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Wien, am 30.Okt.1987

An das
BMfWF

Minoritenplatz 5
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Betr.: Endbericht von Herrn Dr. M. Bujatti-Narbeshuber

Als Projektleiter (Projekt 49.403/1-24/84) erlaube ich mir nunmehr, den Endbericht von Herrn Kollegen Bujatti dem Ministerium vorzulegen.

Mit dem Ausdruck vorzüglicher Hochachtung

Univ.Prof.Dr.H. Seidler

A Unified Theory of Life

Bujatti, M.

A UNIFIED THEORY OF LIFE

CONSCIOUSNESS,

CREATIVITY AND INTELLIGENCE

IN BIOGENETIC, MORPHOGENETIC AND CULTURAL-EPIGENETIC

EVOLUTION

VOL. I AND VOL. II

A QUANTUM-MECHANICAL TRANSITION THEORY OF EVOLUTION

M. BUJATTI-M.REESHUBER

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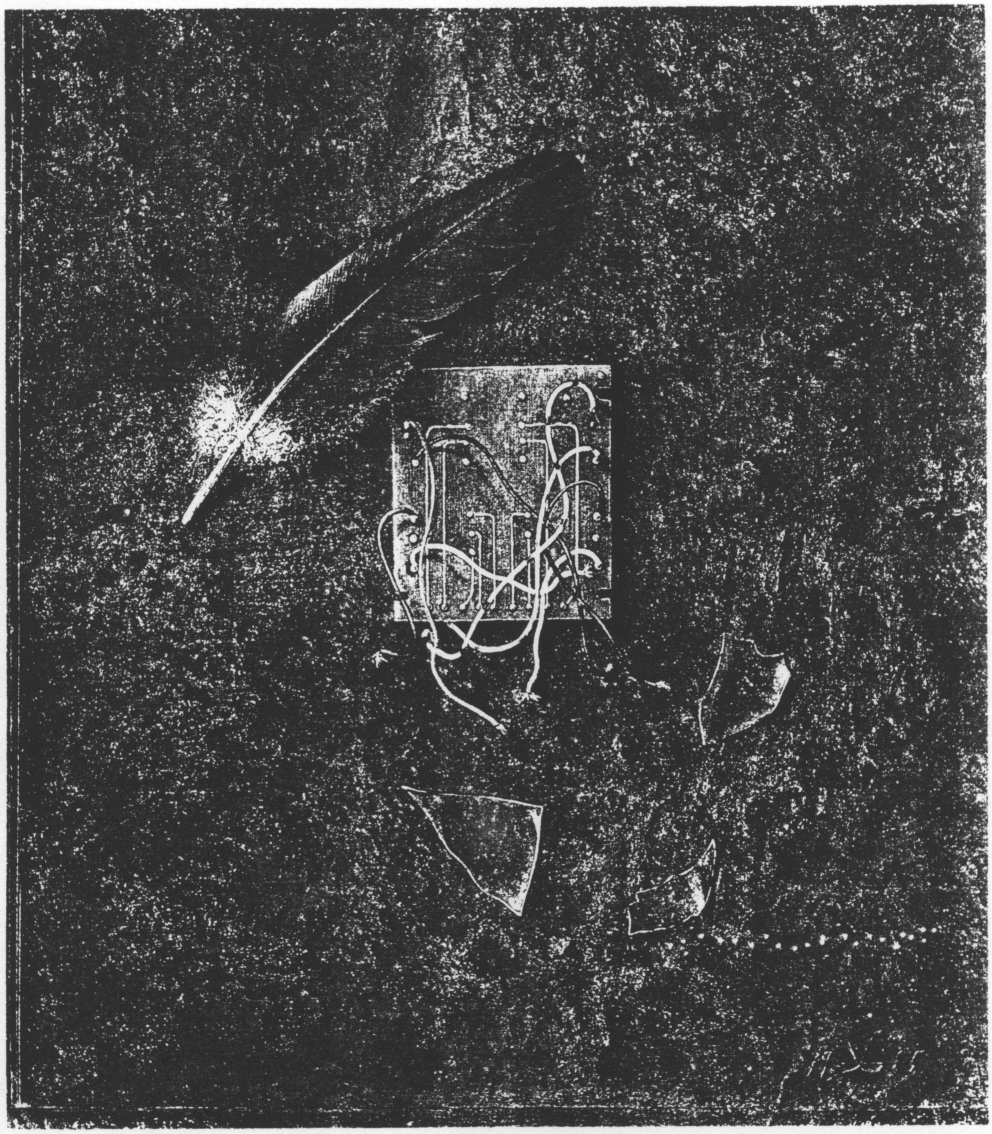

A UNIFIED THEORY OF LIFE: VOL. I

A UNIFIED THEORY OF LIFE: VOL. II

MOTTO

Gary Zukav

Die tanzenden Wu Li Meister

"MOTTO"

Der Sinn des Anfängers

Die Bedeutung des Unsinns kann kaum überschätzt werden. Je deutlicher wir etwas als «Unsinn» erfahren, desto deutlicher erfahren wir die Grenzen der unserer Erkenntnis zugrundeliegenden Strukturen, die wir uns selbst auferlegt haben. «Unsinn» ist das, was nicht zu den Strukturen paßt, die wir der Realität aufgezwungen haben. So etwas wie «Unsinn» gibt es überhaupt nur für einen urteilenden Intellekt, der dieses Etwas so nennt.

Wahre Künstler und wahre Physiker wissen, daß nur das Unsinn ist, was, von unserem gegenwärtigen Gesichtspunkt aus betrachtet, unverständlich ist. Unsinn ist nur dann Unsinn, wenn wir noch nicht jenen Gesichtspunkt gefunden haben, von dem aus betrachtet er einen Sinn ergibt.

Im allgemeinen lassen sich Physiker nicht auf Unsinn ein. Die meisten von ihnen verbringen ihr Berufsleben damit, etablierten Denkweisen zu folgen. Aber die Wissenschaftler, die die etablierten Denkweisen etablieren, sind dieselben, die sich nicht fürchten, kühn in den Unsinn vorzudringen, in jenen Bereich, von dem jeder Trottel ihnen gleich hätte sagen können, daß er nichts als Unstimmigkeiten – eben Unsinn – enthält. Solche Vorstöße sind das Kennzeichen des kreativen Verstandes; sie stellen ein wirklich kreatives Vorgehen dar. Es ist durch eine feste Zuversicht charakterisiert, daß es irgendeinen Gesichtspunkt gibt, von dem aus betrachtet der «Unsinn» durchaus kein Unsinn ist – von dem aus er in Wirklichkeit ganz schlüssig und einleuchtend erscheint.

Wie in allen Bereichen sind auch in der Physik die Menschen, die die freudige Erregung des kreativen Arbeitens am deutlichsten gespürt haben, zugleich diejenigen, die die Fesseln des Bekannten abgestreift haben, um weit in das unerforschte Gebiet vorzudringen, das jenseits der Grenzen des Offensichtlichen und des Bekannten liegt. Diese Menschen besitzen zwei typische Charaktereigenschaften. Die erste ist die kindliche Fähigkeit, die Welt so zu sehen, wie sie ist, und nicht, wie sie auf Grund dessen, was wir von ihr wissen, zu sein scheint. Das ist die Moral des (Kinder?-)Märchens von des Kaisers neuen Kleidern. Als der Kaiser nackt durch die Straßen ritt, sagte nur ein Kind, er sei unbeklei-

Das Gehirn als Vorbild

Um die Grundfrage, wie das Gehirn seine bis heute durch künstliche Systeme nicht erreichte Leistung vollbringt, geht es in einem neuen Forschungszentrum der Ruhr-Universität Bochum. Es wurde unter der Bezeichnung „Kognition und neuronale Netze (KOGNET)" gegründet, mit der zentralen Aufgabe, die sogenannten Kognitionsleistungen des Menschen und höherer Organismen zu klären, die durch das Zusammenwirken netzartig verschalteter Nervenzellen im Gehirn (Neuronen-Netze) zustande kommen. Kognitionsleistungen sind unter anderem Wahrnehmen, gezieltes Bewegen und Handeln, Sprechen, Hören und Verstehen, Vorstellen und Denken. In dem neuen Zentrum arbeiten nach Mitteilung der Universität Wissenschaftler aus den Disziplinen Neurobiologie, Neurophysiologie, Neuroinformatik, Softwaretechnik, Psychologie und Linguistik zusammen. Von ihren Forschungsergebnissen werden Impulse für neuartige parallel-organisierte Informationsverarbeitungssysteme erwartet, die sich in ihrer Funktionsweise an Neuronen-Netze anlehnen und viel leistungsfähiger sind als Expertensysteme und Computer.

KOGNET dient zunächst der Grundlagenforschung. Es wird aber damit gerechnet, daß sich auch Anwendungsmöglichkeiten ergeben, zum Beispiel für die Entwicklung hochleistungsfähiger Sensoren, bei der Roboterbewegung und -steuerung, bei Sprecherkennungssystemen oder bei neuen Expertensystemen. dpa/fwt

Quelle: Süddeutsche Zeitung 6.8.1987, S.32

BEGLEITSCHREIBEN/LETTERS OF ADVICE

An den
Bundesminister für
Wissenschaft und Forschung
Univ. Prof. Dr. Hans Tuppy

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Betreff: Aktenzahl 49.403/1-24/84
Endberichtsabgabe für Forschungsprojekt: "Ansatz zur phylogenetischen und ontogenetischen Kreativitäts-Evolution aus chemisch-physikalisch und humanbiologischer Sicht".
Auftragnehmer: Univ.Prof.Dr.Horst Seidler, Univ. Wien
Projektleiter: Dr. med. M. Bujatti-Narbeshuber, Wien.

Sehr geehrter Herr Minister!

Zum Anlass der persönlichen Vorsprache bei Ihnen am 30.7.1987 im Ministerium für Wissenschaft und Forschung und in Erfüllung des Offerts vom 15.6.1984 laut Forschungsantrag vom 31.10.1983 erlaubt sich der Unterfertigte, Projektleiter Dr.M.Bujatti-Narbeshuber, den Endbericht mit dem Ersuchen um Ihre geschätzte Kenntnisnahme beizubringen.

Dieser Bericht wird als versachlichender Beitrag zum derzeit weltweit in Ost und West stattfindenden transkulturellen Gespräch über das zu Überdenkende Selbstverständnis des Menschen, seine Sonderstellung in der Natur, u.s.w., gesehen.

Die Arbeiten sind als Denkanstoß und Ausgangspunkt für eine weiterführende naturwissenschaftliche Diskussion der biologisch orientierten Grundlagenforschung gedacht, bemüht um ein besseres Verständnis der evolutionären Grundlagen lebender Systeme, der Evolution des menschlichen Cortex, der Ethologie der Kreativität, sowie des bewußtseinsmäßigen Potentials des Menschen.

Dies erscheint geboten gerade auch im Hinblick auf eine psycho-sozio-ökonomische Komplexitäts-Krise in der Gegenwart, die auch eine Krise der Wissenschaft und insbesondere eine der Wissenschaften vom Menschen ist. Als das Thema des Honda Symposiums "Discoveries 1987" wurde diese Komplexitätskrise, erst kürzlich wieder von internationalen Fachleuten, wie schon vom Club of Rome, festgestellt und diverse Ansätze zur Lösung diskutiert. Sie erscheint jedoch bedingt durch eine mit Apellen an Moral und Ethik nicht restlos steuerbare Eigendynamik, wie dies auch aus der Geschichte anderer psycho-sozio-ökonomischer Krisen der jüngsten politischen Vergangenheit evident ist. Dies macht eine Beseitigung unseres bisherigen grundsätzlichen Wissensdefizits betreffend der Humanethologie der Kreativität, als der Problemlösungs Kapazität, ihrer Antriebe und ihrer teleonomen Steuerung, gerade wegen des gegenwärtig wieder benötigten weltweiten und erfolgreichen Einsatzes von Beruhigungsmitteln von Meditation bis Medikation reichend, wünschenswert.

Zum Anlaß des zehnjährigen Jubiläums der durch Hans Selye als Stressforscher ermöglichten Erstpublikation über die Ruhe- und Erfüllungsreaktion, konnte daraus eine integrierte Evolutionstheorie, auch unser bisheriges Wissensdefizit vom Menschen aufzeigend, entwickelt werden.

Daher könnte als Alternative zum bisherigen, eher unfreiwilligen Wissensverzicht der Menschheit sich selbst betreffend, die Fortsetzung dieses Forschungsprojektes über Innovation, vielleicht im Rahmen bestehender Schwerpunktprogramme, interessant erscheinen.

Jedenfalls wurde in acht internationalen Kongressbeiträgen dieser Ansatz zur Diskussion gestellt, in sechs Abstracts publiziert und zur Besprechung für die Publikation in englischsprachigen Fachjournalen eingereicht. Dieses durch biologische Ausrichtung und Praxisnähe charakterisierte Projekt betrifft ein Gebiet der kulturellen Bildung mit dem höchstem "return on investment" und erscheint von dieser Seite als ökonomisch und gesellschaftspolitisch vertretbar.

Es wird auf Grund eines weithin bestehenden Interesses insbesondere an der computerisierten isokinetischen EEG-Analyse, voerst von den Prof. Aida, Prof. Pribram, Prof.Tourenne, Prof. Seidler, Prof. Hofmann, Prof. Reichardt, Prof. Schleidt bekundet, als wirtschaftlich entwicklungsfähig erachtet. Dieses Anliegen wäre nur in der Form einer EEG-experimentellen Einrichtung durch die Kooperation von Prof. Tourenne, USA, auch mit universitärer Verankerung auf der Hochschule für Welthandel, Institut für Wirtschafts und Verwaltungsführung, Prof.M.Hofmann, oder Universität Wien, Institut für Humanbiologie, Prof.H.Seidler, vorstellbar.

Mit vorzüglicher Hochachtung der Projektleiter

Dr.med.M.Bujatti-Narbeshuber

Wien, 28. 7. 1987.

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Professor GIRDHARI L. PANDIT
Professor of Philosophy

September 18, 1988

Herrn

Dr. M. Bujatti-Narbeshuber
Institut für Humanbiologie
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Dear Dr. Bujatti-Narbeshuber,

Let me, first of all, express my gratitude to you for giving me an opportunity to converse with you and glance through some of your more recent work: A Unified Theory of Life(1987) and "Schrödinger's Preparations for the Unified Theory of Life" (1988) and so forth; as also your scientific correspondence with scientist-philosophers working on interdisciplinary problems arising from or related to the EPR-type correlations and the special measurement problem in the field of quantum mechanics.

From this together with our intense, free and long philosophical discussions first in Kirchberg am Wechsel(20. August) and then in Wien (5.-10. September) I am already in fundamental agreement with you on a number of points. First, the deepest of all the questions we are faced with today is: How far can our understanding of consciousness help us solve the problems of the mind-like and the body-like systems - the observer-observed relationship - on the one hand and those of life/living systems, of their development into creative intelligence, on the other? If certain kinds of frameworks already known to us are inadequate, then what kind of alternative or synthesis should we aim at? Second, the central problems in your scientific research programme(SRP) are very deep dynamical problems cutting across different disciplines. There is much here which seems to be of common interest to us. I have here especially in mind your SRP of constructing a general measurement theory(GMT) as a unified approach to life and creative intelligence. As I understand it, GMT aims at unifying the observer, the observed and the procedures of observation in a unified consciousness, say as a general symmetry-basis of all (physical) measurement on the one hand and of the much sought after "ultimate" unified field theory(UFT) on the other. Third, although, personally, I am a little sceptical as to how ultimate can UFT itself be when actually discovered, this already hints at the possibility that the ultimate solution, if any, to all our theoretical/scientific problems of man and universe may have to be found in what the classical Indian philosophers called "pure consciousness" as the ground principle. E. Schrödinger, whose work you so admirably refer to as your take-off point, as it were, where your own assumptions are concerned, was apparently inspired by their work. He may have been, therefore, quite right and full of insight when he said: 'Consciousness cannot be explained - in principle

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Professor GIRDHARI L. PANDIT

September 18, 1988

by present day science'. But what did he imply? I believe that your work could throw much light on this important question. Was he suggesting, one might ask, that consciousness itself could not be reduced to a problem, and so forth, because there is a need for a new science(or synthesis) so carefully conceived that (pure) consciousneds appears as a unified basis for explaining all problems of life and creative intelligence and of observer-observed interactions? If you say yes, then it will follow that (pure) consciousness must enter as an irreducible and holistic principle of the kind of GMT you have been aiming at. But this will imply, I think, that there is no non-trivially important sense left in which (pure) consciousness itself could be explained within the unifying framework of such a GMT.

I have no doubt at all that interesting correlations seem to exist already between your SRP as a search for GMT and my own programmatic work on a general interaction theory(GIT - please see Pandit, G. L. 1983, The Structure and Growth of Scientific Knowledge , Dordrecht: D. Reidel Publishing Company, particularly chapter 3)and 5). In case you find my book of some use to you, I shall ask my publisher in the Netherlands to send a copy to you. Since your SRP on the unified theory of life(creative intelligence, measurement, evolution of language and origin of culture and so forth) is of topical importance to philosopher-scientific communities all over the world, I would be glad to do professional correspondence with you on those specific problems which may be of common interest between us. I am sure that you have the best opportunity in Austria, particularly in Wien, to avail all good institutional support and facilities to keep you at work on these important problems in close professional contact with other colleagues there who may have similar research interests.

I shall be sending you some of my papers under a separate cover. With kind regards and my best wishes for your work, I remain

Yours sincerely

G. L. Pandit

Giridhari L. Pandit

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September 2, 1988

Lieber Herr Bujatti-Narbeshuber,

Haben Sie vielen Dank für Ihre Karte vom 23. August. Beiliegend sende ich Ihnen die gewünschten zwei Artikel von Primas und von Giudice et al. und füge noch eine Note von mir bei. Inzwischen habe ich Ihre drei Artikel nochmals durchstudiert, um Ihnen darüber einiges sagen zu können.

Offenbar spielt Quantum Tunneling (=QT, aber auch Nullpunktsenergie) in der organischen Chemie, insbesondere aber in der Evolutionstheorie, eine weit wichtigere Rolle als ich realisieren konnte. Dass Schrödinger in seinem Buch gar nicht davon spricht, ist mir rätselhaft. Dass andererseits Wasser sowohl physikalisch wie chemisch "ein ganz besonderer Saft" ist, hatte ich zwar schon lange vermutet, aber erst seit der Arbeit von Giudice et al. klar erkannt.

Was mir das Verständnis Ihrer Arbeiten erschwert, ist das folgende (Zitat Part II): "The criterion of a linear relationship between the chemical activation parameters of transition enthalpy and transition entropy in a series of similar chemical reactions is known in correlation chemistry as the 'isokinetic relationship' or 'compensation effect' of energy-entropy compensated transition (EECT)". Dies ist mir neu, obschon ich mich mit Nicht-Gleichgewichts-Phänomenen und Reaktions-Modellen selber befasst habe. Es wäre interessant, EECT im Rahmen der statistischen Physik herzuleiten, insbesondere die Relation $dH/dS = T_{iso}$. Ist dies schon gemacht?

Für Ihre Evolutionstheorie ist natürlich der Fall $T_{iso} = 0$, oder realistischer, $T_{iso} \ll T$, besonders interessant, weil dies dem Fall von QT entspricht. QT ist aber, wie ich verstehe, der erste Eckpfeiler in Ihrer Theorie (Part III):

transition → consciousness
mutation → creativity

selection → intelligence

Dies ist interessant und leuchtet mir, wenigstens als Analogie, ein. In der Tat hat Pauli sehr viel nachgedacht über das psycho-physische Problem und die erstaunlichen Analogien

Quanten-Willkür → Opfer und Wahl
Quanten-Beobachtung → Beobachtung des Unbewussten
etc.

Hier stösst mir nun aber die prinzipielle Frage auf, die Delbrück als Titel seiner Vorlesungen über "evolutionary epistemology" gewählt hatte:

"Mind from Matter ?"

(Blackwell Scientific Publ., Palo Alto, 1986). Delbrücks Antwort auf diese Frage am Ende der Vorlesungen ist: NEIN.

Doch ist es natürlich trotzdem möglich und sogar wünschenswert, diese Frage weiter zu analysieren. Deshalb glaube ich, ist Ihre Arbeit gerechtfertigt und interessant. Dass dabei dem Wasser als biologisches Lösungsmittel eine zentrale Rolle zukommt, welche die Einseitigkeit der (Zitat Part III) "necessary but not sufficient conditions of the genetic exclusively solute-based MENDELIAN and DARWINIAN principles" kompensiert, ist mir auch sehr sympathisch. Pauli hatte übrigens sehr gegen den Darwinismus gewettert. Darüber gab es eine Kontroverse zwischen ihm und Delbrück, deren Sinn ich noch nicht ganz verstehe. In der Beilage sende ich Ihnen, was ich darüber geschrieben habe, in der Hoffnung, dass sich vielleicht in der Diskussion mit Ihnen einiges darüber klären würde.

