes:

<<La douleur intense est destructrice et du moi et du monde: cette destruction est éprouvée en termes d'espace, soit comme l'univers qui se contracte jusque dans la proximité immédiate du corps, soit comme le corps qui s'enfle pour remplir l'univers entier. Mais la douleur intense est également destructrice du langage, le contenu du monde se désintègre en même temps que le contenu du langage, ainsi ce qui pourrait permettre l'expression et la projection du moi est du coup privé et de sa source et de son sujet. Au fur et a mesure que le corps s'effondre...jusqu'à ce que le monde finisse par n'exister que dans un cercle à moins d'un mètre autour...>>

In brief, he says that “intense pain destroys the self and the world”, the body, suffering intense pain, being devoid of a « point de vue », is reduced to the viewpoint of being only itself, any other object around it vanishing. [Obviously, the function of the Category of Limitation is at a stand-still]. Thus the “body grows to the effect of fulfilling the entire Universe” (cf KUK, “unity of the manifold”). Pain having no reference to any other object coincides with a parallel “destruction of the language”. The absence of any referential content makes the verbal translation utterly impossible. *The pain stands up to any linguistic objectivation” (*la douleur résiste à l’objectivation par le langage*). [What is very important in this description given by Elaine Scarry, is that the sentiment of intense pain isolates the subject from the surrounding multiplicity of entities [i.e. the manifold of “clear and distinct ideas” (εἶδη) which is the product of the “category” of Limitation], swelling up the subject so that it spreads over towards its *union with the entire Universe*. As a result, the “extinction of multiplicity” renders the use of language impossible. [Note Plato’s remark in the *Sophist* (256e/259e) διὰ γὰρ τὴν ἀλλήλων τῶν εἰδῶν συμπλοκὴν ὁ λόγος γέγονεν ἡμῖν – meaning “*the λόγος is produced by the combination of εἶδη*”. As we will see later on, we have here an indication that this operation apparently takes place in the left hemisphere of the brain, where the parietal lobe is located which is the center of language and, most probably of the so-called “Category of Limitation”].

2.- Important in this connection of the argument is the experience of **Jill Bolt Taylor** described in her book “**My Stroke of Insight**”. The author, a distinguished brain scientist, experienced a massive stroke in the left hemisphere of her brain. It took her eight years to recover and then she wrote a breathtaking description of her experience. I quote sparsely some important extracts from her narrative inserting some furtive remarks in brackets.:

<<(perceived as p.17) The primary job of the *amygdala* is to scan all incoming stimulation at a particular moment and determine the level of safety...When incoming stimulation is familiar, the amygdala is calm ...as soon as it is triggered by unfamiliar or perhaps threatening stimulation [enters “otherness”] it raises the brain’s level of anxiety and focuses the mind’s attention on the immediate situation ...toward self-preserving attention...we have already placed a “feeling” upon how we view that stimulation – is this pain or pleasure. We are not thinking creatures that feel, but, biologically, we are feeling creatures that think...this insightful awareness is grounded in the right hemisphere of the brain>>...

[let us note that the presence of “otherness” is a stimulant of “pain”, its absence [i.e. the undetermined totality- *die unbestimmte Allheit*] being a stimulant of “pleasure”]...(p.68) My left hemisphere was swimming in a pool of blood and my entire brain was swollen in response to the trauma...Great spirit, I mused. *I am now at one with the universe, I have blended into the eternal flow...my spirit was able to catch a wave in the river of blissful flow....*(p.69) my escape into bliss was a magnificent alternative to the daunting sense of mourning...(p.70) I

felt both relief and joy....(p. 71) When I lost my left hemisphere and its language centers I also lost the clock that could break my moments into consecutive brief instances... all I could perceive was right here, right now, *and it was beautiful....*My entire self-concept shifted as I no longer perceived myself as a single, a solid, an entity *with boundaries* that separated me from the entities around me. I understood that at the most elementary level, I was a fluid. My left hemisphere had been trained to perceive myself as a solid, *separate from others...* My soul *was as big as the universe and frolicked with glee in a boundless sea* (p-72) It was impossible for me to distinguish the physical boundaries between objects because everything radiated with similar energy....

[There we have the evidence that the “category of Limitation” (“physical boundaries between objects”) may well be located in the left hemisphere. Note that the extinction of “Limitation” is productive of the feeling of

joy and bliss, described in Kant's account of the Sublime in the *Kritik der Urtheilskraft* (KUK, inter alia Bk II, §23 where we read: "*the sublime cannot be contained in any sensuous form, but rather concerns ideas of reason, which, although no adequate presentation of them is possible, may be excited by that very inadequacy...the mind employing itself upon ideas of higher finality*"; the same being implied in the Vedantic notion of "Nirvana" and of "Brahman"].

...(p.73) Although I *rejoiced* in my perception of connection to all that is, I shuddered at the awareness that I was no longer a normal human being... [note Kant's observation after Burke, "not pleasure but a sort of delightful horror, a sort of tranquility tingled with terror" KUK, Bk II,B,277] p.131) ... How on earth would I exist as a member of the human race with this heightened perception that we reach a part of it all, and that the life force energy within each of us contains *the power of the universe*. (p. 74)... [cf KUK,"*inducing a feeling in our own selves of finality independent of nature...for the Sublime ...we must seek a ground...merely in ourselves*" II,§23,35 p.93].... I perceived myself as perfect whole and beautiful just the way I was.... [cf Descartes' remark in the 4th Meditation on the perfection ("beauty") of the "clear and distinct idea" when viewed as pertaining to the "universality of beings"!]. ...(p. 81) The essence of your energy expands as it blends with the energy around you, and you sense that *you are as big as the universe*... your mind explores new ways of swimming in a sea of euphoria... [note Kant's association of the Sublime with Joy). ...(p.84) I liked knowing I was a fluid. I loved knowing my spirit was at one with the universe and in the flow with anyone around ... (note the extinction of otherness by the neutralization of the process of the category of Limitation and its kinship with Brahman and Nirvana in Hindu philosophy- all this being a source of "beauty" and of "joy"). ...

[After recovery, the author draws her own conclusion]. We read: (p. 139) I did not want to lose my connection to the universe. I did not want to experience myself as a solid separate from everything. I did not want my mind to spin so fast that I was no longer in touch with my authentic self. *Frankly, I did not want to give up Nirvana!* What price would my right hemisphere consciousness have to pay so I could once again be judged as normal? (p. 139-140) In the case of Dr Jekyll and Mr Hide analogy, our right hemisphere personality is depicted as an uncontrollable, potentially violent, moronic, rather despicable ignoramus. In vast contrast, our left mind has routinely been touted as linguistic, sequential, methodical, rational, smart, and the seat of our consciousness....My stroke of insight is that at the core of my right hemisphere consciousness is a character that is directly connected to my feeling of deep inner peace. It is completely committed to the expression of peace, love, joy, and compassion in the world. (Note in this narrative that whatever is in connection with aesthetic experience seems to be a product of the dissociation of our consciousness from the Category of Limitation which produces the "clear and distinct ideas" or, in other words, the rational element of our Apollonian existence - in vivid contrast to the Dionysian aspect of it, both aspects being present in a single person with a single consciousness.)

