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# *WISE Journal*

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**The Journal of the World Institute for Scientific Exploration**

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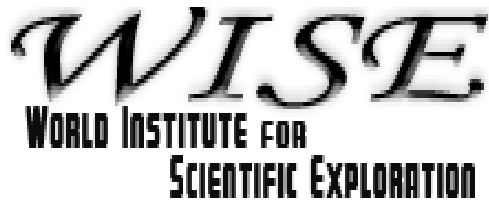
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## *WISE Journal*

**The Journal of the World Institute for Scientific Exploration**

**Volume 7, Number 1 (Spring, 2018)**

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Dear Colleagues,

In this issue, we have exciting news about the various activities and projects that the [World Institute for Scientific Exploration \(WISE\)](#), and its affiliates are engaged in, as well as, a number of formal journal articles. Just scroll down to the Table of Contents to see the article titles, and then scroll down further to read the articles.

WISE provides a research institute and a worldwide internet platform for the dissemination of information and research on scientific anomalies, alternative, complementary, and traditional medicine, consciousness, parapsychology, alternative energy, paranormal topics, historical legends, and unexplained phenomena of all kinds. This is accomplished through our many programs, especially the [WISE Worldwide Resource Center \(WISEwiki\)](#) and the [WISE Digital Library](#). We seek to maximize research, collaboration, and cooperation on these subjects, and WISE wants to make sure that we include all individuals, worldwide, who would like to participate in our programs and activities, .

**WISE provides more programs and benefits than any other organization in this field. (Click here to go to the page showing the seventeen (17) benefits you will enjoy as a member and research associate of this institute.) We encourage you to become a member and to become active in our programs and projects, and contribute your passion and knowledge, as many of you are already doing.**

As usual, people are joining WISE from all over the world, and more members are volunteering to help with and start research projects, to become division, department, or national advisers, and to offer other support for our great quest to do research on the above subjects. **We now have members and research associates from more than 60 countries worldwide.**

**We Thank you all for being part of WISE, and wish you much success in all of your research and other projects.**

*John H. Reed, M.D., Dominique Surel, Ph.D., Richard Blasband, M.D.*

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# TO THE STARS ACADEMY OF ARTS & SCIENCE POSTS CONTROVERSIAL NEW VIDEO OF UNIDENTIFIED AERIAL PHENOMENA

## “GO FAST” FOLLOWS THE TWO ASTONISHING UFO VIDEOS RELEASED BY THE NEW YORK TIMES IN LATE DECEMBER



### 2015 GO FAST FOOTAGE

As the video starts, the sensor is in infrared “black-hot” mode – black elements in the display are warmer than the dark, or lighter color, areas. It is at zoom factor 1.0. The F/A-18 Super Hornet is at 25,000 feet altitude, 259 knots (~300 mph, Mach 0.61), and in level flight. The sensor is aimed 22 degrees below the horizon and 36 degrees to the left of the F/A-18’s direction. The ATFLIR tracking trap box is a square in the center of the screen. The ocean surface is clearly visible in the background.

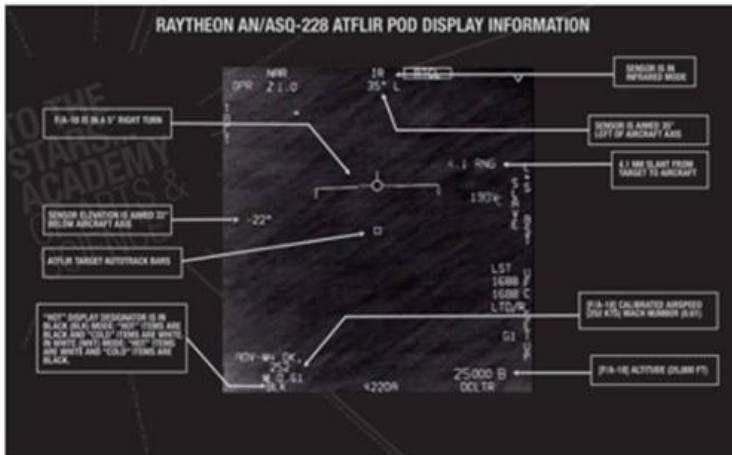


Figure 1 - The ATFLIR display reveals significant information regarding flight conditions and characteristics of the imagery

The unidentified vehicle appears as a white oval shape moving at high speed from top right to lower left of the screen flying very low over the water. Initially, the sensor is unable to capture the object. The Weapon Systems Operator (WSO) steers the sensor ahead of the object to attempt another capture. On the third attempt, the sensor tracking capture is successful. The sensor is now in “autotrack” mode, where the sensor uses contrast and other parameters to lock-on to a target, automatically keeping it centered in the sensors viewing frame. This mode can track objects that

Los Angeles, CA (March 10, 2018) –

Almost three months after the **New York Times** published a stunning [exposé](#) about “The Pentagon’s Mysterious U.F.O. Program” and included two of the first official U.S. government videos of unidentified aerial phenomena, **To The Stars Academy of Arts & Science (TTSA)** has posted a much-anticipated third video, titled “Go Fast.”

The video, which can be seen on the TTSA Community of Interest site [by clicking HERE](#), is an authentic DoD video that captures the high-speed flight of an unidentified aircraft at low altitude by a F/A-18 Super Hornet ATFLIR forward-looking infrared system. The “Go Fast” video reveals a previously undisclosed Navy encounter that occurred off the East Coast in 2015. The site also features an analysis of the video by TTSA’s Aerospace Division Director **Steve Justice**, National Security Affairs Advisor **Chris Mellon** and Director of Global Security & Special Programs **Luis Elizondo**.

Justice is a former Program Director for Advanced Systems at Lockheed Martin’s Skunk Works. Mellon, who served as deputy assistant

secretary of defense for intelligence in the Clinton and George W. Bush administration, just penned an op-ed about the phenomenon for the *Washington Post*, which can be read [HERE](#). Elizondo, a former Pentagon military intelligence official, was the focus of the aforementioned *Times* article after he confirmed the existence of a hidden government program (the Advanced Aerospace Threat Identification Program) that investigated the existence of U.F.O's, a department he ran under a veil of secrecy since 2009.

**To The Stars Academy of Arts & Science** is a consortium of scientists, aerospace engineers and creatives working collectively to allow gifted researchers the freedom to explore exotic science and technologies with the infrastructure and resources to rapidly transition innovative ideas into world-changing products and services. The TTSA team is rounded out by **Dr. Hal Puthoff**, the company's VP of Science and Technology (and advisor to NASA, the DoD and intelligence communities) and **James Semivan**, VP of Operations (and a former senior intelligence service member of the CIA) and was founded by President and CEO, **Tom DeLonge**.

A Public Benefit Corporation, **To The Stars Academy of Arts & Science** will look to collaborate with global citizens in all efforts to advance science and build a powerful community of interest. The company is raising capital from both accredited and unaccredited investors as an alternative to venture capital.

While TTSA was the first to obtain a copy of the "Go Fast" video—as well as the first two videos, "Gimbal" and the 2004 Nimitz Flir1 Video—it should be available to any member of the press or public via the Freedom of Information Act.

AN OFFERING STATEMENT REGARDING THIS OFFERING HAS BEEN FILED WITH THE SEC. THE COMPANY IS INITIALLY OFFERING ITS SECURITIES IN ALL STATES OTHER THAN TEXAS, FLORIDA, ARIZONA, NORTH DAKOTA, NEW JERSEY AND NEBRASKA. THE SEC HAS QUALIFIED THAT OFFERING STATEMENT, WHICH ONLY MEANS THAT THE COMPANY MAY MAKE SALES OF THE SECURITIES DESCRIBED BY THE OFFERING STATEMENT. IT DOES NOT MEAN THAT THE SEC HAS APPROVED, PASSED UPON THE MERITS OR PASSED UPON THE ACCURACY OR COMPLETENESS OF THE INFORMATION IN THE OFFERING STATEMENT. YOU MAY OBTAIN A COPY OF THE OFFERING CIRCULAR THAT IS PART OF THAT OFFERING STATEMENT FROM: [WWW.TOTHESTARSACADEMY.COM](http://WWW.TOTHESTARSACADEMY.COM). YOU SHOULD READ THE OFFERING CIRCULAR BEFORE MAKING ANY INVESTMENT.

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310-248-6171 / 310-248-6133

# Dr. Marco Bischof's "Library of Rejected Knowledge" at the Institute for Future Science & Medicine, and other Projects of the Blauadler Foundation

## Theoretical Division of Blauadler Foundation:

[Institute for Future Science & Medicine \(IFSM\)](#) ([click to go to the IFSM](#))

**Director: Dr. Marco Bischof**

In the life time that is still granted to him because of his life-threatening illnesses, Dr. Marco Bischof will devote to the care, preservation and promulgation of his personal and scientific estate and his estate as a writer and the evaluation and making available of the knowledge accumulated in his lifetime for science and the public.

He will particularly concern himself about the "*Library of Rejected Knowledge*", a collection of 40,000 books and an equal number of documents he has gathered though his lifetime. The library will pass over in the possession of the foundation. The books are all related to frontier areas of science and of the humanities, or serve as a background to the knowledge of these fields. He will be busy completing the collection and the exploitation of the unorthodox (rejected) knowledge for a science of the future. The books of the library must be registered bibliographically in a library software. We must employ a certified librarian. The stock must be completed. The establishment of a café and of display cabinets for exhibits would be desirable.

The institute will also be concerned with the training of innovative minds and lateral thinkers. The history of science teaches us that from unconventional, "*out-of-the-box*" thinking which is grounded as well in scientific thinking as also in the knowledge of scientific heresies and esoteric thinking, arise a great part of our scientific and technological innovations.

Dr. Marco Bischof's estate includes also the development of his transdisciplinary and transcultural approach for the development of science, especially the development of a "Transcultural Science" in which the knowledge of all world cultures is combined. To this topic he will also attend to, depending on his capacity.

For this purpose will he be active in the institute as a scientist and a publicist and he will give lectures, host seminars and conferences and publish books and other publications.

Among the projects that have already been started are the following:

- The completion of the autobiography by Dr. Marco Bischof
- The book project "Border Areas of Science" by Dr. Marco Bischof
- The book project "What connects us" by Dr. Marco Bischof
- The translation of the book "Biophotonen" by Dr. Marco Bischof into English.

Projects that are planned:



- “Heterodox Knowledge as an Important Source not only for the Humanities, but also for Science” (paper)
- “Somatics as a Foundation for a Non-Intellectual, Embodied-Knowledge Outlook in Science Studies” (paper)
- “What is Transcultural Science?” (paper)
- Translation into English of the “Book of Synergetics” by Achmed Khammas (<http://www.buch-der-synergie.de/>)
- Scholarships and awards of the “Institute for Future Science & Medicine” (IFSM), in collaboration with the “Institute for Frontier Areas of Psychology and Mental Health (IGPP) in Freiburg i. Br., Germany (already agreed) and the chair of “The History of Hermetic Philosophy and Related Currents” of Prof. Wouter Hanegraaff at the University of Amsterdam (agreed).
- Master and Ph.D. theses in collaboration with the institutions mentioned above.

## **Department of “Traditional Chinese Life Sciences”**

**Director: Dr. Manfred Kubny**

**Within the “Institute for Future Science & Medicine”** the department of “Traditional Chinese Life Sciences” is forming a separate department. The fields of knowledge and the corresponding practice of the Traditional Science belonging to Chinese culture have spread in Western culture to such an extent that it is necessary to scientifically verify its claims and to undertake a scientifically sound knowledge transmission.

Whether it concerns “Traditional Chinese Medicine” (TCM), “Feng Shui” (Chinese Living Environment Design) or “Bazi Suanming”, a system for personality diagnostics, “Taiji Quan” or “Qigong”, scientifically verified information on these fields is rare.

The aim of the department “Traditional Chinese Life Sciences” is to present these fields embedded into the entire breadth of the historical, cultural and practical experience of the Traditional Chinese Sciences and into Chinese Culture.

Dr. Manfred Kubny has studied sinology and the history of medicine and has many years of experience in the translation of old, difficult texts from the Chinese language. Besides the bibliographical exploitation of the knowledge fields of the Chinese Life Sciences he is translating key works from the history of these sciences and investigating their principal theories, terminology and practical exercise.

## **Experimental Division of the Blauadler Foundation:**

### **Institute for Future Energy & Applied Consciousness Research (IFEACR)**

**Director: Dr. Thorsten Ludwig**

**The experimental institute of Blauadler Foundation** is aimed at bringing the future sciences into practice and to make them tangible. This is achieved by constructing and performing experiments concerning novel effects, especially on the energy sources of the future and consciousness. The objective is to produce the prototypes that make the sciences of the future practically applicable and are suited to convince as well other scientists and be as well of benefit to the people in everyday life.

The new energy technologies as well as the experimental consciousness research are questions of exciting and up-to-date interest which are apt to engender new developments in science and technology. The new energy technologies emerge from accepted theories such as quantum field energy as well as from unconventional theories, anomalies and inventors' ideas for new generators.

Consciousness research investigates the mode of operation of the interaction of mind and matter. On this there are macroscopic and quantum experiments. This research is based on long-lasting work by Dr. Ludwig and Dr. Bischof. Also a combination of the two, i.e. energy generators which also integrate consciousness in their mode of operation, are a very exciting and novel approach for which there are concrete scientifically well-founded plans for concrete experiments which can be immediately implemented. We plan to realize as well high-class scientific experiments in basic research as well as building devices, generators and prototypes of future technologies. In addition we plan, together with the inventors, to evaluate and to test interesting technologies.

## **Experiments in Basic Research in the Field of Consciousness Studies**

### **Project 1: Consciousness Research - Experiments with Single Quantum Objects**

It has become a standard set-up in physics to catch electrons in a so-called "*ion trap*" and to display separately on a display screen. The change of electronic spin is called "*spin-flip*". To produce a spin-flip in an electron requires only 1/1.000.000 part of the energy of a single blue photon of light.

We believe that it is possible through mental concentration upon a single electron in the ion trap to change its spin and thus obtain a quantum-mechanical switch which can be directly controlled by mental efforts. This means stringently there must be a further, until now unknown, interaction in physics which causes its target-oriented action directly through the consciousness of a person.

The experiment has been already assembled by two-thirds. We have made progress with the realization of the ion trap, of the vacuum, and the laser system and have mastered a series of technical obstacles and challenges. We have so far invested

700.000 Euros in the project. The finishing of the experimental set-up in the near future is foreseeable. We know what needs to be done and how it is to be made. Moreover we have a network of experts available that support us in the technically challenging tasks.

Now the ion trap is near completion with which the influence of the mind on single ions and electrons shall be investigated. Soon the experiments can take place with which we will investigate how exactly the mind influences matter. This experiment is a high-class scientific experiment according to the state-of-the-art through which the influence of the mind on single quantum objects is directly measurable and also the fundamental properties of the exchange particle can be determined. Ion traps are used in modern physics for many fundamental experiments. In the year 2012 physicists received the Nobel award for this method. What concerns our experiment, many hundred thousand Euros have been spent in an experiment which promises to deliver ground-breaking results.

## **Scientific Experiments in Basic Research on Energy Sources, including the Influence of Consciousness**

### **Project 2: Energy Research, Experiment on the Casimir Effect and Consciousness**

The Casimir Effect converts the natural quantum noise of space through electrically conducting surfaces into a force. This quantum noise, also called zero-point energy, represents a possibly huge energy reservoir for future technologies. It is easy to calculate that the usable energy through the influence of consciousness upon these random processes – in comparison with metal plates with which the Casimir experiment usually is carried out – can be considerably enhanced.

As first presented at the STAIF 2008 conference in New Mexico by Dr. Ludwig, it is planned to investigate the influence of consciousness on the zero-point energy / the vacuum fluctuations. Since the zero-point energy consists of randomly oscillating vacuum fluctuations and the influence of intention upon random processes has been established – see the experiments of the PEAR Lab at Princeton University –, this is a very promising approach. As a starting point for the experiments the Casimir effect or the Lamb shift can be utilized. The Casimir effect can be measured with a scanning force microscope which we have got in our laboratory.

This Casimir-Effect experiment can also be utilized as a zero-point energy sensor. In many future energy devices zero-point energy is named as an energy resource. This project is already far advanced. With this as a basis can also other fundamental experiments, e.g. for the utilization of zero-point energy in magnetic motors, be performed and scientific findings be achieved which lead to further technologies and projects in the field of future technologies.