In dieser Hoffnung verbleibe ich mit den besten Erfolgswünschen für Ihre Arbeit und mit freundlichen Grüssen,

Ihr

Charles P. Enz

3 Artikel mit Separatpost

Univ. Prof. Walther Birkmayer

Detaillierte Stellungnahme
zum Endbericht des Herrn Dr. Bujatti-Narbeshuber
Projekt 49.403/1-24/84

Titel: A Unified Theory of Life
"Ansatz zur phylogenetischen und ontogenetischen Kreativitäts-Evolution aus chemisch-physikalisch und humanbiologischer Sicht".

Untertitel: Transition Theory of Evolution

Inhalt: Der Autor intendiert mit dem vorliegenden Endbericht das noch offene und auch stagnierende wissenschaftliche Problem der Kreativität und Intelligenz des menschlichen Bewußtseins einem grundsätzlich neuen Lösungsansatz zuzuführen. Damit unternimmt er das Unterfangen, nicht nur das menschliche Nervensystem in seinen Leistungen besser zu erfassen, sondern auch das menschliche Bewußtsein von seiner anthropozentrischen Sonderstellung zu einem allgemeinen physikalisch parametrisierbaren Grundphänomen des Universums zu generalisieren.

Teil I: Dies ist das Anliegen des ersten Beitrages. Er ist erkenntnistheoretischer Natur und geht von den diesbezüglich identen Argumentationen der Bücher Erwin Schrödingers "Geist und Materie" und "Was ist Leben?".aus, um das Bewußtseinsphänomen erkenntnistheoretisch-paradigmatisch zu definieren. Es wird als das Thema der vereinheitlichten Quantenfeldtheorien als symmetriebrechendes Elementarereignis lokalisiert. Diese Onto-Epistemologie folgt den Arbeiten von Zeiger und Hagelin, sowie Stapp.

Dieses Unterfangen ist ein Weiteres auf der Linie von wissenschaftlichen Unternehmungen, zu denen Siegmund Freud schon bemerkte: "Im Laufe der Zeit hat die Wissenschaft dem naiven Ehrgeiz der Menschheit zwei grobe Beleidigungen zugefügt.", u.zw. der Verlust des Geozentrismus, der Verlust der Sonderstellung des menschlichen Körpers durch Darwin. Hier dreht es sich um den Verlust einer Sonderstellung des Menschen bezüglich des Bewußtseinsphänomens.

Teil II
und III: Der Autor stellt hier die Ergebnisse der weltweit erstmaligen Untersuchung der Indolamin-Neurotransmitter Dynamik bei Meditationstechniken, die am Boltzmann-Institut für Neurochemie mit Prof. P. Riederer durchgeführt wurden, in einen erweiterten Rahmen.

Zu deren Charakterisierung wurde damals die Ruhe- und Erfüllungsreaktion homöostatischer, lebender Systeme definiert. Als Ruhe-, (Schlaf-) und Erfüllungs-, (Antidepressions-) Transmitter wurde dieses Konzept in der medizinischen Praxis durch den Einsatz der Vorstufe Tryptophan für Serotonin glänzend bestätigt. Nunmehr wird hier, ausgehend von der grundlegenden Bedeutung des Wassers für lebende Systeme, die im Werke Prof. K.Trinchers -Die Gesetze der biologischen Thermodynamik- treffend zum Ausdruck kommt, dessen isokinetische Energie-Entropie-Kompensation als selektierender Evolutions-Mechanismus eingeführt. Er wird für die Ruhe- und Erfüllungsreaktion als mikroskopische Anfangsbedingung verantwortlich erkannt, und als das kritische Detail für den homöostatischen, teleonomen Evolutionsvorgang in die wissenschaftliche Diskussion eingebracht. Damit würde die von Eigen und Schuster mathematisierte Mendel-Darwin'sche Theorie um einen prae- und epigenetischen Mikroorganisationsvorgang erweitert. Dies erscheint nun umsomehr angebracht, als auch Prof. F. Dysen aus Princeton kürzlich, aufgrund einer mathematischen Neuformulierung von Oparins Theorie, einen solchen als begründet fordert, und er dazu die Frage nach dem metabolischen Ursprung des Homöostase-Prinzips aufwirft. Dafür wird nun die isokinetische Beziehung als quantenchemischer Vorgang in einem energetisch fluktuierenden Milieu vorgeschlagen und zugleich auch in den Rahmen der Quantenfeldtheorie einbezogen. (Wasser als Dipol-Laser, nach E. Del Giudice et al. 1988, in der epistem. Helixstruktur).

Als die andere Seite der Evolution wurde dieser Verhaltensmechanismus schon von Huxley, Schrödinger, Hardy, Popper, Wyles, Wilson und Cairns und von Emma Darwin selbst in einem Brief an ihren Mann gefordert.

Transition Theory of Evolution:

Teil IV: Hier wird die vorhandene Literatur seit der unverständlicher Weise unbeachtet gebliebenen Arbeit von Lumry und Rajendra über die Fülle von linearen Energie-Entropie-Beziehungen im metabolischen Geschehen und ihre Rolle dargestellt. Sie reicht von der Proteinkonfiguration und Membranfunktion bis zum zentralen Nervensystem des Menschen und wurde nunmehr in einen evolutionären Rahmen gebracht, um eine Wiederaufnahme dieses Themas zu begründen.

Teil V: In diesem Teil wird die isokinetische Beziehung auf das quantenchemische Tunnelphänomen erweitert und dieser Spezialfall zur Erklärung der Zielgerichtetheit (Teleonomie) in der Selbstorganisation lebender Systeme herangezogen. Ein Hinweis für die Richtigkeit dieser Vorstellungen soll sich aus der experimentellen Ermittlung des Parameters der isokinetischen Temperatursenkung aus der statistisch-physikalischen Analyse des EEG nach Prof. Tourenne, weiter entwickelt zur kinetischen EEG-Analyse, gewinnen lassen. Leben wird definiert als die Stabilisierung von einer isokinetischen Temperatur um 0 Kelvin bei Umgebungstemperatur 300 Kelvin. Ähnliche Vorstellungen von Popp wurden aus der Ultraschwachen Zellstrahlung in der Bio-Photonen Forschung gewonnen.

Teil VI: Die Bedeutung von Maxwell'schen Dämonen ist das Charakteristikum der Biophysik im Gegensatz zur Physik. Aus der isokinetischen Beziehung wird die Bewußtheit, Kreativität und Intelligenz quantenchemisch begründet und als Invarianzmechanismus einer generellen Theorie der Kreativen Intelligenz im Begriff der Transition zusätzlich zu Mutation und Selektion verankert.

Teil VII: Aus der Sicht dieser integrierten Evolutionstheorie erarbeitet der Autor abschließend ein Szenarium der praegenetischen, isokinetischen und genetischen Evolution des Lebens bis zur speziellen Theorie der Kreativität des Menschen, die auf der Tauchreflex-Transition im Rahmen einer Erweiterung der Westenhöfer, Hardy, Morgan, Lumiere Vorstellungen aufgebaut wird und die Hirnvergrößerung begründet.

Resumée: Diese interdisziplinäre, durch Isomorphien aus vielen Systemebenen begründete theoretische Untersuchung liefert eine methodisch zugängliche Aussage über Bewußtsein, Kreativität und Intelligenz. Auf vielen Ebenen experimentell falsifizierbar, handelt es sich um einen interessanten, naturwissenschaftlich im Prinzip begründbaren Ansatz, der dieses Gebiet aus der psychologischen Beschreibungsebene in den Kausalnexus der Grundwissenschaften bringt.

Ich empfehle dem Bundesministerium für Wissenschaft und Forschung sowohl die Annahme des Endberichtes, als auch die weitere Förderung dieses innovativen und heuristisch interessanten Projektes.

Univ. Prof. W. Birkmayer

UNIV. PROF.
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VORWORT/PREFACE

Dieses interdisziplinäre Forschungsprojekt ist sich seiner bescheidenen Mittel und seines vielleicht auch widerlegbaren, auf jeden Fall aber kritisierbaren Zustands in jeder Hinsicht bewußt, verläßt es doch Fachgrenzen methodischer Art und sucht neue Blickwinkel und Erkenntnismöglichkeiten auf, die in dem Maße, wie sie vermehrte Einsichten ermöglichen, notwendigerweise auch vermehrte Angriffsflächen bieten.
Dies ist jedoch wegen der größeren Falsifizierbarkeit durchaus wünschenswert und das Zeichen einer reichen Hypothese und Theorie.

Diese Gegebenheit und die Vielzahl von möglichen experimentellen Positionen und der bereits bestehende Reichtum an Daten lassen jedoch schon jetzt diese um theoretische Grundlagen und Integration erfolgreich bemühte Projektstudie nutzbringend erscheinen.
Durch einen ersten Ansatz für eine am Informations- und Entropiebegriff und an Ludwig Boltzmann orientierte Sicht, einschließlich der Vorwegnahme der Evolutionären Erkenntnistheorie in seinem Schrifttum, wurden viele Zusammenhänge überschaubar und systemhaft deutbar.

Mit vorzüglicher Hochachtung der Projektleiter

Dr.M..Bujatti-Narbeshuber

DANKSAGUNGEN/ACKNOWLEDGEMENTS

Meine Dankbarkeit gilt in erster Linie meinen spirituellen Förderern, den Vertretern der östlichen und der westlichen Fassung der uralten Weisheitstradition der Menschheit, seiner Heiligkeit, Maharishi Mahesh Yogi und Monsignore Prof.Dr.Alois Beck, Päpstlicher Geheimkämmerer.

Der Erstere brachte die Rolle des Bewußtsein in der Wissenschaft der Kreativen Intelligenz dem westlichen Verständnis praktisch und theoretisch näher und jener führte seinen Schülern von Jugend an die Vereinbarkeit des logischen, naturwissenschaftlichen Denkens mit spirituellen und metaphysischen Aussagen vor Augen.

So wurde dank der erstmals bestehenden experimentellen Überprüfbarkeit und des Anreizes für die diesbezügliche wissenschaftliche Arbeit beides in einem transkulturell interdisziplinären und naturwissenschaftlichen Projekt für Kreativitäts- und Innovationsforschung optimal nützbar.

Weiters gilt meine besonderer Dank den wissenschaftlichen Befürwortern dieses Projektes, den Univ. Professoren und Forschern der medizinischen, soziologischen und ökonomischen Fakultät, den Begutachtern, insbesondere aber Herrn Univ. Prof. Dr. Horst Seidler, dessen Unterstützung und dessen Betreuungs-Übernahme für das Wissenschafts- und Forschungsministerium, sowie dessen beständige Ermutigung die ökonomische, organisatorische und unabhängige Realisierung dieses Projektes ermöglichte. Frau Mag. Kolde, die in sehr entgegenkommender Weise dieses Projekt betreute, sei an dieser Stelle ausdrücklich gedankt.

Ganz besonders gilt aber der Dank meiner Frau und den Kindern, die die finanziellen, sozialen und familiären Freuden und Bürden in diesen intensiven Jahren mit mir zu teilen die Kraft hatten. Letztendlich sei besonders meinen Meditations-Schülern gedankt sowie den vielen Millionen von Ausübenden der Transzendentalen Meditation und der Sidhi-Technologie des Umgangs mit dem Vereinheitlichten Feld der Quantenfeld-Theorien, die uralte vedische Tradition des Shankara und Maharishi Patanjali erhaltend, welche die Möglichkeit zu irdischem Glück und Frieden im Einklang mit ihrer naturwissenschaftlichen Kultur nicht nur begriffen sondern auch schweigend ergriffen und die gesellschaftliche Trendwende zugelassen haben deren Ausdruck diese Arbeit ist.

Für die Erlaubnis Ihre die Thematik vertiefenden Ölbilder zur Illustration der einzelnen Kapitel zu verwenden, danke ich insbesondere Frau Ute Rakob.

Prof. Rudolf Hausner schreibt über sie: "Ich würde unter zehn Bildern verschiedener magischer Realisten das Bild der Ute Rakob sofort und zweifelsfrei erkennen - es ist so sehr anders in seiner leisen, behutsamen Sprache, in seiner edler Trauer der dunklen Skepsis gegen alle Aufdringlichkeiten der Macher, seiner Aussöhnung mit dem Tode und dem daraus hervorgehenden tiefen Frieden, dem die Malerin den entrückten Standpunkt Ihrer Beobachtung verdankt. Die wenigen, aber sehr charakteristischen Gegenstände der Rakobschen Bilder, liegen nur scheinbar unmittelbar vor dem Beschauer, in Wirklichkeit sind sie Zeichen, die uns von einem weit entfernten Vorposten aus der Dämmerung erreichen."

Für die Unterstutzung bei den Schreibarbeiten danke ich insbesondere Frau Mag. Brigitte Strobl, Sieglinde Lesniewsky und Margaretha Handl. Ohne ihre Hilfe waren die vielen Umarbeitungen nicht durchführbar gewesen.

ABSTRAKT-PUBLIKATIONEN/ABSTRACT-PUBLICATIONS

Zur 78. Jahresversammlung der Deutschen Zoologischen Gesellschaft
in Wien (27.Mai - 2.Juni)

INSTITUT FÜR HUMANBIOLOGIE (Prof. H. Seidler) UNIVERSITÄT WIEN
Fachbereich Biologie, Formal- und Naturwissenschaftliche Fakultät

Forschungsprojekt des Bundesministeriums für Wissenschaft und Forschung
Leitung: M. Bujatti
"Ansatz zur phylogenetischen und ontogenetischen Kreativitäts-Evolution aus chemisch-physikalisch und humanbiologischer Sicht"

Das Eyring-Transitionstate-Prinzip des Wassers als Elementarmechanismus der Evolution zusätzlich zu den intercalären Prinzipien der Populationsgenetik wie Mutation, Selektion, Rekombination etc. zur Integration der mikro- und makroevolutionären Aspekte der Kreativität, in der Gen -Verhalten Coevolution.

..... Biochemie, Anatomie, Physiologie des Verhalten steuernden Indolamin-Katecholamin Transmitter-Systems unter besonderer Berücksichtigung der stammesgeschichtlichen Humanevolution für Kreativität aus der Sicht der Voraussetzungen im Hominoid-hominid Übergangsfeld.

..... "Ruhe- und Erfüllung" als genereller Instinkt-End-Befriedigungs mechanismus antagonistisch zu "Kampf oder Flucht" Physiologie.

..... Erweiterung der bisherigen Agressionsforschung auf Fragen der menschlichen Spiritualität: Definition, Physiologie, Ethologie, Technologie, gesellschaftlicher Stellenwert, evolutionäre Bedeutung.

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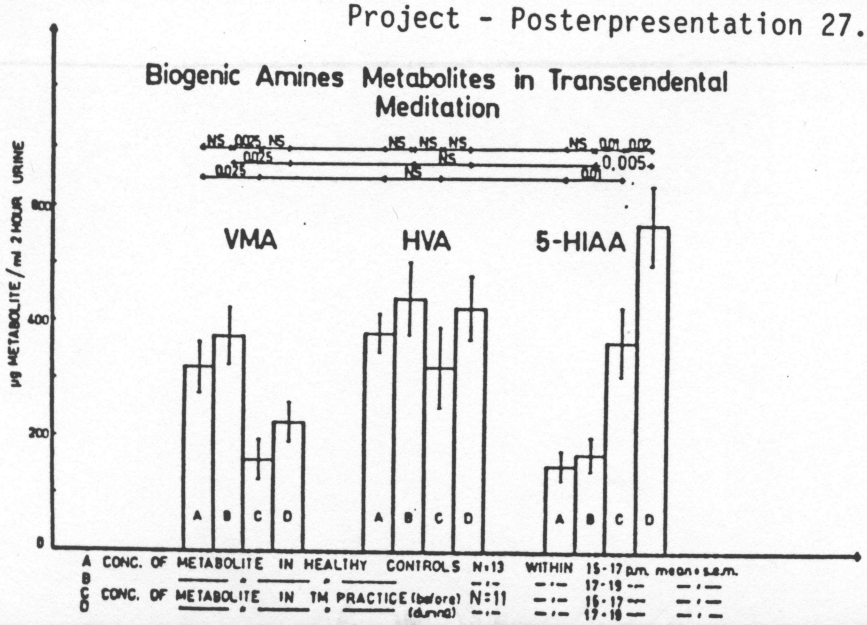

Intern. J. Neuroscience, 1987, Vol. 32, p 315

ABSTRACTS OF THE FOURTH WORLD CONGRESS OF BIOLOGICAL PSYCHIATRY, PHILADELPHIA, PENNSYLVANIA, USA, SEPTEMBER 8–13, 1985.

5-HT, DA, NA Metabolism and a General Instinct Behavior Rest and Fulfillment-RF-Mechanism for Terminal Reward.

M. BUJATTI

MERU-Vienna, Institut für Human-biologie (H. Seidler), University of Vienna, Austria

The macroevolutionary psychophysiology underlying appetitive behavior for religious experience is characterized in TM-technology by an increase in 5-HT metab. ($p = .0005$), The RF-response (1). Immediate onset, drop in metabolic rate, O_2 25% below calc.b.rate CO_2 receptor sensitivity reduction, rapid decline of respiratory activity and natural periods of resp. arrest, bradycardia with circulatory centralisation, reprod. reliable instant elicitation are taken as the O_2 conserving DR in aerobic, non aquatic, self-induction (SIEAAM). EEG-coherence, consec. catecholamines incr. with paradox EASE activation Energy Amplification (ACh) by Synchronized (5-HT) Exitation (NA/DA) of Kippschwingung synactivation (by DR-nucl.tr.sol.) of raphe, coeruleus etc. considered genetic physiological basis of creativity in man. Typical for hominids (2) seems the D-Drive addition for (day) instinct handling and incoherent or suppressed mode (stressor) Reduction by integration (EASE). Equally typical is the adaptive insufficiency of sleep on principle for this as well as for the waking state evol. syntactics of creativity (relig. rites) for semantics of language-, pragmatics of tool prod. support. cumul. D-Drive EASE-DEFICIT PATHOLOGY.

REFERENCES

(1) Bujatti M., *J. Neural Transm.*, 1976, **39**, 257–267.
(2) Hardy, A., *New Scientist*, 17.3. 1960, 642–645. Min. Sc. Grant 83.

TYPE ABSTRACT IN THIS SPACE

5-HT,DA,NA METABOLISM AND A GENERAL INSTINCT BEHAVIOR REST AND FULFILMENT-RF-MECHANISM FOR TERMINAL REWARD; BASIC FOR A.THE GENETIC HYPOMETABOLIC DIVING RESPONSE-DR-OF VERTEBRATES B.ITS APPETITIVE EPIGENETIC C.SYMBOL-INDUCTION AS PHYSIOLOGICAL FOUNDATION OF CREATIVE INTELLIGENCE. EVIDENCE FROM TM-PHYSIOLOGY 1.FOR HARDY'S THEORY 2.HOMINOID-HOMINID TERRAQUATIC ECO-TRANSITION THEORY OF CREATIVITY 3. ETIOLOG. DIVING DRIVE EASE-DEFICIT THEORY OF HUMAN PSYCHIATRIC DISEASE

M.Bujatti, MERU-Vienna, Institut für Humanbiologie(H.Seidler), Univ. of Vienna, Austr.

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Intern. J. Neuroscience, 1987, Vol. 32, p 520

ABSTRACTS OF THE FOURTH WORLD CONGRESS OF BIOLOGICAL PSYCHIATRY, PHILADELPHIA, PENNSYLVANIA, USA, SEPTEMBER 8–13, 1985.

Monoamines in Rest and Fulfilment and a Distinct Behavior (D-Drive) Deprivation Theory of Depression Psychiatric Mental Disorder and Prevention

J. BUJATTI

MERU-Vienna, Institut f. Humanbiologie (H. Seidler), University of Vienna, Austria

Hysteria, viewed hereditary in the psychiatry around 1900 and a major topic of textbooks became a rarity after the clarification of the underlying biological instinct behavior deprivation by S. Freud. Clarification of the instinctive mechanism underlying creative intelligence in man based on the diving response physiology of meditation (TM) is suggested necessary for harmonious integration by rest and fulfilment instead of instinct and data repression, as the phylogenetic basis for mental health.