Important conclusions by the author (Jill Bolt Taylor's "My Stroke of Insight"). (p.141) And of course there is our masculine mind (left hemisphere) versus our feminine mind (right hemisphere), and our Yang consciousness (left hemisphere) countered by our Yin consciousness (right hemisphere). And, if you are a Karl Jung fan, then there is our sensing mind (left hemisphere) versus our intuitive mind (right hemisphere) and our judging mind (left hemisphere) versus our perceiving mind (right hemisphere)...(p. 142) The brain research performed by Drs. Andrew Newberg and the late Eugene D'Aquilli have helped me understand what was going on in my brain. These scientists identified the neuroanatomy underlying our ability to have a religious or spiritual (mystical) experience. They wanted to understand which regions of the brain were involved in our capacity to undergo a shift in consciousness – away from being an individual to feeling that we are

at one with the universe (God, Nirvana, euphoria). (p. 142-143) Tibetan meditators and Franciscan nuns were invited to meditate or pray inside a SPECT machine... experiments identified shifts in neurological activity in very specific regions of the brain. First, there was a decrease in the activity of the left hemisphere language centers resulting in a silencing of their brain chatter. Second, there was a decrease in activity in the orientation association area, located in the posterior parietal gyrus of the left hemisphere. This region of our left brain helps us identify our personal physical boundaries. [Does the right hemisphere play an important role in aesthetic experience in producing what Plotinus called “tendency to Oneness” – ΕΦΕΣΙΣ ΠΡΟΣ ΤΟ ΕΝ ??]

3,- Extracts from Semir Zeki's “Splendors and Miseries of the Brain”. On Brain concepts of Love [my observations in brackets]

General. Concept formation is a solution that evolution devised to solve the problem of acquiring all sensory knowledge. The experience we have of **Art, Love and Beauty** can be correlated directly with activity in specialized areas in the brain. Concepts are inherited and acquired. As Schopenhauer noticed, it is not perceptions that lead to concepts but we form our precepts from abstractions and concepts. Romantic love is regulated by an inherited concept which is that of “unity-in-love”. The acquired concepts are synthetic combining a series of observations throughout post-natal life....

[Empiricism concentrates on the mechanism of acquired concepts ignoring the inherited concepts which are “instincts”, the main one being Love (Ερως), This is an a priori instinct of union, union as Wholeness, which may be considered as Parmenide's “One”, Plato's «ἀνυπόθετον», Descartes' Infinite, Plotinus “ΕΝ” or Hegel's “Absolut”, putatively prior to the Big Bang. The instinct of union is what correlates with the idea of what is usually named “God” (cf Plotinus' expression θεῶ ὁμοιωθῆναι). It emerges as a possibly basic hypothesis that the overwhelming prevalence of this instinct may be attributed to an implicit memory storage of pre-natal life going back to the pre-Big Bang origins of a unified Totality. in support to Karl Jung's statement that we withhold in our subconscious an implicit memory storage originating millions of years prior to our present state. Eros as “desire of Wholeness” is a sort of a Plotinian “hypostasis” split in three “aporroai” namely, Love, Art and Religion, the Trinity suggested by the theory of Totalism (see www.nicolaskaloy.com). The fact that this instinct defies all rationality may be a proof that its phylogenetic origin precedes the creation and development of the logical construction in the human brain].

... (p.124 et seq):The state to “fall-in-love” leads to an all consuming experience of *estrangement from society* where the question of balance and even happiness ceases to matter. The explanation is found in the brain and its concepts. The concept of love celebrated by poets can be summarized in one word: “unity”. It is the desire of lovers to be united with one another, to become ONE... [note that the desire “to become One” is inherent in all three “aporroai” namely, Love, Art and Religion]. ... The unity-in-love is a brain inherited concept that invokes splendors of Heaven never permanently attained in reality... [In fact the “splendor of Heaven” or the Nirvana, is the state where the Multiplicity created by the brain function, is utterly extinguished]. ... This longing is only felt as an emotion and is not articulated or intellectualized... [in other words, not subject to rationality].

The definition of Love is simple. The name “love” [Ερως] is given to the desire for Wholeness, i.e. for Unity. In the end one finds that love is an Illusion in the form of a Genie of unavowable beauty. Lover and

beloved are annihilated [i.e. melt into Oneness]. The unity sought is resolved only in the brain. "Lovers do not find each other, they are in each other all along"... [in other words, the Category of Limitation is deactivated]. ... (p.130) The individuality of the concept in each brain can make of love an intensely lonely experience, for the concept does not, often, have its counterpart in reality... [because, reality is the product of the category of Limitation (Quality)]

.... The incapacity of biology to deliver what it promotes, commonly leads to a state of permanent dissatisfaction and therefore, inevitably, to loneliness. Since wholeness and unity are not achievable on earth, lovers often look to another world, unknown to us – hoping to achieve it after death... [because in fact death is equivalent to the deactivation of the categorical rational process in which case the field is open to mysticism]. ...It is therefore not surprising to find that there is commonly a mystical element in the literature, the desire for the heavens and for God, the desire for annihilation in the loved one and in God, the desire for the expansion of love beyond desire....Given the dissatisfied state...many have sought an artistic counterpart [i.e. an Idol] trying to satisfy the unsatisfied concepts through Art, Music or Literature [I add "or Religion"]

....Examination of that Literature shows only too well how fatal that biologically ingrained concept

isMany have sought that union through annihilation, after death, in a heaven that does not belong to this earth... [Hence the tendency of romantic love to suicide, see below §5, Freud's concept of Thanatos. Compare with my "Totalism in a Nut-shell" in www.nicolaskaloy.com, §6 where the desire of expansion is satisfied only and ever in our world of phenomena by the illusion of an Idol serving as Symbol of Wholeness; the "Idol" being a person, as in Love, an object as in Art, an idea as in Religion upon which the reflecting subject has (in a trance of *transcendental paralogismus* cf Kant, KrV A341-B399ff) projected the Universe. The Idol serves, by the intense concentration of attention of the subject upon it, as a means that "leads to an all consuming experience of estrangement of society"-(see above), or, in other words, of "estrangement" [=annihilation] of Multiplicity, effected with the deactivation of the category of Limitation. The Idol, as Symbol of Wholeness, relieves the subject from a "*permanent dissatisfaction*" as mentioned above. In

§6, we read a detailed description of the illusionary process which serves as an alternative to the above "tendency to suicide":

<<Indian philosophy, in order to achieve the "extinction" [Nirvana] of Multiplicity