## **Construction of Generators, Evaluation of Ideas of Inventors, Building of Prototypes, and Demonstration Experiments**

In this division of the experimental institute we plan to build and investigate novel motors and generators. We pursue an applied, practical approach in which we construct generators, prototypes and demonstration experiments as well as evaluate inventors' ideas. In this connection there are some promising approaches from the following fields:

Plasma, discharge, magnetic flux, vacuum, electrolysis, hydrogen, electromagnetic flight, electrogravitation, electrostatic space propulsion, inertia, gravitation, biophotons.

Moreover, we plan further investigations with already built devices in the fields of future energy, more precisely the Coler and Kromey generators, Brown's gas hydrogen production as well as, in the field of consciousness research, devices with random event generators, Kozyrev torsion balances and pH measurements according to Prof. William A. Tiller.

In addition we plan: literature survey, market overview, evaluation, expertises, scouting (tracing of new technologies).

# PACE Requests Assistance for Important Initiatives

From the [Planetary Association for Clean Energy Inc. / La Société planétaire pour l'assainissement de l'énergie, inc – PACE](#)

## PACE request for timely support:

which can be made out:

by PayPal, [https://www.paypal.com/cgi-bin/webscr?cmd=\\_s-xclick&hosted\\_button\\_id=YPUWAVHFTAVS4](https://www.paypal.com/cgi-bin/webscr?cmd=_s-xclick&hosted_button_id=YPUWAVHFTAVS4)

by VISA/MasterCard **(888) 639-7730** (toll-free in North America)

in **Canada**: by e-transfer to: [paceincnet@gmail.com](mailto:paceincnet@gmail.com)

or by cheques / money order to:

PACE, Inc., [100 Bronson Avenue, Suite 1001, Ottawa, Ontario K1R 6G8, Canada](#)

## DEVELOPMENTS:

- Research and Public Information Development (RAPID) on **ADVANCED and TRANSFORMATIVE CLEAN ENERGY SYSTEMS** (therapeutics, life sciences, consciousness, energy, environmental protection and conservation, aeronautical and space sciences (especially advanced propulsion systems), archaeology (recovery of indigenous insights for planetary restorations) .
- On-site **evidence gathering** for a class action suit concerning **existing and emerging electromagnetic field emissions when they are injurious to society, fauna and flora** - to at least 30% of population in developed areas. This case could have worldwide repercussions. View: [collectiveactionquebec.org](http://collectiveactionquebec.org). **NEW**: submissions to the **Nova Scotia Utility and Review Board (NSUARB)** review for **Smart Meter (AMI)** work order. which articulated the global issue of how Smart Meter collectors become the fundamental for the **4G**, **5G** technology implementation and massive augmentation of background microwave (and even ultrasound) emission power density levels.

- Prototyping **stand-alone electrical energy supply / re-instatement of soil and water resources** for sustainable communities, internationally.

If you wish to obtain details about these **humanitarian** and **scientific** developments, please ask us.

**Planetary Association for Clean Energy, Inc.**

**100 Bronson Avenue, Suite 1001, Ottawa, Ontario K1R6G8**

**Phone: 613-236-6265 Email: [paceincnet@gmail.com](mailto:paceincnet@gmail.com)**

We thank you for your interest and continued support!

***About PACE:***

*The **Planetary Association for Clean Energy, Incorporated** was founded in June 1975 in Ottawa, Canada, under the guidance of the Hon. **Senator Chesley W. Carter**, then Chair-person of the Senate's **Standing Committee on Health, Welfare and Science** as well as member of the **Senate Special Committee on Science Policy**. With the Hon. Carter, a number of scientists undertook to make use of this Association to develop an international interdisciplinary network of advanced scientific thinking individuals and organizations. Together, these were to promote and steward "clean energy systems" for eventual implementation on a planetary-wide scale.*

***Clean energy systems are defined as those which draw on natural supply, which are universal in application, which are inexpensive and which do not cause polluting residue.***

*Already by 1976 such systems were being examined and promoted by the founders of the Association. This initial nucleus of scientists grew. In 1979, the Association became incorporated as a Canadian non-profit corporation. Its Federal Charter foresaw the role of facilitation of the discovery, research, development, demonstration and evaluation of clean energy systems. Another role cited is stewarding the planning, co-ordination and implementation*

*of clean energy systems on planetary, continental, regional, local and individual scales. Experience has enjoined the network to act responsibly by serving as a monitor and an alert system for emerging “unclean” systems not considered by other groups.*

*In 1980, the Association became a Learned Society and hosted its first sessions as such at the **Université du Québec à Montréal (UQAM)**. Its network currently comprises about 3,500 individuals and institutions in over 60 nations. Its official publication is the Newsletter. Since 1981, books, proceedings, monographs and electronic publications have been released to both general and specialist audiences.*

*In 1986, the Learned Society initiated sustained efforts towards international technological transfer through a Symposium/exhibition in Hull (Gatineau), Québec, followed by a 1989 presentation at the **United Nations**, where it is recognized as an Associate NGO, since 2004 in special consultative status with the **Economic and Social Council (ECOSOC)**.*

*In 1990, the **University of Ottawa’s Institute for Research on Environment and Economy** has conferred an associative status to the Society.*

## Short News, Notes, and Queries

(If anyone would like to make a short news announcement, report something, or has a question about anything related to alternative and complementary medicine therapies, especially electrotherapy and energy medicine, anti-aging, new forms of energy and propulsion, unexplained aerial phenomena, parapsychology, consciousness, scientific anomalies, and other related subjects, or has any information or comments about any of the following notes and queries, please write to the editor, John Reed at: [joreed43@gmail.com](mailto:joreed43@gmail.com))

1. **Do any of you know anyone who has ever owned, used, or did research on the**



**Dotto Ring?** This was an electrotherapy treatment device developed by Gianni Dotto back in the 1970's and is said to have been used successfully to treat cancer and other diseases in humans and animals. In addition, the Dotto Ring was also said to be able to slow down the aging process and even rejuvenate individuals to some degree.

2. **Does anyone know anything about a man named William Lehr (1933-1996), who lived in Scammon, Kansas, and who developed several energy and healing devices, and made a reproduction of the T. Henry Moray energy device?** In addition, Lehr is said to have created a high-powered spark-gap device for healing purposes that cured a man who had been sent home to die, as well as a huge bibliography of articles and books dealing with new energy sources and energy medicine and treatment.

3. **Dr. Stoyan Sarg Sargoytchev Presentations at Medical Nanotechnology Congress Now Available on YouTube**

Dr. Stoyan Sarg Sargoytchev, a Distinguished Scientific Advisor for WISE, recently gave talks at the Medical Nanotechnology Congress in Osaka, Japan, Oct 2017. These have been now posted on YouTube at the links below.

Sarg Medical Nanotechnology Congress, Oct. 18-19, 2017, Osaka, Japan

Part 1 : <https://youtu.be/DtLuMaN2kT8>

Part 2: <https://youtu.be/W8A26MLwXLI>



#### **4. Dr. Liang Shan, Neuroscientist, Seeks Post-doc Position to Do Consciousness Research**

Dr. Liang Shan is a Chinese neuroscientist who completed her Ph.D. in neuroscience at Beijing University, one of the most prestigious universities in China. She has also done a fellowship at the internationally known Max Planck Institute in Munich, Germany. She has extensive research experience, has published papers, and can make important contributions to the field of consciousness research.

Dr. Shan is looking for mentors, and is seeking a position with an academic institution where she can do post-doc work focusing on aspects of consciousness. Her impressive [CV is available here](#), for your reference.

Please contact her at: [liang\\_shan523@hotmail.com](mailto:liang_shan523@hotmail.com)

#### **5. Dr. James Beichler Lectures on the Physics of Consciousness**

Internationally known researcher, Dr. James Beichler, has posted to YouTube two excellent presentations on the physics of consciousness, which he delivered at major conferences in 2017. You can watch these presentations by clicking on the YouTube links in the text below.

Dr. Beichler's first presentation was titled, "[The Physics of Consciousness: The Only Path to Understanding Consciousness](#)," (YouTube) which he delivered at the 2017 Annual Meeting of the [Academy for Spiritual and Consciousness Studies \(ASCSI\)](#) in Chapel Hill, North Carolina, June 7-11, 2017.

He delivered his second presentation titled, "[Physical Origins of the Consciousness Revolution](#)" (YouTube) at the 2017 Annual Meeting of the [Society for Scientific Exploration \(SSE\)](#), held at Yale University, New Haven, CT, June 14-18, 2017.

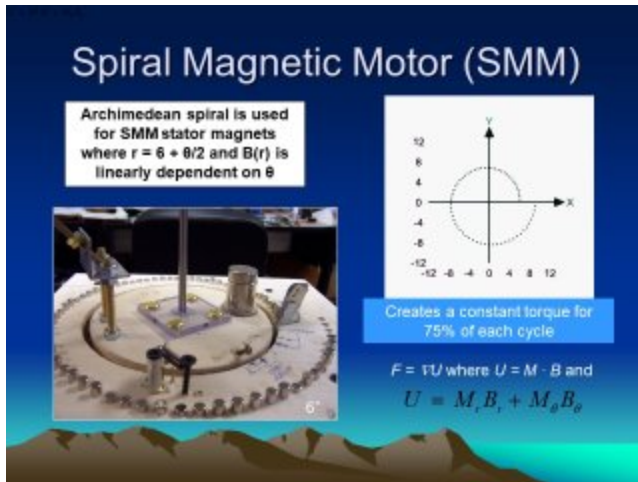
#### **6. Pre-Maori Cultures in New Zealand**

One of our WISE scholars is searching for people who have done, or are doing, research on Pre-Maori people and cultures in New Zealand. This is said to be a taboo topic of academic pursuit by scholars in New Zealand due to political correctness, as well as, among other mainstream anthropologists and archaeologists. We are lead to believe that New Zealand, with an area of 103,000 square miles was a pristine paradise that had no human inhabitants at all prior to the arrival around 1250AD of the Polynesian Maoris. This is the claim, despite the fact that nearby Australia was peopled 65,000 to 70,000 years ago; a substantial number of Pre-Maori structures and artifacts exist on New Zealand, and Maori traditions and legends themselves tell about other people being in New Zealand when the Maoris arrived. If any of you know of researchers on these subjects, please write the editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com);

7. **Art Tool and Die Company Radionics Devices:** Does anyone know anything about the Art Tool and Die Company that was located in Detroit, Michigan, in the 1930s and 1940s, and apparently manufactured radionics devices? It has been referred to in a number of publications on radionics, psychotronics, and related subjects, but it is not clear what devices they manufactured.
8. **Mangrove College for Radionics:** Does anyone know anything about the Mangrove College for Radionics, and if it ever published a periodical of any kind? Its address at one time was: 1313 N. Market St., Hercules Plaza Suite 3410, Wilmington, Delaware 19801, although this appears to be a mail box service location. It was once headed by a Dr. P. W. Meier.
9. **Do any of you happen to know anything about the Paraphysical Laboratory that was founded in the UK by Benson Herbert in 1966, or have any issues of the Journal of Paraphysics that he published for more than 20 years?** Mr. Herbert's laboratory was located at Privett Farm, Downton, Wiltshire, England, between Salisbury and Southampton. His mission included an attempt to provide a workable theory and physical explanation for paranormal phenomena, including telepathy, remote viewing, dowsing, and other extraordinary abilities and phenomena. Unfortunately, Benson Herbert died in 1991, and no one seems to know what became of the papers and records of the laboratory, or if he even had any family, who might be able to shed light on this. So if you know anything about Benson Herbert or have any issues of his periodical, please contact the editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com).
10. **Does anyone have video tapes of the presentations that Andrija Puharich made at the 1982 US Psychotronics Association Conference?** The title of Dr. Puharich's first presentation was: "Chemical Compounds: Receptors of Artificial ELF", and was sold for a period of time on the USPA website with this title and catalog number F6.  
The second presentation that Dr. Puharich made at the 1982 USPA Conference was the Keynote Address at the Awards banquet. The Title of this presentation was "Kindling + 1" and had catalog number F7. If anyone has either or both of these tapes, please contact the editor, John Reed at: [joreed43@gmail.com](mailto:joreed43@gmail.com).
- Andrija Puharich, Chemical Compounds: Receptors of Artificial ELF (1982) F6**
- Andrija Puharich, Keynote Speaker:, Kindling +1; Awards Banquet (1982) F7**

# [Integrity Research Institute](#) Launches [IndieGoGo.com](#) Campaign for a [Spiral-Design Permanent Magnet Motor](#) to Enable Electric Car Charging

by Tom Valone, Ph.D.



Humans always use gasoline, coal, or natural gas to power any motor! Instead, imagine our Magnetic Microturbine onboard to charge an electric vehicle, with no external connection. Yes, a magnetic gradient has been implemented into a permanent magnet motoring cycle. Now we add a proper choice of a magnetic switch. This Spiral Magnetic Motor is designed to provide mechanical drive for electrical power. Peer-reviewed, online -> <https://tinyurl.com/SMMslides> or <https://tinyurl.com/SMMpaper>

## Short Summary

Back in 1980, I saw a Faraday disk **homopolar generator** that Bruce DePalma built in California and then came back all excited to SUNY at Buffalo where I was a grad student. My thesis advisor, Professor Jonathan Reichert accepted my proposal to build one and test it for "back torque" to fulfill the requirements for a Master's Degree in physics, as long as an electrical engineering professor was also on my thesis committee.

Ever since then, magnetism has been a real passion of mine in the search for free energy. Spinning electrons (which by the way, never slow down) cause permanent magnetism, so in a real sense, the quantum vacuum's angular momentum (from **zero point energy**) is giving us a gift which we humans should use, even as Nikola Tesla said (my subsequent book, **The Homopolar Handbook**, has Tesla's article on the homopolar generator). With the present Spiral Magnetic Motor (SMM) Project, our all-volunteer staffed, 501(c)3 nonprofit research institute is excited to apply a simple energy harvesting, low level flexible solar to power piezo actuators for the stator's magnetic "switcher" or "alternator".

Then, as my published journal paper explains, use zero power magnetostrictive-piezoelectric (MS-PZT) actuators with Wiegand wire bundles, and Prof. Laithwaite's "favorable hysteresis" metal plate, or even Polymagnets to further solve the mag-switch commutation issue. For the first time in history, a self-sustaining permanent magnet

motor will at least be triggered by energy harvesting with low risk, high payback and off-the-shelf parts, to charge electric vehicles *even while they travel*. Textbooks prove that societies fail if more concentrated energy is not available as they grow in population. With the latest Nature and MIT journals predicting +5C by 2100 and 50% more people worldwide by 2050, we all need this magnetic energy revolution as soon as possible. I also have learned that years ago, Bulgarian mystic Baba Vanga predicted that in 2018 a "new form of energy" will be discovered, which is probably the use of the magnetic gradient in our SMM. Check out my journal paper and conference slideshow for scientific details on how this clean energy generator can be engineered this year at <https://tinyurl.com/SpiralMagMotor> and why it is so necessary to accelerate its development and commercial production. I thought that simply publishing all of the secrets to make such a self-powered motor would be enough to bring it to market but it is now apparent that this fundraiser is necessary for our research institute to do the work ourselves. Your help in any way will be deeply appreciated, not only by us but by the countless millions who will be freed from the utility infrastructures that third world countries have trouble building and maintaining. Need we mention that today, 50% of Puerto Rican residents (1.5 million) still have no electricity 100 days after Hurricane Maria? Distributed power is our future, our right, our privilege, our destiny.

## What We Need & What You Get

- We need a minimum of \$25,000 to rent a separate office that just became available last month in the Sunnyside Building here in Beltsville MD where the IRI office and lab are located to set up parallel test stations for every viable model, use available data acquisition for optimizing the various mag-switching protocols, build larger prototypes as the one-year time frame permits, and assign a volunteer technician to assist with the assembly and testing.
- Our unique perks are various levels of membership in IRI besides unique product offerings. We always provide gift books, CDs, DVDs, and quarterly newsletters on the best, cutting edge, emerging energy, propulsion, and bioenergetics to our members!
- If we don't reach our entire goal, we will still go ahead with the one-year project with any amount of funds raised over \$5,000 (one-year's rent) to bring about one or more working permanent Spiral Magnet Motors as possible.