Creative behavior as macroevolutionary-epigenetic recapitulation of micro-evolutionary pregenetic solvent-solvent Eyring Transition-state intercalary evolution self-stabilising with "Bio-molecules" on increasingly complex levels of integration using more and more isokinetically i.e. 5-HT-(NA) in negentropy-(entropy-) flow rest-(activity-) phase advance-delay Analog or Digital Complementarity Systems (ANS–DNS) for coherent superposition of replica as macroscopic quantum state of Unified Field (Consciousness). Transition as solvent principle suggested as elementary mechanism of evolution additional to the principles offered by population genetics (mutation, selection, recombination, duplication etc.) unites micro- and macro-evolutionary aspects of creativity underlying gene-behavior-coevolution by the D-drive of man. Integrating incoherent modes of excitation by rest and coherent excitation pulses as in Rem/PGO the DR/EASE and RF/PLAY, it is indispensable as sleep in man.

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1. M. Bujatti, *J. Neural Transm.*, 1976, **39**, 257–267.
2. A. Hardy, *New Scientist* 642–645, 17.3. 1960.
3. F. Crick, *Nature* **303**, 7.83/Min. SC.Grant, 1983.

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M. Bujatti, MERU-Vienna, Institut f.Humanbiologie(H.Seidler), Univ. of Vienna,Austr.

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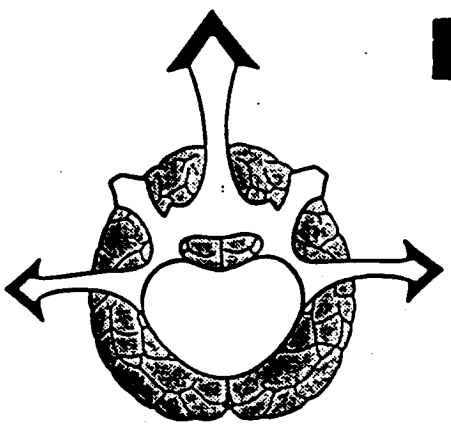
INTERNATIONAL SYMPOSIUM ON VERTEBRATE MORPHOLOGY

BUJATTI-NARBESHUBER, M. - Wien, Austria

HUMAN MORPHOLOGY, GENERAL ECO-TRANSITION-THEORY AND CREATIVE INTELLIGENCE

The ethology of human creative intelligence seems to be based on the rest and fulfilment principle (RF) of living systems. Phylogenetically elaborated to a hypometabolic response against various adverse environments, RF finds in vertebrates its most evolved expression as the diving response, underlying general and specifically terraquatic eco-transitions. (General Eco-Transition-Theory, General ETT). The physiological changes during meditation (MT-MTUF) are identical to those of the diving response elicited in a nonaquatic, nonasphyctic way utilizing symbols to condition the inborn release mechanism. These changes additionally have been found to correlate highly with creativity in the Torrence Test of Creative Thinking (TTCT) and indicate strongly that human creativity evolved in terraquatic eco-transitions (Special Theory of Creative Intelligence, STC). The aquatic elicitation of the response when this ecological niche was shifted again to to the land (primate second terraquatic eco-transition) was replaced by an idiolog symbol (hominid primate third "terraquatic" etho-eco-transition) leading to the creative language and technology niche. But the diving drive with appetitive behaviour for transition experience, the typical hominoid dentition change, paralleled functionally by fight or flight hierarchical replacement through rest and fulfilment RF ethology and the many characteristic changes in human morphology remained as already interpreted by A. HARDY and E. MORGAN provided with additions now supporting the special ETT within STC concerning man and machine.



Abstracts AUGUST 25–29 1986, p. 43
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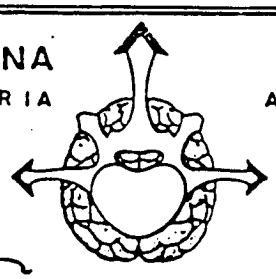

Human Morphology, General Eco-Transition-Theory and Creative Intelligence.

M.Bujatti-Narbeshuber, Interdisziplinärer Arbeitskreis Meru-Vienna, Institut für Humanbiologie (H.Seidler), University of Vienna, Austria.

The ethology of human creative intelligence seems to be based on the rest and fulfilment principle (RF) of living systems (1).
Phylogenetically elaborated to a hypometabolic response against various adverse environments, RF finds in vertebrates its most evolved expression as the diving response, underlying general and specifically terraquatic eco-transitions. (General Eco-Transition Theory, General ETT).
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But the diving drive with appetitive behavior for transition experience (2), the typical hominoid dentition change, paralleled functionally by fight or flight hierarchical replacement through rest and fulfilment RF ethology and the many characteristic changes in human morphology remained as already interpreted by A.Hardy and E.Morgan provided with additions now supporting the special ETT within STC concerning man and machine.

A General Theory of Creative Intelligence (GTC), including the general ETT, adding transition as elementary principle to mutation and selection expanding Neo-Darwinian evolution (2), was found substantiated by the discovery of the epigenetics defining quantumchemical solvent-solvent Eyring Transition State enthalpy-entropy-compensation principle (EECP) or RF isokinetic solvent transition behavior (2) through the authors kinetic EEG-analysis of TM-MTUF EEG-data as provided by C.Tourenne.

1. M.Bujatti, P.Riederer. J.Neural Transm. 39,257-267,1976.
2. M.Bujatti, "Monoamines in Rest and Fulfilment and an Instinct Behavior (D-Drive) Deprivation Theory of Depression, Psychiatric Mental Disorder and Prevention". (Abstracts of the IVth World Congress of Biological Psychiatry, Nr.530.12, 1985) Int.J.Neuroscience, 1986 (in print).
3. M.Bujatti, "5-HT, DA, NA Metabolism and a General Instinct Behavior Rest and Fulfilment-RF-Mechanism for Terminal Reward". (Abstracts of the IVth World Congress of Biological Psychiatry, Nr.336.9, 1985), Int.J.Neuroscience, 1986 (in print).

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ABSTRACT FORM ☐ Symposium ☐ Paper ☐ Poster ☐ Audio/Visual

NEUROTRANSMITTER DYNAMICS IN HUMAN ETHOLOGY OF CREATIVE INTELLIGENCE AS ANTIBIOSENESCENT PROCESS. EARLY LOSS AND PREVENTION OF AGING.

M.Bujatti-Narbeshuber, Institute for Human Biology, Prof.H.Seidler, University of Vienna, Austria.

Organised by neurotransmitter serotonin predominance the creative problem solving capacity of the human brain was found based on an ethology fundamental to adrenergic "fight or flight", namely the physiological alternative for dealing with various adverse environments, the hypometabolic regenerative "rest and fulfilment" (RF) response of living systems (BUJATTI et al . 1976). This response or drive is finding its phylogenetically most evolved expression in the diving ethology of mammals. Typical for man seems to be the diving drive physiology elicited via cortical symbol conditioning of the inborn release mechanism. It was first identified as the instinctive mechanism underlying creative intelligence, since the stable set of physiological changes during meditation (TM) is identical to the inborn diving response and these changes have been found to correlate highly with creativity in the TTCT-test and in intelligence testing. This mechanism is suggested further to be responsible for the influence of the length of time of TM pracice on age correlated variables being significantly correlated to biologicaal age (Wallace et al. 1982). Phylogenetically it is suggested that this mechanism is underlying the high correlation of hominid brain size, longevity and the reciprocal of metabolic rate per unit body weight. (Hofmann, 1984). In man the sleeping mechanism seems to be a necessary but not sufficient condition for regeneration because of evolutionary constraints from hominisation for human nervous system regeneration needs. It seems dependent additionally on above intact creativity ethology for individual and collective problem solving averting psychosocial stress and aging.

REF.: Bujatti-Narbeshuber, M., Riederer, P. (1976): J.Neural Transm. 39, 257-267.
Wallace, R.K. et al. (1982): Intern. J. Neuroscience, 16, 35-38.

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ABSTRACT:

HUMAN CREATIVE INTELLIGENCE ETHOLOGY BASED ON PRIMATE - VERTEBRATE DIVING RESPONSE PHYSIOLOGY AND ITS TRAINING. (PART II). *

BUJATTI - NARBESHUBER Michael F.T., Dr., MERU-Vienna,
Research Assistant, Institute of Human Biology, University of Vienna, Austria.

In autobiographical statements, musical geniuses like Mozart and Tchaikovsky (VERNON, 1982), Brahms, Beethoven and more recently SKRJABIN (1924) described prolonged instances of a state of mental activation having a special, sometimes almost spritual, timelessness or transcendence, which accompanies or even constitutes an integral part of periods of peak creativity. These reports are reminiscent of the findings of MASLOW (1970) on "plateau" and "peak" experiences which, according to his clinical observations, are the sine qua non of creativity (MASLOW, 1976).
Typically, shorter instances of this state are reported by highly gifted people, mostly from the field of science. They constitute those special moments of the creative spark termed "illumination" by WALLAS (1926), and defined by him as "consisting of the apperance of the 'happy idea' together with the psychological events which immediately preceded and accompanied that appearance". Traditionally, baptising-, meditation-, prayer- techniques (stemming from the ancient religious background of man) have been said to enhance such states. These have usually been associated with problem solving by turning to a creative principle inside oneself, supposedly accompanied, as Freud put it, by an experience of that "oceanic feeling" that he found empirically inaccessible, as did many of this scientifically minded contemporaries. In the framework of the ancient Vedic Technology brought to the western research community by MAHARISHI MAHESH YOGI (1972) as a "Science of Creative Intelligence" experimental investigations in physiological and psychological laboratories over the last 15-20 years (ALLISON, 1970; WALLACE, 1970, 1971, 1972; FARROW, 1976; ORME-JOHNSON 1976; DOMASH, 1976), were successful. Organised by the neurotransmitter serotonin, the creative problem solving capacity of the brain was seen to be based on the ethology fundamental to fight or flight, namely the rest and fulfilment response of living systems (BUJATTI-NARBESHUBER, 1976), finding its evolutionary most advanced form in the diving respose of mammals, the inborn basis of TM-meditation techniques studied. It will be utilised for peri-, postnatal aquatic and the later genral non-aquatic TM-training of hypometabolic EASE-activation physiology underlying creative experiences. Sleeping mechanisms are necessary but never were sufficient conditions for human nervous system problem solving and regeneration, phylogenetically dependent on the symbol-elicitation of the diving drive (BUJATTI-NARBESHUBER, 1985 a,b; 1986). It is a prerequisite for individual and collective problem solving or peace, spontaneously or by training kept functioning in geniuses.

* Paper on PHYSIOLOGICAL ASPECTS OF CREATIVITY, (PART I), was presented at the 6th World Conference on gifted and talented Children, Hamburg, Aug. 7th, 1985.

13th International Wittgenstein-Conference
Kirchberg/Wechsel, August 14-21, 1988
Friday, 19 August 1988, Workshop 4, (14,50 - 15,30)

Thirteenth International Wittgenstein Symposium

"Schrödinger's Preparations for the Unified Theory of Life"

M. Bujatti-Narbeshuber, Interdisziplinärer Forschungsring MERU-Vienna, Institut für Humanbiologie, Universität Wien, A-1010 Wien, Stadiongasse 2

After the contributions by Schrödinger leading to the study of the genetic code and to the application of statistical physics for the understanding of living systems, the basic question remains: How does the brain of man perform? How does it achieve conscious creative intelligence, the property unattained by machines? Consciousness can not be explained - in principle - by present day science, says Schrödinger. Also in evolution theory, in the framework of Mendel's and Darwin's theory, no understanding of consciousness is possible because of objectivation. But also epigenetic developmental processes are not contained neither explicitely nor implicitely - not to speak of pregenetic processes. Nevertheless Schrödinger indicates the East as direction where to progress. Therefore, as the next step, the lost and rediscovered method of philosophy, the ancient transcendental meditation of the East, was studied by western science. From the resulting Rest and Fulfillment response definition of homeostasis self-organisation, the quantum-biological "Unified Theory of Life" was developed. This epigenetic-genetic integrated Transition Theory of Evolution is buildt from a micro-organisation mechanism of life, namely the isokinetic quantum chemical solvent property of energy-entropy compensation in an energetically fluctuating environment. This leads, in a sequence of hierarchical levels of stabilisation to isokinetic transition, mutation and selection as the quantum-physical basis of consciousness as a macroscopic quantum state. As a measurement theory in unites observer, observed and the process of observation in one consciousness the basis of physical measurement and ultimate Unified Field Theories.

KONGRESS ABSTRACTS

V. Internationaler Kongreß der Deutschen Gesellschaft für Semiotik (DGS)

4.-8.10.87

BUJATTI-NARBESHUBER, M.

EVOLUTION OF LANGUAGE AND THE ORIGIN OF CULTURE

Creative intelligence (CI) was introduced into evolutionary theory as phylogenetic stabilisation process of the quantum mechanical isokinetic transition quality, pre-genetically originating from the compensated solvent water and serving as Maxwells Demon.

This allows to view biologically evolving systems including the technology of culture as one continuous teleonomic process of CI stabilisation via language elaboration. It starts in a co-evolution process of (solvent) compensation - (solute) constraint, later seen as behaviour - gene and finally as teleonomy - culture co-evolution. Such a teleonomically functioning sequence of codes and information carriers defines the evolution of language.

The origin of culture, seen as language specific to humans, is based on the speech code that evolved via a unique coming together of: a) the self-elicitation process of isokinetic temperature variations prerequisite for CI by the facilitation of spontaneous self-elicitation via the idiolog symbol induced release of the symbol conditioned Inborn Release Mechanism (IRM) followed by the etho-psychophysiological transition of the diving response of primates. As instinct basis of human CI with appetitive behaviour, IRM and reward, replacing the oral - facial - glottal - laryngeal release by water through b) idiolog symbols as first and mental audio-vocal tools, a new level in the evolution of analog dominated symbol language, namely a binary digital meta-language is permitting logical operations and speech utilising the genetic constraints.

To an eco-transition theory based terraquatic switch from opticmotoric to audio-vocal symbol communication were added from diving cycle control the four under water respiratory tract closure (A=1, G=0) and the respiration (N=NOR, I=NAND) idiologs allowing with iteration (M) for the 16 BOOLEAN logic functions. Binary opposition in the code of idiologs is very analogous to that of nucleotides, with complementarity of audio-vocal modality likening the two DNA-strands.

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KURZDARSTELLUNG

In einem energetisch-entropisch fluktuierenden Milieu wird der isokinetische - quantenchemische Mechanismus der Enthalpie - Entropie Kompensation als Maxwellscher Dämon für Negentropie Selektion vorgeschlagen. Dieser evolutionäre Mikro-organisationsmechanismus sollte es ermöglichen die moderne Evolutionstheorie mit einer formalen chemisch-kinetischen Grundlage zu vervollständigen. Dies schließt auch Ursprung und Ziel teleonomen Verhaltens mit ein, welches im quantenchemischen Tunneling des Wassers als dem isoenthalpischen Spezialfall der Kompensation begründet erscheint. Im isokinet. EEG-prinzipiell nachweisbar, dient es der Begründung der humanen Kreativität

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M.BUJATTI-NARBESHUBER

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EINFÜHRUNG UND ZUSAMMENFASSUNG/

INTRODUCTION AND SYNOPSIS

A U N I F I E D T H E O R Y O F L I F E

EINE QUANTENMECHANISCHE LÖSUNGSMITTELEIGENSCHAFT DES WASSERS ALS AUSGANGSPUNKT FÜR DIE VEREINHEITLICHTE THEORIE DES LEBENS (UTL)

M. BUJATTI-NARBESHUBER

Eine quantenmechanische Lösungsmittel-Eigenschaft des Wassers als Ausgangspunkt für die Vereinheitlichte Theorie des Lebens (VTL)

M. Bujatti-Narbeshuber

Einleitung:

Das Prinzip der Schaffung von Ordnung, das dem Laser und auch der Flüssigkeitsdynamik zugrunde liegt, wurde in HAKENS Theorie der Synergetik (1988) analysiert und generalisiert. Dies erlaubt nun ein tieferes Eindringen zur pragenetischen Basis des von Schrödinger (1944) aufgestellten "order-on-order" Prinzips lebender Systeme, nach dem Ordnung nur aus Ordnung entstehen kann.

Im Folgenden soll daher ein der genetischen Theorie Mendels und Darwins zugrunde liegender prägenetischer Evolutionsmechanismus eingeführt werden, welcher der evolutionären Rolle des selektierenden epigenetischen Verhaltens die von vielen Forschergenerationen geforderte Basis verleiht (RIEDL, 1975).

Dieser neue Information selektierende Mechanismus beruht auf dem Lösungsmittel Wasser und seinem quantenchemischen Mechanismus der permanenten Lösungsmittel-Lösungsmittel-Übergänge durch Wasserstoffbrücken. Diese werden statt in einem Konfigurationsraum in einem topologischen Transitionsraum beschrieben, in dem die isokinetische Enthalpie-Entropie-Compensierte Transition (EECT) als Zentralpunkt für diese integrierte, Isokinetische Transitions-Theorie der Evolution (ITTE) eingeführt wird. Diese wiederum wurde anhand der Definition der hypometabolischen Ruhe, und Erfüllungsreaktion lebender Systeme aufgefunden. (BUJATTI-NARBESHUBER; RIEDERER, 1976; BUJATTI-NARBESHUBER, 1985 a, b, 1987).

Schon MONOD (1970) erklärte, auf der Suche nach den Grundlagen des epigenetischen Prozesses, welcher der großen Informationszunahme während der Pro-

teinkonformation zugrunde liegt, die ein Vielfaches der ursprünglichen, genetischen Information beträgt, insbesondere den Informationsbeitrag aus den komplexen Lösungsbedingungen als verantwortlich.
Aber statt auf das Lösungsmittel selbst bezog sich seine Analyse auf die Eigenschaften der Aminosäuresequenz, was seine Suche nach der "ultima ratio" des Lebens und seiner epigenetischen Teleonomie, zum Zufallsmechanismus führte.

LUMRY und RAJENDER (1970) wiesen schon auf die zahlreichen Beobachtungen von Energie-Entropie-Compensierten Phänomenen in wässrigen Lösungen von Proteinen und kleinen Molekülen ausführlich hin. Sie sahen darin die thermodynamische Manifestation von Struktur-machenden und Struktur-brechenden Vorgängen in wässrigen Lösungen und deuteten die Möglichkeit einer evolutionären Bedeutung an.

Erst die Neurotransmitter-Untersuchung hypometabolischer Zustände und die resultierende Formulierung der Ruhe- und Erfüllungsreaktion (RF) als eine Energie-Entropie-gekoppelte, homöostatisch-teleonome, selbstorganisierende Tendenz lebender Systeme, erzwang eine erneute, unabhängige Wiederaufnahme dieses Themas ud seine Aufwertung zum zentralen Phänomens des Lebens. RF ermöglichte als makroskopisches, physiologisch-gewonnenes heuristisches Prinzip, durch Isomorphie die Identifikation quantenchemischer Enthalpie-Entropie-Compensation als das zugrundeliegende mikroorganisatorische epigenetische Grundprinzip (BUJATTI-NARBESHUBER, 1976, 1985 a, b, 1987). Damit wurde eine bisher verstellte tiefere Einsicht in die Rolle des ebenfalls Energie-Entropie-compensierten Wassers und in die ökonomischen Gesetze der biologischen morphologischen Selbstorganisation auf allen Ebenen ermöglicht und soll hier ansatzweise mit der Synergetik verknüpft werden.

Die Transitions-Theorie des Wassers und der hydrophobe Effekt

Unterstützung für die Notwendigkeit einer Transitionstheorie der Evolution kam vorerst von dem tieferen Verständnis (EVANS und NINHAM, 1986) des bekannten hydrophoben Effektes (TANFORD, 1980). Er ist ein Spezialfall des Solvophobie-phänomens Wasserstoff-Brücken bildender, polarer, und insbesondere auch nicht-strukturierter Lösungsmittel wie Hydrazin, Äthylenglycol, etc.:

"Die überwiegende Kraft, welche die Aggregation von Kohlenwasserstoffen im Wasser bewirkt, geht auf den hydrophoben Effekt des Wassers zurück. Die Aggregation von Amphiphilen (Lipiden und Surfactants) und das Falten von Proteinen sind Beispiele hydrophober Prozesse mit zentraler Bedeutung in der biologischen Selbstorganisation. Es besteht für Amphiphile eine förderliche freie Energie für das Zusammentreten der Kohlenwasserstoffketten. Daher, mit anderen Worten gesagt, mischen sich deshalb öl und Wasser nicht.

Die Aggregation von Kohlenwasserstoffen wird begleitet von einer anomalen, positiven, großen Entropieveränderung, welche für Wasser typisch ist. Es wird nun allgemein akzeptiert, daß diese Entropieveränderung bei der Aggregation die Freisetzung strukturierten Wassers aus der Umgebung der zuvor vereinzelten Ketten widerspiegelt, welche, angenommenermaßen, eine einzigartige treibende Kraft für die Selbstorganisation in wässrigen Lösungen darstellt. Diese Ansicht ist falsch." (EVANS und NINHAM 1986).