{Otherness}, proposes various special exercises that liberate the individual from the mundane existence in the World of Phenomena. The answer given by Dr Kaloy's Theory of Totalism is that Totality and Oneness (i.e. Allheit), can only be attained through the "aesthetic category" of illusion. In this manner, an isolated "object" corresponding to a "clear and distinct" idea [fabricated by the brain by means of the Category of Limitation, is serving as the Idol upon which all attention is focused. Such an Idol acquires a dominant spatio-temporal dimension covering the entire screen of consciousness, thus becoming a Symbol of limitless Totality. Human consciousness fuses itself with the Symbol (through the mimetic process) and therefore it attains the Illusion of the desired Unity of Totality. (cf the description of the Sublime in Kant's Critique of Judgment (KUK) and his reference to the "reflexive judgment" where, contrarily to the logical judgment, the particular is not subdued to the universal but it does become universal)....This is what Kant calls the Illusion of a "transcendental paralogism" (cf KrV A341-B399 et seq.) The Idol [i.e. the *beloved* person, object or idea] taken-as-a-Whole as the "absolute synthetic unity of all conditions" (KrV A340-B398) creates the illusion that all Otherness (cf the "*estrangement of society*", see above) is "estranged" [=eliminated] and union with the Desired Initial State of Oneness is thus attained. In Hindu philosophy "omphaloscopy" [focusing of attention on the navel] obtains the same result. The total extinction of

Otherness [in Love, Art or Religion] creates the feeling of happiness and of Bliss in an atmosphere of Freedom [on account of the absence of the “other”]. Cf the Spinozian sense of the “idea adequata” where the *ideatum* is not the sensible form of the Idol but the expression of the suprasensible essence of Infinity or the fusion of the Self with what Descartes calls “the universality of beings” {see Meditation IV}. The procedure is a “*Salvatory Lie*” which justifies Plato’s remark on “ΤΑΨΕΥΔΗ ΤΑ ΕΝ ΔΕΟΝΤΙ ΠΙΓΝΟΜΕΝΑ» [“the necessary Lies”, see Rep. 414b]>>

In §6 it is stated,

<<The tragic destiny of human consciousness (which enhances the existential anguish), is that the Idol as Symbol of Totality may be any sensible object, chosen within the World of Multiplicity, which eventually will disclose its illusionary status. Tendency to Oneness is an absolute and irrevocable human bondage. It determines the Will not by the “cogito” but solely by the “volo”. It provides the dynamic which can annihilate the rational process (i.e. the Sphere of the Strophe) by the de-activation of the self-organised synchronization of neuronal responses conventionally called “Category of Limitation”.

In this manner, the World of Strophe being the (Apollonian) “*rational*” sphere of logic and of science, is substituted by the World of Antistrophe which is the (Dionysian) “*emotional*” sphere of the “*Irrational*”, of a Bacchian Drunkenness, through the Illusion created by the process of what Kant will call “Transcendental Paralogism”. At this stage, the human being can no longer tolerate logical thinking and analysis. The sphere of Antistrophe is the absolute extinction of Logos (Strophe). Therefore, Sentiment, Feeling or Emotion, cannot be subject to reasoning. We are, at last, in the domain of absolute Freedom on account of the absence of any “other”>>].

...(p.137 et seq) It is only recently that neurobiologists have started to probe into the neural bases of romantic love, but the scientific evidence does not allow at this stage to reach definite conclusions... The first studies...showed that when we look at the face of someone we are deeply in love with, a limited number of areas in the brain are especially engaged. Four of these areas are in the cerebral cortex itself and several are located in sub-cortical stations. All constitute parts of what has come to be known as the emotional brain...distinctive from desire and “loveless” lust... (p.138) The areas involved are in the cortex (the medial insula, anterior cingulate, and hippocampus). The passion of love creates feelings of exhilaration and euphoria, of a happiness that is often unbearable and certainly indescribable. Areas activated in response to romantic feelings are largely coextensive with brain regions containing high concentrations of dopamine, a neuro-modulator associated with reward, desire, addiction and euphoric states.... (p.139) Sexual arousal (and orgasms), at least in women, deactivates considerable parts of the cortex, some of which overlap the deactivated regions observed in romantic love.. This is perhaps not surprising, given that humans often take leave of their senses during sexual arousal...

[note that in such cases there is a tendency to close the eyes, this meaning that the essence of this behavior is the “estrangement from multiplicity” i.e. the deactivation of the category of Limitation the activity of which excludes the feeling of “unity”.]

....(p. 140) the core of areas engaged during romantic love has rich connections with other sites of the brain...Increase in activity in the romantic core of areas is mirrored by an inactivation of these cortical zones. The *amygdala* is known to be engaged during fearful situations and its deactivation when subjects view pictures of their partners as well as during male ejaculation, implies a lessening of fear coupled by a suspension of judgment which is a function of the frontal cortex...

[ejaculation is an aggressive action – hence “no fear”... suspension of the entire “*rational*” area which, as Plato observes, is the activity of the “conjunction [συμπλοκή] of the ideas (εἶδη)” which “ideas” as we now know are the result of the activity of the category of Limitation- δια γὰρ τὴν ἀλλήλων τῶν εἰδῶν συμπλοκὴν ὁ λόγος γέγονεν ἡμῖν - Sophist.259e]

....(p.141) From the point of view of the inherited brain concept of “unity in love”, that one feature of mentalizing in terms of the “theory of mind” is to distinguish between self and others... Love is often irrational because rational judgments are suspended. (p.142) When Pascal said “the heart has its reasons...etc” could not have known that reason is suspended because the frontal lobes are (temporarily at least) also suspended. (p. 148) Beauty and Love are themselves never far from erotic desire, since the most intense love is strongly coupled with sexual desire and the two faculties share common areas in the brain... The face of a loved person engages the insula and the anterior cingulate, as do sexual arousal— attractive faces deactivate not only the frontal cortex but also the amygdala....(p.152) Unity implies an obliteration of the Self and its merging with the Other...it implies an annihilation that is not achievable on earth except through death. (p.154) In the Hindu legend of God Krishna and his lover Radha...the ultimate way in achieving this union lies in extinction (Nirvana), in the supreme unity of Brahman.... Schopenhauer himself was surprised to find that the outlook had precedents in Hinduism and Buddhism, **which regard humans as illusory manifestations of an undifferentiated and timeless Oneness, to which one should aspire to return,..**

[note at this point (cf www.nicolaskaloy.com/philosophy) that Dr Kaloy’s theory of Totalism finds that such annihilation may be (and in fact is) “achievable on earth” by means of the transcendental paralogism which creates an illusion through a makeshift Idol (be it a “person” in Love, an “object” in Art, an “idea” in Religion), serving as Symbol of Wholeness. Hence the verbal expression of the lover addressed to the beloved “you are the World to me” and hence many romantic expressions in poetry as, e.g. Shakespeare’s “What light through yonder window breaks, it is the east and Juliet is the sun” (i.e. assimilation of “Juliet” with the universe)].

4.- Conclusions and extrapolations on aesthetic experience.

The merging with the “other” and the “aspiration of a return to Oneness” is manifest in the remarks of the authors of the above quotations. This movement is named “Antistrophe” (see above Totalism in a nutshell). Its deeper meaning is of interest in the research of the brain function; for this is the moment of “joy” and of “bliss”, in other words the moment of “*aesthetic experience*”. With regard to this, we should also consider the insight of Descartes in the 4th Meditation, who states that the “imperfect” clear and distinct ideas become perfect when viewed as “part of the universality of beings”. Hence, as it seems, Aesthetic Experience (in Love, Art or Religion) arises in a mystic trance of an utterly irrational “transcendental paralogism of Illusion”. By a de-activation of the function of the “category of Limitation” (i.e. division of the perfect “Allheit” into imperfect “*idees claires et distinctes*”), the subject, assimilates itself with an “imperfect” Idol upon which, it projects the “absolute synthetic unity of all conditions”, thus rendering it “perfect” by creating the Illusion of fusion with the Unity of the “universality of beings” (cf *Descartes Medit. IV*). This is indeed the “mechanism” of the brain function which Plotinus called “ΕΦΕΣΙΣ ΠΡΟΣ ΤΟ ΕΝ...ΘΕΩ ΟΜΟΙΩΘΗΝΑΙ”.