## The Impact

The difference that your contribution will make:

- Our project is extremely valuable to every contributor and to the world because the only way humans will quickly drop fossil fuel CO2 producers is to be offered a superior product at a lower cost that does not pollute AND also produces better performance than the previous product. Billionaire entrepreneur Vinod Kholsa taught us this principle

when I attended an invitation-only event in Texas years ago, sponsored by would-you-believe Shell Oil Company.

- I have directed more than one research facility in the past. I also have a successful track record with recent projects like this and my inventions are online at [www.BioenergyDevice.org](http://www.BioenergyDevice.org) and [www.OsteoPad.org](http://www.OsteoPad.org) besides the ones from my former company that have already been sold such as an entire electronic test instrumentation line to a former chief engineer of mine who formed his own company which still exists to this day: [www.IntegrityDesign.com](http://www.IntegrityDesign.com) .
- Rather than working on more marketable products for health, as mentioned above, I am convinced of the urgency and long-felt need for a clean, self-sustaining energy source and my capability of leading such an endeavor. Many sci-fi movies and science books have shown the extreme value for such a "disruptive" breakthrough and even one calls it a "wild card."

## Risks & Challenges

I'm happy to provide insight into the risks and obstacles we may face on the way to achieving our goal. This is really a low risk and high payback project. The only obstacle is actually the primary goal of avoiding ALL external energy input to overcome the magnetic switching. Our plan for solving these challenges is to start with a proof-of-principle small low light flexible solar panel to power the piezo actuator, both of which we have on the shelf. The plan is then to proceed with confidence in testing the various alternatives for magnetic switching to achieve the same or better performance as in the first model. I used to be a Director of R & D at Scott Aviation years ago and worked most of twenty years at the USPTO in the Test and Measurement, Instrumentation (Class 324) area, so I have seen, researched, and evaluated a lot of technologies with an engineering perspective.

## Other Ways You Can Help

If you cannot contribute, you folks can still help get the word out and make some noise about our campaign. Our government is choosing not to develop clean energy, even with dire climate changes happening around us, so private industry, individual states, nonprofit research institutes, and ambitious, courageous people have to take the ball and run with it to the finish line. Use the Indiegogo share tools to help us meet our goal!

## **Among the Missing, (and Updates): A Column about Missing People, Organizations, Periodicals, Books, Artifacts, and Collections**

by John H. Reed, M.D

This is a new “column” or section of the WISE Journal, and will be an ongoing part of every issue, with the purpose of helping WISE, as well as, our members and research associates locate people, organizations, periodicals, books, artifacts, collections, and other items that have seemingly disappeared, or have been extremely difficult to find. **Updates will be added, and each missing item will be retained in future issues until it is found or otherwise resolved, since some readers may not have seen prior issues of the WISE Journal or the original notice of the missing item.**

In addition, this will also serve as a “People Locator Service” to help find authors and researchers on alternative and complementary medicine, subtle energies, energy medicine, consciousness, scientific mysteries and related subjects, who have “disappeared” or have died long ago, and whose relatives you may be trying to find in order to preserve the research papers and collection of that person.

In our research and reading, we all have encountered people, organizations, periodicals, books, articles, or other things that we have tried to find, and some people have searched for years to find something, but have not yet found it, despite the vast resources of the Internet. However, with our large WISE membership, we can all help one another find what we have been searching for. Some of you may have experience in genealogical research, or private investigation, law enforcement, or even intelligence work which you could utilize to help each other, or perhaps just make suggestions on how or where to search for something.

So if there is anything you have been searching for and need help to find, please write to me, John H. Reed, M.D. at: [joreed43@gmail.com](mailto:joreed43@gmail.com), and I will include your search help request in the next and subsequent issues of the WISE Journal. And if you have any information about an item that is listed in “**Among the Missing**”, please write to the same email address and share what you know or your suggestions. If there is something that is confidential, your confidentiality request will be honored and protected.

### **Missing Chapters of a CIA Government Document on Parapsychology**

You may have noticed when you read the article, “Chronology of Recent Interest in Exceptional Functions of the Human Body [Parapsychology] in the People’s Republic of China” that this chronology was Chapter 11, beginning on page 403, of a much larger publication. So the question arises: Where is the rest of that

publication? And how many chapters and pages beyond page 403 did this document extend?

It certainly would be very interesting to know what the larger document is all about, and we would like to obtain a copy of it. The chronology suggests it is about parapsychology research in China. But this may be only part of it. If anyone happens to have ever seen this larger document, or better yet, has a copy of it, please contact the editor: John Reed at: [joreed43@gmail.com](mailto:joreed43@gmail.com).

### **Missing Device: Marcel Vogel's Omega-1 Radionics Instrument**

In a 1987 meeting presentation, [YouTube Video, available here, beginning about 4:20](#), Marcel Vogel states that he had been trying to find a way by which he could measure the subtle energies and fields in the crystals he was working with, and that he prayed to God to give him an instrument to make such measurements. Marcel says that about two months later, a man named Daniel Perkins, apparently guided by higher forces to build such an instrument, came to Marcel's door and said, "Here is your instrument, the Omega-1. You will know how to use it," and walked away. **But where is that particular Omega-1, and were any other Omega-1 instruments built?** It is known that other Omega models of radionics instruments were produced, especially Omega-5 instruments, but it is not known if the company that built them still exists. **In addition, does anyone know who Daniel Perkins is, and where he is located?** I read in another source that the delivering man's name was Lou Perkins, but is doubtful that Marcel would have not remembered the correct name. Perhaps Lou may have been a relative of Daniel Perkins, or may have been involved in some other way. Anyone who can shed light on this mystery, please write to the editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com).

### **Missing and Mysterious Stone: The "Swedish Stone" of T. Henry Moray's "Free Energy" Device:**

**Has anyone done any research on what the substance called "Swedish Stone" is that T. Henry Moray used in the 1920s to extract energy from cosmic rays and produce electricity?** According to Moray's original diaries, he discovered the stone somewhere near the city of Abisco, Sweden, in 1913 when he was there doing his overseas Mormon missionary service. He brought the stone back to the US and subsequently created a device using the stone to produce electricity in much the same way that silicon is used to produce electricity when struck by light. However, the Swedish stone used in Moray's device apparently had the particular molecular and/or

crystalline structure such that it would produce electricity when struck with **cosmic rays**, which constantly strike the earth. And since cosmic rays are an electromagnetic wave with much higher energy than light, which is also an electromagnetic wave, Moray's device produced a great deal more electricity than any current silicon based devices of similar size.

Since cosmic rays flood the universe, clearly such a device could provide essentially free electrical power anywhere on earth or anywhere else in the universe. Some have hypothesized that the Swedish stone was a radioactive substance, whose radioactivity was used to produce the electricity. However, others believe that the Swedish stone was not radioactive, but just happened to have the particular structure necessary to convert cosmic rays to electricity. Theoretically there are substances like silicon, only of a different structure, that will convert each of the electromagnetic wave frequencies to electricity, and perhaps Moray just accidentally discovered the substance that would do this with cosmic waves. **Please contact the editor if you have any information about this "Swedish Stone" substance: [joreed43@gmail.com](mailto:joreed43@gmail.com)**

## **Missing Museums:**

**The Borderland Sciences Research Association Museum:** It is hard to imagine that an entire museum could disappear, but that may be what has happened to the Borderland Sciences Research Association (BSRA) Museum. The BSRA was founded in 1945 by Meade Layne, and included researchers on advanced and esoteric technology that included radionics, anti-gravity, "free" and new energy sources, Tesla technology, and advanced technology of all kinds. A number of other astonishing films were made during this time, but never released. The BSRA was active until about 2004, when it apparently became inactive as a membership organization, although its website was still maintained. The last and current director of the BSRA is James Borges of Eureka, California.

That BSRA had a museum in which many devices were housed, including Drown machines, Hieronymus machines, and the UKACO devices. All of this is detailed in a Youtube video series with 24 parts that details what was in the Museum. [Part One details all the devices](#), which you can see here. Many of these devices were reproduced by Michael Knox, Peter Lindemann, Tom Brown, and Eric Dollard, who in 1987 had founded the Borderland Labs. It is currently not known where the museum or its artifacts are located, or if the museum even exists or its contents dissipated. I have been trying to call James Borges at the last number I knew him at: [707-497-6911](tel:707-497-6911), which is also listed on his website, but nobody ever answers. **If you have any information about the BSRA Museum, or any of the devices or other artifacts that it housed, please contact me at: [joreed43@gmail.com](mailto:joreed43@gmail.com).**



## Missing People, and Updates:

Does anyone have any information on the current whereabouts of the following people, or family members, if the person is known to have passed away, or where they passed away? Please check Ancestry.com, social media websites, newspaper archives, and any university or public library databases you have access to with which you can help find these people or their relatives:

### US Psychotronics Association Associated People

We are trying to track down some of the early directors, officers, and researchers associated with the United States Psychotronics Association (USPA), after it was organized in 1975.

1. **Paul Sauvin**, USPA 2<sup>nd</sup> Vice Pres., 1976 and 1<sup>st</sup> Vice Pres., 1977. Paul Sauvin, whose full name is Pierre Paul Sauvin, is/was an electrical engineer and inventor who, [according to one source](#), worked in the aerospace industry and later with the National Institute for Rehabilitation Engineering at St. Joseph's Hospital in Paterson, NJ. He also worked with Dr. Carl Schleicher, head of Mankind Research Unlimited, and helped develop a device called the "[AGRAD Machine](#)". This device was designed to control crop insects, and was introduced on an experimental basis, although it is not known if it ever reached commercial production. Paul Sauvin's mother was Edith Sauvin, who lived in White Plains, NY, and died August 25th, 1987. Edith's only child was Pierre Paul Sauvin, who himself had 2 sons, Alan Paul Sauvin and Steven Eric Sauvin. He also had one daughter, Jane Elizabeth Sauvin. Any help in locating the children of Paul Sauvin would be greatly appreciated, and please write to [joreed43@gmail.com](mailto:joreed43@gmail.com).
2. **Dr. Marcel Vogel and his Research Papers:** Does anyone know what became of the papers and files of Dr. Marcel Vogel, who died in 1991? Dr. Vogel did extensive research on crystals and crystal healing, pyramid power, the "Backster Effect" involving plants and their bioenergetic fields, and a number of other psychotronics related subjects. He also spoke numerous times at USPA conferences. Marcel Vogel worked at IBM for 27 years and had 32 patents. If you have any knowledge about Marcel Vogel and what became of his papers and files after he died, please write to your editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com). WISE would like to make sure that all of his papers are preserved.

## Missing Organizations:

1. **International Association for Psychotronic Research (IAPR):** Does anyone know what became of the International Association for Psychotronic Research? And do any of you have copies of its meeting proceedings or newsletter, if such a newsletter were published? It was founded in 1973, even before the United States Psychotronics Association (USPA), which was founded in 1975. However, the current location or activities of the IAPR are unknown.

The IAPR held numerous international conferences around the world, beginning with its first in 1974 in Prague, then Czechoslovakia. At this conference, Dr. Zdenek Rejdak was elected president for the Eastern Division of the IAPR, and Dr. Stanley Krippner was elected president for the West. The 8th International Conference on Psychotronic Research was held in Milwaukee, Wisconsin, 1993, as a joint conference with the United States Psychotronics Association (USPA), but it is unknown if any subsequent conferences of the IAPR were held.

Proceedings of each of these conferences were published. If any of you have copies of these proceedings, or any newsletters, we would greatly appreciate it if you would loan us or donate copies for the library. If you have any knowledge about this organization, please write to the editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com)

2. **International Radionics Association (IRA):** Does anyone know anything about the International Radionics Association (IRA), which was located in Springfield, Missouri in the late 1940s. This is known, because a book called *The Truth about Radionics* was published in 1947 by this organization, and although the author's name is anonymous, it is highly probable that the author was T. Galen Hieronymus, who passed away many years ago.

I checked several newspaper databases, and references to this organization were found in the press as far back as the early 1930s, and as late as the early 1960s, but nothing more recent than that. If you have any knowledge about this organization, please write to the editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com)

## Missing Periodicals:

1. **British Journal of Radiesthesia and Radionics:** Does anyone have any issues of *The British Journal of Radiesthesia and Radionics*. It was published in London, England, by the British Radiesthesia Association, 1953-1963. The original title was *British Journal of Radiesthesia*, published from 1953-1957. No libraries in the United States, public or university, have this journal in their collection., and only five libraries elsewhere in the world are known to have any issues at all: The British Museum Library (AKA The British Library), Oxford, Cambridge, the National Library of Scotland, and Trinity College Library, in Dublin Ireland. If you

have any issues of this periodical, will you please let me know? And for our members and associates in The UK and Ireland, if you can access these periodicals at any of the above libraries, you would do a huge service for all of us if you would Xerox what issues are available and send them to me. A generous donor has offered to pay whatever expenses are involved for doing this service. We will add them to the WISE Library and make them available to researchers. Please contact the editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com).

## **Missing Person and Periodical: William Reid, Editor of the Journal of Scientific Controversy**

We are trying to find William Reid, or his surviving family, who lived in the Boulder, Colorado, area in the 1960s and edited a periodical called “**Journal of Scientific Controversy.**”

Mr. Reid had placed an advertisement in a 1963 issue of **Analog Science Fiction and Fact** (ASFF) stating that the first issue of the **Journal of Scientific Controversy** would be published in the second quarter of 1963. The advertisement showed William Reid as the editor, **with the address: P.O. Box 855, Boulder, Colorado.** (There was no zip code at that time.)

However, it is uncertain how many issues, if any, were ever published of this periodical. It is not found in any public, government, or university library in the world, including the Library of Congress or British Library. But many periodicals on controversial subjects are not held by such libraries, so this is not entirely surprising.

**If any of you know, or once knew, a person by the name of William Reid, who lived in the Boulder, Colorado, area in the 1960s, please write to the editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com). Many of you are family tree and genealogy researchers, so even if you have never heard of this man, perhaps you would be kind enough to check your genealogy resources to help locate him or his family.**

## Missing Books:

Rhea White and Larissa Vilenskaya wrote a book titled **Parapsychology in the Soviet Union, Eastern Europe, and China: A Compendium of Information**. It was supposedly published by Scarecrow Press of Metuchen, NJ, a well know publisher of reference books. This book was listed as reference work [#680 on page 213 of Rhea White's book, Parapsychology: New Sources of Information, 1973-1989](#) , also published by Scarecrow Press. I called the publisher, and they said they have never published this book, and know nothing about it. As you can see from entry #680, Rhea White noted that this book was “in press”, so it may have been in a preparation stage, but the manuscript may never have been sent to Scarecrow Press.

Again, I have searched the WorldCat, which shows books and monograph holdings of virtually every public and university library in the United States and Canada, and many of the large libraries in the UK and elsewhere in the world. But this book title does not exist in the WorldCat database, which indicates that this book is not held in any library, even special collections, which are also included in WorldCat. Unfortunately, I was unable to ask either of the authors about this, since both have passed away. Rhea White was a well known parapsychology researcher, so some of you may have known her or heard her speak of the missing book manuscript that she was working on. Larissa Vilenskaya was from Russia, but lived and worked in the San Francisco area, and she was a prolific researcher on Russian and Eastern European psychotronics research. Please write to your editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com) if you have any information about this at all.

## The WISE Membership Cash Rewards Program

The [World Institute for Scientific Exploration \(WISE\)](#), has establishment a “Membership Cash Rewards Program”, which will add to [the many other benefits provided to WISE members](#). With this program **all WISE members can now earn extra money for themselves, or their local branch or chapter of WISE, because for every new WISE member you recruit to WISE as a paying member, you will be paid a 33% cash reward.**

**Since the WISE international membership annual fee is US\$75.00, you will get US\$25.00 for each paying member you recruit.** And the great thing about it is that you will continue to get the US\$25.00, each year that the person you recruited remains a member of WISE. (For students, the cash reward is US\$12.00, since the student membership fee is \$35.00). And even if you are not interested in earning extra money, **all you have to do is recruit three new WISE members, and the cost of you own membership will be paid for.**

**But the cash rewards can only be earned by current WISE members.**

Many of the approximately 20,000 people who receive the WISE Journal are not yet official members of WISE, [so hurry and register your WISE membership online now, here](#), so you can begin taking advantage of this great WISE membership benefit.