Wie zuerst von SHINODA (1977) beobachtet wurde, sind nämlich die entsprechenden Enthalpie-Veränderungen in gleicher Weise anomal, was wichtige Konsequenzen dieser Beobachtung zur Folge hat, da die freie Energie unverändert bleibt, deren Veränderung allein diesen Prozeß bewirken sollte. Auch die Beobachtungen von EVANS und WIGHTMAN (1982), EVANS und NINHAM (1983) und EVANS et al. (1984) zeigen für die Thermodynamik des Kohlenwasserstoff-Transfers vom MONOMER in die Kohlenwasserstoff-Aggregation, daß die freie Energie im Bereich von 25 - 166 Grad Celsius, fast völlig unabhängig von der Temperatur, gleich bleibt.

"Bei 25 Grad Celsius sind die einzigartigen strukturellen Eigenschaften des Wassers evident, aber bei 166 Grad Celsius sind diese Eigenschaften fast völlig verschwunden. Da aber die Veränderung der freien Energie das einzige Kriterium für spontane Prozesse bei konstantem Druck und Temperatur darstellt, muß der hydrophobe Effekt geradezu besonders unempfindlich für Änderungen in der Wasserstruktur sein " (EVANS und NINHAM, 1986).

Es scheint unmöglich, diese Beobachtungen mit der bisherigen Ansicht zu vereinbaren, daß die Aggregation durch die Freisetzung von strukturiertem Wasser um die Kohlenwasserstoffketten bewirkt wird.

"Bei hohen Temperaturen wird die Aggregation ausschließlich durch die Energetik des Transfers nicht polarer Gruppen aus dem polaren Lösungsmittel betrieben. Bei 25 Grad Celsius sind die selben entropischen und enthalpischen Faktoren am Werk und in derselben Größe, denn sie sind nahezu unabhängig von der Flüssigkeit-(Wasserstoffbrücken) Struktur. Jedoch die gemessenen Entropie- und Enthalpieveranderungen sind jetzt sehr verschieden. Die Entropie hat nun einen großen positiven Wert, der von der Enthalpie kompensiert wird, was wiederum eine freie Energie ergibt, die sich als nahezu unabhängig von der Temperatur erweist". Da die freie Energie praktisch konstant bleibt, gleichen sich die Wasserstrukureffekte nahezu aus und spielen nur einen kleinen Teil in der freien Energetik der Aggregation." (EVANS und NINHAM, 1986).

Überraschend und von Bedeutung ist die Größe und die Manifestation der Enthalpie-Entropie-Compensation der Wasser-Wasser-Kinetik. Diese zeigt sich auch in der ungewöhnlich hohen spezifischen Wärme des Wassers und im sehr flachen Minimum der Temperaturabhängigkeit der spezifischen Wärme zwischen 30 und 45 Grad Celsius. Dies ist charakteristischerweise der Lebensbereich der Warmblüter. (TRINCHER, 1981).

Die isokinetische Enthalpie-Entropie-Compensation ist im Grunde ein quantenchemisches Phänomen (CONNER 1982, 1983; CONNER und SCHWARZ, 1988). Die isokinetische Beziehung wurde von EXNER (1973) auf ein statistisches, verläßiches Fundament gestellt. Durch LINERT (1987, 1988) wurde die isokinetische Temperatur (T_{iso}), der charakteristische Parameter dieser Energie-Entropie-Compensation, für Reaktionen in flüssigen Phasen zur aktiven Schwingungsfrequenz des Wärmebades in Beziehung gesetzt. Es ist dies die niedrigste molekulare Schwingung, die aus gruppentheoretischen Argumenten mit den Reaktanten reagieren kann. Dieser Ansatz ist konsistent mit der generellen Erklärung der isokinetischen Beziehung durch CONNER (1982, 1983) und CONNER und SCHWARZ (1988), wo Energie-Entropie-Compensationsverhalten in Beziehung gesetzt wird zur Verfugbarkeit und zur Zutrittsmoglichkeit fur Reaktionsenergie.

Für die hier vorgeschlagene isokinetische Ethalpie-Entropie-Compensierte Wasserstoffbrücken-Kinetik des Wassers entspricht nun der Verfügbarkeit der Energie das Wärmebad mit z.B. den Dipol-Schwingungen des Wassers auch als Dipol-Laser (DEL GIUDICE et al. 1988). Der Zutrittsmöglichkeit für Energie

entspricht die Energiebarriere der Übergangszustände für energetische Moden für die Bildung der multiplen Wasserstoffbrücken im Transitionsraum des Wassers.

Dieser isokinetische Transitionsraum der Wasser-Wasser-Reaktionskinetik schlägt die Brücke von den kohärent selbst-organisierten Dipolschwingungen und Vibrationsspektren des Energie-liefernden Wärmebades, bestimmend für den Parameter der isokinetischen Temperatur der H-Brückenkinetik, zu dem Parameter der H-Brücken-Wahrscheinlichkeit (P_H).

Dies ist der einzige Parameter der "correlated-site polychromatic percolation theory" (STANLEY et al., 1981), die alle Wassereigenschaften in linearer Abhängigkeit von der Temperatur sowie in Abhängigkeit vom Druck und - für unsere Zwecke bedeutsam - von gelösten Substanzen vorhersagt.

In diesem Modell eines zufälligen, unbegrenzten H-Brücken Netzwerkes (Gel) mit correlierten 4-Sauerstoff Bereichen, bewirken Bereich-machende und Gel-vermindernde (Entropie-senkende), nämlich hydrophobe, apolare, gelöste Substanzen, dem Vibrationsspektrum höherer Temperaturen reinen Wassers entsprechende Veränderungen. Dies entspricht einer linearen Zunahme der P_H und bei gleichbleibender Enthalpie und Entropiesenkung, einer T_{iso}-Steigerung. Dahingegen entspricht eine Bereich-brechende, Gel-vermehrende (Entropie-steigernde) Verunreinigung, die ein hydrophobes, apolares Molekül bewirkt, einer Temperaturabnahme im Vibrationsspektrum reinen Wassers. Dies entspricht einer linearen P_H-Zunahme, was bei Entropie-Steigerung und Enthalpie-konstanz zu einer T_{iso}-Abnahme führt! Dieser Vorgang der Stabilisierung der isokinetischen Wasserstoffbrücken-Übergangswahrscheinlichkeit (P_H) führt nun zum lebenden System, welches diese mittels Entropieabnahme folgendermaßen organisiert.

Wasser als Dipol-Laser: Permanente Polarisation, Informationszunahme und Ordnung durch Moleküle

Durch die Quantenfeld-theoretische Formulierung des freien, elektrischen Dipolfeldes des Wassers und seine Koppelung mit dem elektromagnetischen quantisierten Photonenfeld des Vakuums entsteht die geordnete Qualität des Wassers als ein kohärenter, freier, elektrischer Dipol-Laser (DEL GIUDICE et al., 1988). Er ist analog zum freien Elektronen-Laser (PREPARATA, 1988; DATTOLI et al. 1985). Diese kohärente Interaktion des Wassers geschieht in der zeitlichen Größenordnung von 10^{-14} Sekunden, wenn thermische Prozesse die Anfangsbedingungen für Lasern schaffen. Es ist in Frequenzbändern vergleichbar mit den beobachtenen Absorptionsbanden des reinen Wassers zu finden. Ein gleichermaßen wichtiges Resultat der Koppelung mit dem elektromagnetischen Vakuumfeld ist das Auftreten permanenter, elektrischer Polarisation im Wasser, um elektrisch polarisierte Verunreinigungen, wie z.B. Biomoleküle (DEL GIUDICE et al., 1988). Diese Autoren schlugen schon früher einen Quantelfeld-theoretischen Ansatz für die kollektive Dynamik biologischer Systeme vor (DEL GUIDICE et al., 1985, 1986 a, b) und wiesen auf eine eventuelle Bedeutung obiger Phänomene für die Evolution des Lebens hin.

Bezüglich einer permanenten Polarisation des Wassers durch elektrisch geladene Verunreinigungen war schon gut bekannt, daß Wasser in der Gegenwart von polarisierten Verunreinigungen (HASTED, 1981), in der Gegenwart von kolloidalen Partikeln (EAGLAND, 1972) und Makromolekülen ein deutlich abweichendes Verhalten zeigt. Diesen Dipolvorgängen überlagert sind Vorgänge in der zeitlichen Größenordnung von 10^{-11} Sekunden, wo das Netzwerk Wasserstoff-gebundener Moleküle (STANLEY et al., 1981) durch die Kinetik dauernder Wasserstoffbrücken-Bildungen und Lösungen Enthalpie-Entropie- Kompensiert reagiert. Dies geschieht teilweise auch durch quantenchemisches Tunneln (MOORE, 1972), wobei auch das Tunneln, als isoenthalpischer Spezialfall, den Extremwert der isoki-

netischen Beziehung des Wassers mit der isokinetischen Temperatur von 0 Kelvin darstellt (BUJATTI-NARBESHUBER, 1987).

A. Wasser besitzt im Vergleich zu anderen Flüssigkeiten eine enorme Vielfalt fluktuierender Zustände vergleichbarer freier Energie, aber weitestgehend verschiedener Entropie und Enthalpie (FRANK und EVANS, 1945).

B. Ein nichtpolares Molekül zwingt dem Wasser nun eine Untergruppe dieser Zustände auf, und zwar auf solche Weise, daß seine Löslichkeit in der Tat dadurch bei niedrigen Temperaturen erhöht wird (EVANS und NINHAM, 1986).

C. Diese Gegebenheit, eine Konsequenz des physikalischen Grundprinzips der geringsten Wirkung, in der Chemie als das Prinzip von LE CHATELIER-BRAUN von Bedeutung, wird nun zum Ausgangspunkt der homeostatischen, teleonomen Selbstorganisation der Lösung in einem energetisch fluktuierenden Milieu. Die Eigenschaften des Lösungsmittels Wasser scheinen nicht konstant zu sein sondern eine Funktion der komplementären Eigenschaften der gelösten Substanzen. Seine Eigenschaften werden beeinflußt in dem Maße, in dem Bindungen zwischen den Lösungsmittelmolekülen von Substanzen gebrochen werden (SCHMID, 1983).

D. Die Stabilitätserhaltungstendenz auf Grund des Prinzips der geringsten Wirkung in den dadurch erzwungenen Übergängen im Transitionsraum der Energie-Entropie-Compensation des Wassers führt dadurch zu den vorigen, T_{iso} bezogen störungsminimierenden daher selektiven Reaktionsprozessen rückwirkend bis auch in die Reaktions-Kinetik der gelösten Substanzen hinein.

E. In einem energetisch fluktuierenden Milieu sind die Kontinuitäts- oder Überlebenschancen eines solchen metabolischen Systems umso größer, je niedriger seine Grund-Betriebskosten, das heißt seine Energiebedürfnisse sind. Es läßt sich der für die Betriebskosten wesentliche zusätzliche Exergiebedarf (E^*) bei der Umgebungstemperatur oder Körpertemperatur (T_u) nach der GOUY-STODOLA Gleichung berechnen und hängt von der im System erzeugten Entropie ab (S_{erz}). $E^* = T_u S_{erz}$ (GRASSMANN, 1984).

Das Minimum der Betriebskosten wird in formal äußerst ähnlicher Weise zu obigen technischen Systemen durch die isokinetische Beziehung beschrieben und ist das zentrale Erfordernis der Übergangs- (Transitions-) Theorie der Evolution. $H^* = T_{iso} S^*$ (SCHMID et al., 1982).

Diese ermöglicht I. hydrophobe Selbstorganisation von Vesikeln, II. die prägenetische und weitere Evolution von biologischen Systemen:

1. Die Verfügbarkeit von Wärme- und Lichtenergie, nötig für isokinetische Transitionen molekularer Reaktionen, fluktuiert im täglichen Sonnenzyklus.

2. Während hyper-energetischer Phasen erlaubt der isokinetische Übergangszustand hohe Entropie und erzeugt variierende Reaktionsprodukte (Isokinetische Mutation = Kreativität).

3. Während hypo-energetischer Phasen ist die energetische Überschreitung isokinetischer Übergangszustände auf niedrige Entropie oder Information angewiesen. Diese gewährleistet die Kontinuität der Reaktionen (Isokinetische Selektion = Intelligenz).

4. Dies gilt insbesondere für ein energetisch fluktuierendes Milieu unseres Planeten, wo die Aktivationsenergien ungefähr beim Zehnfachen oder höher liegen als die thermischen Energien des Wärmebades von 300 Kelvin (GOLDANSKI 1986).

5. Während hypo-energetischer Phasen entsteht ein Darwin'scher Wettstreit um molekulare Reproduktion, der entschieden wird durch Erreichung der Übergangszustände. Er wird gewonnen durch die Verfügbarkeit von niedriger Entropie oder Information in den Reaktionsteilnehmern, zufällig entstanden z.B. in hyper-energetischen Phasen, die sich nun autokatalytisch oder hyperzyklisch (SCHUSTER, 1972) vermehren und dadurch selektiert werden.

6. EECT selektiert auf einer ökonomischen hypo-energetischer Basis niedrige Entropie oder hohe Information und erlaubt dadurch Reaktionskontinuität und die weitere Stabilisierung von EECT als einen Invarianzmechanismus von evolutionärem Vorteil im fluktuierenden Milieu (BUJATTI-NARBESHUBER, 1985 a, b, 1987).

So wird erklärlich, warum Enthalpie-Entropie-Compensierte Transition auf den verschiedensten Ebenen der biologischen Organisation als Invarianz-mechanismus vorgefunden wird.

Als eine Situation, deren Konsequenzen noch nicht genügend zur Kenntnis genommen wurden, arbeiten nämlich, wie schon EVANS and NINHAM (1986) bemerkten, in biologischen Prozessen kompensierte Makromoleküle in einem und gekoppelt an ein kompensiertes Lösungsmittel, nämlich Wasser. Die selbe Art von EECT, auf neuer evolutionärer Ebene und von verschiedenem molekularen Ursprung, tritt auf, wann immer eine große Anzahl molekularer Konfigurationen von vergleichbarer freier Energie gegeben ist, bei gleichzeitiger dichter Verteilung von möglichen Enthalpie-Entropie-Zuständen: z.B. in den Makromolekülen und Neuronenaktivitäten. Biologische Beispiele sind die Entfaltung der Proteine (Entfaltung der Ribonuklease A ist zu 94% kompensiert, BENIZINGER, 1971; BENIZINGER und HAMMER, 1981) und die Veränderung der Proteinkonfigurationen, die mit enzymatischer Aktivität oder Antigen-Anti-körpererkennung einher gehen, die Bewegung von Untereinheiten, um Koenzyme und Liganden zu binden und reaktive Zentren in Stellung zu bringen.

Diese Bewegungen repräsentieren eine ureigene epigenetische, teleonome Eigenschaft der funktionellen Proteinkinetik (BUJATTI-NARBESHUBER 19851, b, 1987) und keine zufälligen Fluktuationen (MONOD, 1970; HARTMANN et al., 1982; FRAUENFELDER, 1983, 1985). Die Existenz von EECT vom Bereich der Selbstorganisation von Membranen und der Thermodynamik der Mizellen Formation (EVANS et al. 1982, 1983, 1984) sowie in der Membrandurchdringung durch Amphiphile (JAHNIG, 1982), bis zur energetisch bipolaren, Energie- und Entropiefluß-bilanzierenden Neurotransmittercharakteristik ($\pm$ dS/dt = S_{ers} + S°_{zu} - S°_{ab}) in der elektrischen Hirnaktivität ist ein weiterer entscheidender -10experimenteller Befund für eine epigenetisch-genetisch Integrierte Transitions-Theorie der Evolution (BUJATTI-NARBESHUBER, 1976, 1985 a, b, 1987).

Die Teleonomie dieser Evolution, beruhend auf dem ökonomischen Vorteil der hypoenergetischen Phasen, wird in der Abnahme der isokinetischen Temperatur bis zum isoenthalpischen Extremfall des quantenchemischen Tunneling mit 0 Kelvin objektivierbar.

Es sollte möglich sein, dies alles (BUJATTI-NARBESHUBER, 1985, a, b,) auf einen adaptierten Rahmen der Synergetik, charakterisiert durch Dämpfungskonstanten und Stabilitätstheorie (HAKEN, 1988) zu übertragen: Wie das Lichtfeld, oder genauer gesagt eine bestimmte Lichtwelle, beim Laser als Ordner die Elektronenbewegungen in den Atomen organisiert, wobei das Lichtfeld gegenüber den Elektronen dadurch ausgezeichnet ist, daß es nur schwach gedämpft ist im Vergleich zu den oszillierenden Elektronen, schlagen wir für die Evolution einer Lösung als Leben - einen anderen Weg gingen die System-Überlegungen von GUTTMANN und RESCH (1985)- nun folgendes vor: abhängig von Kontrollparametern fluktuierender energetischer Natur führen die ungedämpfteren Dipol-Laser Eigenschaften des Wassers als Ordner zu der isokinetischen Wasserstoffbrücken Kinetik des Wassers, welche wiederum die gelösten Moleküle, die "Constraints", im Transitionsraum in ihrer Kinetik selektierend beeinflußt, bis sich schlußendlich der Anfangszustand des Lösungsmittels wiederum raumzeitlich stabilisiert und im Nervensystem als kohärenter makroskopischer Quantenzustand darstellt, der mit der Bewußtseinserfahrung einhergeht.

Im Rahmen des ayurvedischen Paradigmas der Onto-Epistemologie der Vereinheitlichten Theorie des Lebens (BUJATTI-NARBESHUBER, 1988) wird die Qualität dieses raum-zeitlich stabilisierten Anfangszustandes als Einheit von Beobachter, Beobachtetem und Beobachtung oder vielmehr als selbstbezogenes reines Bewußtsein definiert, welches laut UTL mit sequentiellem Symmetriebruch als Kreativität und mit dem "Prinzip der geringsten Wirkung" als Intelligenz einhergeht.

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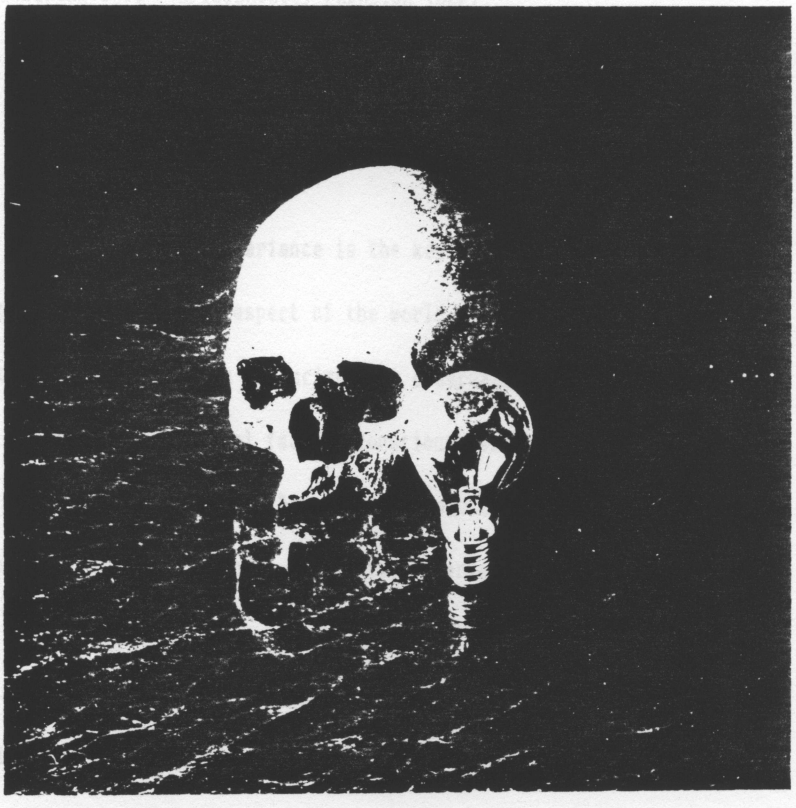
A U N I F I E D T H E O R Y O F L I F E I

SCHRÖDINGER'S PREPARATIONS FOR: THE UNIFIED THEORY OF LIFE (UTL)

THE FUNDAMENTAL ONTO-EPISTEMOLOGY PARADIGM (OE)

M. BUJATTI-NARBESHUBER



M.Bujatti-Narbeshuber

SCHRÖDINGER'S PREPARATIONS FOR:

THE UNIFIED THEORY OF LIFE (UTL) *)

THE FUNDAMENTAL ONTO - EPISTEMOLOGY PARADIGM (OEP)'

M. Bujatti-Narbeshuber

INTRODUCTION

In 1957 Max Born stated: " ... the idea of invariance is the key to a reasonable concept of reality and not only in physics, but in each aspect of the world...".