5.- Freud's contribution.

At this stage we may go a little further “beyond” and have an insight in **Freud's** “often far- fetched speculations” in his book “Beyond the Pleasure Principle” (*Jenseits des Lustprinzips*). Anticipating the “Antistrophe” referred to above, Freud lays emphasis (after clinical evidence) on the “**compulsion to repeat**” which he places on an equal footing with “**the urge to restore an earlier state of things, ultimately of the original inorganic condition**”.

Is it, in Freud's words, a “far-fetched speculation” if we refer this “**urge**” of **eternal recurrence** to Haeckel's fundamental biogenetic law that “ontogeny recapitulates phylogeny” and then push phylogeny further “beyond” to Freud's remark that “inanimate things existed before living ones”, an idea which led him to the formulation of the “death instinct” (*Todestrieb, Thanatos*)?

Or is it out of relevance the assertion of *Karl Jung* that “the subconscious contains the residue of all experience of the universe since millions of years”? In this context, what else is the irrational “urge of recurrence” (*alias* “Antistrophe”) but the *reminiscence* of the original state of the (undetermined, hence irrational), **Unity of Allheit** prior to the effervescence of the system of Categories in the Understanding which, in the Kantian sense, determines the Multiplicity - “*otherness*” - of our rational world of experience? In this sequence of “far-fetched speculations”, the *Todestrieb*, manifest as we saw in **Semir Zeki's** treatment of “romantic love”, may be placed on equal footing with the extinction of the Category of Limitation which is the authentic source of the phenomenal world of “otherness”].

Freud further remarks, referring to G.Th.Fechner, “we can admit that there exists a psychological connection between pleasure and displeasure on the one hand with stability and instability on the other, thus arriving to the hypothesis that every psychophysical movement in consciousness is accompanied with an increasing pleasure so long as it approaches a complete **stability** and an increasing displeasure so long as it approaches complete **instability** – an indifference zone existing between the two limits”.....“we know that our psychical apparatus is so constituted by nature as to conform to the pleasure principle but *in the presence of difficulties having their origin in the external world* that may appear dangerous to self-preservation the pleasure principle disappears before reality”

[brain function was unknown at the time of Freud but it is evident that the appearing reality of danger - “having its origin in the external world” - has disturbed the stability of the *amygdala* and re-set in motion the Category of Limitation, productive of the “external world”, with the extinction of pleasure as a result. We see therefore once again *the relation of the feeling of pleasure with the activation or de-activation of the Category of Limitation!*].

6.- Elements of the Advaita Vedanta.

Very pertinent in this context is an investigation along our “western thought lines” of the Hindu and Buddhist outlook as implied by the Advaita (=non-dual) Vedanta doctrine, briefly quoted in what follows: (my underlines and remarks in brackets).

<< The essential identity of the **Atman** and **Brahman** is the most important tenet of advaita. Brahman is the substratum on which all phenomena are experienced [the Kantian Allheit?] and also the **antaryAmin**, the One Lord who dwells in all beings. The innermost Atman [cf, psyche], the real Self, is the same as this antaryAmin, and identical to brahman. Liberation (**moksha**) [liberation from multiplicity] consists in realizing this identity, not just as a matter of literal or intellectual understanding, but as something that is to be grasped by the individual in his/her own personal experience. Yogic practices help in the road towards such realization, because they help the seeker in practicing control of the senses, and in directing the *antahkaraNa* (the 'internal organ' - consisting of the mind, intellect, awareness and I-ness) inwards [the brain function?]. The practice of *ashTAnga-yoga* is recommended to seekers by teachers of advaita [non-duality i.e. negation of multiplicity]. The seeker has to be equipped with requisite qualifications - qualities such as patience, forbearance, ability to focus one's concentration in an intense **manner** [cf concentration on the navel or an Idol as Symbol of Totality in Love, Art or Religion], an ability to discriminate between the Real and the non-Real, dispassion, and a desire for liberation [liberation from multiplicity, hence neutralization of the Category of Limitation]. However, it is important to remember that moksha is not a result of mere ritualistic practice. Being identical to brahman, moksha always exists. Ritualistic practices help only to the extent of achieving *citta-Suddhi*, and in developing the above-mentioned qualities.>>

Advaita is a non-dual teaching. When asked why duality is perceived in this world, advaita has a multi-pronged answer to the question. The world of multiplicity can be explained as due to **mAyA** [cf the illusionary [magic] world of phenomena,], the power of creation wielded by the Creator [cf the a priori in the brain function], who is therefore also called the **mAyin**. From the point of view of the individual, the perception of duality/multiplicity is attributed to **avidyA** (ignorance) due to which the unity of brahman is not known, and multiplicity is seen instead [cf our world of appearances]. This is akin to the false perception of a snake in a rope. When the rope is known, the snake vanishes. Similarly, on brahman-realization, the world of multiplicity vanishes [cf the deactivation of the Category of Limitation as a brain function process]. This does not mean that the individual's ignorance **creates** the external world. However, the **perception** of multiplicity in the world, in lieu of the One brahman, is due to avidyA, i.e. ignorance. When avidyA is removed, the individual knows his own Self (Atman) to be Brahman [cf the joy of the Sublime in aesthetic experience, as per Kant], so that there is no more world and paradoxically, no more individual. Here, the Self alone IS. Removal of avidyA is synonymous with Brahman realization, i.e. moksha, salvation >>

7.- Kant's observations

It is of interest if we connect and compare the above observations with Kant's intuitive examination of aesthetic experience. It was Burke who laid emphasis on the division of such experience between the Beautiful and the Sublime. Kant, in his Critique of Judgment (KUK, Book II, §23) lays emphasis on the striking differences between the two. "The beautiful in nature is a **question of the form of the object**, and this consists in *Limitation* , whereas the sublime is to be found in an object even **devoid of form** so far as its presence **provokes a representation of limitlessness yet with a super-added thought of its totality**...