You may recruit as many new members as you want, and you may use any form of print or broadcast media, as well as, Facebook, Twitter, LinkedIn, blogs, text messages, postings to discussion groups, mailing lists, and other social networking services. [The online WISE membership registration form](#) requires the name and email address of the person who recruited them, so that way we will know who is to receive the cash reward. So be sure to remind the person you are recruiting to put in your name and email address.

In addition, **you may also recruit WISE members by distributing the attractive WISE Promotional Handout at meetings and conferences you attend, or you can send it to people by email, put it on your Facebook page, etc..** You will receive cash rewards for every person who joins WISE and names you as the recruiter. [This handout is a Word document available online, here](#), so just download the Handout, add your name and contact information to the bottom of the document, print as many as you want, and hand them out, or put them on one of the tables for such items, usually near the entrance to meeting lecture halls. Or you can send them by email, put on Facebook, LinkedIn, and other social media sites.

## **WISE Journal Display and Classified Advertising Policies and Rates**

**We are happy to announce** that beginning with the Summer, 2017, issue of WISE Journal, we are offering color or black and white display advertisement as full-page, half-page, quarter page, one third page, and other sizes. In addition, we will have pages for smaller classified advertisements.

**The WISE Journal is published quarterly for each of the four seasons, and the deadline for any advertisement to be included in a given issue is the beginning of each season: Spring, March 21; Summer, June 21; Autumn, September 21; Winter, December 21; All advertisements are subject to approval by WISE.**

These advertisements may be on any subject related to those that the [World Institute for Scientific Exploration \(WISE\)](#) investigates, such as complementary, integrative, and traditional medicine therapies, especially electrotherapy and energy medicine, new forms of energy, consciousness, scientific anomalies, or those subjects mentioned in the 30 Research Divisions noted on the right side of the [WISE home page](#).

**The advertising rates will be as follows until further notice:**

**Display Advertisements, Color or Black & White (rates the same)**

**Full Page: \$500.00; Half page: \$250.00; Third page: \$168.00;  
Quarter page: \$125.00; Sixth page: \$88.00; Eighth page: \$62.50;  
Other sizes: Write for quotes.  
Classified Advertisements: 20 cents per word.**

**This journal goes out to around 20,000 people each quarter, and these rates are substantially less than the rates charged by hard copy periodicals covering similar subjects, but with fewer subscribers and/or readers.** Advertising in WISE Journal is also wiser than advertising in such hard copy periodicals, because in each advertisement, you can put in a link directly to your product or service that a reader can click on. Therefore the reader avoids having to email, call, write by snail mail, or copy down the advertiser's website address and put it in his web browser to reach the advertiser to get to your website and what you are advertising.

Please send copies of your advertisements as Word documents, PDFs, or JPGs to the WISE Journal editor at: [joreed43@gmail.com](mailto:joreed43@gmail.com), or to the address below and send checks or money orders made payable to:

World Institute for Scientific Exploration (WISE)  
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Baltimore, MD 21210  
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# The 2018 Society for Scientific Exploration (SSE) Conference

The 37th annual SSE Conference will take place **June 6-10, 2018**,  
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## Conference Theme: Applications of Edge Science

Invited Speakers:

Hal Puthoff: The Department of Defense Unidentified Aerial Phenomena Program:  
The Back Story, The Forward Story

Mark Urban-Lurain: Astrology: Science, Pseudoscience, or Anomaly?

Beverly Rubik: Detectors to Measure Aspects of the Human Biofield

Mikey Siegel: The Science and Technology of Human Connection

Bernard Beitman: Connecting with Coincidence: From Protoscience to Life Coach

Joe Gallenberger: Using the Casino as a PK Classroom

Janet Mitchell: Is There a Physical Component to ESP Interactions at a Distance?

**For registration, full schedule, and hotel reservations, go to:**  
**<http://www.scientificexploration.org/2018-conference>**





## [Energy Science & Technology Conference \(ESTC\)](#)

**July, 5,6,7 & 8 2018**

**Hayden, Idaho USA**

Aaron Murakami (left) has announced that the 2018 Energy Science & Technology Conference (ESTC) will be held in Hayden, Idaho, July 5-8, 2018. Numerous

internationally known researchers will be making presentations and demonstrations of their devices. [Their bios and presentation topics are available here.](#)

The ESTC is a movement of thought leaders working together for energy independence through a network of visionaries, inventors, scientists, academics, hobbyists, laymen, and authentic grassroots supporters. [You can pre-register for this conference here.](#)

To enable this transition to true energy independence, it requires an evolutionary transformation in the very paradigm of how mankind looks at energy and this requires a critical mass of people all across the world to hold this common vision.

ESTC provides the platform through which the current paradigm of energy physics is being shaken to its core by actual demonstrations of technologies that overturn the antiquated beliefs that have allowed us to be kept in bondage by the purveyors of consumable energy products.

The knowledge gained at ESTC is key to the building of a sustainable world rooted in the proven physics of abundance, which will allow us to be free and independent. The opportunity to be empowered by this is offered to those who have an openness to learn a better way.

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# 2018 ExtraOrdinary Technology Conference

Albuquerque, NM --§-- Aug 8 - 12

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- Robert Golka
- Wil Spencer
- Dr Kathleen Rosenblatt
- George Wiseman
- Dr Kiril Chukanov
- Moray King
- Walt Jenkins
- Jere Rivera-Dugenio, PhD
- Dr. Kathy J Forti
- Teresa Helgeson
- Robert M. Haralick
- Dr. Thorsten Ludwig
- Russel Anderson
- Larry Deavenport
- Brian David Andersen
- Donald Reed
- Suzanne Price
- Mike Gamble
- Glen Rein, PhD
- William Alek BSEE
- Thomas Valone PhD
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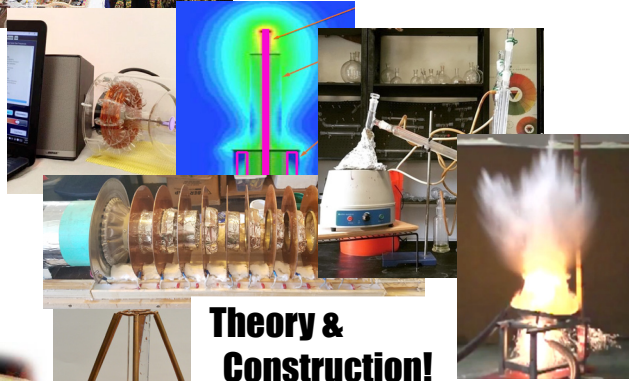


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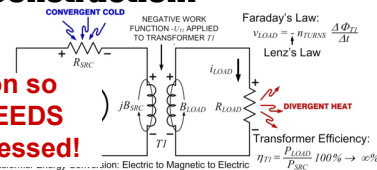


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# 2018 ExtraOrdinary Technology Conference

Crowne Plaza • Albuquerque, NM • August 8 - 12, 2018

TeslaTech, LLC reserves the right to make changes to this schedule without notice.

## Wednesday • Aug 8

### Session 1 (Evening) • An ExtraOrdinary Revelation

5:00PM: **Robert Golka** - *Project Tesla ...and Beyond*

8:00PM: *Conference Evening Social*

## Thursday • Aug 9

### Session 2 (Morning) • ExtraOrdinary Health Devices

8:00AM: **Wil Spencer** - *CyberScan: Future of Vibrational Medicine*

9:30AM: **Dr Kathleen Rosenblatt** - *Healing the Human Electromagnetic Body*

11:00AM: **George Wiseman** - *Using Brown's Gas to Fight Disease!*

### Session 3 (Afternoon) • ExtraOrdinary Plasma Technology

1:00PM: **Dr Kiril Chukanov** - *Ball Lightning – Low Energy Nuclear Reaction*

2:30PM: **Moray King** - *Water Vortex: Key to New Energy*

4:00PM: **Walt Jenkins** - *The H2G Black Box WILL Change The World!!!*

### Session 4 (Evening)

7:00PM: **Jere Rivera-Dugenio, PhD** - *Scalar Crystalline Therapy Reverses Disease*

8:30PM: *Conference Evening Social*

## Friday • Aug 10

### Session 5 (Morning) • ExtraOrdinary Health Concepts

8:00AM: **Dr. Kathy J. Forti** - *Trinifinity8: Mathematical Algorithms Used For Healing*

9:30AM: **Teresa Helgeson** - *Plant Music Therapy and it's Effects on Body, Mind & Spirit*

11:00AM: **Robert M. Haralick** - *Measuring Magnetically Treated Water*

### Session 6 (Afternoon) • ExtraOrdinary Electrostatic Technology

1:00PM: **Dr. Thorsten Ludwig** - *Harnessing Zero Point Energy*

2:30PM: **Russel Anderson** - *Electrostatics: Advanced Tech For Land, Sea, & Aerospace*

4:00PM: **Larry Deavenport** - *Townsend Brown's Turbofan Electrostatic Generator*

### Session 7 (Evening)

7:00PM: **Brian David Andersen** - *NOA Inflammation Detection & Release*

8:30PM: *Conference Evening Social*

## Saturday • Aug 11

### Session 8 (Morning) • Tesla's ExtraOrdinary Concepts...

8:00AM: **Donald Reed** - *Scalar Electrodynamics: Patents, Experiments, and Research*

9:30AM: **Suzanne Price** - *NanoCrystal Electricity Technology*

11:00AM: **Mike Gamble** - *Nikola Tesla's Electric Car Power Supply - 2018*

### Session 9 (Afternoon) • ExtraOrdinary Quantum Technology

1:00PM: **Vendors** - *Vendor Showcase*

2:30PM: **Glen Rein, PhD** - *Quantum Information Storage In Water*

4:00PM: **William Alek BSEE** - *Quantum Tunneling in Electric Circuits*

### Session 10 (Evening)

7:00PM: **Thomas Valone PhD** - *Manelas Device...Vacuum Energy via Nanotechnology*

8:30PM: *Conference Evening Social*

## Sunday • Aug 12

### Session 11 (Morning) • ExtraOrdinary Physics Concepts

8:00AM: **James Sorenson** - *The Kaal Structured Atom Model*

9:30AM: **Avery Hopkins** - *Metallic Alchemy & the Oil of Gold*

11:00AM: **Karen Elkins** - *The Law of the Triangles...*

Pre Conference Workshop  
**Wednesday Afternoon**  
Aug 8 -- 1PM  
**High Voltage Power Supplies**  
Larry Deavenport

**DVDs Will Be Available After Conference!**

# Biogeometry

*Dr. Ibrahim Karim*

## UPCOMING BIOGEOMETRY EVENTS & TRAININGS

BioGeometry trainings are offered in two levels: [Foundation Training Level](#) & [Advanced Training Level](#), as part of the BioGeometry personal development curriculum. Kindly note that trainings are independently organized by Certified BioGeometry Instructors, and listed on our website. Students will receive a certificate of attendance with the completion of the Foundation Training Level & the Advanced Training Level. The BioGeometry Foundation Training is a pre-requisite for the Advanced Training. After completing the Advanced Training, students are eligible to apply to the [BioGeometry Environmental Home Solutions \(BG-EHS\) Independent Licensed Practitioner Program](#).

### Upcoming Training by Level:

- [Foundation Levels \(1-3\)](#)
- [Advanced Levels \(4-6\)](#)
- [BioGeometry Environmental Home Solutions \(BG-EHS\) Prep Workshops](#)
- [BG Environmental Home Solutions Practitioner](#)
- [Workshops and Lectures](#)

### Foundation Level Training (Levels 1-3)

#### **May 26 - 27, 2018 - Hong Kong**

Level 1 of 3 of BioGeometry Foundation Training taught by Dr. James Wong

#### **Level 2 of 3: 28-29 July 2018**

#### **Level 3 of 3: 25-26 August 2018**

To register please contact For WhatsApp Sunday Fong at +852-93171358

[email: sundayfong@gmail.com](mailto:sundayfong@gmail.com), or WhatsApp Esther Choy at +852 96330307, email:

[estherchoy@netvigator.com](mailto:estherchoy@netvigator.com) for more details

Time: 10am-5pm

#### **June 28 - July 3, 2018 - Kuala Lumpur, Malaysia**

BioGeometry Foundation Training taught by Doreya Karim

[Register Online](#)

Location: PAUM Clubhouse (Persatuan Alumni University Malaya) Lot 10476, Jalan Susur Damansara (Jalan Damansara Lama), Off Jalan Gegambir, 50480 Kuala Lumpur, Malaysia.

**July 14 - 19, 2018 Asheville, NC, USA**

BioGeometry Foundation Training taught by Dr. Robert Gilbert

[Register Online](#)

Followed by the Advanced training from July 21-25 (link and info. below)

**August 02-07, 2018 Wiggensbach, Germany**

BioGeometry Foundation Training taught by Kris Attard

Contact Claudia Schembri-Heitmann +49 (0)8370 929421 / [balance@bodytalksystem.net](mailto:balance@bodytalksystem.net)

**October 25 - 3, 2018 - Maadi, Cairo, Egypt**

BioGeometry Foundation Training taught by Zeinab Hamdy

Language: Arabic

To register please contact Ms. Zeinab Hamdy at [biogeometrycentera@hotmail.com](mailto:biogeometrycentera@hotmail.com) or (+20) 2 2359 4556

**November 7- 12, 2018, Singapore**

BioGeometry Foundation Training taught by Doreya Karim

For information please contact: Whatsapp us: Cynthia Teo +65-96343777 / Helen Ong +65-82233844

Or email us : [bginsingapore@gmail.com](mailto:bginsingapore@gmail.com)

[Register Online](#)

**November 8 - 13, 2018 Kapelle op-den Bos (Koningsteen), Belgium**

BioGeometry Foundation Training taught by Kris Attard

To register for this course please contact Chantal Remmerie at email [chantalk@telenet.be](mailto:chantalk@telenet.be) or +32 (0)476207646

**Nov 17 - 22, 2018 - Taiwan**

BioGeometry Foundation Training taught by Doreya Karim

Language: English with Mandarin Translator

[Register Online](#)

Venue: IEAT Center: No350 Song Jiang Road, Taipei, Taiwan

**January 6- 11, 2019 - Pune, India**

BioGeometry Foundation Training taught by Doreya Karim

Language: English

[Register Online](#)

Venue: [www.prithwe.com](http://www.prithwe.com); Prithwe Learning Center. Koregaon Park, Pune 411001

**Advanced Level Training (Levels 4-6)**

**Prerequisite: BioGeometry Foundation Training**

**June 21 - 26, 2018 - Singapore**

BioGeometry Advanced Training taught by Doreya Karim

[Register Online](#)

Time: 10am-5pm

**July 4 - 9, 2018 - Italy**

BioGeometry Advanced Training taught by Kris Attard

Language: Italian, Venue: Casa La Salle, Via Aurelia, 472, 00165 Roma RM, Italy

To register for this course please

contact: [Contact@biogeometryeurope.com](mailto:Contact@biogeometryeurope.com) or [Graziella@biogeometryeurope.com](mailto:Graziella@biogeometryeurope.com)

**July 21 - 25, 2018 Asheville, NC, USA**

BioGeometry Advanced Training taught by Dr. Robert Gilbert

[Register Online](#)

**September 24 - 28, 2018 - Evanston (Chicago), IL, USA**

BioGeometry Advanced Training taught by Doreya Karim

[Register Online](#)

**September 22-27, 2018, Athens, Greece**

BioGeometry Advanced Training taught by Kris Attard

Contact Linda Giannacopoulos +41 76 324 / [linda\\_qianna@hotmail.com](mailto:linda_qianna@hotmail.com)

**November 22 - December 1, 2018, Maadi, Cairo, Egypt**

BioGeometry Advanced Training taught by Zeinab Hamdy

Language: Arabic

To register please contact Ms. Zeinab Hamdy at [biogeometrycentera@hotmail.com](mailto:biogeometrycentera@hotmail.com) or (+20) 2 2359 4556

## **BioGeometry Environmental Home Solutions (BG-EHS) Prep Workshops**

**Prerequisite: Advanced Training**

**May 5-8, 2018, Asheville, North Carolina**

Combined offering of the 2-day BG-EHS Applied Skills Prep Workshop (ASPW) and 2-day Gridline & BG3 PowerSpot Mapping Prep Workshop (GPSMW) taught by Sayed Karim

[Registration Link](#)