1. In any scientific measurement process and scientific observation, as well as in theory building, as unavoidable element, the empirical fact of consciousness is ultimately present. This Ontic Invariance of Consciousness (OIC) is therefore introduced as the most basic invariance of the natural sciences. It is fundamental to theory, observation and measurement.

2. According to the resulting Onto-Epistemology paradigm (OEP), thereby unifying the traditional subjectivist epistemology and the objectivist Popperian standpoint, consciousness is defined as: The ontic, inseparable unity of the observer, the observed and the process of observation found in the relationship of measurement that is underlying by self-interaction both symmetry breaking, change and hierarchical growth of information in evolution as nature or reality and science.

*) Presented at the Thirteenth International Wittgenstein Symposium on "Philosophy of the Natural Sciences", Kirchberg/ Wechsel, Austria, 19th of August 1988, Workshop 4

Anthropocentrism, in its last resort holding consciousness an exclusive priviledge of man (or higher animals), is left behind by this Onto-Epistemological paradigm of UTL. As an encompassing measurement theory, interaction on all levels is an evolutionary self-elaboration of consciousness, that is independent of, but fully manifesting in the human observer. Onto-Epistemology (OE) makes the Ontic Invariance of Consciousness the key to a reasonable concept of reality and not only in physics, but in each aspect of the world.

4. This Evolutionary Onto-Epistemology (EOE-) paradigm, is a necessary condition and a as outlined in the following a sufficient condition for the structuring of a consistent scientific reality. Since any empirical content (including consciousness itself) cannot be found anywhere else but in consciousness, according to William Ockham's razor principle of economy, any additional assumption concerning ultimate reality is strictly superfluous. This 'pan-ipsismus' is thereby reestablishing the ancient, unifying Vedic Science (VS) core paradigm of Consciousness.

5. Transculturally, this EOE-paradigm of VS serves to unite both, the around the object - the observed - oriented and since Galilei strictly experimental Western sciences of Greco-Roman origins, and the around the subject - the observer - oriented experimental and concerning consciousness strictly experimental Eastern Sciences of Vedic origin.

Consciousness, as starting point of this Unified Theory of Life (UTL), with the self-referential EOE-dyamics of symmetry breaking, is inherent in any observer-observed mutual interaction processes of observation or measurement (self-evident as self-awareness manifesting finally in man). As consciousness it provides the initial condition of nature as shown in the following in the detailed objective description of its mathematical characterisation in supersymmetric Unified Field Theories. They result in a transcultural evolutionary metatheory of the growth of information. It is including finally both Western and Eastern scientific knowledge.

6. As ontic continuation of the process of natural evolution, science itself is seen as this open-ended continuing self-referential, self-elaboration of consciousness in its concreteness as language of nature. This language is in itself driven by its symmetry breakings, independent of a human observer, but as science driven by those attributed to the human observer. In this onto-epistemology of evolution, nature grows from initial OEP-conditions through iteration in a primary epistemological, circular, in time spiralling, isomorphous self-observation process. As it was already described by Vedic ancient philosophy, also modern science consists of the same observer (RISHI) and the observed (CHANDAS) and the creative (DEVATA) process of observation within the encompassing wholeness of consciousness (SAMHITA).

7. This primary OEP epistemological structure, folds into a secondary superhelical structure. By self-interactions bound together and self-propelling it progresses through the resulting constraints produced from the ontic field of all possibilities in the sequential creative process of observation or measurement.

The first superhelical coil starts with the supersymmetric Unified Field of quantum field theories. Its self-coupling gives rise to Planck Scale Dynamics and the ordered states of vibrational modes (spectrum) by spontaneous sequential dynamical symmetry breaking. This process leads on, in further superhelical coils (fig. 1), to the laws of nature and evolution experimentally accessible in their relation to consciousness in the study of the human brain activity.[2]

M.Bujatti-Narbeshuber

WITTGENSTEIN'S AND SCHRÖDINGER'S FUNDAMENTAL POSITIONS

This need for the OEP of the Unified Theory of Life was basically already the position held by Erwin Schrödinger in the epilogue of "What is Life" (1969), which was further elaborated in "Mind and Matter".[3]

> So we are faced with the following remarkable situation. While the stuff from which our world picture is built is yielded exclusively from the sense organs as organs of the mind, so that every man's world picture is and always remains a construct of his mind and can not be proved to have any other existence, yet the conscious mind itself remains a stranger within that construct, it has no living space in it, you can spot it nowhere in space. We do not usually realize this fact ...[4]
>
> Well, so it is, because our science - Greek science - is based on objectivation, whereby it has cut itself off from an adequate understanding of the Subject of Cognizance, of the mind. But I do believe that this is precisely the point where our present way of thinking does need to be amended, perhaps by a bit of blood transfusion from Eastern thought.[5]

Epistemologically, this admitted crisis of the world picture of the Western natural sciences is related, yes even identical to that formulated by Wittgenstein concerning the the status of philosophy. In his Philosophical Investigations[6] concerning the status of Western philosophy, he exposes the lack of a Western philosophical method by refuting the ontic status of language.[7, 8, 9]

In the Philosophical Investigations (PI 97) he described exactly, what was introduced above as pure consciousness (OIC), namely the epistemological status of the sought solution: the 'nimbus' of thinking. Its essence is logic, the hardest, cristalline, a priori order of the world, the most simple, most concrete and not abstract order of the possibilities common to world and thought, permeating experience but untouched by it.

Schrödinger on the other hand indicated to future scientists, where to look for an amendment of the critical epistemological status of Western scientific thought. Namely outside the Greco-Roman cultural complex in the Eastern cultural complex we may find, as also expected by Arnold Toynbee, as the central cultural event for our epoch, the needed amendment of our thinking. Also Schrödinger prescribes in what manner (see quote[9] below) to look for this needed epistemogical blood transfusion required by both the scientist Schrödinger and the philosopher Wittgenstein. And indeed, this revitalising infusion from Eastern thought is in essence contained in the OEP of the Vedic Sciences (VS). It is gained through the Eastern experimental-philosophical, precise methodology (TM) of systematically experiencing pure consciousness as Transcendence (OIC), the 'nimbus' of thinking'[10].

This experience is the stable reference and the prerequisite to deal with contents of subjective experience in a reliable, intersubjective and reproducable fashion. It provides the empirical, ontic, experimental-philosophical basis for the complementary, Vedic theoretical philosophical description and analysis. This most essential method for an experimental-philosophical and theoretical-philosophical unity is apparently missing or lost since the early Greek mythology to philosophy transition. This loss of a reliable methodology for the transcendence experience as necessary anchor for a reliable subjectivity, lead to its systematic disregard and elimination. This gave rise in turn, as substitute, to the most successful complementary Western scientific objective methodology of experimentation but also to its profound epistemological limitation. The consequences of this elimination of the observer by objectivity, Schrödinger's 'exclusion principle' becomes apparent both at the very basis of natural science in the epistemological foundations for the quantum physics of measurement and at the very top of natural science as the mind-body problem in brain research on consciousness. Both require now the integration of the subject of cognizance into all levels of natural science, as intended by the OE paradigm of UTL. From here with Schrödinger we continue:

> That will not be easy, we must be aware of blunders - blood transfusion always needs great precaution to prevent clotting. We do not whish to loose the logical precision that our scientific thought has reached and that is unparalleled anywhere at any epoch.[9]

THE UNIFIED THEORY OF LIFE IN A PARADIGM OF CONSCIOUSNESS

Therefore, to resume the above argument of UTL, since all present physical theories are based on foundational measurement and since OIC is basic to each and every interaction or measurement process and observation of entities, be they outer objects or inner thoughts as finally in human scientific theory building, UTL infers:

1. Physical theories of reality are based on consciousness (OIC) and in fact are furthermore rapidly improving and evolving descriptions of OIC via possibilities realised from it as a field of all possibilities.

Empirically, finally as consciousness, not only the observer but also the observed reality ultimately are found to exist. This is an implicit, though heretofore largely unrecognized and unexpressed fact of the ultimate nature of consciousness in natural science, even though shared by Bertrand Russel and Berkeley etc.

2. To stress the relevance of this point for the prevailing scientific paradigm of the 'exclusion principle' the following has to be said: By elimination of the final invariant commonality of any measurement, consciousness, one eliminates measurement itself. Consciousness, pervading all levels of symmetry breaking interactions and manifesting therefore in the human body, if removed, leads to the elimination of observation, scientific measurement and science itself. For example, if one eliminates by burning the commonality of wood (consciousness) while wood carving (measuring, interacting, observing), the existence of both wood and carvings would be eliminated.

3. What really has been measured in the natural sciences, in direct evolutionary continuation of measurement or observation generalised to be the basic process of nature's self-interacting dynamics of symmetry breaking and evolution, is the invariant of each and every measurement: consciousness. Thereby the wholistic nature of OIC ultimately via man's measurements and observations - both by "outer" and "inner" mental observation processes - is evolving and creating further constraints within its wholeness. They appear then in diverse, complementary variable expressions, as constraints. By self-interacting symmetry breaking these constraints are created from a field of all possibilities in each and every measurement process as the carvings and thereby the sum-total of OIC (wood) remains invariant.

In UTL, these created, highly variable hierarchically and complementarily organised constraints are termed Qualitative and Quantitative Variable Consciousness (QVC). While OIC denotes the ontic invariant existential prerequisite that I can see, the Self-referential quality of OIC (SOIC) denotes the nature of the observation process, how I see (through self-reference). QVC finally denotes the complementary (from a hypothetical mathematical abstraction) analog and digital coded, variable qualities and quantities of consciousness that we see. Following Schrödinger[11], with growing distance from Planck's constant, they appear as increasingly objective, intersubjective, constrained forms of consciousness. Concerning this identity of the objective and subjective entities as consciousness, Schrödinger states:

> It is the same elements that go to compose my mind and the world. This situation is the same for every mind and its world, in spite of the unfathomable abundance of "crossreferences" between them. The world is given to me only once, not one existing and one perceived. Subject and object are only one. The barrier between them cannot be said to have broken as a result of recent experience in the physical science, for this barrier does not exist.[12]
> My purpose in this discussion is to contribute perhaps to clearing this way for a future assimilation of the doctrine of identity with our own scientific world view, without having to pay for it by a loss of soberness and logical precision.[5]

Implying a profound paradigmatic change, UTL rebuilds science without changing anything in it. But just this is allowing for the integration with Eastern Vedic Science and Technology and leads to the appreciation of this consciousness based practical Technology of the Unified Field and to Maharishi's[13,14] Unified Field based System of Education. This Technology of the Unified Field has been repeatedly demonstrated by Dillbeck and Orme-Johnson's work [15,16,17] to be able to improve complex socio-economical systems by a field approach from consciousness.

Hegel's philosophical concept of collective consciousness[18] finds thereby experimental and scientific verification and utilisation.

4. Consciousness (OIC), following this paradigm of UTL, is thus not only a necessary condition for the scientific bottom up process of understanding the role of the observer in quantum theory, it is also the necessary condition for the top down scientific process of fully understanding the human brain's conscious behavioural activity and the full range of its creative intelligence that is including field effects.[19] Furthermore, by providing natural science with an ab initio unifying UTL-measurement approach OIC appears even to be the sufficient condition for scientific reality. It is suggested as the initial condition for the creative, constantly changing and evolving nature, including that of man.

5. For this point the supersymmetric, completely Unified Field Theories of Quantum Physics, that describe the ultimate structure of reality, provide evidence. Some theorists consider the superstring based, completely Unified Field Theory to be a physical description of pure consciousness. That means a mathematical description identical to the description given by the ancient Vedic philosophy referred to by Schrödinger, but found coded in sound structures by Raster.[20] Such a correspondance and even identity has been suggested recently by Hagelin.[21]

UTL intends to lend support to this correspondence approach between the Unified Field Theory and the OIC description of Vedic science that is complementary but more analog coded predominantly through sound structures[20] and analogies.

6. Onto-epistemological reasoning establishes the unavoidable ontological identity between the subjective and objective approach to consciousness.

Secondly, UTL by its evolutionary theoretical and statistical physical, experimental research program on human consciousness establishes an evolutionary link between basic quantum Field theory and the quantum physical description of human consciousness. It is based on the isokinetic quantum chemistry of the solvent-solute interactions.[2,22,23]

In a top down approach, the description of human consciousness as a macroscopic quantum state can be derived in principle from the EEG - brain analysis. It is also suggestive of isokinetic energy-entropy compensated transitions as isomorphy of this solvent and solute principle, maintained throughout bio-evolution.[2,22,23]

This makes consciousness accessible for objective experimental identification. It therefore allows this objectivist and subjectivist onto-epistemological unification program to be subjected to experimental scrutiny and falsification.

Thirdly, UTL serves to account for the field effects of human consciousness. They were experimentally observed and proven repeatedly to predictably change social indicators on a large scale.[15,16,17] These are induced by the Technology of the Unified Field and provide an experimental, practically relevant proof of the Unified Theory of Life based on consciousness.

7. This astonishing situation was addressed by Schödinger[24] concering objectivity subjectivity and the removal of the intenable principle of the exclusion of the observer through a new unified approach to science. This paradigm change is not just another intellectual adventure but a much more profound initiation into the Unified Field based system of Education.

> I maintain that it cannot be solved on the level of present day science which is still entirely engulfed in the 'exclusion principle' - without knowing it - hence the antinomy. To realize this is valuable, but it does not solve the problem. You cannot remove the 'exlusion principle' by act of parliament as it were. Scientific attitude would have to be rebuilt, science must be made anew. Care is needed.[24]

Interestingly Hagelin[25], the author of the new Supersymmetric Flipped SU (5) Grand Unified Theory takes for his comparison[26] recourse to the same ancient Upanishadic Vedic tradition also suggested by Erwin Schrödinger.

This ancient tradition was brought again as Vedic Science to the attention of the modern Western physicists by its reviver, the Indian philosopher and sage Maharishi Mahesh Yogi.[27,28] He is a trained Western physicist, and the world's foremost expert in the practical TM-methodology of the experimental philosophy of Vedic Science. Preserved from oblivion since Schrödinger's insights as a point of no return, it is studied by Western sciences in cooperation with the Eastern tradition. This tradition intends the reintegration of the Greco-Roman science with its earliest origins by re-establishing the methodology for the fundamental transcendence experience, central to an experimental philosophy. It is absent or lost in the Greek theoretical-philosophical tradition as Wittgenstein had realised as a point of no return for Western philosophy. This loss also Martin Heidegger had noted as the 'Seinsvergessenheit' since Thales.

The following results of Hagelin's comparative research program[21,24] delivers further outside evidence for the OE paradigm of the theory of UTL, namely that: Any observation or measurement, whether done subjectively on inner entities or done on outer entities, objects, as in natural science, reveal the same structure of the laws of nature.

> We start with the field, the field simply exists - in fact it is pure existence. There is no activity and hence no notion of space. It corresponds to 'atman' (pure consciousness) in Maharishi's Vedic Science. Then we introduce the element of the quantum principle, which embodies the dynamism inherent within the field. The quantum principle induces a sort of unmanifest movement within the field, which makes the field a lively field of all possibilities. Once the field begins to move, it becomes aware of its existence: it feels its own influence through its dynamical self-coupling. Within the framework of quantum mechanics, we say that the field has gained the status of an operator which operates on itself. The quantum principle thereby discriminates field as operator, dynamical relationship, and operand, corresponding to rishi (observer), devata (process of observation) and chandas (observed) in Maharishi's Vedic Science.
>
> This purely self-interacting dynamics of the unified field then gives rise to the five fundamental spin-types responsible for all forms of matter and energy in the universe. These correspond to the 'pancha mahabhutas' (the five elements) in Maharishi's Vedic Science. In the context of supersymmetric grand unified theories, these five spins are grouped into three basic superfields, the gravity, gauge and matter superfields, which correspond to the three 'prakritis' (basic properties of nature) at the basis of Ayurveda (Vata, Pitta, Kapha).
>
> The subsequent emergence of quantum field theory, quantum mechanics and classical mechanics culminates in the human being, whose complex, integrated structure is upheld by all laws of nature.

By exploring the deep connections between modern science and Vedic Science a number of basic aspects of physics, biology and the brain have already become much clearer.[2.15.25]

8. Further encouraged by this correspondance with the most basic physical theory, the UTL intends to provide a foundational theory of consciousness as the essence of life. As a truly evolutionary onto-epistemology, it identifies on increasingly complex levels as isomorphous the 'three in one' circular, self-interacting structure of consciousness. As it was described above, responsible for producing the initial planck scale dynamics of nature, this isomorphous structure is permeating all hierarchical fields of physics, chemistry, biology up to anthropology.

Bioevolution starts at that point, where the quantum chemical - Eyring transition state, as the observer (operator) and the molecular reactants, as the observed (operands) are engaged in a dynamical iso-kinetic relationship of chemical transitions, as observation (commutation). To these, in that order, the VATA, KAPHA and PITTA aspect of the ancient Vedic science of life called Ayurveda can be attributed (Fig. 1).

9. Bioevolution is then observable objectively in the quantum mechanical isokinetic transition stabilisation, leading to a lowering of the statistical isokinetic temperature, to a macroscopic, finally coherent quantum state of consciousness. This stabilisation of which tunneling is a special case, is central to the General and the Special Theory of Creative Intelligence of UTL that is concerning man. His diving response physiology of the transcendental consciousness experience is the basis for philosophy in its literal meaning and the basis of man's language as verbal form of creative intelligence.[2]

Let us conclude with Schrödinger:

> Sherrington says: 'Man's mind is a recent product of our planet's side.' I agree, naturally. If the first word (man's) were lift out, I would not.[29]

And he continues summing up the argumentation:

> But a world existing for many millions of years without any mind being aware of it, contemplating it, is it anything at all? Has it existed? For do not let us forget: to say, as we did, that the becoming of the world is reflected in a conscious mind is but a cliche', a phrase, a metaphor that has become familiar to us. The world is given but once. Nothing is reflected. The original and the mirror-image are identical. The world extended in space and time is but our representation (Vorstellung). Experience does not give us the slightest clue of its being anything besides that - as Berkeley was well aware.[21]

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PHILOSOPHY AS SCIENCE I

"SCIENCE MUST BE MADE ANEW. CARE IS NEEDED" (SCHRÖDINGER, 1959). VEDIC SCIENCE (VS) as THE UNIFIED THEORY OF LIFE (UTL): The VS ONTO-EPISTEMOLOGY PARADIGM (OEP) leads through its self-coupling to an EVOLUTIONARY ONTO-EPISTEMOLOGICAL THEORY (EOE). It unites the subject based experimental philosophy or VEDIC-SCIENCE with the object based experimental, NATURAL SCIENCES as THE UNIFIED THEORY OF LIFE (BUJATTI-NARBESHUBER, 1987; HAGELIN, 1987, 1988).