[It is clear that the beautiful refers to the intuition of space and time, being a geometrical notion where delight arises from the play of Limitation in accordance with the Greek definition (cf Plotinus) of the beautiful, i.e. "a symmetry of the parts between themselves and with the whole envisaged as a Unity"; hence a normal situation of safety which maintains the amygdale deactivated. On the contrary, the sublime

involves a neutralization or deactivation of the category of Limitation (hence the absolute absence of “otherness”) which implies a return to the original Category of Totality (Allheit)] ...Accordingly the *beautiful* seems to be regarded as a presentation of an indeterminate concept of *understanding* [which is the “seat” of the categories], the *sublime* as a presentation of an indeterminate concept of *reason* [which has no corresponding object in the world of sense experience]....we observe that whereas natural *beauty* conveys a finality in its form making the object appear, as it were, pre-adapted to our power of *judgment*, forming itself an object of our delight ...(whereas) the feeling of the *sublime* may appear to contravene the ends of our power of judgment, ill adapted to our faculty of presentation, being, as it were, an outrage on the imagination, and judged all the more sublime on that account... [the key word being “limitlessness” or deactivation of the Category of Limitation]the pitch of a feeling which is sublime, because the mind has been incited to abandon sensibility and employ itself upon ideas involving higher finality....so that it is rather in its chaos, provided it gives signs of magnitude and power ...of a finality quite independent of nature... [for Kant, “nature” being the synthetic unity of phenomena according to rules]. For the beautiful in nature we must see a ground external to ourselves *but for the sublime entirely in ourselves*...

[Such introversion is, in fact, a return to the original category of Allheit, the category of Limitation being completely neutralized – hence “peace” for the *amygdala*]

... (§25) Sublime is the name given to what is absolutely great (schlechthin gross – *absolutely*, not *comparative magnum*) beyond all comparison great.

[Kant lays stress on the fact that the distinction from the beautiful in nature – a somewhat inferior feeling – and the highest form of aesthetic experience which is the sublime, involves, as it were, a brain function consisting in the de-activation of the Category of Limitation. The absence of “alterity” (otherness) ensures a feeling of peace, hence no disturbance of the *amygdala*. The implied ascending dialectic is reminiscent of Diotima’s treatment of the Idea of Good [το ἀγαθόν] in Plato’s *Symposium*]

8.- “The Mystical Mind” by Eugene d’Aquili & Andrew Newberg

Last but not least we shall quote some important passages from the book of co-authors d’Aquili and Newberg. In page 49 we read:

<<It seems reasonable that the brain is the structure that gives all of us our thoughts, feelings and experiences. But is there any empirical support for such an argument? The question will be important, especially in considering Religion>>.

[We must add “in considering Love, Art and Religion”, and it is by no means a coincidence that these three disciplines, in their deep meaning, are interwoven].

... In p. 49 we read: <<In mystical states there is usually a diminution or even complete lack of differentiation between objects. In this way there is a breakdown of opposites such as good and evil, justice and injustice, God and Humanity. All things tend toward a unified undifferentiated Oneness>>.

[It is interesting in this connection to quote some explicative passages from Kant (KrV A575- B603): “No one can think a negation determinately save by basing it upon the opposed affirmation, Those born blind cannot have the least notion of darkness, since they have none of light....If, therefore, reason employs in the complete determination of things a transcendental substrate that contains, as it were, the whole store of material from which all possible predicates of things must be taken, this substrate cannot be anything

else than the idea of All reality (*omnitudo realitatis*). All true negations are nothing but limitations – a title which would be inapplicable, were they not thus based upon the unlimited, that is, upon “the All”... (A577-B605) and the complete determination of any and every thing rests on the limitation of this total reality>>.

We may also mention Socrates’ remark in the Phedon that the opposites are “as if tied up in one head” (ως εκ μιάς κορυφής ημμένω δύ’όντε). The treatment of the concept of Limitation by Kant implies a process which, as stated above, takes place in the brain. We must further quote from Kant: in B111 <<limitation is simply reality combined with negation>>...(A578-B606) <<All possibilities of things (i.e. of the synthesis of the manifold) must be regarded as derivative...For all negations (predicates through which anything can be distinguished from the *ens realissimum*) are merely limitations of a greater and ultimately of the highest reality and they, therefore, presuppose this reality and are, as regards their content, derived from it>>.

These are wonderful intuitions of a philosopher who, ignoring completely the modern methods of brain function experiments, can describe by pure introspection what happens in his own brain. The co-authors of the above book give us now, as a result of experiments, the description of the same process but in a more concrete and experimentally proven exposition, in p.48 et seq., as follows:]

...p. 49, <<The brain is the object, the mind is the function of the brain...we distinguish seven primary cognitive operators (the first two being) *holistic* and *reductionist*...(p. 52ff).The holistic operator allows us to view reality as a whole or Gestalt. A number of experiments involving both animals and human beings have indicated that the *parietal lobe* in the right hemisphere of the brain is intimately involved in the perception of spatial relations. More specifically, the perceptions generated by this area are of a Holistic or Gestalt nature. The holistic operator likely resides in the parietal lobe of the **right** hemisphere...almost directly opposite the area in the **left** hemisphere....the *reductionist operator function* allows us to look at the whole picture (given by the holistic side) and break it down into an analysis of individual parts. The reductionist operator probably resides primarily in the left parietal lobe and is connected to the sensory modalities of sight, hearing, touch and so forth as well as to our language center. This operator is probably the one that gives us our scientific, logical and mathematical approach to studying the Universe. It is through these disciplines that we break down the world into small parts that can be cancelled and studied...Thus, both the holistic operator (right hemisphere) and the reductionist operator (left hemisphere) are crucial to the mind’s ability to understand the Universe in its Totality>>.

[This remarkable description of Totality (holistic) and its Segmentation (reductionist) into objects gives us an idea of how the *process* of what Kant called “**Category of Limitation**” **appears to be a function of the brain which takes place in the area occupied by the parietal lobe in the left hemisphere of the brain.**

Let us now recapitulate: the right hemisphere parietal lobe as the seat of the holistic operator (cf Kant’s “category of Allheit”, Plato’s “Infinite”) allows us to have a global perception of the Universe as Oneness. Concentration of attention on this operation results to the philosophical theory of Parmenides or Plotinus. Let us remember the description of Jill Bolte Taylor (see above §2), a patient suffering with a stroke provoked in the LEFT hemisphere. She says,

<<The brain research performed by Drs. Andrew Newberg and the late Eugene D’Aquilli has helped me understand what was going on in my brain. These scientists identified the neuro-anatomy underlying our ability to have a religious or spiritual (mystical) experience. They wanted to understand which regions of the brain were involved in our capacity to undergo a shift in consciousness – away from being an individual

to feeling that we are at one with the universe (God, Nirvana, euphoria)>>. And further, <<My left hemisphere was swimming in a pool of blood and my entire brain was swollen in response to the trauma...Great spirit, I mused. I am now at one with the universe, I have blended into the eternal flow...my spirit was able to catch a wave in the river of blissful flow....(p.69) my escape into bliss was a magnificent alternative to the daunting sense of mourning...(p.70) I felt both relief and joy....(p. 71) When I lost my left hemisphere and its language centers I also lost the clock that could break my moments into consecutive brief instances... all I could perceive was right here, right now, and it was beautiful!>>.

I think we can draw the following conclusions from the preceding observations. We can now consider that the two important (so-called by Kant) "Categories" of Quantity (Allheit) and Quality (Limitation) have a throne in the Olympus of the human brain/mind at the parietal lobe, the first in the right and the second in the left hemisphere. (It is remarkable that these two "categories" are called by Kant "mathematical"). that the left ("reductionist") parietal lobe may be the site of the segmentation process called by Wolf Singer "synchronization", that the parietal lobe of the left hemisphere is the seat of the process called by Kant "Category of Limitation" the sense and meaning of which and its real existence as a process of the brain-function is now elucidated.