**May 12-15, 2018, Asheville, North Carolina**

Combined offering of the 2-day BG-EHS Applied Skills Prep Workshop (ASPW) and 2-day Gridline & BG3 PowerSpot Mapping Prep Workshop (GPSMW) taught by Sayed Karim

[Registration Link](#)

**July 24-25, 2018, Silicon Valley, California**

BG-EHS Applied Skills Prep Workshop (ASPW) taught by Sayed Karim

To register please contact Pei Lin ([peilin\\_ca@yahoo.com](mailto:peilin_ca@yahoo.com)) or Jan Walsh ([anewviewbyjanwalsh@gmail.com](mailto:anewviewbyjanwalsh@gmail.com))

**July 26-27, 2018, Silicon Valley, California**

BG-EHS Gridline & BG3 PowerSpot Mapping Prep Workshop (GPSMW) taught by Sayed Karim  
To register please contact Pei Lin ([peilin\\_ca@yahoo.com](mailto:peilin_ca@yahoo.com)) or Jan Walsh  
([anewviewbyjanwalsh@gmail.com](mailto:anewviewbyjanwalsh@gmail.com))

**Aug 18-19, 2018, Geneva, Switzerland**

BG-EHS Applied Skills Prep Workshop (ASPW) taught by Sayed Karim  
To register for this course please contact Graziella Zanoletti: [graziella@biogeometryeurope.com](mailto:graziella@biogeometryeurope.com)

**Aug 20-21, 2018, Geneva, Switzerland**

BG-EHS Gridline & BG3 PowerSpot Mapping Prep Workshop (GPSMW) taught by Sayed Karim  
To register for this course please contact Graziella Zanoletti: [graziella@biogeometryeurope.com](mailto:graziella@biogeometryeurope.com)

**Upcoming Events in Asia:**

**Singapore:**

Details coming soon! For more info, please contact [bginsingapore@gmail.com](mailto:bginsingapore@gmail.com)

**Taiwan:**

Details coming soon! For more info, please contact [info@bgmoment.com](mailto:info@bgmoment.com)

**Hong Kong:**

Details coming soon! For more info, please contact [info@bgmoment.com](mailto:info@bgmoment.com)

**BioGeometry Environmental Home Solutions (BG-EHS)  
Independent Licensed Practitioner Training  
Prerequisite: BG-EHS Applied Skills Workshop / Gridline & BG3 PowerSpot  
Mapping Prep Workshop**

**May 9-10, 2018, Asheville, North Carolina**

BioGeometry Env. Home Solutions (BG-EHS) Independent Licensed Practitioner Training taught by  
Sayed Karim  
[Registration Link](#)

**May 16-19, 2018, Asheville, North Carolina\*\***

BioGeometry Env. Home Solutions (BG-EHS) Independent Licensed Practitioner Training taught by  
Sayed Karim  
[Registration Link](#)

\*\* All students will attend the first day together on May 16th, and then will be staggered into smaller  
groups of 4 for the second (applied) day of the training

**July 28-31, 2018, Silicon Valley, California\*\***

BioGeometry Env. Home Solutions (BG-EHS) Independent Licensed Practitioner Training taught by  
Sayed Karim

\*\*All students will attend the first day together on July 28th, and then will be staggered into smaller groups of 4 for the second (applied) day of the training

To register please contact Pei Lin ([peilin\\_ca@yahoo.com](mailto:peilin_ca@yahoo.com)) or Jan Walsh ([anewviewbyjanwalsh@gmail.com](mailto:anewviewbyjanwalsh@gmail.com))

### **Aug 22-25, 2018, Geneva, Switzerland\*\***

BioGeometry Env. Home Solutions (BG-EHS) Independent Licensed Practitioner Training taught by Sayed Karim

\*\*All students will attend the first day together on May 16th, and then will be staggered into smaller groups of 4 for the second (applied) day of the training

To register for this course please contact Graziella Zanoletti: [graziella@biogeometryeurope.com](mailto:graziella@biogeometryeurope.com)

### **Upcoming Events in Asia:**

#### **Singapore:**

Details coming soon! For more info, please contact [bginsingapore@gmail.com](mailto:bginsingapore@gmail.com)

#### **Taiwan:**

Details coming soon! For more info, please contact [info@bgmoment.com](mailto:info@bgmoment.com)

#### **Hong Kong:**

Details coming soon! For more info, please contact [info@bgmoment.com](mailto:info@bgmoment.com)

### **Montreal, Canada**

#### **BioGeometry Environmental Home Solutions Licensed Practitioner Training**

Instructor: Sayed I. Karim, MBA

The BG-EHS Practitioner may be scheduled individually or in small groups (max. 4 students) upon availability.

Click [HERE](#) to download BG-EHS Program Prospectus

For more information, kindly contact us at [bghes.info@biogeometry.com](mailto:bghes.info@biogeometry.com)

## **Workshops and Lectures**

### **September 20-23, 2018 - Chicago, IL**

Dr. Ibrahim Karim, 2018 Amelia B. Edwards Award Recipient and Guest Speaker

Conference details and registration: <https://www.globalpyramidconference.com>



## **ELECTRIC CURRENTS IN ORGONE DEVICES (Part One)**

The Route Towards the Reich Orgone Motor  
The State of the Art  
by Roberto Maglione



This paper is the first of a series of three papers focused on the Reich orgone motor which will appear on the [Journal of Psychiatric Orgone Therapy \[website\]](#). The present one is a brief account of the state of the art. The second paper (co-authored with Dionisio Ferrari) focuses on lab experiments performed in-house where a spontaneous cyclical production of electrical energy has been obtained from orgone apparatuses in a standard orgone energy environment. The third paper (co-authored with Dionisio Ferrari) reports and discusses the response of the orgone apparatuses to the production of electrical energy when the organomic potential of the environment is artificially increased. A hypothesis of the Y-factor is developed and described in this last paper.

Reich spent all his life in studying and researching on the presence in nature of a ubiquitous cosmic energy whose application would have had dramatic social and technological impact on the life of human beings. Towards the end of the 1950, after many years of investigations on the biological and physical properties of this cosmic energy, which he called orgone energy, Reich started to use a Geiger-Muller counter to study the interaction between orgone energy and radioactivity (2). He was thinking that orgone energy could mitigate, or even annul, the danger and harmfulness of radioactivity on the organism and life forms in general. He planned and conducted this type of research partly because of the advent of the Korean war in order to find a response and an antidote to the threat of a possible nuclear conflict. He was convinced that (3):

“Nuclear radiation, for instance radium, is changed under the influence of concentrated orgone energy. The kind and the extent of such change is still very obscure.”

And his later experiments were focused on this assumption and aimed at verifying whether very small quantities of radioactive materials, when put inside strong and powerful orgone accumulators located inside an orgone room (4) were rendered innocuous. The results of this last experiment, called Oranur (5), carried out in Reich's laboratory, led him to completely different results and conclusions, and radioactivity was found to be detrimental to high concentration of orgone energy (6). Nevertheless, further researches conducted by Reich in the following years, based on the results of the Oranur experience, proved that in the end orgone energy could convert nuclear energy into a more powerful and basically benign form of energy, called Orur (7). Besides, results of his first experiments with Geiger-Muller counters and orgone apparatus, carried out in the years 1947 and 1948, led him to unexpected findings and to the conclusion that orgone energy could also be used and converted to produce mechanical energy, or work (8).

During the first experiments, carried out in 1947-1948, Reich observed that the Geiger-Muller counter, used to monitor the radioactivity, initially reacted normally, registering the background count given, and the gamma radiation of the area. However, the device was unresponsive when placed close to orgone accumulators, and did not react to background radiation and not even to small x-ray sources. The device remained practically unreactive for some weeks, when the pointer of the impulse recorder started rotating at the rate of one full turn per second, which corresponded to about 100 impulses per second, a very high value compared to the normal background of 10-15 counts per minute. On further measurements Reich obtained a reading of about six to eight thousand counts per minute. Reich realized that he was witnessing a possible motor force (9). The orgone energy was somehow being transformed into electromagnetic and mechanical energy through the Geiger-Muller counter (10). He argued that the motor effect occurred because the tube of the Geiger-Muller counter had soaked up orgone energy through constant exposure to the high orgonotic charge in the laboratory. Since the gas-filled counter tube consisted of an inner cylindrical metal tube, and an outer non-metallic protective layer, usually of coated glass, the counter tube constituted and behaved essentially as a small orgone energy accumulator (11).

Later on, he replaced the counter tube with a specially-built vacuum tube (called a Vacor tube). It was built with inner parallel aluminum plates, attached to the cathode and anode, respectively. The plates were inserted in the tube (generally made of pyrex) 4-6 cm apart, opposite each other. Each plate was 16 cm long, and 4 cm wide. The vacuum was 0.5 micron of pressure, which was sufficient to rule out the presence of any gas. This arrangement functioned like a kind of a orgone energy accumulator in the

vacuum. Reich obtained, by using this updated arrangement, a much more powerful reaction that shortly afterwards was able to run a small spinner motor. In another arrangement he used a small orgone accumulator attached to a wheel. He excited the concentrated orgone energy inside the accumulator to run the wheel by a half Volt of electricity. Indeed, Reich found that electric energy might excite orgone energy (12):

“ELECTRICAL ENERGY EXCITES OR ENERGY AND CAUSED IT TO CHANGE FROM THE STATE OF CLOUDY PATCHES TO THAT OF QUICK WHITISH RAYS.

.....

Now it became most probable that there is only ONE type of OR energy which changes its appearance and form according to different conditions.”

However, electrical energy was not the only way to excite orgone energy. Reich found several methods to excite concentrated orgone energy (13):

“5. The formation of concentrations to single distinct units follows upon excitation of the OR energy ocean in various ways: presence of other orgonotic systems, electromagnetic sparks, metallic obstacles, and, foremost nuclear energy (cf. p. 267 ff.).....

May, 1950.”

In practice, with all these researches Reich was able to convert an excited concentrated orgone energy field into usable electrical energy to produce work (14):

“I have simply transformed orgone into electrical energy.”

However, Reich, notwithstanding this important discovery, never revealed the basic theory, design, and experimental set-ups through which he was able to run the small spinner motor, and to obtain mechanical work directly from the cosmic orgone energy locally available (15). He wrote, soon after the discovery, a very brief communication, included in the book the Cancer Biopathy (16), and a brief report, a year later, was included in the first issue of the Orgone Energy Bulletin (17). The information therein reported was too small to understand and to replicate the experiments that led to the development of the motor. Nevertheless, Reich included in his last book, Contact with

Space, several clues on how to develop the orgone motor and maybe to understand the meaning of the mysterious and inexplicable Y-factor that, according to Reich, was essential in developing the orgone motor. From them it can be inferred that Reich was able to convert orgone energy into mechanical energy by exciting concentrated orgone energy, and that one of the key points of such conversion was the use of radioactivity. He set also a minimum rate of radioactivity to run a motor.

However, the first chapters of the Oranur Experiment text include many of the tests he did with Geiger-Muller counters, and that later led to the development of the first prototypes of the orgone motor. And they can be considered an introductory work to the development of the final prototype of the orgone motor.

The running of the orgone motor was witnessed by many collaborators, and people outside his research circle. Demonstration of the functioning of the orgone motor was also done during the First International Conference, held at Orgonon, from August 30 to September 2, 1948.

In his accounts, Reich described only in general lines the basic functioning of the motor (18):

“... These phenomena, open up a vista of two new technical applications of orgone energy:

production of light, and

transformation of impulses in rapid succession into a mechanical motor force .....

On June 24th, 1948, at 1 p.m., I succeeded in setting a motor (Western Electric, KS-9154, Serial No. 1227) into motion by means of the Orgone Energy Motor Force which I had discovered by way of the Geiger-Muller counter on August 8th, 1947. .... In order to set the Orgone Motor into motion, a certain function, called Y is necessary. This function cannot be divulged at the present time.

The sources of orgone energy used hitherto are the following:

Orgone-charged Vacor tubes

Atmospheric Orgone

Earth Orgone

Organismic Orgone Energy

No material as is being used in the process of nuclear fission is required. The succession of impulses can be regulated. The sequence of impulses is even and continuous. The relation of the amount of used orgone energy to the tremendous reservoir of the Cosmic Energy Source is minimal. .... The speed of the motor action can be regulated. It depends on

The number of vacor tubes connected

Weather conditions in accordance with organotic functions found hitherto, such as temperature difference T-To, speed of electroscopic discharge, etc.,

Function Y

.... There is no such thing as “empty space.” Field actions are due to the activity of the universal cosmic orgone energy.”

The Western Electric KS-9154 motor used by Reich is a small two phase spinner motor, with a diameter of 2 15/16 inches, and length of 4 1/16 inches. It consists of a laminated steel stator, and of a rotor (1 inch diameter, and 2.5 inch long) made by a hollow cylinder of copper, open at one end and connected to a steel shaft at the other end (19).

Reich died without revealing the function Y, a fundamental part for understanding the functioning of the orgone motor, since he assumed the average man (the little man as he called it) was not prepared to use such an unlimited source of power. However, what is missing in Reich’s accounts is not only the meaning of the function Y, but also the general theory behind the functioning of the motor, whose function Y is only a part of it.

Amongst the accounts of the co-workers who witnessed the orgone motor running we have those of Sharaf, Baker, Wyvell, Neill, and that of his second wife, Ilse Ollendorf. They add only anecdotic information on the orgone motor, and only very few more

interesting details can be found in addition to those already available. In general, from the accounts it emerged that the wheel of the motor was turning much faster and noiselessly when powered only by the orgone energy, which was supplied to it by a vacor tube, or by a small orgone accumulator; while when connected to a battery the wheel was turning much slower and the rotational movement was noisy. When alimented by orgone energy alone the rotation of the wheel was affected by weather conditions. Besides, Reich stated that he wanted either to commercialize the discovery, or to carry out researches and experiments only, without going through the marketing of it. He also asserted that he did not want to publish the details, including the Y-factor. This latter controversial behaviour was never considered nor discussed by the biographers, and scholars of Reich.

Sharaf's account was (20):

“Reich never published the design for the orgone energy motor and I no longer remember the details of the experimental set-up or its operation. I do recall that it involved the use of an accumulator attached to a wheel; concentrated orgone energy was triggered by a small amount of electricity, an amount insufficient to rotate the wheel without the accumulator. I also recall that when the wheel was rotated entirely by electricity, it had a steady grinding motion. When powered by the combination of organotic and electrical energy, it ran smoothly and quietly; but its speed varied depending upon the weather – more rapidly on dry, clear days, more slowly when the humidity was high. During this summer [1948], Reich was extremely excited about the motor and envisioned its industrial applications. He also expressed considerable concern that the “secret” of the motor might be stolen, which may have contributed to his reluctance to publish the details.”

Baker's account, was based on what he observed during the demonstration of the orgone motor at the First International Conference in 1948 (21):

“Films from the archives of the Orgone Institute on cancer development were shown, as well as a film of the development of the orgone energy motor.

Reich also demonstrated the reaction of the Geiger Muller counter to orgone energy and, finally, the orgone energy motor. Reich discovered the motor force of orgone energy in 1947 when he observed the dial of the Geiger Muller counter revolve. He decided to build an orgone energy motor. On Myron Sharaf's suggestion, he employed

one William Washington, a black who was a student of mathematics at the University of Chicago, to help work out a way to build the motor. Reich first used vacor tubes in series attached to a small accumulator and connected to a transformer to build up an electrical charge to excite the orgone energy. He used four or five vacor tubes. All were connected to a 25 volt electric motor. A vacor tube is a vacuum tube soaked in orgone energy in an accumulator for six weeks. Reich was able to get the vacor tube to glow a beautiful blue when excited by a charge of 500 volts of electricity. His photographer, Kari Berggrav, took colored photographs of this, as well as of the orgone energy motor. Reich took away one vacor tube after another until all were taken away, and still the motor ran. The important ingredient was the so-called "Y factor" which Reich did not divulge. The motor ran on ½ volt of electricity sent through an accumulator that was connected to the electric motor. When the motor was run on electricity alone, it took 25 volts of electricity and was noisy and wobbly. On orgone energy, it was practically noiseless and ran smoother and faster. At times, it would change direction. In damp weather, it would not run. Reich said it was like an hysterical woman."