I. VEDA = PLANCK SCALE DYNAMICS: First Superhelical Epistemological Coil
RIG VEDA = SUPER-UNIFIED FIELD of UNIFIED QUANTUM FIELD THEORY
OEP = THREE IN ONE STRUCTURE (3 in 1) of ONTIC INVARIANT PURE CONSCIOUSNESS ←----------

A.	SAMHITA	= SUPER-UNIFIED FIELD	SAMHITA	= IN DYNAMICAL SELF-COUPLING	SAMHITA	= BREAKING SYMMETRIES
	RISHI	= OPERATOR as Field	DEVATA	= COMMUTATION as Field	CHHANDAS	= OPERAND as Field
	OEP 1	= OBSERVER	OEP 2	= OBSERVATION	OEP 3	= OBSERVED
B.	ATMAN	= FIELD	BUDDHI	= QUANTUM PRINCIPLE	PRAKRITI	= BROKEN SYMMETRIES
	SAMA	= UNITARY SYMMETRIES	YAJUR	= QUANTISATION DYNAMICS	ATHARVA	= SPECTRUM, VIBRATIONAL MODES
	OEP 1	= EXISTENCE	OEP 2	= DYNAMISM	OEP 3	= MANIFEST DIVERSITY

II. UPAVEDA = SPACE-TIME DYNAMICS: Second Superhelical Epistemological Coil
5 TANMATRAS = PANCHA TANMATRAS = FIVE FUNDAMENTAL SPIN-TYPES
EOE = FIVE ELEMENTS: EARTH-, WATER-, FIRE-, AIR- and SPACE-ELEMENTS

C.	AKASHA	= SPIN 2	AGNI	= SPIN 1	PRITHIVI	= SPIN 0
	EOE 2/1	= SPACE-ELEMENT	EOE 1/1	= FIRE-ELEMENT	EOE 0/1	= EARTH-ELEMENT
D.	VAYU	= SPIN 3/2	JALA (SOMA)	= SPIN 1/2	JALA	= SPIN 1/2
	EOE 3/2	= AIR-ELEMENT	EOE 1/2	= UNITING WATER ELEMENT	EOE 1/2	= WATER-ELEMENT
E.	PRAKRITI	= BASIC GRAVITY	PRAKRITI 2	= BASIC GAUGE AND	PRAKRITI 3	= BASIC MATTER SUPERFIELD
	VATA	= Spin 2; 3/2;Space,Air	PITTA	= Spin 1; 1/2; Fire, Soma	KAPHA	= Spin 0; 1/2; Earth, Water
	EOE 1	= TRANSITION STATE	EOE 2	= REACTION SYMMETRY BREAKING	EOE 3	= ATOM AND MOLECULE REACTANTS

III. AYURVEDA = ENERGY-ENTROPY COMPENSATED BIO-DYNAMICS: Third Superhelical Epistemological Coil
3 DOSHAS = 3 TOPOLOGICAL SOLVENT-TRANSITION-SPACE CONSTITUENTS
UTL = STABILISATION OF CONSCIOUSNESS as a FIELD OF ALL POSSIBILITIES

F.	DOSHA 1	= SOLVENT TRANSITION	DOSHA 2	= ENERGY-ENTROPY COMPENSATION	DOSHA 3	= SOLVENT CONSTRAINTS
	UTL 1	= CONSCIOUS	UTL 2	= TELEONOMIC BEHAVIOUR	UTL 3	= of BIO-(POLYMER) MOLECULES
G.	VATA	= EYRING TRANSITION STATE,	PITTA	= ISOKINETIC RELATIONSHIP	KAPHA	= MOLECULAR REACTANT CONFIGURATION
	OIC	= OBSERVER (TRANSITION)	SOIC	= OBSERVATION (SUBSTRATE RECOGN.),	QVC	= OBSERVED (SUBSTRATE) ›----------

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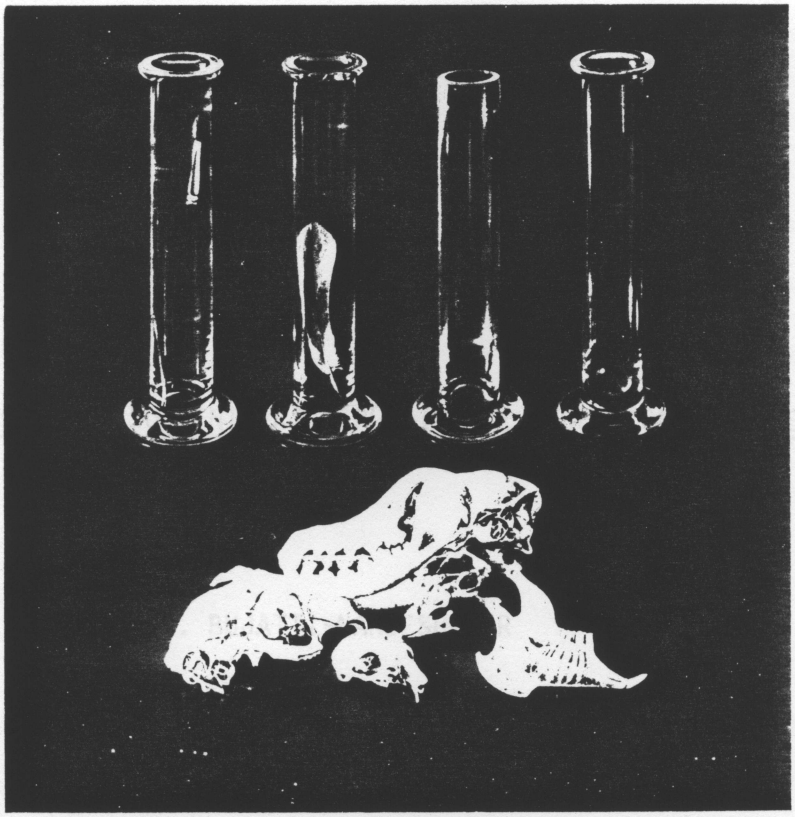

A U N I F I E D T H E O R Y O F L I F E II

A QUANTUM MECHANICAL SOLVENT PRINCIPLE IN THE EVOLUTION OF LIFE

M. BUJATTI-NARBESHUBER

A QUANTUM MECHANICAL SOLVENT PRINCIPLE IN THE EVOLUTION OF LIFE.
A UNIFIED THEORY OF LIFE II.

M. BUJATTI-NARBESHUBER

INTRODUCTION: THE PRIMARY EPISTEMOLOGICAL STRUCTURE OF QUANTUM-MECHANICS.

The universe of quantum physics is not contained within anything. It contains itself and it organises itself. Since consciousness is the most basic epistemological 'conditio sine qua non' this quantum mechanical universe was identified as the objective description of consciousness as ultimate reality (BUJATTI-NARBESHUBER, 1988; ZEIGER, 1983).

The term onto-epistemology was chosen for this position. It integrates the according to PRIMAS and GANS (1979) ontic and the epistemic interpretations of quantum mechanics. The first is object oriented and the second, from the analysis of the measurment process, probability oriented. This is achieved by applying the unifying and ancient Vedic Science paradigm (ZEIGER, 1983; CLEMENTS, 1981; HAGELIN, 1987).

It is the basis of onto-epistemology and consists of a "three in one" unity of observer, observed and the process of observation in one consciousness. This elementary process is found on all levels of interaction of the universe as the irreversible symmetry breaking interaction, generating information (ZEIGER, 1983; KRÜGER, 1984) as observation or measurement.

"Since the vacuum state of a quantum field has zero entropy, in any cosmological model in which the universe emerges from the vacuum through a quantum-mechanical time evolution, the universe would be expected to have total entropy zero. This would imply that the observed entropy in the universe should be balanced by negative 'correlational entropy' among the numerous objects or subsystems that comprise it. Such a universe would be characterised by strong quantum-mechanical correlations among its various component parts" (A. HANKEY, private communication. In HAGELIN, 1987).

HAGELIN (1987) continues:

"It follows that the reduction of the wave function or density matrix with some apparently isolated subsystem might lead to significant changes in the quantum-mechanical states of objects located throughout the universe." This reduction of the wave function or desity matrix is thought to occur simulaneously throughout the system, with the result that a measurement in one region of an extended quantum-mechanical system has a demonstrable effect upon the state of the system in a far distant region, which might even be space-like separated (Aspect et al. 1981, 1982a, 1982b). Once again, any resulting reduction of the wave function could be expected to have nonlocal effects.

"At the same time it must be clearly stated that if the reduction of the wave function is subject to conscious control or any other form of manipulation, then the nonlocal character of the reduction of the wave function could lead to long-range influences in apparent violation of relativistic causality. However, the severe logical problems usually associated with such acausal influences may not apply if the agent responsible for the collapse (i.e. consciousness) is itself nonlocal and unique" (HAGELIN, 1987). It may be highly significant that the nonlocal or "cosmic" component of consciousness required (STAPP, 1982) in such a framework has become an empirical component of human experience with the widespread experience of pure consciousness.

The hypothetical question of JAMMER (1976) why human beings can not interact directly with microscopical objects is answered hereby. Human pure consciousness is doing just that and its non-local effect is experimentally observable when manifesting in sufficiently complex systems to amplify the induced basic vacuum field changes. This effect, through the self-interaction of consciousness, becomes reproducible. This happens through collective consciousness-techniques, that induce changes in the complex social-body (ORME-JOHNSON et al 1982; DILLBECK, 1987, 1981). It also happens individually.

Self-interaction of individual consciousness induces, spontaneous, creative, 'willful' events that lead, when selected and amplified, to movement changes in the sufficiently complex, macroscopic, body motor-system. We are only too used to this latter fact and need a challenge for our understanding by the former to appreciate through UTL the latters common evolutionary significance.

This is the practical consequence of the "pan-ipsism" paradigm of the unity of observer, observed and observation as consciousness in Onto-Epistomology. It generalises the role of consciousness from "sol-ipsism" to every system-level, as also intended by ZEIGER (1983) and KRÜGER (1984), but considers superfluous the latter authors platonical idealisation of "nothingness" as ultimate reality of "me-ontology". It is both inobservable and not evolving and therefore empirically inaccessible metaphysics.

As evolution Onto-Epistemology leads from the being of consciousness to the consciousness of being. This conclusion should also be arrived at the other way around by starting from the human special sciences in an interaction-theoretic argument against relativism as intended by the complementary Epistemological Ontology of PANDIT (1987).

OBSERVER, OBSERVED AND THE PROCESS OF OBSERVATION AS CONSCIOUSNESS

1. It is not a trivial epistemological and empirical position to consider the ultimate nature of the universe as self-observing, as non linearly interacting and symmetry breaking consciousness, responsible for the reduction of the wave paket or measurement.

The reduction of the wave packet for example is a major concern of BELL and NAUENBERG (1987). What kind of a theory is it, that admits of an interpretation only when the system interacts with something else? "For the universe there is nothing else, and quantum mechanics in its traditional form has simply nothing to say. It gives no way of, indeed no meaning in, picking out from the wave possibility the single unique thread of history."

These thoughts lead them "inescapably to the conclusion that quantum mechanics is, at the best, incomplete," though "we emphasize not only that our view is that of a minority, but also that current interest in such questions is small."

Also according to algebraic quantum mechanics (PRIMAS, 1987) replacing the traditional Hilbert space formalism responsible for the sofar controversial interpretations of measurements, there exists an important theorem stating: "There exists no nonclassical object having a nonclassical environment" (RAGGIO, 1981). This is due to the quantum mechanical truly holistic system. Therein also every separation is marred by the EPR-correlations. According to Onto-Epistemology this is due to the ultimate, holistic nature of consciousness.

In the Unified Theory of Life (UTL) the integration of consciousness as a genuine phenomenon of nature and natural science leads to an understanding of nature radically different from what was expected of the ultimate physical Theory Of Everything called TOE by field theorists.

So quantum mechanics is certainly incomplete but mainly with regard to our own epistemological appreciation of it. It is an ultimate description of consciousness via the observed. In UTL it is finally including our own consciousness. This is so because consciousness of necessity contains the observer (OIC), the observed (QVC) and the process of observation (SOIC). This holds true for every level of nature in the Onto-Epistemology paradigm of UTL.

2. Concerning the observed, the individual nature of the object in the process of observation, the following ias to be taken into account according to PRIMAS (1987): "The main reason for the disagreement about the interpretation of quantum mechanics is due to the neglect of the influence of the environment. A mathematically rigorous description of open quantum systems together with the relevant environments, the classical aspects of measuring instruments, and symmetry breaking is possible in the framework of algebraic quantum mechanics.

An object is defined as an open quantum system which in spite of its interaction with its environment is not Einstein-Podolsky-Rosen correlated with the environment. Since quantum mechanics describes the world as a whole which is not made out of parts, quantal objects exist not in an absolute but in a contextual sense. An individual interpretation of a quantum system is possible if and only if this system is an object".

PRIMAS (1987) further continues after the detailed definition of quantal objects:

"If we speak of quantal objects and of classical instruments we tacitly mean contextual objects which exist only in virtue of abstractions which usually are taken for granted."

3. Concerning measurement or observation as spontaneous sequential symmetry breaking (SOIC), as the most general mechanism of creativity or information generation the following is to be said:

It is as the reduction of the wave packet certainly a fundamental subatomic phenomenon, but it is also common throughout the macroscopic environment, associated with non equilibrium thermodynamic processes (ZUREK, 1982, 1983). "Spontaneous symmetry breaking can occur already with rather simple molecular systems, they are generic for complex quantum systems and by no means rare exceptions" PRIMAS (1987).

As the mechanism of the creation of information inherent in the myriads of symmetry breaking interactions closely related with the phenomenon of energy it was treated systematically by KRÜGER (1984). But unfortunately KRÜGER'S (1984) position of "me-ontology" or nothingness as ultimate reality is a metaphysical one. This platonical idealisation of 'nothingness' is not interacting, it can therefore neither be observed nor experienced. It is empirically per se inaccessible and most of all, it can not evolve either.

Instead, the position of the central role of consciousness as supersymmetrical Unified Field with its inherent mechanism for symmetry-breaking self-interaction, was adopted for UTL.

This understanding was developed from Maharishis Vedic Science by DOMASH (1976), CLEMENTS (1981), ZEIGER (1983), HAGELIN (1987).

UTL thus provides the quantum physical basis for the understanding of the very role of the solvent water in the bio-evolution of human consciousness. This should pave the ground for the better understanding of the human brain, its conscious creative intelligence and of the aitiological, cultural Epigenetic Error Catastrophe Treatment.

It concerns the restauration of the individual-, socio-economical- and ecological balance in nature. This is possible possible by self-reference to this holistic experience of pure consciousness. Due to errors in the cultural tradition this experience was lost and the description of its many characteristic features (fig. 1) was replaced by the empty philosophy of "nothingness."

The features of consciousness are in the following described as they manifest from quantum mechanical solvent kinetics of water. They lead to the teleonomical, homeostatic self-organisation of a solution, that is called life.

THE SECONDARY EPISTEMOLOGICAL STRUCTURE OF QUANTUM-MECHANICS.

The first coil of the self-referential, circular "primary epistemological structure", as if helical in dynamical evolution through non linear, symmetry breaking, transformations, is also the start of the first coil of the superhelical "secondary epistemological structure". It begins with OIC or the Unified Field as presently described by the completely unified heterotic superstring theories.

1. The first superhelical coil gives rise to Planck Scale Dynamics. It starts from the Unified Field that gains in dynamical self-coupling the status of an operator (OIC-observer) that operates on itself (QVC-observed) in a process of dynamical relationship (SOIC-observation). This happens at a timescale of 10^{-44} . Based on the physical principle of least action this permitts the evolution of ordered states of spectrum, vibrational modes and of the laws of nature.

2. A next epistemological superhelical coil gives rise to Space-Time Dynamics. Among the other spin types and their interactions it specifically allows for the massless boson spin 1 electromagnetic photon field of light. It permitts again by self-coupling the production of the coherent, ordered macroscopic quantum states of the LASER. The principle of ordering of the LASER, found also in fluid dynamics, was analysed and generalised in HAKENS (1988) theory of SYNERGETICS.

This allows now to penetrate to the basis of SCHRÖDINGERS (1969) "order from order principle" and to progress beyond the genetic and even the solute domain to the underlying quantum mechanical solvent transition mechanism. This necessitates to take to the sofar disregarded point of LUMRY and RAJENDER (1970) who collected observations of energy-entropy compensation phenomena in water solutions of proteins and small molecules as an ubiqitous property of water. This Energy-Entropy Compensated Transition (EECT) is introduced as central for an Integrated Transition Theory of Evolution (ITTE) or Life.

ITTE start from this solvent condition of life (BUJATTI-NARBESHUBER, 1985, 1987). In this quantum chemical, isokinetic framework (CONNER, 1982; LINERT, 1987; LINERT and JAWORSKY, 1988), that is introduced as central for evolution, an isokinetical solvent 'transition space' is replacing the configuration space (STILLINGER, 1975, 1980) and the topological connectivity space (STANLEY, 1980, 1981) of water descriptions.

Herein synergetics, if generalised for an energetically and entropically fluctuating environment and with EECT, via its single characteristic, isokinetic temperature parameter, can be considered for a further mathematical description of the evolution of the solution into the living system. The following should help to develop the Isokinetic Transition Theory of Evolution (BUJATTI-NARBESHUBER 1985a,b; 1987) by completely turning around the systemorganisation of water (GUTTMANN and RESCH, 1985) into the evolutionary order parameter (isokinetic temperature, T iso) and control parameter (energy, entropy) concept of synergetics that is utilising linear stability theory and including fluctuations (HAKEN, 1988).

Therefore this superhelical coil ends with the quantum field-theoretical formulation of the free electric dipole field of water. When self-coupling with the quantised electromagnetic photon radiation field, the ordered quality of water as a coherent free electric dipole LASER (DEL GUIDICE et al, 1988) emerges. It is analogous to the free electron laser (PREPARATA, 1988; DATTOLI et al 1985). This coherent interaction of water happens in the timescale of 10^{-14}. If thermal processes bring the defined initial conditions for the dipole lasering, it is then found at frequency bands related to the observed absorption bands of pure water.

An equally important result of this self-coupling with the electromagnetic vacuum field is the appearance of a permanent electric polarisation in water. It manifests around any electrically polarised impurity like polarised biomolecules (DEL GUIDICE et al. 1988).

Above author proposed already before a quantum field theoretic approach to the collective dynamics of biological systems (DEL GUIDICE et al 1985, 1986a,b) and gives importance to the above and also to the following observed phenomena of water for the evolution of life.

It is well known that liquid water is a very complicated system (FRANK, 1982; STILLINGER, 1975; ANGELL, 1983; CHEN, 1986). It may show significant departures from its average bulk behaviour in presence of macromolecules (COOKE, 1974; FRANK, 1982), colloidal particles (EAGLAND, 1982) and polarised impurities (HASTED, 1981). In addition there are some experimental indications of its important role in the dynamics of macromolecules (DAHLBORG, 1980; CLEMENTI, 1986).

In recent times very remarkable progress has been made through detailed dynamical calculations in the framework of a model which describes water as a network of H-bonded molecules (STANLEY et al. 1980, 1981)

3. From here the next superhelical onto-epistemolocical coil starts. Now, this network of solvent-solvent, highly self-interacting, hydrogen bonding water molecules is coupling - thereby structuring isokinetic characteristics - to the underlying, partly coherently lasering dipole systems, manifesting from solvent-vacuum interactions and as heat bath determining and maintaining EECT integrity and isokinetic temperature.

a. These isokinetic short range interactions of solvent-solvent hydrogen bonding kinetics, determined by the hydrogen bond halftime, now take place in the different time scale of 10^{-11} seconds, partly through quantum chemical tunneling.

b. As a result, water has the rich diversity of fluctuating states of comparable free energy but of vastly different entropy and enthalpy as described by FRANK and EVANS (1945).

c. A nonpolar molecule imposes on water a subset of these in a way that actually increases its solubility at low temperatures (EVANS and NINHAM, 1986).

d. On these isokinetic EECT interactions, trying to maintain their stability according to the physical law of least action or the law of LE CHATELIER-BRAUN of chemical kinetics, the solute imposed subset of solvent possibilities influences in turn solute solubility and kinetics accordingly.

From here as Intercalary Evolution, through emphasis on the solvent-quantum field vacuum (microwave) and the solvent-solvent hydrogen bonding (infrared) and the solvent-solute and solute-solute chemical bonding (far ultraviolet) vibration-vibration interactions, a selection of isokinetic relationships takes place. In this transition concept the emergence of homeostatic, metabolically self-organising living systems, evolving pregenetically via metabolic isokinetic mutation and selection through an energetically fluctuating environment results (BUJATTI-NARBESHUBER, 1976, 1987). This was anticipating what is again theoretically postulated by DYSON (1982, 1985).

Without going into more details on EECT, which are available elsewhere (LINERT 1987, 1988) the isokinetic temperature as the characteristic parameter of this relationship in condensed phase reactions is related to an active vibrational frequency of the heat bath. It is the lowest allowed molecular vibration able, by group theoretical arguments, to interact with the reactants. This approach is consistent with the general explanation of the isokinetic relationship offered by CONNER (1982, 1983) and CONNER and SCHWARZ (1988) where energy-entropy compensating behaviour is related to an interelation between the availability and the accessability of the reaction energies.

For the solvent model as engaged in isokinetic hydrogen bonding transitions, the heat bath corresponds to the availability of energy from the solvent water dipol microwave interactions, while the energy barrier corresponds to the accessibility of transition states for reactions of hydrogen bond making and braking.

Concerning isokinetic mutation and selection as microorganisational mechanism of evolution central in pre-and epigenetic processes:

The availability of thermal and photon energy for transition of molecular reactants is fluctuating in the daily solar rhythm.

The accessibility of isokinetic transition states is dependent on low entropy or information during low energy periods in order to have metabolic continuity in an energetically fluctuating environment with activation energies about ten times higher then the thermal energies of the heat bath (Transition).

During hyperenergetic phases transition results in more varying reaction products and solutes (Mutation).

During hypoenergetic phases a Darwinian competition for molecular reproduction through accessibility of transition states results It is won by availability of low entropy or information thereby selected from the multitude of reaction products generated in hyperenergetic phases (Selection).