That the process of segmentation of the original "limitless" Allheit results in the creation within the mind of what Descartes called "clear and distinct ideas" the play of which with the multitude of "contraries" has begotten the world of Heraclitus where every "thing" is in a flux of everlasting changes of continuous "othernesses" which in turn Sartre, very adroitly, called "l'Enfer" (the hell)!!]

Further, the two co-authors write in p. 110: "*Absolute Unitary Being* (AUB) is a state in which the subject loses all awareness of discrete *limited* being and of the passage of time, and even experiences an obliteration of the If-other dichotomy...if AUB is experienced, accompanied by blissful positive effect, it is usually interpreted as the *unio mystica*, or the experience of God. If it is associated with neutral or tranquil effect, it is more frequently interpreted impersonally as the void or Nirvana of Buddhism, or as the Absolute of various philosophical disciplines...

[We must certainly note that the *unio mystica* is interpreted by Plotinus as the "tendency to Oneness" (ἐφεσις πρὸς τὸ Ἕν) and as "resemblance with God" (θεῷ ὁμοιωθῆναι), by Hindu philosophy as the Brahman and by Western philosophy as Plato's "idea of Good" (ἀγαθόν) or Hegel's "Absolut". We have arrived at this point in the *unified aspect*, say "*identity*", of both, western and eastern metaphysical intuition].

...the approach to both of these states can be described as either passive or active meditation. The passive approach involves simply trying to clear one's mind of all thoughts. Nothing in particular becomes the focus of attention. In other words attention is focused nowhere... one passively waits for AUB...

[At this stage it is obvious that the Category of Limitation is deactivated and the limbic system is not violated].

... The second approach is one in which people actively focus their attention on some object. This object could be an image, a figure, a person, a sound, or a word. As they focus attention in this way, they begin to experience a loss of a sense of self and can ultimately enter AUB. This, outlines the possible neurophysiological mechanisms by which these two basic types of meditation lead to extremely profound mystical experiences.

[The above clearly elucidate the emphasis given by the theory of Totalism referred to above on the creation of an **Idol as Symbol of Totality**. According to this theory, the Idol- Symbol capable to create the “Illusion” of Wholeness is considered as involved in the process called by Kant “transcendental paralogism” (cf KrV A341.B399 ff). Such an Idol-Symbol, in Love is a Person, in Art is an Object, in Religion is a transcendental idea. The two approaches presented by the above co-authors refer either to the complete or the partial deactivation of the process in the brain function, arbitrarily called by Kant “category of Limitation”, whose center appears to be located in the left hemisphere parietal lobe. **Such hypothesis remains to be proven by the appropriate experiments with reference to the Kaloy Prize**].

I think it is equally important to quote from **Richard Maurice Bucke’s “Cosmic Consciousness”** the description of his own experience of “illumination” which he narrates in third person. “He was in a state of quiet, almost passive enjoyment. All at once, without warning of any kind, he found himself wrapped around as it were by a flame colored cloud. For an instant he thought of fire, some sudden conflagration in the great city; the next, he knew that the light was within himself. Directly afterwards, came upon him a sense of exultation, of immense joyousness accompanied or immediately followed by an intellectual illumination quite impossible to describe...

[It is evident by this absence of language that the left hemisphere lobe had come to a standstill. Follows the “light” of Brahman in the bliss of Nirvana...]

... Into his brain streamed one momentary lightning-flash of the Brahmic Splendor which has ever since lightened his life; upon his heart fell one drop of Brahmic Bliss, leaving thenceforward for always an aftertaste of heaven. Among other things he did not come to believe, he saw and knew that the Cosmos is not dead matter but a living Presence, that the soul is immortal, that the universe is so built and ordered that without any peradventure all things work together for the good of each and all, that the foundation principle of the world is what we call love and that the happiness of everyone is in the long run absolutely certain. He claims that he learnt more within the few seconds during which the illumination lasted than in previous months or even years to study, and that he learned much that no study could ever have taught. The illumination itself continued not more than a few moments, but its effects proved ineffaceable...he saw the significance of the subjective light in the case of Paul and in that of Mohammed...”.

[The description resembles that of Jill Bolt Taylor’s experience of the stroke in her left hemisphere’s parietal lobe (see above §2). Probably this sudden “illumination” was a temporary “stroke” which lasted only “a few moments” but it was enough to create **the effects of the “deactivation of the category of Limitation”!** However, the “medical” explanation does not minimize the philosophical aspect of the experience which we are trying to expound].

It is obvious from the above quotations from Elaine Scarry’s book “The Body in Pain”, Jill Bolt Taylor’s book “My Stroke of Insight”, Semir Zeki’s “Splendors and Miseries of the Brain”, Aquili’s and Newberg’s “The Mystical Mind”, Bucke’s “Cosmic Consciousness” as well as from the teaching of Plato, Kant, Schopenhauer, Freud, Plotinus, Hinduism and Buddhism, that the Feeling of Aesthetic Experience is in close connection with the working or (in the case of the Sublime) with the deactivation of the brain process called by Kant “Category of Limitation” whose task is the segmentation of the original Oneness (named by Parmenides and Plotinus TO EN (the ONE), by Kant Allheit and by Plato Infinity- ἀπειρον) into what Descartes called “clear and distinct ideas” (*principium individuationis*).

The absence of “otherness” (alterity) in the aesthetic experience of the Sublime, creates the feeling of safety, hence the *amygdala* and the *hippocampus* are likely to remain undisturbed. A further deeper brain function research should therefore focus the investigation and experiments on this particular brain process which not only “gives us our scientific, logical and mathematical approach to studying the Universe” but it also determines the whole aspect of human intellectual, cultural, emotional and mystical activity.

The suggested investigation should localize all brain centers involved, which are probably restricted to the parietal lobes and most likely to the *amygdala* and the *hippocampus* of the limbic system, and confirm the “switch on and off” of these centers of activity in the brain. It would thus **monitor a more detailed and accurate experimentation on human subjects in such activities as “scientific, logical and mathematical” but also as art and music appreciation, romantic and sexual love, genuine religious prayer and the experience of Nirvana** among Hindu and Buddhist subjects. It should be noted that the experimental work of Prof. Wolf Singer, first laureate of the Kaloy Prize (2009), concentrates on the activity of what Kant called “Category of Limitation” (see www.kaloyprizeinternational.com, Dr Kaloy’s “Comments and Extrapolations” on Wolf Singer’s exposition), both works opening the field for further investigation concerning also the aspect of aesthetic experience (see Comments and Extrapolations *in fine*).