Wyvell's account was (22):

"The one I saw was about the size of a large orange ... It was hooked up to a special OR [orgone] accumulator with a "Y" factor that Reich did not divulge as he felt mankind was not ready to use such a potentially boundless power rationally. It was also connected to an electrical source with very low voltage because, as I remember it, the unexcited orgone energy by itself couldn't overcome the initial inertia. But it ran on atmospheric orgone energy fed to it through the accumulator and also from the human energy field ... It ran erratically, as no motor with a mechanical energy source does: it slowed down and speeded up without any interference. Also, if one curved his hands over it, it also speeded up and slowed down, apparently on its own volition, but actually at the volition of the orgone energy. Thirdly, the motor using orgone energy did something no motor using mechanical energy can do: it reversed itself every once in a while without slowing down, even without a jolt. This, I believe, is impossible in terms of what is known of mechanical physics, but it was witnessed by a number of sane and sensible doctors, scientists, and laymen. This is, of course, why Reich believed UFOs were powered by orgone energy, for they, too, have been observed to be moving at a terrific speed in one direction and to reverse or turn off at a sharp angle without slowing down and without a jerk.

The "Y" factor hasn't been rediscovered, and I personally hope it won't be until power-lust and other forms of the emotional plague are reduced to controllable proportions."

Neill briefly commented the orgone motor in two of his writings:

“Ten years ago [1948] in Maine I saw a small motor turning over when attached to an orgone accumulator. “The power of the future”, cried Reich joyfully. But as far as I ever knew, the experiment was not continued. In reply to a query Reich wrote: “My job is discovery, and I leave it to others to carry out the results”.”(23)

“He had a small motor which was charged by an orgone accumulator. It ran slowly but when gingered up by volts from a battery it seemed to revolve at a great speed. Reich was in ecstasies: “The motive force of the future!” he exclaimed. I never heard of its being developed.”(24)

His second wife, Ilse Ollendorf, briefly commented in her biography of Reich that the orgone motor was as follows (25):

“In March of that year [1948] Reich had experimented with Geiger counters and with vacuum tubes, and had made several important discoveries about the behaviour of orgone energy.

He had also started to experiment with a small motor moved by orgone energy. This work continued in Maine with the help of a young assistant [William Washington (26)] who concentrated on the elaboration of these phenomena. Reich was very excited about the reactions of the little motor. Notes kept by some students at the laboratory, and put at my disposal as source material, mention the work with the motor again and again as one of Reich’s preoccupations that summer [1948]. He knew that a great deal of work was needed to “clean” the experiment, to clarify all its ramifications and functions because, as he put it, it sometimes behaved like “an hysterical woman”. Reich foresaw a great future for his orgone-energy motor.”

Reich made motion pictures of the motor in operation, and these have been preserved, transferred to videotape, and are now available at the Wilhelm Reich Museum, Rangeley, Maine.

In the last decades, the Wilhelm Reich Museum published four books (27), edited by Body Higgins, trustee of the Museum, covering all the periods of Reich’s life and research topics, including materials taken mainly from Journals and correspondence available in the Reich’s Archive, located at Harvard Medical School (Boston,



Massachusetts). In some of them, and particularly in the volume published in 1999 (28), some more information about type and line of research conducted by Reich, the system he conceived to convert orgone energy into a motor force, and few details on the experimental set-ups can be found.

From this last book, on August 9, 1947, Reich writes (29):

“Continuation of Geiger-Muller tests:

1. Switching off tube: No humming, but one click each time the high voltage is applied.
2. Questions to Washington on the phone, 2 p.m.
  - a. Have you ever worked with such a device?
  - b. What is most speedy reaction of Geiger-Muller to radiation?
  - c. What is the "normal" reaction to cosmic rays?
  - d. Ever seen 100 per second?
3. Measurement with seconds meter + recorder.

In 25 seconds 1,500 pulses!

60 per second!

Incredible!

Consequences:

1. Wheels are rotated by pulses of orgone energy.
2. It will be possible to power motors with orgone.
3. This use will be risk-free; it will be cheap.

4.20 p.m.

I place the receiver in a threefold orgone accumulator in order to see whether it rises.

Today, 9 August 1947, between 11 a.m. and 5 p.m. I have discovered the principle of the transformation of orgone energy into mechanical energy by means of the electronic impulses of a Geiger counter.

Present this afternoon were: Ilse Ollendorff

William Washington, whom I called

Tom Ross, our caretaker

One revolution per second at the counter.

Immediately notified: the Atomic Energy Commission, American Academy of Sciences, French Academy, Patent Office.”

On August 14, 1947, he writes (30):

“Orgone is capable of turning a wheel if a counter tube or similar instrument is so excited that an electromagnetic wheel rotates. It seems important that the electrons "excite" the orgone in the tube. It remains to be discovered whether the electrons or the orgone itself

is the motor force.

I have simply transformed orgone into electrical energy. The impulse is a simple electromagnetic system.

9 a.m. Proof for orgone = motor force.

I killed the reaction by completely uncovering the counter tube. Reaction 0. As soon as the counter tube is placed in the accumulator or metal housing, the motor on the counter starts to run.

Tasks for orgone motor.

1. Does the orgone motor also work outside the metal-lined room [Reich refers to a room in the laboratory at Orgonon which was lined with metal as an accumulator], with accumulator in the open air or in an orgone-free room?

2. What types of electromagnetic apparatus are caused to move?

3. How much can be eliminated from the structure of the Geiger-Muller without destroying the principle?

4. What are the conditions for obtaining a patent if a Geiger-Muller counter tube is used?

5. Can the motor force be increased, and how?”

And, on November 7 and 9, 1947, he writes (31):

◆ “7 November 1947

Have begun construction of an orgone motor.

◆ 9 November 1947

I must study electron tubes, for they are opening up a new world for me. The orgone in the electron tube. That is the way of great science! I found five years ago the functional identity of body orgone and secondary coil orgone. Now I could eliminate all high tension from the Geiger-Muller counter. The "wheel turns" without high tension

- a. when I touch a battery with my hands,
- b. when I let a secondary coil system be excited.”

Reich believed that this kind of motor could be used to move spaceships, and that they were propelled by orgone energy, and could reach tremendous velocities in outer space, up to 10,000 – 15,000 mph (around 16,100 – 24,150 km/hr). They could also use orgone streams in the Universe to move much faster. He came to these conclusions by observing the striking similarity between the phenomena related to spaceships, as described in the literature by many authors about Unidentified Flying Objects, and those provided by the observations of both natural phenomena and those produced by the use of high concentrations of orgone energy. He writes in a paper out on CORE (32):

“The facts confirming these abstractions seemed to be at hand now in a strangely practical manner. Things tied in further. Function-after-function coordinated itself with what I had read about the "Unidentified Objects". The final picture as of today is about this:

- (1) The CORE Men" (CORE = Cosmic Orgone Engineering) – as I came to call them – apparently were thoroughly conversant with the laws of functioning in the cosmic OR [orgone] energy ocean, especially with gravity as a function of superimposition.
- (2) They use Cosmic OR energy in propelling their machines.
- (3) Their "blue lights" were in agreement with the blue color characteristic of all visible OR functions – sky, protoplasm, aurora, sunspots, depth of moon valley seen at dusk, the color of OR energy lumination in vacor tubes, etc.

(4) The changes of color from blue to white or red, etc. I knew well from various studies of OR phenomena. And I had seen some practically in vacor tubes.

(5) The CORE men were obviously riding their spaceships on the main OR energy streams of the Universe (See Cosmic Superimposition on "Galactic and Equatorial Streams").

(6) The tremendous speeds which they are able to achieve were not in disagreement with all the tremendous quantities I had calculated for the OR energy streams of the Universe in 1940-1944. There are still many gaps there and many uncertainties. The tables of the krx-number system are in my possession.

(7) A speed of 10,000 – or – 15,000 mph did not appear impossible in the light of these numbers. On the contrary, it appeared quite natural.

(8) They rotated their discs in harmony with the OR waves they rode on. Rotating discs describe exactly what I had calculated 10 years previously as the so-called KRW ("Krieselwellen") or Spinning Waves, without any knowledge of spaceships actually riding Cosmic OR waves. From these waves, I had derived my mass-free equation:

Things were fitting well – even too neatly for my taste. Therefore, I hesitated to tell anything to anyone about them. I only worried about what might have happened to the facts and equations which a student [William Washington] had acquired in 1947 to 1949. He had worked on the OR energy motor. And he disappeared in 1949 under mysterious circumstances.

(9) Just as space is not empty, light does not "come down to us from the stars and the Sun". It is an effect of lumination in the OR energy envelope of the planets. It is a local phenomenon. Therefore, there is theoretically no limit to speed in cosmic space except technically. This agrees with the apparently limitless quantities in energy functions which characterize the Orgonometric "krx- system" as progressing in geometric proportions. These Orgonometric calculations seem to be applicable to the technological problems of Cosmic OR Energy Streams."

And on November 20, 1953, Reich writes in his diary (33):

"After reading Keyhoe report [Donal Keyhoe, The Flying Saucer are Real, New York, Fawcett, 1950]

Summary: State of affairs:

The flying saucers are real, to judge from Keyhoe's report.

They use OR [orgone] energy in propelling and lightning: speed, colors, silence [one of the basic characteristics of the orgone motor was silence]

Most likely they were stirred into action in far outer space by the atomic explosions: Oranur effects.

They come to investigate the disturbance of their lives by nuclear Oranur.

They are directed by intelligent beings who come peacefully.

All DOR effects began with equinox: flying saucers ride on Galactic stream.

The melanor was brought down to earth by the Galactic Beings. Lets call them "CORE People"

They know Oranur and E

Using OR they cannot be armored

Melanor sucks O<sub>2</sub> and H<sub>2</sub>O, rock disintegrates; living is invaded."

After Reich's death no significant research efforts were carried out aimed at re-discovering the original orgone motor and its functioning principles, including the function Y. In the orgonomic literature only very few papers appeared in the last years, and they were mainly focused on providing further information and details on already known subjects such as peculiarities of the electric motor used by Reich (Western Electric KS-9154), and hypotheses on the nature of the factor Y (34).

The only published research along this way was carried out by Correa and Correa (35). They did resort to developing an energy conversion system, as it was called by the authors, from massfree energy into electrical or kinetic energy to the work of Tesla, Aspden, De Broglie, and Thom, and only partially to the work of Reich's. They report in the 2007 US patent text the philosophy of their invention (36):

"It is critical to understand that the implication from this that – aside from local electromagnetic radiation and from thermal radiation associated with the motions of molecules (thermo-mechanical energy), there is at least another form of energy radiation which is everywhere present, even in space absent matter.... And undoubtedly also this radiation is ubiquitous and not subject to relativistic transformations (i.e.

Lorentz invariant). What it is not, is electromagnetic radiation consisting of randomistic phases of transverse waves.

To understand this properly, .... this energy which is neither electromagnetic nor thermal per se (and is certainly not merely thermo-mechanical), has nevertheless identifiable characteristics both distributed across subtypes or variants and as well common to all of them.

Essentially the first subtype or variant consists of longitudinal massfree waves that deploy electric energy. They could well be called Tesla waves, since Tesla-type transformers can indeed be shown experimentally to radiate massfree electric energy, in the form of longitudinal magnetic and electric waves having properties not reduceable to photon energy or to “electromagnetic waves”, .....

One may well denote the second subtype by the designation of massfree thermal radiation, since it contributes to temperature changes – and, as obviously indicated by the impossibility of reaching an absolute zero of temperature, this contribution occurs independently of the presence of matter, or mass-energy, in Space. ...

Finally the third subtype may be designated latent massfree energy radiation – since it deploys neither charge, nor thermal or baroscopic effects, and yet it is responsible for “true latent heat“ or for the “intrinsic potential energy” of a molecule.”

Correa and Correa developed a concept of massfree energy similar to that of Reich’s orgone energy, devoid of inertia, and that could be found everywhere in space. They found its characteristics might belong to three massfree energy subtypes or variants defined respectively as radiating massfree electric energy, radiating massfree thermal energy, and responsible for the latent heat. However, no mention was made by the authors in their physical model on two other important subtypes of the cosmic orgone energy, namely the variation of the gravitational field, and above all that of the nuclear field which Reich seemed to give extremely importance to for the development of a motor force (37).

In reproducing Reich experiments, according to the above assumptions, Correa and Correa observed that an AC induction motor could be efficiently run from the output of a modified thyatron pulse amplifier of the Herbach & Rademan CMB-3A GM scaler; while in reconstructing the archaeology of the function Y, they came to the conclusion that it might correspond to a thermionic full-wave divider of the Delon, Greibacker and Latour circuit applied in the manner of a dual diode sensor circuit in RF power meters (38). However, no public demonstration of the energy conversion systems, and of the aether motor in action was ever provided by the inventors.

## References:

(1). This paper is a summary of the chapter Reich and the Orgone Motor contained in the book *The Legendary Shamir* by Maglione R (2017).

(2). To this end he first planned to use  $2.2 \cdot 10^{-5}$  milliCurie of radio cobalt CO-60 (half-life of 5.3 years), and 20 milliCurie of Phosphorous P-32 (a radioactive isotope of phosphorous); and later on two needles of 1 mg each one of radium.

(3). Reich W, *The Anti Nuclear Radiation Effect of Cosmic Orgone Energy*, *Orgone Energy Bulletin*, Orgone Institute Press, Maine, Vol 3, N° 1, January 1951.

(4). The orgone room located at Reich's laboratory, Orgonon, Maine, was a completely metal-lined room where the observer, after sitting a while in complete darkness, could observe orgone energy. The room was used by Reich in many of his experiments as well as in the Oranur experiment. The room, size 18 x 18 ft (6 x 6 m), was made of an external layer of organic material and internally lined by a sheet of iron. Inside the orgone room some small accumulators were located, one of them used by Reich during the Oranur experiment, where the radioactive material was daily put inside for some days.

(5). Oranur was coined by Reich as an acronym for Orgone Anti Nuclear.

(6). Reich W, *The Oranur Experiment: First Report (1947-1951)*, The Wilhelm Reich Foundation, Rangeley, Maine, 1951.

(7). Reich W, History of the Discovery of the Life Energy. Atoms for Peace vs the HIG Documentary, Supplement N° 3, A-XII-EP, Orgone Institute Press, Orgonon, Maine, 1956, page 14.

(8). In this first period of investigation apparently Reich never used radioactive materials in his experiments, even though he made sometimes reference to measurements of the counts emitted by his wristwatch (equipped with a radium dial) carried out by a Geiger-Muller counter (Reich W, The Oranur Experiment: First Report (1947-1951), The Wilhelm Reich Foundation, Rangeley, Maine, 1951, page 214).

(9). Soon after, in April 1948, Reich informed the Director of the NYC Technical Advisers Office of the Atomic Energy Commission about the motor effect of the orgone energy on the Geiger-Muller counter (Eden J, Planet in Trouble. The UFO Assault on Earth, Exposition Press, New York, 1973, page 154).

(10). Reich W, The Geiger-Muller Effect of Cosmic Orgone Energy, Orgone Energy Bulletin, 3(4), 1951, New York.

(11). Generally, a Geiger-Muller tube consists of an anode (positive electrode) positioned in the center of a tubular cathode (negative electrode) filled with a mixture of argon, neon, and either chlorine or bromine gases. The cathode is a thin-walled metallic cylinder sealed at each end with an insulating disk to contain the gas. The anode is a wire that extends into the cylinder. A high voltage is applied to the electrodes to create an electrical field within the chamber. When radiation passes through the chamber and ionizes the gas, it generate radiation passes through the chamber and ionizes the gas, it generates a pulse of current. The device processes these pulses to display the radiation level.

(12). Reich W, The Oranur Experiment: First Report (1947-1951), The Wilhelm Reich Foundation, Rangeley, Maine, 1951, page 213.

(13). Reich W, Ibid, page 199 and 200.



(14). Reich W, American Odyssey. Letters and Journals 1940-1947, edited by Mary B Higgins, Farrar, Straus and Giroux, New York, 1999, page 401.

(15). It should be outlined, however, that Reich, in July 1948, informed the Chairman of the Atomic Energy Commission of the motoric qualities of the orgone energy and of the fact that such a motor force might be abused by totalitarian countries (Eden J, Planet in Trouble. The UFO Assault on Earth, Exposition Press, New York, 1973, page 154).

(16). Reich W, The Discovery of the Orgone. Volume Two: the Cancer Biopathy, Orgone Institute Press, 1948, New York, page 150.