The teleonomy of this evolution, later including genetic systems, is reflected in the decline of the isokinetic temperature. It should allow for a treatment in an adapted synergetic framework of dampening constants. These, by solute constraints on the solvent transition space imposed influences are a micro-organisational mechanism for the development of ordered biological states (BUJATTI-NARBESHUBER, 1987).

In an energetically fluctuating environment with activation energies about ten times higher than the thermal heat bath energies it is self-selecting solutes like electrically polarised biomolecules. They are selected on an economical basis due to their low entropy or high information and with respect to their ability to maintain EECT as invariance-mechanism allowing for reaction continuity and increasing EECT stability in autocatalytic reactions and hyper-cycles also during low energy periods. The requirement of minimal energetic operating costs is described by the GOUY-STODOLA equation for technical systems $E^* = T.\ S$ (GRASSMANN, 1984). As a central evolutionary requirement (BUJATTI et al, 1976) this situation is formally similar described by the isokinetic relationship $H = T.\ S$ for biological systems in ITTE.

This selected solute information is compensating for low energy periods and thereby allows for continuation of metabolic reactions in a darwinistically competitive situation concerning energy that is typical for life.

Thereby these self-interaction systems stabilise iso-kinetic transitions as the spatio temporal stabilisation of finally the initial lasering solvent condition. It appears with a characteristic isokinetic temperature decline finally as the holistic, highly ordered macroscopic quantum state of bio-systems called pure consciousness experience.

It is the potential of cognitive systems for the appreciation of the basic Ontic Invariant Consciousness (OIC) of Onto-Epistemology that ends this superhelical epistemological coil.

This line of thought on the evolutionary, teleonomic creativity of living systems is supported by the published literature on experimental findings of EECT concerning the various levels of bio-organisation (BUJATTI-NARBESHUBER, 1985, 1987). It should include the research on the low level photon emission of cells. It shows, concerning reaction kinetics, a Boltzmann factor (identical to the Arrhenius factor) of f = constant (POPP, 1979, 1984; SLAWINSKY et al 1981). That means that chemical and enzymatic reactivity in the cells is largely determined by entropic factors (e.g. frequency composition, polarisation, direction) and nearly independent of energetic factors. This is on the cellular photon level the isoenthalpic special case of EECT, as it was found correspondingly indicated on the organ level, in the EECT analysis of the electrical activity of the human brain. It is characterised by an isokinetic statistical temperature approaching 0 KELVIN (BUJATTI-NARBESHUBER, 1985a, 1987).

Compared to activation delivered by photons from thermal radiation at physiological temperatures in an equilibrium system with equal energy distribution, this cellular form of reactivity is increased by a factor up to 10^{40} in this non equilibrium system (POPP, 1984). It is handled through information.

It is provided by solute molecules selected by the EECT energy -entropy compensation mechanism in an energetically and entropically fluctuating environment.

This basic pre- and epigenetic mechanism, co-evolving and stabilised with the makromolecular, genetic and cultural information storing mechanism unites in an integrated theory of evolution that is centered around the quantum chemical solvent quality, certain aspects of KUHN'S (1976) theory with EIGEN'S theory (SCHUSTER, 1972).

Further support for EECT as the basic isomorphy of living systems sought since BERTALANFFY (1952) and responsible for the homeostatic and teleonomic properties of the ordered metabolism of life comes from the findings of coherence in biological system by FRÖHLICH (1988). Also the experimental work of MANDEL (1980, 1983) and the work especially on the biothermodynamic law by TRINCHER (1981) is highly supportive.

Especially the fact of the broad minimum of the specific heat of water in the temperature domain of homeotherms contributes to this presented viewpoint of the central role of solvent EECT in evolution. Last not least the publication on the primary role of metabolism in evolution by DYSON (1982, 1985, 1988) is a highly supportive convergent line of evidence. EECT thus substantiates the request by HUXLEY, SCHRÖDINGER, HARDY, POPPER, WYLES, WILSON and CAIRNS for a putative behavioural mechanism involved in genetic evolution. It was first defined as the RF-response (BUJATTI-NARBESHUBER and RIEDERER, 1976).

4. The fourth superhelical coil starts with the pure consciousness field as the makroscopic quantum state of Enthalpy-Entropy Compensated Transitions. Self-interaction via the self-induction of the sound-symbol conditioned diving response results in its stabilisation. Self- induction and stabilisation happens via the creation of the ordered structures of symbols in syntactic speech, tool-utilisation, computers and in the culture of the initiatory society.

It is enhancing the full creative intelligence of human collective consciousness (DILLBECK et al. 1981, 1987; ORME-JOHNSON et al. 1982)

To turn to SCHRÖDINGER (1958), his paper raising the question after the nature of energy as a statistical concept gets new actuality in this frame work of the Unified Theory of Life. His central role of consciousness is now represented in the quantum physical frame of the linear energy-entropy compensation of the isokinetic plot with the statistical isokinetic temperature.

This is a heuristically most interesting situation since the isokinetic plot is combining all relevant circumstances associated with the reduction of the wave function in bio-evolution related also with nonequilibrium thermodynamic processes (ZUREK, 1982, 1983). It is relating Planck's and Boltzmann's constants in these procecess. They reach quantum sensitivity in the sense organs of the conscious nervous system (BIALEK, 1985a; BIALEK and SCHWEIZER, 1985b; BAYLOR et al 1979, 1980). The illumination of the evolutionary prerequisites for this where intended by this paper.

As the EVOLUTIONARY ONTO-EPISTEMOLOGY (EOE), the UNIFIED THEORY OF LIFE (UTL) leads to an INTEGRATED TRANSITION-THEORY OF EVOLUTION (ITTE). It is based on SOLVENT-SOLUTE INTERCALARY CO-EVOLUTION (SSIC) that leads to EPIGENETIC-GENETIC INTERCALARY CO-EVOLUTION (EGIC) in the GENERAL (GET) and SPECIAL (SET) ECO-TRANSITION THEORY. UTL thus contains a GENERAL (GTCI) and a SPECIAL (STCI) THEORY OF CREATIVE INTELLIGENCE furthering an understanding of human phylogeny and culture.

IV. AYURVEDA = ENTHALPY-ENTROPY COMPENSATED EECT-BIO-DYNAMICS: Third Superhelical Epistemological Coil
3 DOSHAS = 3 ISOKINETIC SOLVENT-TRANSITION-SPACE CONSTITUENTS
GTCI = STABILISATION OF CONSCIOUSNESS as a FIELD OF ALL POSSIBILITIES <----------

G. VATA	= SOLVENT TRANSITION	PITTA	= ENERGY-ENTROPY COMPENSATION	KAPHA	= SOLVENT CONFIGURATION CONSTRAINTS
EOE 1	= OBSERVER (TRANSITION)	EOE 2	= OBSERVATION (SUBSTR. RECOGN.)	EOE 3	= OBSERVED (SUBSTRATE)
H. (ITTE)	= TRANSITION STABILISATION		= EECT IN QUANTUM-CHEMICAL TUNNELING AND IN SOLVENT HYDROGEN-BONDING		= INTERSTELLAR NEGENTROPY STORAGE IN POLYMERS & IN SOLVENT CONFIGURATIONS
	=		= SOLVENT COMPENSATION (EECT)		= SOLUTE BIO-MOLECULAR CONSTRAINTS
I. (SSIC)	=		= AMPHIPHILE SELF-ORGANISATION		= MEMBRANE AND VESICLE FORMATIONS
	=		= ENZYME STEREOGNOSTIC BEHAVIOUR		= METABOLIC BIO-POLYMER PRODUCTS
J. (EGIC)	=		= BASE PAIRING		= GENE STRANDS
	=		= DOUBLE HELIX CONFORMATIONS		= GENOME STATES
K. (GET)	=		= HOMEOSTATIC METABOLIC OR EPIGENETIC BEHAVIOUR IN ECO-TRANSITIONS		= ECO-MORPHOLOGY OF BODY AND BRAIN ECO-MORPHOLOGY
	=		= DIVING ECO-TRANSITIONS		= FRONTO-PARIETAL CORTEX INCREASE

V. YOGA = ANTHROPOGENESIS THROUGH CONSCIOUS CREATIVE INTELLIGENCE: Fourth Superhelical Epistemological Coil
ASTANGA YOGA = 8 SPHERES OF LIFE (INCLUDING SAMADHI)
STCI = TECHNOLOGICAL STABILISATION OF CONSCIOUSNESS as a FIELD OF ALL POSSIBILITIES

L. SAMADHI	= OBSERVER	SAMADHI	= OBSERVATION	SAMADHI	= OBSERVED
EOE 1	= TRANSCENDENCE STABILISATION	EOE 2	= SYMBOL CONDITIONED DIVING RESPONSE TRANSITION	EOE 3	= CREATIVE SYNTACTIC SYMBOL SPEECH AS FIRST TOOL
(SET)					
M. (STCI)	=		= INDIVIDUAL INITIATION RITE		= CULTURAL TRADITION GENERATION
	=		= TELEONOMIC SOCIAL RITUAL		= HIERARCHICAL SOCIAL INSTITUTIONS
N. RISHI	=	DEVATA	= EECT IN DATA PROCESSING	CHHANDAS	= COMPUTER ARTIFICIAL INTELLIGENCE
EOE 1	=	EOE 2	= SELF-ORGANISATION OF COLLECTIVE CONSCIOUSNESS	EOE 3	= UNIFIED FIELD BASED SOCIETY >----------

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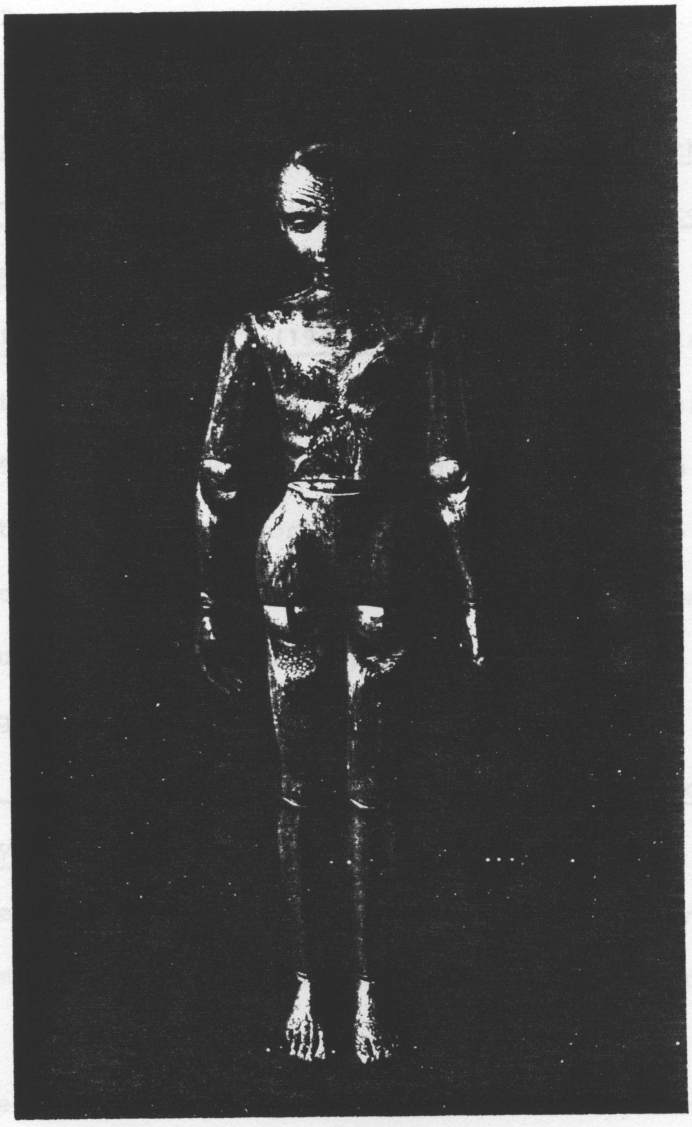
A U N I F I E D T H E O R Y O F L I F E III

GENESIS AND DEVELOPMENT OF: THE UNIFIED THEORY OF LIFE

M. BUJATTI-NARBESHUBER



GENESIS AND DEVELOPMENT OF: THE UNIFIED THEORY OF LIFE III.

M. BUJATTI-NARBESHUBER

The change of the world-picture or scientific paradigm changes the world according to WITTGENSTEINS "On Certainty" (1977) and according to the strikingly similar position (MAUDGIL, 1988) of THOMAS S. KUHN'S "Structure of Scientific Revolutions" (1962). Such a change certainly began with the transition from classical physics to quantum physics.

In the same year, 1900 when Max Planck reported on the quantum nature of energy, heralding the new era, Gregor Mendel's laws were also recovered from oblivion. In light of the interest generated by Darwin's theory these laws inaugurated an equally important era of deeper comprehension of the genetic fundamentals of biological systems. But the paradigmatic level of biology was still comparable to the classical period of physics only.

Since then, both fields made enormous progress and the willingness of the first hour quantum physicists to contribute also to an even deeper understanding of life and man, is well documented by their more philosophical and literary works. But of the contributions by Bohr, Planck, Heisenberg, Schrödinger and Jordanconcerning life, so far only SCHRÖDINGER'S (1969) pragmatic approach yielded more practical results. It led to modern molecular genetics and to the introduction of statistical physics to describe living systems. More recently Prigogine and Haken, following his integrative bio-physical lines, found formal similarities of living systems to the laser, but still this seemed far from the quantum biology envisioned by PASCAL JORDAN (1958).

Again in recent years, first in a purely metaphorical or even speculative way, interest has greatly increased again towards applying

the advanced understanding of modern physics to biology, in order to understand the worldwide wholistically changing trends of society through the underlying phenomenon of consciousness. This happened in compliance with Max Planck's revealing lecture on the nature of "Physics in the Battle for the World Picture" (PLANCK, 1935) and in response to the influx of vedic philosophy via Japanese, Chinese and Indian sources.

The similarity and the complementarity between the concepts of eastern Vedic Upanishad philosophy and quantum physics was already noted by Bohr. He developed the complementarity theory and Schrödinger, already, at that time pioneered the idea, that demanded an infusion of Eastern thinking into our science to gain a deeper understanding of the "Mind and Matter" relationship (SCHRÖDINGER, 1969).

This relationship of matter and consciousness was put to experimental tests in biological systems and resulted so far in 300 important research publications (WALLACE, 1970, 1986). These tests were performed in the conceptual framework of the Science of Creative Intelligence under the direct guidance of its founder Maharishi Mahesh Yogi. He is a western physicist by training and an eminent eastern philosopher and the very expert in the technology and science of the Vedic tradition of consciousness.

These experiments are documented in scientific journals and research publications of fields as diverse as physics, biochemistry, physiology, psychology and sociology. As a consequence and direct result, it has now become both possible and imperative to devise the interdisciplinary Unified Theory of Life (UTL).

According to his book reviewed in Science, Sept. 1985, I.B. COHEN (1985) sees the development of scientific knowledge and revolutions in four stages. "First occurs the creation of the new idea or set of ideas. Second, the novelty has to be worked out, still largely in private but

fully enough to embrace the phenomena on which it bears and to offer the prospect of convincing specialists other than the innovators. Third comes dissemination in professional circles, by correspondence, by circulation of preprints, eventually by publication. Cohen calls this the revolution on paper.

The revolution on paper still has to become a revolution in science in a fourth and final stage, that of acceptance of the new theory by qualified scientists (a process characteristically involving conversion rather than persuasion), followed by its incorporation into the practice of the discipline."

Given the pace of modern research, the interval prior to the passage into stage four, can be surprisingly long. As in the case of Alfred Wegener, his theory of continental drift, advanced between 1915 and 1930 remained a revolution on paper. Only in the nineteen fifties and sixties, in consequence of two lines of evidence quite different from anything imagined by Wegener, - namely paleomagnetism and sea-floor spreading - did the theory of continental mobility begin to prevail.

Probably even more time could have elapsed for the acceptance of the central idea presented here since its start in 1974. This theory is not moving continents, it only turns the thinking around on present-day synthetic theory of evolution by emphasing an epigenetic mechanism (1976) and its relationship to consciousness as an epistemological fact.

STEPS OF PROGRESS TOWARDS UTL

This paradigmatic turn is originally based on the study of the principle of homeostatic self-organisation, but had not unexpected evidence from two sources as different, independent, and as far apart as the mathematical study of the molecular origins of life by FREEMAN DYSON

(1988, 1985, 1982) and the field effects of consciousness on the trends of modern society by DILLBECK et al. (1987, 1981) and ORME-JOHNSON et al. (1982) come, all of it would have remained a personal stance or at best a revolution on paper.

The internationally renowned American physicist from Princeton FREEMAN DYSON (1988), in the best tradition of the Tarner lectures of Trinity College given by Schrödinger on "Mind and Matter", provided on the same occasion an unexpected, supportive mathematical model for the homeostatic metabolic origins of living systems. Due to difficulties with Eigen's model of genetic replication as origin of life - it then appeared less reliable because of error catastrophes demonstrated in the computer simulations by NIESERT et al. (1981) - Freeman Dyson reformulated OPARIN'S (1957) theory on the genesisof life in stricter, more logical mathematical terms.

He utilized Kimura's mathematical frame, and asked the question after the origin of metabolism.

Firstly, metabolism, is considered prior to genetic replication in his model.

Secondly, it makes qualitative, non-trivial statements about populations of molecules, that could make the jump from their molecular chaos to order in the form of metabolic biological activity.

Thirdly, as a result of his assumptions of active and non active monomer positions for the polymers selective in the metabolic stabilisation of order, a mathematical model emerges. When defining active positions specifically, as those compatible with isokinetic transition stabilisation, it is supportive, to the model of life in UTL.

So from a completely different angle of empty mathematical calculations, he sees homeostatic metabolism as the primary property of life and secondary only the genetic replication. This is mainly due to

the greater capacity to tolerate errors in his homeostatic model. Therefore he raises the question before experimentalists about homeostasis and its chemical nature. Exactly this question has been studied (BUJATTI and RIEDERER, 1976) in the course of research on the Rest and Fulfillment (RF) response of homeostatic, isokinetic self-organisation.

In the following four papers on this topic, the term "theory" was chosen not do denote any degree of scientific falsification or acceptance. It was chosen to denote the radical shift in total scope, view or vision in relation to the present biological theories on life and evolution. This means a return to the original, wider meaning of the Greek word "theory" as holistic view and is the call for the paradigmatic change in biology an the natural sciences. It is time to conceptually face the epistemological fact and role of consciousness.

After the neuro chemical experimental start in 1974 and a first publication in 1976 on the RF-response defining homeostatic self-organisation of living systems through hormonal energy systems activation and deactivation parallel with entropy (stress) changes, the intended "Design for a system's theory of man" is now in its second decade. It is entering Cohen's stage three of the revolution on paper as the integrated, that is epigenetic and genetic, Transition Theory of Evolution. It includes consciousness through the fundamental onto-epistemology paradigm and through the suggested experimental approach of the UTL.

The basic question is how the brain of man observes or measures and how it achieves conscious creative intelligence, the property unattained by machines. This cannot be explained by present-day science - in principle - say's Schrödinger, because of objectivation. Also in present evolution theory, in the framework of Mendel's and Darwin's theory, consciousness

and epigenetic developmental processes, are neither contained explicitely nor implicitely, not to speak of pre-genetic processes. Therefore as the next step from the statistical physical RF-response definition, the "Transition Theory of Evolution" was developed, an epigenetic-genetic integrated, truly quantum biological theory of a novel, namely an isokinetic micro-organisational mechanism of life and evolution.

At first, the neurochemical experimental study of the palaeobiology of the deepest, yet, wakeful state of rest, as meditation known to have a minimum of energy metabolism, was published in 1976 (see appendix). This state of rest has large scale, statistically observable preventive effects (ORME-JOHNSON, 1987) through regeneration and homeostatic RF-response self-organisation. It is associated, in a thermodynamic terminology with a nervous system entropy reduction as EEG-coherence (ORME-JOHNSON et al. 1981, TOURENNE, 1981) and with creativity in psychological TTCT-t ests. At the same time an associated balance shift in the human indolamine and catecholamine metabolism is demonstrable (BUJATTI and RIEDERER, 1976).

Therefore, to summarise the known adrenergic biological properties, catecholamines were defined as "entropins" or entropy-flow reporting transmitters. (The term "transmitter" was chosen to denote both neuro-transmitter and hormonal messenger properties). Indolamines were defined as negentropy-flow transmitters with enteramin as serotonin or "negentropin" as the main representative. Their teleonomic, namely homeostatic, and otherwise unavoidable entropy increase counter-balancing shift during self-organisation led to the heuristic formulation of the rest and fulfillment response.