It remains to inquire into the origins of the “aspiration to return to Oneness” (as mentioned in Semir Zaki’s quotation above and as expressed by Plotinus as ΕΦΕΞΙΣ ΠΡΟΣ ΤΟ ΕΝ), which is described in Dr Kaloy’s theory of Totalism as a twofold movement, starting from the “given” Allheit namely:

segmentation of the original “Oneness” (cf Kant’s Allheit, Plato’s Infinity) into determinate “clear and distinct ideas” of the world of phenomena by the “working” of the Category of Limitation, a process called “Strophe” (the *rational [Apollonian]* sphere of science and logic) and a counter movement of recurrence or “homecoming” to Oneness (cf Singer’s “strife for coherence” or Freud’s “compulsion to repeat”), called “Antistrophe” (the *irrational [Dionysian]* sphere of Feeling), attained by means of the illusionary “transcendental paralogismus” (in Love, Art and Religion) whereby the aesthetic object is serving as an Idol acting as Symbol of Totality (Oneness) the subject is assimilated and unified with.

In this light we may re-read certain significant sentences from Advaita Vedanta referred to above, such as “the innermost Atman [ψυχή], the real Self, is identical to Brahman... Liberation, moksha, consists in realizing this identity as something that is to be grasped by the individual in his/her own personal experience directing the intellect inwards...by focusing one’s concentration in an intense manner (**concentration upon the Idol as Symbol of Totality**).... When Brahman is attained, realization of the world of multiplicity vanishes – compare to this **Kant’s “a representation of limitlessness yet with a super-added thought of its totality”**. In this respect, we must enter into the philosophical aspects of Hindu philosophy’s metaphysics, Parmenides/Heraclitus’s opposition, Plotinus’ “tendency to Oneness” (ἐφεσις προς το Εν), Karl Jung’s implicit memory storage since “millions of years”, Haeckel’s “fundamental biogenetic law” (ontogeny recapitulates phylogeny), Freud on the “Todestrieb” (Thanatos) and the findings of modern science on the Big Bang issue and its putative prior state or even, eventually, final (thanatos) state as the Big Crunch. The powerful Will of homecoming and assimilation with Oneness (the Cartesian perfection of the “universality of beings”) by means of an Idol serving as Symbol of Totality satisfies the desire of salvation (moksha) from the Sartrean “hell of Otherness”; an “otherness” which is no other than a fictitious offspring of the “category” of Limitation. Hence, the ensuing delight of aesthetic experience as a result of “moksha”, salvation, from the world of phenomena. In this respect, both the beautiful and the sublime result to the same feeling of aesthetic experience, although in different degrees of bliss.

All this gives to human existence its unique metaphysical and universal dimension. These

considerations, put forward as a working hypothesis, for a series of brain function experiments (*made or having to be made*), may bring to light the importance of the initiative of “experimental philosophy in a new key” advocated by Dr Kaloy and the scope of an International Prize.

The Kaloy Prize 2012

(Να περιληφθεί εδώ το πρώτο κείμενο του website 2012

Then the following:

II. Comments and Extrapolations on the Kaloy Prize of 2012

(The reader is advised to consult the contents of the previous chapters on (a) the Kaloy Prize 2009 awarded to Prof. Wolf Singer, Director of the Max Planck Institut für Hirnforschung in Frankfurt a/M, (b) Comments and Extrapolations (2009) by Nicolas Kaloy, (c) Introductory Announcement for the Kaloy Prize 2012, Chapters A and B and consider the former as integral part of what follows in respect to the Kaloy Prize 2012).

Introductory.

«*The greatest merit of Kant* » writes Schopenhauer, « *is that he brought forward the distinction between the Thing-in-itself and the Phenomenon* ». Kant himself says that the British empiricists and especially Locke and Hume, have awakened him “from his dogmatic slumber”. The “soporifics” he implied were Leibniz and Wolf. The empiricist’s “realism”, reviving the error of *Theaetete* who presented the sensible object as the cause of representation («*ΟΥΚ ΑΛΛΟ ΤΙ ΕΣΤΙΝ ΕΠΙΣΤΗΜΗ Ἡ ΑΙΣΘΗΣΙΣ* » >> *Theaet.151e*), was modified by Kant’s new-born “idealism”. The cause of representation is not an external “object” but a product of the cerebral *function* of the knowing subject on the basis of a process inherent *a priori* in the human brain. All dogmatic constructions supposed as “eternal truths” are the product of the brain “at least for us human beings” (*für uns Menschen wenigstens*). Locke, as pioneer had distinguished between “primary” and “secondary” qualities, the latter being what the sense organs provide to perception whereas the former are to be attributed to the object *per se*. For Kant, however, even these so-called primary qualities belong to “appearance”, the “reality” being an unknown X, conceived as the Thing-in-itself (*Ding-an-sich*). The appearance is the product of our own only “possible” experience. This Kantian fundamental premise is a refutation not only of *Theaetete*’s error but also of Plato’s attempt to correct it by the introduction of his theory of Ideas (cf *supra* Comments on Kaloy Prize 2009 §4). Kant introduced for the first time the working hypothesis that “all knowledge comes from experience through the sense organs but it is not all knowledge that derives from it”. Hence the important distinction between *a priori* and *a posteriori* knowledge, the *a priori* being provided to perception by the complicated structure of the brain function.

From these premises Kant proceeds to formulate a system of *a priori* “tools” which he called Forms of Intuition (space and time) as prerequisites of sense experience and the well known system of 12 “Categories of Understanding” (the Greek word “category” meaning “classification”

of the various brain functions). They are divided in four groups (Quantity, Quality, Relations and Modality); each group containing three Categories in a scheme where, in *vertical* order, the first (e.g. Unity) combined with the second (e.g. Plurality) form the third (e.g. Totality) etc. This nomenclature of the *a priori* cerebral functions, borrowed in its plurality from Aristotle, may be reduced, in the *vertical* order of combination, to three main Categories namely, for *Quantity* Totality (Allheit), for *Quality* Limitation, for *Relations* Community (Gemeinschaft). It is to be noted that these three final “classifications” are identical, at least in name, with those already designated by Plato in the “*Sophist*” and “*Philebus*” as “Infinity” (ΑΠΕΙΡΟΝ, cf Allheit), “Limit” (ΠΕΡΑΣ cf Limitation) and “Community” (ΚΟΙΝΩΝΙΑ, cf Gemeinschaft). If in each group the combination in *vertical order* of the first with the second gives the third as the final “category”; the combination in *horizontal order* of the first (Allheit) with the second (Limitation) gives the third (Gemeinschaft, Community). As a result of the above considerations, it is obvious that the third general Category (Community, Gemeinschaft), is a reminiscence of the influence (Einfluss) of the second Category (Limitation) on the first (Allheit): obviously, all things are causally interwoven because each one is a fictitious “part” of an original (yet undetermined) “whole”! We then find that the Categories are interwoven in synergic influence and interaction. It is indeed obvious that the community of the causal order of phenomena derives from the implicit reminiscence of the cerebral function whereby the initial Totality was segmented with the aid of Limitation unto various individual entities or, as Descartes put it, into “clear and distinct ideas”. In other words, **the principium individuationis is the result of the application of limitation on the given totality**. This phase of the cerebral function is the domain of Reason as it has been defined by Plato in the *Sophist* 259e and is treated in my “Comments and Extrapolations” of the Kaloy Prize 2009 (see above) in reference to the account given by Prof. Wolf Singer, laureate of the Kaloy Prize 2009, in his “*Large-scale Temporal Coordination of Cortical Activity as a Pre-requisite of Conscious Experience*”.