(17). Reich W, A Motor Force in Orgone Energy. Preliminary Communication, Orgone Energy Bulletin, 1(1), Orgone Institute Press, January 1949, New York, pages 7-11.

(18). Reich W, Ibid, pages 7-11.

(19). Reiter AN, Examination of the Western Electric KS-9154 Motor, Pulse of the Planet #5, Natural Energy Works, Ashland, 2002.

(20). Sharaf M, Fury on the Earth. A Biography of Wilhelm Reich, A St Martin's Press/Marek, New York, 1983, note at page 354.

(21). Baker EF, My Eleven Years with Reich, ACO Press, Princeton, New Jersey, 2001, pages 32 and 33.

(22). Wyvell L, An Appreciation of Reich, Journal of Orgonomy, 7(2):170-186, 1973, page 185.

(23). Neill AS, The Man Reich, in Wilhelm Reich Memorial Volume, Ritter Press, Nottingham, 1958, reprinted in Boadella D, Wilhelm Reich. The Evolution of his Work, Henry Regenery, Chicago, 1973, page 382.

(24). Neill AS, Neill! Neill! Orange Peel! A Personal View of Ninety Years, Quartet Books Limited, London, 1977, page 128.

(25). Ollendorf I, Wilhelm Reich. A Personal Biography, St Martin's, New York, 1969, page 117.

(26). Washington was a student and assistant of Reich in the development of the orgone motor, and particularly in the elaboration of the orgonometric equations and in the experimental work, between 1947 and 1949. He was introduced to Reich by Myron Sharaf, student of psychology at the University of Chicago and a collaborator of Reich. Washington disappeared mysteriously in the summer of 1949 with a prototype of the orgone motor. He first alleged a trip to a Chicago professor about his thesis, then illness in his family, later that he was ordered to Oak Ridge Laboratories by telegram, and finally that he was working with Argonne (AEC) laboratories. Investigations done by Reich disclosed that not only did letters reveal that Washington was not known to be at Argonne laboratories as claimed, but furthermore inquiry from professors under whom Washington was allegedly working for his thesis, denied that this was so. Chicago University answered that Washington had never completed his college work there (Reich W, History of the Discovery of the Life Energy. The Red Thread of a Conspiracy, Documentary Supplement No 2, A-XII-EP, Orgone Institute Press, Rangeley, Maine, 1995). Reich suspected that he had been a Russian spy. The matter was brought to the attention of the FBI in the interest of national security, since Washington had come into possession of important knowledge and facts in 1949, and again in 1950 and in 1953, but no action was ever taken by the Governmental body. In 1956 Reich was convinced by factual consideration that he was connected with spaceship development (Reich W, Contact with Space. Oranur Second Report (1951-1956), Core Pilot Press, New York, 1956, page 71). Eden reported in one of his publications that Washington disappeared with two of the prototypes of the orgone motor, which later were reported as being in the Soviet Union (Eden J, Planet in Trouble. The UFO Assault on Earth, Exposition Press, New York, 1973, page 23).

(27). Reich W, *Passion of Youth. An Autobiography 1897-1922*, edited by Mary B Higgins, Farrar, Straus and Giroux, New York, 1988; Reich W, *Beyond Psychology. Letters and Journals 1934-1939*, edited by Mary B Higgins, Farrar, Straus and Giroux, New York, 1994; Reich W, *American Odyssey. Letters and Journals 1940-1947*, edited by Mary B Higgins, Farrar, Straus and Giroux, New York, 1999; and Reich W, *Where's the Truth? Letters and Journals 1948-1957*, edited by Mary B Higgins, Farrar, Straus & Giroux, NY 2012.

(28). Reich W, *American Odyssey. Letters and Journals 1940-1947*, edited by Mary B Higgins, Farrar, Straus and Giroux, New York, 1999.

(29). Reich W, *Ibid*, pages 399 and 400.

(30). Reich W, *Ibid*, page 401.

(31). Reich W, *Ibid*, page 425.

(32). Reich W, *OROP Galactic Stream (Hancock, October 22, 1953)*, CORE, Orgone Institute Press, Vol. VI, No 1-4, July 1954, New York, pages 103 and 104.

(33). Reich W, *Where's the Truth? Letters and Journals 1948-1957*, edited by Mary B Higgins, Farrar, Straus & Giroux, New York, 2012, page 134.

(34). Reiter AN, *Examination of the Western Electric KS-9154 Motor, Pulse of the Planet #5*, Natural Energy Works, Ashland, 2002; see also DeMeo J, *The Orgone Energy Motor, Pulse of the Planet #5*, Natural Energy Works, Ashland, 2002.

(35). Correa PN, Correa AN, *Experimental Aetherometry, Volume 3: The Orgone Motor and the Aether Motor*, Akronos Publishing, Canada, July 2006; see also Correa PN,

Correa AN, Energy Conversion Systems, Patent US 7,053,576, May 30, 2006; and Energy Conversion Systems, Patent US 7,235,945, June 26, 2007.

(36). Correa PN, Correa AN, Energy Conversion Systems, Patent US 7,235,945, June 26, 2007.

(37). For more information on the secondary qualities of orgone energy see Maglione R, Methods and Procedures in Biophysical Orgonometry, Gruppo Editoriale l'Espresso, Milan, 2012.

(38). Correa PN, Correa AN, Experimental Aetherometry, Volume 3: The Orgone Motor and the Aether Motor (abstracts), Akronos Publishing, Canada, July 2006.

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# **Consciousness Manifesto: Physical Origins of Consciousness Through Evolution and Revolution, Part 2**

**James Beichler, Ph.D.**

Abstract: Once the positivistic/escapist interpretation that human consciousness is epiphenomenal, *i.e.*, accidental, is dismissed there are two possible approaches to the scientific study of consciousness. Bottom-up consciousness, from the individual organism or being to the universe, and Consciousness from the top-down, from the universe to the individual. These two approaches mark the outer boundaries of the present scientific search for a theoretical model of consciousness, even though Consciousness goes beyond science and moves into the realm of metaphysics. In any case, everything in between these two approaches is seriously muddled and clouded with speculations and metatheories that cannot be possible, which is common to the period preceding a scientific revolution. Some of those speculations and metatheories sound rather esoteric and even spiritual, which allows them to appeal to many people, but they would normally be considered non-scientific by definition if they were expressed for anything other than consciousness, which in itself presents a total mystery to science and the scientists who are willing to attempt to explain consciousness. On the other hand, what little concrete information science has at its disposal about consciousness does seem to match ideas in eastern mystical thought and in some cases earlier western ideas in Natural Philosophy that have been rejected by science, which further muddles the scientific quest for understanding consciousness. These ideas and concepts fit the qualitative aspects of mind that science normally associates with consciousness even better as well as the direct characteristics of consciousness, at least to the extent that such characteristics are known. Science needs to find a balance between them so it can maximize the effect of the next scientific revolution as well as the corresponding evolutionary leap in consciousness that is coming, but physics must simultaneously develop a working unified field theory to better define the universe in which consciousness of any kind, shape or form can and has developed.

**Part 2 Begins on the Following Page**

Every living person has the ability during his or her lifetime to enhance, evolve and grow their own consciousness so that they have a better afterlife because, in a sense, we create our own afterlife, or at least the conditions of its cognition by our own surviving consciousness. We create our own heaven and hell depending on how much true knowledge of the universe we have cognized and lived by in synchronicity with the universe and our own true consciousness' direct connections with the universe. So, even after death of the three-dimensional brain/body/mind, the final cessation of all matter/energy and electric field activities associated with life, we can continue to learn about ourselves and the universe, further evolving our own consciousness after we die, if we have attained a high enough level of consciousness and knowledge of how the universe works, including the connection of our consciousness to the universe, before we die.

This finally leads us back to a whole new completely unified theory of the universe, **single field theory**, which is a finished version of Einstein's unified field theory that begins to inform us of our true relationship to each other and nature of the inseparable wholeness universe. This theory unifies everything that we presently know in physics, although it is not a true 'theory of everything', just a theory of everything we presently know or think we know. The body/brain (matter/energy field or stress pattern described by quantized space-time curvature) and mind (electric field pattern) have a strictly three-dimensional existence (dimensions 1, 2 and 3 of 4), while the two-dimensional magnetic field **B** also has a three-dimensional existence (dimensions 2 and 3 of 4) with the magnetic vector potential **A** extending into the fourth dimension of space (dimension 4 of 4), which gives magnetism its own similar but different three-dimensional characteristics (2, 3 and 4 of 4) and renders electromagnetism so much stronger and stranger in the three-dimensional surface of our world than gravity. One cannot exist without the other, **E** and **B**, and they have an interdependent relationship that is the same as mind and consciousness in the three-dimensional material world of our normal natural experience.

In other words, when science interprets a body or organism problem with respect to matter/energy structures alone (anatomy) and how the body utilizes energy (physiology including medical practices, biochemistry and organic chemistry in the body and brain), it is addressing the "life force" or biofield of the body. This entails the normally accepted biology and medical views of a human being or living organism. In other words, we approach medicine, our personal health and wellbeing, biology and our lives as a whole being three-dimensionally, while Eastern cultures approach their lives more, but not yet completely, four-dimensionally, or at least as three-dimensional derivatives of our overall four-dimensional existences. When science interprets everything from the body/brain in terms of electrical fields and, electron and ion exchanges, it is addressing the human body or organism as mind (physiology, psychology and psychiatry in the brain.). But when theoretical physical science interprets the body/brain in terms of magnetism and magnetic variations as well as magnetic structures at all levels within the living organism or body, it is looking directly at consciousness and/or the awareness of consciousness.

### **The Elephant in the room**

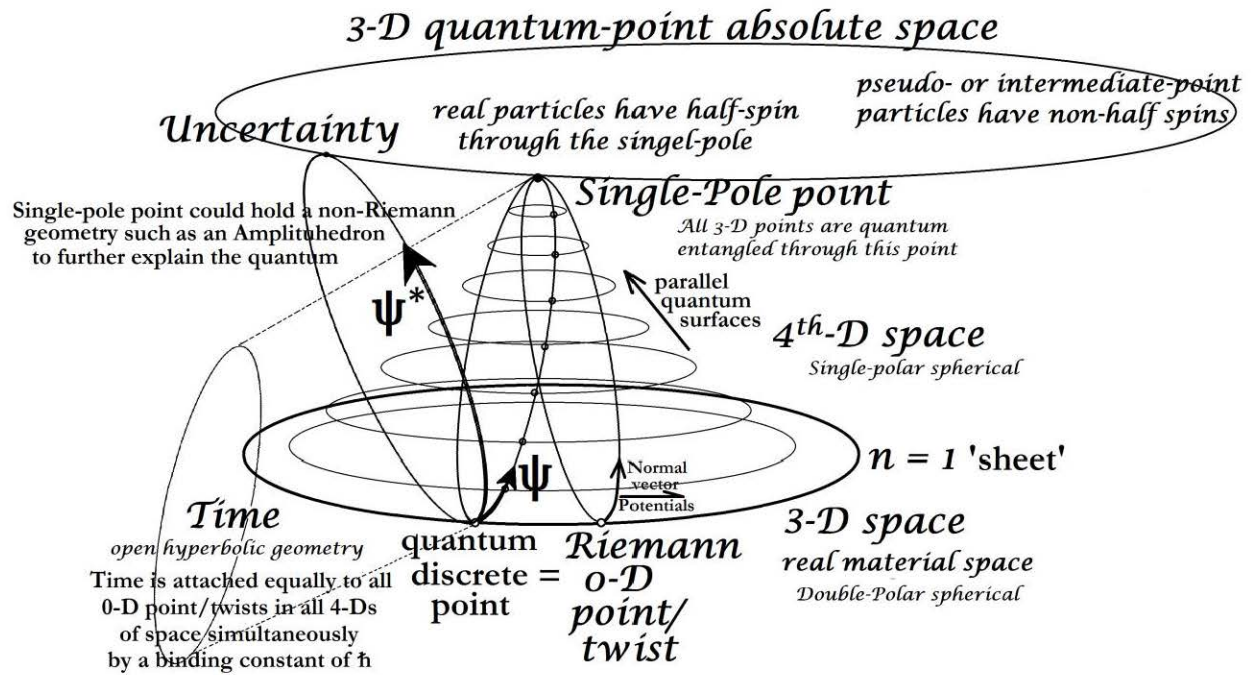
Mind deals with and has evolved within a strictly three-dimensional external material/physical world, but consciousness is both a participant in and product of a greater four-dimensional physical world that is constantly changing and becomes more complex internally over time. Both mind and consciousness are likewise evolving and changing constantly over time, with or without a person's cognizant realization of that change or even willingness to undergo that change, and everyone needs

to keep up with these changes or they will fall behind and become victims to their own naivety. People who do not believe in evolution would be surprised to learn that they are still evolving whether they believe it or not, but their minds and consciousness might not be evolving as rapidly as their bodies or those around them are evolving. Consciousness is evolving to a greater extent than even mind because consciousness is a permanent multi-leveled (**B**-field domain) structure from the three-dimensional point-of-view, but from the four-dimensional point-of-view consciousness (an **A**-field density pattern) has input of information from all four dimensions and creates mind with this information in mind.

This duality exists because the three-dimensional material/energy/electrical physical world of brain/body/mind and in which the brain/mind observe and interpret nature as expressed in science is merely a three-dimensional slice (infinitesimally thin surface) of a much larger and more complex four-dimensional physical world that is continuously changing temporally as a five-dimensional space-time continuum. Within this context, the philosophical arguments in modern physics regarding ‘determinism versus indeterminism’ and ‘discrete versus continuous’ that have plagued physics and acted as a seemingly impenetrable barrier blocking the progress of physics toward developing a single unifying theory and advancing physics and science are about to disappear because they do not really exist in nature, but are products of our three-dimensional (biased) mind and its influence over the four-dimensional consciousness and thus reflect the nature and differences between mind and consciousness.

These two points of contention are merely the oversimplified faces of a single more fundamental problem that exists but has gone unrecognized in science – how we interpret and distinguish between a discrete non-dimensional point and an extension in any, if not all, of the common three dimensions of space and/or time. The real problem is with our geometrical interpretation of the physical world which does not completely match the true nature of our reality. It is not so much that ‘consciousness’ collapses the wave function. Entanglement collapses the wave function to what the universe ‘is’ or the universe ‘knows it is’, but the scientific human mind can overrule entanglement in some instances (such as the lab), and in so far as it truly reflects and represents human consciousness at any given moment, the human mind can collapse the wave function to what it ‘expects’ the universe to be – purely and only three-dimensional and changing with time. You might say that entanglement keeps the human mind honest with respect to physical reality.

The indeterministic and probabilistic worldviews are products of how our three-dimensionally biased minds interpret the point-by-point geometrical non- or pseudo-geometry of the quantum absolute background (space) with respect to the real relativistic measurable and extended (metric) space of classical physics.



When the Schrödinger  $\Psi$ - or Psi-wave collapses to create any event in our real four-dimensional space (where real particles must have  $\frac{1}{2}$ -spins due to the twist of A-lines as they pass through the single-pole on their way to four-dimensional closure in our three-dimensional surface), the indeterministic event in absolute space collapses or coalesces into true four-dimensionally real physical space according to the pre-collapse probability  $\psi$ , such that  $\psi\psi^*$  becomes a relative reality in the space-time continuum.

Although unification now comes down to the synthesis of absolute and relative, quantum and relativity, as equals, the original attempts at unification were much different. The original search for unification began almost immediately after Einstein developed and published his theory of general relativity. Some of his peers noticed and Einstein soon accepted the fact that general relativity was incomplete. Riemann's original geometry of surfaces did not include point-elements, but was based solely upon a Riemannian geometry that was developed using only extension or metric-elements. Riemann said as much when he developed his differential geometry of surfaces, but he also stated at the end of his original paper that the true nature of space could only be found in its smallest possible measurements – quanta. One could argue from this that Riemann was either prescient in this prediction of the quantum as the smallest measurement of space possible or he was the person who actually initiated the quantum revolution.