In the next step (see PartIV) the quantum chemical, linear, Energy-Entropy Compensated Transition (EECT-) of chemical kinetics, that has its basis in the energy and entropy dependence of the quantum

mechanical reaction rules, was discovered in the biological solvent water and disclosed as the very micro-organisational basis of the RF-response. It was introduced as the essence of the living system.

EECT is then found as an isomorphy on increasingly complex levels of biosystem organisation. Starting from interstellar negentropy storage, EECT is found in the tunneling evolution of later organic polymere solutes and in the isokinetic properties of the biological solvent water. As epigenetic principle it is found in the configuration dynamics of membranes, enzymes, proteins, the genome and in metabolic, neurochemical and EEG-neuroelectric activity.

As a next step (see Part V) EECT was introduced as quantum mechanical basis of teleonomy in bio-systems. In the literally revolutionary integrated model of Intercalary Evolution, EECT through the maximal economy of its extremal case of isoenthalpic tunneling transitions serves, via the law of least action, for teleonomy in epigenetic molecular systems behaviour. Intercalary Evolution as life means above all, that the quantum mechanical solvent property of EECT is more and more temporally stabilised through the intercalation of biomolecules into the compensated solvent. This happens in the process of compensation-constraint or solvent-solute, epigenetic-genetic or teleonomy-culture coevolution resulting in a macroscopic quantum state. This trend is characterised by a teleonomic isokinetic temperature decline towards 0 Kelvin, typical of tunneling transitions.

Part VI, defines an objective interface for consciousness, creativity and intelligence. For biology, EECT in an energetically and entropycally fluctuating environment, constitutes the behavioral negentropy selecting principle as MAXWELLIAN DEMON. This happens in biochemical reactions as conscious observation - through isokinetic transition. As conscious creativity this happens in reactions through isokinetic high energy

mutation and as conscious intelligence in isokinetic low energy selection.

With EECT as molecular hardware microprocessor of the homeostatic metabolic self-organisation, genes function as the coevolutionary self-replicating software program diskettes. They are maintaining the evolved channels for the further information input from the environment (nutrition and experiences) to be processed and stored in order to help to further stabilise spatially and temporally the isokinetic transition state as macroscopic quantum state of consciousness.

In Part VII, with this micro-organisational basis of creative intelligence available, the sequential unfolding of biosystems from their origins allows the understanding of their specific properties. So the theoretical deduction of mammalian homeotherm temperature of 37 degrees C becomes conceivable. Furthermore, the evolution of man, his brain morphology, his creative intelligence ethology and his language as well as his culture-ethology become compelling through the same RF-principle. Ecology transition culminating in the terraquatic diving response ethology leads to the understanding of the special evolutionary adaption of man to ecology transitions (Special Theory of Creative Intelligence). A loss of this human ethological basis of creative intelligence through errors in the culture-ethological information transfer, leads to the individual, socio-economical and environmental epigenetic error catastrophe. This epigenetic error catastrophe treatment by EECT of the hypometabolic diving response, is the reason behind the necessary culure-ethological tradition of the pure consciousness experience as the autopilot of teleonomic systems.

The last Part VIII deals with the interdisciplinary position and the consequences from such a unified theoretical approach to biology.

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ANHANG/APPENDIX

The Unified Field of All the Laws of Nature

The most precise and successful description of nature in the history of modern science has been provided by quantum field theory of physics. This theory describes all the elementary particles and forces of nature as discrete waves or excitations of their respective, underlying elementary quantum fields. Since the 1970's, the primary challenge in physics has been to find a single quantum field which would simultaneously incorporate all the fundamental forces and particles of nature.

Experimental and theoretical advances during the past two years have demonstrated that not only the force fields but the matter fields as well can be seen to emerge from a single, unified quantum field, whose excitations therefore constitute all the elementary particles and ultimately the whole universe. The detailed formulation of this super unification is known as N=8 supergravity theory. The complete mathematical expression of the unified field, comprising all the laws of nature responsible for all activity in the universe, is called the Lagrangian of N=8 supergravity theory.

The Qualities of the Unified Field

From the Lagrangian of the unified field, Dr. John Hagelin, chairman of the Department of Physics at Maharishi International University and one of the world's foremost theoreticians in the unified field theories of quantum physics, has derived the qualities of the unified field. These qualities include the property of self-referral, the dynamical property by which the unified field is able to create the diverse elements of natural law entirely from within its own perfectly symmetrical structure, and also the quality of intelligence in its most concentrated form, seen in the fact that the basic laws governing the self-interaction of the unified field contain the full dynamics of all the approximate, less holistic field theories functioning at larger distance scales in nature.

Consciousness, the Unified Field of Natural Law

Having located the absolute values of intelligence and self-referral in the unified field, Dr. Hagelin and other leading physicists identified the unified field with the field of consciousness. They recognized that consciousness alone can be completely self-referral, knowing itself from within itself without reference to anything external to itself.

Since the unified field interacts only with itself, it can be verified ultimately only on its own self-referral level. The scientists concluded that experimental verification of the unified field must be gained through direct experience of the unified field in the self-referral state of consciousness, transcendental consciousness, where the unified field is wide-awake within its own nature.

The experience of transcendental consciousness is directly gained through the Maharishi Technology of the Unified Field. Therefore, this technology was identified as the experimental means for verifying the super-unification of all the forces and particles of nature.

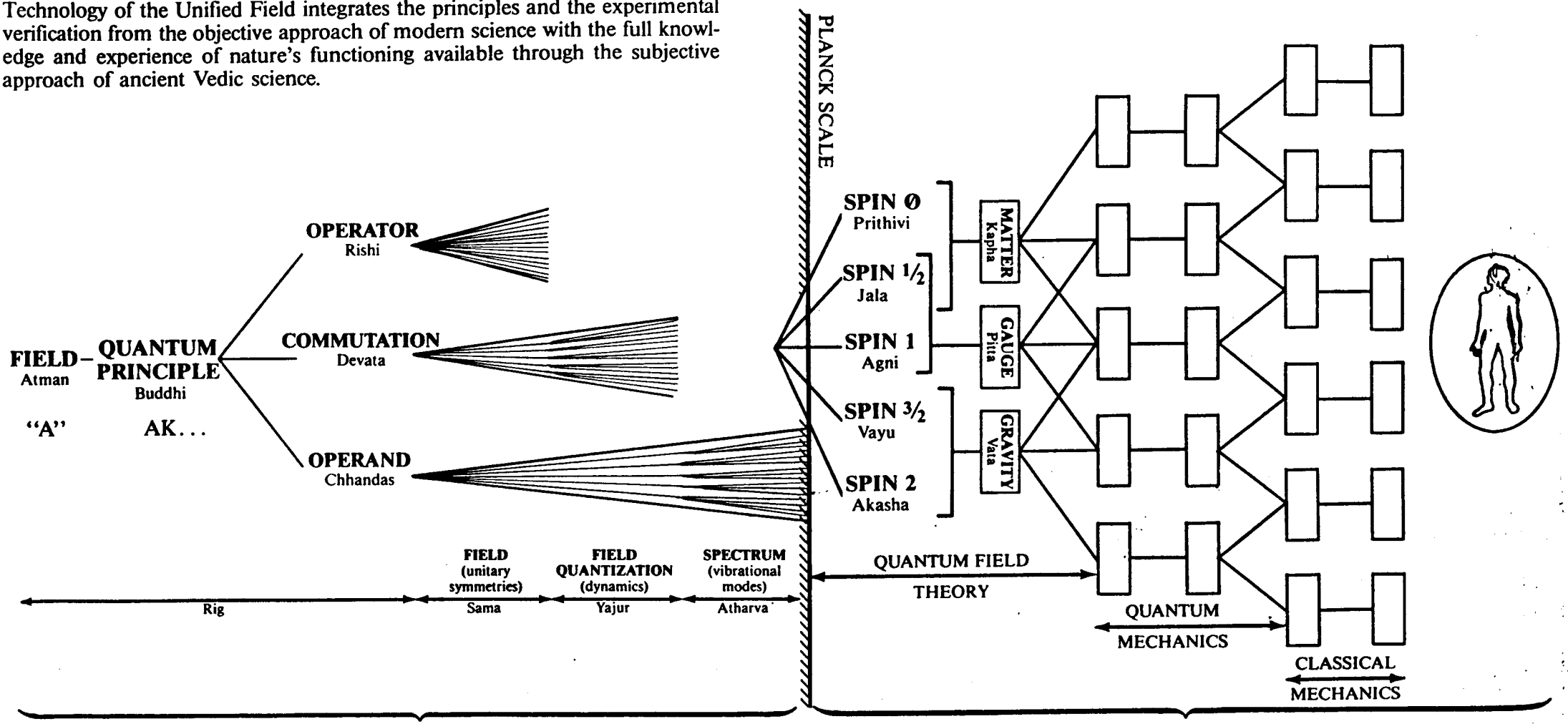
Consciousness, the Unified Field of Natural Law

Having located the absolute values of intelligence and self-referral in the unified field, Dr. Hagelin and other leading physicists identified the unified field with the field of consciousness.

- ALL POSSIBILITIES: All possible local gauge-invariant operators are generated by non-perturbative quantum gravitational effects at the Planck scale.
- FREEDOM: The graviton remains a free, unbound particle in the physical spectrum, and the entire supermultiplet becomes asymptotically free at the Planck scale.
- UNBOUNDEDNESS: The translational invariance of the Lagrangian density; also expressed by the graviton, which is the gauge field of an infinite range force.
- SELF-SUFFICIENCY: The graviton does not participate in the activity of preon binding and is a singlet with respect to the internal SO(8) and SU(8) symmetries of the Lagrangian.
- BLISS: Expressed by the continuous effervescence of topological fluctuations at the Planck scale and by the universally attractive nature of the graviton field.
- INTEGRATING: The gravitino fields dynamically uphold local supersymmetry, which integrates the different spin components of the supermultiplet, maintaining the unbroken wholeness of the superfield.
- SELF-REFERRAL: The non-Abelian property of self-interaction of the vector fields that uphold the local SO(8) symmetry. The property of self-interaction is also present in the graviton, gravitino, spinor, and scalar fields, and therefore in the entire supermultiplet.
- INVINCIBILITY: A non-Abelian gauge field dynamically upholds its own invariance under local symmetry transformations.
- PERFECT BALANCE: Supersymmetry—perfect balance of bosonic and fermionic degrees of freedom.
- FULLY AWAKE WITHIN ITSELF: The zero-point motion of the quantum fields reaches its ultimate level of dynamism at the Planck scale.
- TOTAL POTENTIAL OF NATURAL LAW: All the fundamental field types are fully enlivened as dynamical degrees of freedom at the Planck scale.
- SIMPLICITY: All of the fundamental components together comprise a single irreducible representation of the symmetry group.
- UNMANIFEST: The fundamental components of the supermultiplet, the preons, do not appear as manifest particles.
- HARMONIZING: The gravitino is the gauge field of local supersymmetry, which unites completely opposite values—bose and fermi fields.
- INFINITE CORRELATION: Expressed by the terms which uphold the local SO(8) gauge invariance of the Lagrangian.
- INFINITE DYNAMISM: The trilinear and quartic couplings describe the dynamical interaction of the preon fields.
- INFINITE SILENCE: The trilinear and quartic couplings preserve the invariance of the Lagrangian under local supersymmetry transformations.
- PURE KNOWLEDGE: The Lagrangian is the most compact mathematical expression of the complete structure of the laws of nature.
- INFINITE ORGANIZING POWER: The Hamiltonian operator, derived from the Lagrangian by a Legendre transformation, governs all activity in the universe.
- PERFECT ORDERLINESS: The SO(8), SU(8) and extended super-Poincaré symmetries of the Lagrangian.
- INFINITE CREATIVITY: The fountainhead of natural law—from this unified source, all the particles and forces of nature are generated through the process of dynamical symmetry breaking.
- PURIFYING: The symmetries of the Lagrangian, which are broken at macroscopic distances, are spontaneously restored at the Planck scale.
- EVOLUTIONARY: The Hamiltonian operator generates the time-evolution of the universe.
- NOURISHING: The supermultiplet is a gauge field which dynamically upholds the unified structure of all its individual components.
- IMMORTALITY: The time-translational invariance of the Lagrangian density.

RESTRUCTURING PHYSICS FROM ITS FOUNDATION

Technology of the Unified Field integrates the principles and the experimental verification from the objective approach of modern science with the full knowledge and experience of nature's functioning available through the subjective approach of ancient Vedic science.



PLANCK SCALE DYNAMICS
Veda

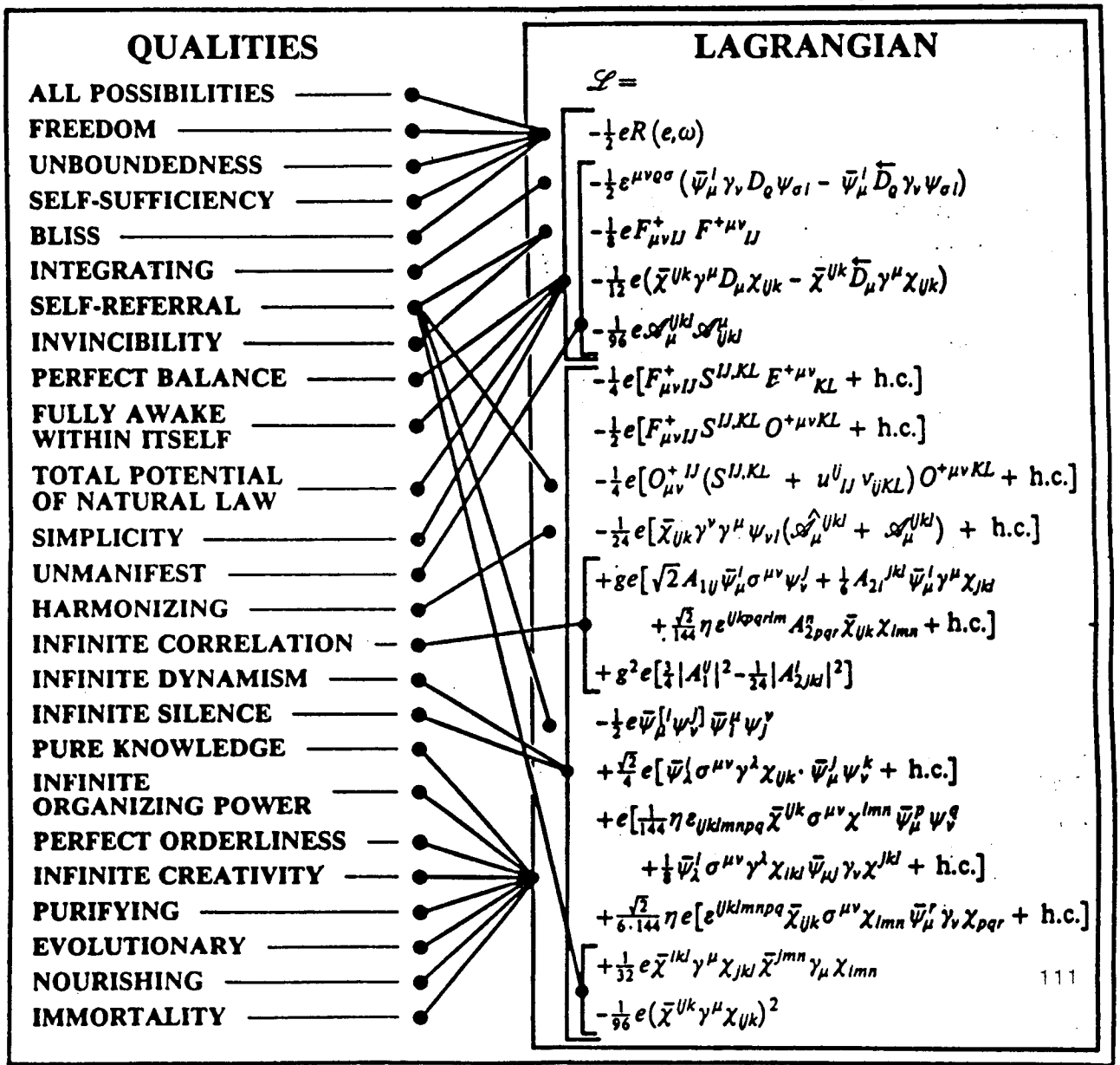
SPACE-TIME DYNAMICS
Upaveda

The government is the guardian of education in every nation, and fortunately it is now possible for every government to educate its people to act in accordance with natural law. In so doing, the government raises the collective consciousness of the nation, which directly determines the strength and success of any government. Through unified field based education, the government effectively administers that by which the government itself is governed—the collective consciousness of the people. By maintaining an integrated national consciousness, the government ensures its own success and fulfills the needs of every citizen.

UNIFIED FIELD BASED CIVILIZATION

The Maharishi Technology of the Unified Field enlivens all the qualities of the unified field in individual and collective consciousness, giving rise to unified field based civilization. Because the unified field is a field of all possibilities, the qualities of the unified field are innumerable. In order to give a glimpse of the benefits that the technology of the unified field brings to individual and national life, the chart below presents a few key characteristics of the unified field derived by Dr. John Hagelin, Professor of Physics at Maharishi International University, from the Lagrangian of N = 8 supergravity theory, as recently formulated by Dr. Bernard de Wit and Dr. Hermann Nicolai.

The Lagrangian is the most compact mathematical expression of the complete structure of the unified field—its symmetries, components and self-interaction. To help elucidate the derivation of the qualities of the unified field from the Lagrangian, each fundamental component has been given a different pattern in the enlarged presentation of the Lagrangian formula on the next page: the graviton (vertical lines), the gravitinos (pots), the vector bosons (grey tint), the spinors (squares), and the scalars (stars). The first five rows contain the essential dynamics of each of these spin types, while the rest of the Lagrangian describes their mutual interactions.



A BIBLIOGRAPHY OF MEDITATION THEORY AND RESEARCH: 1931–1983

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The Esalen Institute Transformation Project was organized in 1976 to explore supernormal psychophysical functioning and various bodily transformations that support it. The Project is compiling and analyzing a broad range of scientific, speculative, and anecdotal literature related to this inquiry.

Presently the archive contains over 8,000 scientific studies concerning extraordinary human functioning, drawn from more than sixty research fields and arranged under the uniterm system of indexing. Articles were obtained from a computer search of relevant fields, from the archives of Dr. Elmer Green of the Menninger Foundation and Rhea White of the American Society for Psychical Research, and from numerous private sources. The archive is kept up to date with a weekly computer search of some 7,000 scientific journals.

In 1981 the authors began a comprehensive study of meditation. The following bibliography, with 776 entries, extends through June, 1983. It includes all the articles that have been located in English language scientific journals and a number of relevant books. In addition, some doctoral and masters theses are included which, though unpublished, were referred to frequently in the published literature. Where possible, original rather than secondary sources are used. Although it covers all types of meditation practice, the bibliography rarely cites metaphysical, philosophical, or religious literature connected with meditation.

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ANNOUNCEMENT REGARDING THE *JOURNAL*'S STATEMENT OF PURPOSE

Miles A. Vich
Journal Editor

Over the last 15 years, a Statement of Purpose has appeared in the front pages of each *Journal* issue. Its current version is as follows:

> *The Journal of Transpersonal Psychology* is concerned with the publication of theoretical and applied research, empirical papers, articles and studies in transpersonal process, values and states, unitive consciousness, metaneeds, peak experiences, ecstasy, mystical experience, being, essence, bliss, awe, wonder, transcendence of self, spirit, sacralization of everyday life, oneness, cosmic awareness, cosmic play, individual and species-wide synergy, the theories and practices of meditation, spiritual paths, compassion, transpersonal cooperation, transpersonal realization and actualization; and related concepts, experiences and activities.

Various editorial discussions and comments from *Journal* authors and readers have indicated that the Statement is in need of reformulation to reflect one-and-a-half decades of development in the field of transpersonal psychology. To this end, a Committee of Editors has been formed to review the Statement and draft a new version to appear in Volume 16 #2, 1984 or earlier.

Changes in the Statement have been an ongoing aspect of the *Journal*'s evolution since the Founding Editor first observed that ". . . statements of purpose are understood to be formulations subject to change as required by the development of the objective living conditions, relationships, forces, *etc.*, that they may represent" (Sutich, 1969).

Reference List of Published Scientific Research on the TM and TM-SIDHI Programme

Most of the following published 125 research and 26 review papers can be found in Volumes1,2,3, and 4 of *Scientific Research on the Transcendental Meditation and TM-Sidhi Programme: Collected Papers.* In addition, the Collected Papers contains over two hundred doctoral dissertations, masters theses, papers presented at scientific conferences and other papers not published elsewhere that do not apper in the following reference list. The numbers preceding the references refer to the paper numbers in the Collected Papers.

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PART III: SOCIOLOGY

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