We must further observe that “*act of spontaneity*” and “*Einfluss*” are key words in the Kantian scheme that describe the activity of the brain function in the working (*Wirkung*) of the system of Categories; hence the importance of the Category of Limitation whose function is the “segmentation” of the undetermined “Allheit” into *individual* concepts, or “clear and distinct ideas” thus creating the notion of “otherness”. What is proven by brain function experiments “clarifies” the original intuitions of Kant as shown above. We can now consider the so far “abstract” notion of the “Categories” in concrete terms as the “*inner process of self-organized synchronization of neuronal responses*” as it was experimentally observed and defined by Prof. Wolf Singer. (see *supra*, Singer’s paper and my “Comments and Extrapolations”, §2).

This activity of the “category” of Limitation is fundamental to the *rational* aspect of the human mind. It is Plato who has given the right definition of rationality in the *Sophist* (259e) when he said that “it is from the conjunction of the various ideas that Logos is begotten” (ΔΙΑ ΓΑΡ ΤΗΝ ΑΛΛΗΛΩΝ ΤΩΝ ΕΙΔΩΝ ΣΥΜΠΛΟΚΗΝ Ο ΛΟΓΟΣ ΓΕΓΟΝΕΝ ΗΜΙΝ). The term “conjunction” (ΣΥΜΠΛΟΚΗ) used by Plato, is an implicit reference to the (subconscious) reminiscence of a prior status of **union**; in other words, *logos* is an attempt to re-unify, at least partially, the fictitiously segmented parts of an original Whole. In this respect, allow me to remind the observation of Descartes that we first have the notion of the Infinite before we can understand the meaning of the Finite. This undetermined *Infinite Totality* is the original status of what Kant calls “*the given*” (*das gegeben*).

Yet, the process of the Category of Limitation has further important consequences in human ethical and social life. It is the agent of the creation of “*alterity*” (otherness) and alterity is the result of *division* (in Plato’s words, «ταυτόν»-«θάτέρον» being the real meaning of ΟΝ-ΜΗ ΟΝ) with sometimes beneficial but also sometimes disastrous consequences in human ethical and social

relations. The “other” is probably a friend but more often than not he may be the adversary. Sartre, very adroitly coined the phrase “*l’enfer c’est les autres*”, “Hell is the others”. Alterity is the annihilation of “Union”, of the holistic *Weltanschauung*. It is the principle of contrariety, of estrangement, of enmity, of struggle and of war - all due to the sacrosanct Category of Limitation! This is also what can be putatively inferred by a similar intuition of Descartes. In fact, the French philosopher, in his 4th Meditation states that the clear and distinct idea is “very imperfect if it is isolated, yet it is very perfect if considered as being a part of all this Universe” (*fort imparfaite si elle était seule dans le monde, ne laisse pas d’être très parfaite étant considérée comme faisant partie de tout cet univers*) to finally conclude that “I exist and am placed in this world as a part of the universality of all beings” (*en sorte que j’existe et sois placé dans le monde comme faisant partie de l’universalité de tous les êtres*). In this train of thought we may infer that the Category of Limitation, as annihilation of Oneness and cause of “multiplicity”, is the essence of “imperfection”, nay, it is the very cause of Existential Agony and Unhappiness. It is no wonder that most religions and the modern version of “existentialism” consider the creation of “multiplicity” as “The Fall” (*Avidya* in Hindu Philosophy).

Once the role of the Category of Limitation is demonstrated as a principal factor for the existence of the world of “possible experience” in which we live, we come now to the crucial point of trying to locate this highly important process of Limitation in the human brain. When this will have become clear, then the abyss that separated the Greek-born western thought based on *rationalism* from the superb insight of Hindu philosophy and the obscure vision of Medieval Mystics, is no longer an obstacle for a *holistic* comprehension of a so far vague and fugitive Reality. It is these considerations that focused the interest of the Kaloy Prize for 2012 on the subject of aesthetic experience of the Sublime as depicted by Immanuel Kant in his *Critique of Judgment*, where the Sublime, associated with the feeling of joy and bliss, is an experience involving the conjunction of “*limitlessness*” and “*totality*”. If, as we said above, in the working of the “categories”, the world of *phenomena* is the result of a segmentation of the initial Totality (cf the Kantian category of Allheit) by the process of the category of Limitation, the very extinction of the process of Limitation is a recurrence to the initial holistic state, the Cartesian state of “*perfection*” (cf Méd. IV) - hence the feeling of Joy and Bliss. It is this experience that was revealed by Dr’s Jill Bolte Taylor stroke affecting the left hemisphere of her brain.

“Jill Bolte Taylor (born 1959 in Louisville, Kentucky) is a neuroanatomist brain scientist who specializes in the postmortem investigation of the human brain. She is affiliated with the Indiana University School of Medicine and is the national spokesperson for the Harvard Brain Tissue Resource Center. Her own personal experience with a massive stroke, experienced in 1996 at age 37, and her subsequent eight-year recovery, has informed her work as a scientist and speaker. For this work, in May 2008 she was named to Time Magazine’s 2008 Time 100 list of the 100 most influential people in the world. “My Stroke of Insight” received the top “Books for a Better Life” Book Award in the Science category from the New York City Chapter of the National Multiple Sclerosis Society on February 23, 2009 in New York City. As is shown in this book she is also a laureate of the Kaloy International Prize 2012”

Dr Jill’s “experiential experiment” described in her book “*My Stroke of Insight*” which has also received the Award of the New York Times “best selling book” (translated in 30 languages), reveals an insight on the aesthetic experience of the “sublime” as reported by the Mystics and by the basic tenets of Hindu philosophy (the experience of Brahman and Nirvana). Her experience

which, admittedly, is difficult to be understood by some materialistically oriented cognitive neuroscientists particularly in the USA, is a confirmation of Immanuel Kant's account on the aesthetic experience of the Sublime in its distinction from the Beautiful in that the Sublime is productive of a feeling of joy by the conjunction of limitlessness and totality.

On the other hand, **Dr Jerry-Michael Jesseph's** analysis is the result of the merit of an eminent scientist, (General Surgeon, MD, Ph.D. of the Medical School of Indiana University), who can combine the experimental facts with a deep knowledge of philosophy and particularly of the philosophical aspects of the Kantian scheme and of Hindu philosophy. This combination is a rare achievement if we remember Bertrand Russell's complaint about the common fact that "*scientists do not know philosophy and philosophers do not know science*". As a result of the co-authors' work, the "elucidation" of the process of brain function in respect to what Kant has called "Category of Limitation" and Plato "gender of *peras*" and its apparent location in the left hemisphere in "synergy" with other brain centers, opens a new field of investigation in what concerns further moral, aesthetic, religious and social values of the human condition. Hence the philosophical importance of the unique experiment of the "Stroke of Insight" of co-authors Jill Bolte Taylor, Ph.D. and Jerry Michael Jesseph, MD, Ph.D., laureates of the Kaloy Prize 2012, under the auspices of the Kaloy Foundation in Corinth, Greece and the Research Center on Greek Philosophy of the Academy of Athens.

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B.Sc.(econ), B.Sc. (philosophy), Ph.D. (philosophy)

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