Those scientists later searching for a unified field theory based on the Riemannian concept of space and general relativity which posits a space-time continuum that is curved knew of general relativity's incompleteness and its shortcomings and sought a more general geometry that could account for all of the forces of nature and all of observed reality, unlike quantum theorists who have been totally absolute in their interpretations of all of quantum theory – the quantum itself, quantum mechanics and wave mechanics – and later universally ignored Einstein and other's objections that the quantum theory and especially quantum mechanics and the Heisenberg uncertainty principle



were also incomplete. Both theories are grossly incomplete, as are the earlier classical theories, and once everyone admits that simple truth, that they are all incomplete, the quicker science can get on with identifying ‘how’ they are incomplete so they can complete them and get on with unifying them. In fact, they are not just incomplete, which drives scientists and academics to argue and believe that they are mutually incompatible, but when their completeness is accepted and the problem identified, it will be shown that they are in all truth mutually compatible. Single field theory is the first, and hopefully the best attempt to unify the theories on the basis of their mutual compatibility as equals in their interpretations and descriptions of nature.

The story of unification began with Gerhard Hessenberg, [35] Tullio Levi-Civita, [36] and Hermann Weyl [37] in 1917, who independently noticed the point problem with Riemannian geometry and the tensor calculus used to describe and apply it to Einstein’s recently announced space-time continuum. It was not any mistake that Einstein made that rendered general relativity incomplete. It was an incompleteness in Riemann’s geometry that was then incorporated into the tensor calculus used to describe the Riemannian surface. So, attempts were made to further generalize the geometry by putting new and different geometries within the individual discrete points of space themselves. These men, later accompanied by Arthur Eddington, [38] Einstein himself [39] and Elie Cartan, [40] began to develop what has become known as the non-Riemannian geometries. These non-Riemannian and the later pseudo-Riemannian geometries existed within the very points in space and were thought to appear physically in the form of the electromagnetic forces, giving gravity and electromagnetism an equal footing in the physical world. But that assumption or conclusion was wrong on two counts even though it propelled the search that Einstein and other scientists made for a unified field theory over the next several decades: The electromagnetic field was in the points themselves, but the new in-the-point non-Riemannian geometries used for the field offered no explanation of how the one-dimensional discrete points formed three-dimensional continuous surfaces so these geometries did not represent a significant geometrically useful advance.

The problem with general relativity is not with normal gravity theory itself which is correct as far as it goes since every last prediction made by general relativity has been gloriously verified, but rather with the human interpretation and expression of physical space in which gravity acts. General relativity just did not go far enough, as we now know. Space is thought of as a single thing, but it cannot be completely expressed as a single thing even though it is in reality a single thing. Even in common everyday language we talk about points and locations as well as distances and lengths, while we talk about time as moments and duration or lengths of time, extensions or metric elements (relative space) or as a collection of individual (discrete) points (absolute space). Mathematics follows this same pattern of thought, splitting itself into arithmetic of countable numbers and geometry. But space and time which these ideas represent are single things. In other words, the human mind does not seem able to completely describe space and time as they are in our experienced physical/material reality without further reducing them to mathematical terms we can understand and manipulate, so mathematics and our science of physics must unnaturally split space and time into point/extension dualities to consider them physically complete. The three-dimensionally biased human mind cannot think holistically of space and time so it distinguishes the point and extension natures of space or time, rather than unifying them into single wholes as does nature.

Even Newton had seen and tried to account for this difference, although he expressed it differently as absolute (point) space and time and relative (extension) space and time. So, if how we

mathematically express space is the problem then this inherent dualism should affect both electromagnetism and gravity in a similar manner since the point and extension duality should appear at every level of physical theory. In other words, gravity should have two fundamental components instead of one (either Newtonian  $mg$  or Einsteinian  $\mathbf{R}_{ik}$ ) just as electromagnetism (Maxwellian  $q\mathbf{E}$  and  $m\mathbf{v}\otimes\mathbf{B}$ ) does, just as Electromagnetism and Gravitogravnetism split apart, according to extension and point at the higher four-dimensional level of the single field. And just as the electric field  $\mathbf{E}$  acts as an extension space (center to center) like gravity, the secondary gravity field (gravnetism) should act point-space like just as magnetism acts tangentially around the point center direction of motion of electrically charged particles and bodies.

So, the second fundamental term of gravity would yield DE and DM (the Dark Matter halo appears around galaxies, which is reminiscent of the magnetic field  $\mathbf{B}$  extending around the point center of a moving charge) instead of gravito-magnetically, as some modern theoreticians and torsion field [41] supporters believe. Everyone in the group of scientists searching for more generalized mathematics and a unified field theory made this same mistake except for Kaluza, who correctly extended Einstein's four-dimensional space-time by embedding it within a higher-dimensional space as Riemann had suggested, but, like the others, never offered any physical or mathematical explanations how one-dimensional discrete points could constitute a continuous three-dimensional surface. Kaluza is the only scientist to have ever successfully, although some say artificially, generated Maxwell's equations from a unified Einstein field. [42] But he only did enough to regenerate the equations and no more, so his theoretical model was only correct as far as it went and thus remained woefully incomplete on several geometrical issues.

Einstein and Bergmann took Kaluza's theory a bit further in 1938, [43] but did not fare much better because theirs was only a partial answer to embedding manifold problem and thus they also failed to develop a complete model of the higher embedding dimension which alone could yield the higher manifold or space's physical properties and how it affects and influences the physical properties of the embedded dimensions of space, even though they made otherwise important advances. In other words, they did not even attempt to answer the important and crucial questions of how a lower-dimensional point-by-point extension into a higher-dimensional embedding space would guarantee the continuity of three-dimensional point-to-point extensions and result in a macro-extended embedding dimension closed with respect to the lower embedded dimensions. These questions are all considered and answered in the single field theory. [44]

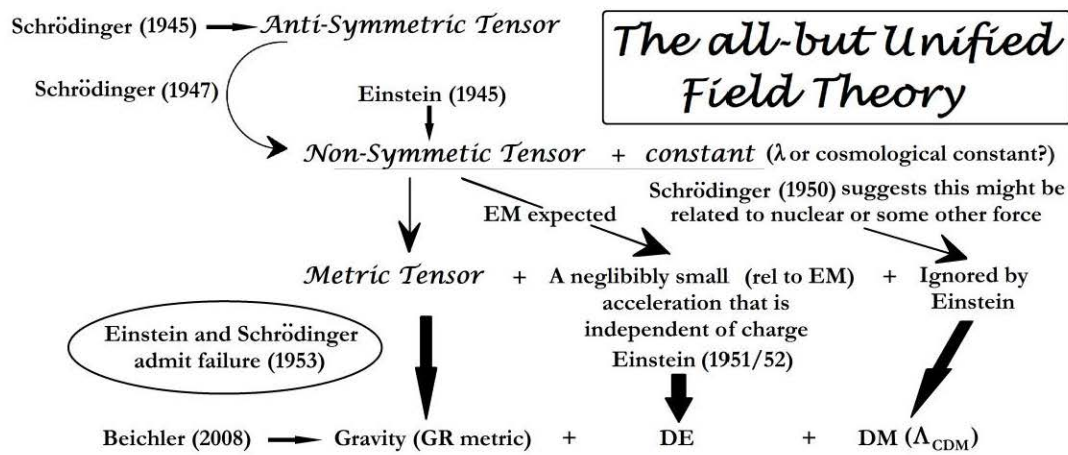
In the meantime, quantum theory advanced at a fairly rapid pace and in 1927 Bohr and Heisenberg introduced quantum mechanics, which is something like a non-geometrical point theory that is searching for an artificial or pseudo-geometry of events described by their energy and momentum in the form of the so-called quantum field. This interpretation of the quantities has more recently resulted in the standard particle model of the quantum which is now the major paradigm in physics, but it has also led to philosophical conundrums that no one has yet been able to solve as well as predicting particles that do not exist and other problems with non-existent phenomena, *i.e.*, the predicted but unverified half-life of protons. General relativity and the quantum theory are the two greatest and most accurate theories ever devised, but for all practical purposes they are mutually incompatible in the three-dimensional space and/or four-dimensional space-time used by the quantum theory. Philosophical thought on the problem has resulted in two major paradoxes which also seem non-resolvable: the discrete versus continuity debate and the debate

pitting determinism against indeterminism. Yet both debates are no more than endless and useless bantering that has little to nothing to do with the physical nature of reality or our mental development of a real physical science to describe that reality.

These debates are also pertinent to the discrete/continuity debate, which is the most important and significant of the debates and as such a subject of both physics and mathematics. This last and most important of the philosophical debates in physics is actually both a misstatement and misrepresentation of the point-/extension-space geometrical problem, so the concept of the dualistic nature of physical space (point quantum versus metric curvature) resolves that problem and the determinism versus indeterminism debate reduces to no more than a case of ‘much ado about nothing’ since neither viewpoint represents physical reality, just human vanity with regard to physical reality. This means that the quantum and relativity are not incompatible as has long been thought, but are in fact totally compatible. So once the Einstein unified field theory has been completed by combining the anti- or non-symmetric approach of Schrödinger and Einstein (to account for DM and DE) with the higher embedding dimension approach of Kaluza (to account for a unified EM and GG), the dualism of space, point versus extension, leads to a full unification of quantum and relativity in the form of quantized space-time curvature by utilizing Oscar Klein’s suggestion or strong implication [45] that quantizing the embedding fourth dimension of space automatically quantizes the complete expanse of four-dimensional space-time and the material particles and quantum events that occupy it.

Nearly everyone in the academic and scientific communities as well as the pop science community, including wannabe scientists who read science literature but never actually study science, was (and still are) stuck on ridiculous assumptions and unnecessary philosophical interpretations that are insignificant compared to the real fundamental problems separating the different paradigms of physics. Their misbeliefs and scientific prejudices are so strong that they cannot see the solutions to problems, let alone accept the correct solutions, that are both figuratively and literally staring them in the face. In fact, Einstein, Schrödinger and a few of their colleagues very nearly had the correct answer for a total unification when they used a more general tensor calculus and its corresponding geometry sixty to seventy years ago: The anti-symmetric tensor, which we now know can explain and account for normal gravity as curved space-time continuum, but can also predict a secondary form of gravitational action, gravnetism, which science now refers to as Dark Matter and Dark Energy.

Einstein and Schrödinger came so close to predicting their existence, a full four decades before their observation and confirmed discovery by astronomers, that it is hard to believe how they missed predicting the existence of Dark Matter and Dark Energy. By 1944, Schrödinger [46] had taken up the search for a unified field theory using the 1929 Einstein–Cartan anti-symmetric model, [47] which offered the most generalized intrinsic version of the Riemannian extension geometry available, as a starting point. He combined this with Eddington’s earlier work [48] on the affine connection and distant parallelism to complete his generalized tensor calculus and the geometry it represented. He was searching for the most general physical expression of a discrete point within the context of the Einstein-Riemann concept of space-time curvature.



If Einstein, Schrödinger and their colleagues had not been so intent on relating the non-symmetric tensor to EM and thus unify GR and EM, they could have predicted DM and DE as secondary gravitational effects five decades before they were first observed

Within two years, Schrödinger had shown that the anti-symmetric tensor mathematically into three different parts: The metric or symmetric tensor that Einstein used for gravity in general relativity, Einstein's non-symmetric tensor and a constant  $\lambda$ . He later said [49] that the constant could possibly be Einstein's cosmological constant, a new term for some new gravity effect or possibly a solution to the fusion problem in the atomic nucleus.

In a 1947 letter, [50] Einstein completely rejected the possibility that the constant that Schrödinger had derived mathematically could be his old cosmological constant because he had been burned so badly on the concept ten to twenty years earlier. But both Einstein and Schrödinger noted the important fact that they were essentially working on the same model which produced the non-symmetric tensor that Einstein had introduced in 1925 [51] and returned to in 1945 [52] to explain electromagnetism. By 1951, Einstein had perfected his new non-symmetric model enough that he tested it by calculating the effect on a charged particle within the field. Unfortunately, his calculations showed time and time again, no matter how he did the calculations, that the effect was negligibly small and independent of the charge on the particle in the field, [53] which just happened to be exactly the opposite of what Einstein expected. So, Einstein admitted defeat and left the task for future physicists to solve. Einstein never realized that he had actually calculated the local effect of Dark Energy on material particles.

Yet if Einstein, Schrödinger and their colleagues had not been so adamant and intent on relating the non-symmetric and anti-symmetric tensors to the combined gravity and electromagnetic model, they could have and would have predicted Dark Matter and Dark Energy a full five decades before they were first observed. Those predictions and their later confirmation would have completely altered the course of physics and the present physics worldview as well as changed the face of science radically for the better today. A few scientists today [54] have revived this work with the anti-symmetric tensor and claim that they have discovered a new secondary effect of gravity called the torsion field, yet even they do not realize that what they are working with is instead the Dark Matter and Dark Energy effects, or what is called the gravnetic field within the context of the single field theory.

We now have a complete theory of gravity based on the extrinsic curvature of the four-dimensional space-time continuum that also happens to imply the next step toward total unification

with electromagnetism and then the quantum. The key here is the word ‘extrinsic’ which implies that the embedding dimension must be taken into consideration for complete unification. General relativity is indifferent to whether the curvature is intrinsic or extrinsic, so a higher embedding dimension was not necessary for mathematically interpreting general relativity. However, a higher embedding dimension of space does make it easier to understand the geometry of the gravnetic field – Dark Matter and Dark Energy – with reference to the Riemannian differential geometry of surfaces. [55] In fact, if space and time are split apart, the way they were in Newtonian physics, Newtonian gravity theory can and has already been altered to account for what we presently call Dark Matter and Dark Energy, but is really the gravnetic field.

The Newtonian equivalent equation was published in 1893 by Oliver Heaviside [56] who reasoned that Newton’s gravity equation should actually take a form that looks like the Lorentz equation ( $\mathbf{F} = q\mathbf{E} + q\mathbf{v} \otimes \mathbf{B}$ ) for electromagnetic forces. In this case, the second term represents gravnetism or the gravnetic field.

$$\mathbf{F}_G = m\mathbf{g} + m\mathbf{v} \otimes \mathbf{S}$$

Heaviside identified the second term ( $m\mathbf{v} \otimes \mathbf{S}$ ) as a true centrifugal force determined by an equilibrium state of gravitational attraction between the orbiting body and the rest of the matter in the universe, which is correct. In fact, the second term represents a real formulation of Mach’s principle and  $\mathbf{S}$  can now be identified as the gravitational attraction due to the rest of the matter in the universe which creates the Riemannian positive spherical curvature of the universe, or  $\mathbf{\Gamma}$ .

Moreover, the Heaviside equation offers a new interpretation of quantum theory. Newton’s original formulation for gravity,  $\mathbf{F} = m\mathbf{g}$ , establishes the relative static and dynamic spatial structure of the universe as it changes through time, given that the structure is the combination of all relative two-body attractions in the universe. However,  $m\mathbf{v}$  in the second term is a primary quantity in the quantum theory rather than space and/or time, which can be related to the quantum through the DeBroglie matter wave equation,  $\lambda = h/mv$ . This conclusion can be interpreted as confirming that gravity, as a structural component of all bodies in the universe dealing with space and time, can never be quantized, while the second term which deals with physical changes (quantum events) such as momentum occur only at the point of origin of the orbiting body with momentum  $mv$ . The momentum of the orbiting body is constant and unchanging relative to the orbited gravitational body, which does not change its position relative to the rest of the universe, but it is not constant and changes point-by-point relative to the rest of the universe. Or rather the first term establishes relative space, while the second term establishes the quantum absolute space, while the Heaviside equation unifies the two of them geometrically within a higher-dimensional (Euclidean) embedding space or Newtonian hyperspace.

Now, given the new anti-symmetric form of general relativity as interpreted above, the older discredited method of further generalizing Riemannian geometry of the three-dimensional surface to account for electromagnetism and the quantum is out of play. Physics need not worry about a new and/or different geometry (non-Riemannian or pseudo-Riemannian) to place in the three-dimensional point-originating extensions into the higher-embedding dimension because Kaluza’s A-lines, extended in the higher embedding dimension, already unifies relativistic gravity with electromagnetism. But Kaluza failed, as did everyone else, to consider how discrete points (by

definition they are non-connected points in space) can form a continuous extension such as a line or surface in three-dimensional space.

This problem seems to be compounded by the fact that a line, no matter how short, always contains an infinite number of such points, which when stated in this way seems to be completely illogical even though it is mathematically true. This could be called the quantum theory problem, but it could also be called the primary problem of all concepts of space and time, whether physical or mathematical, as well as all arithmetic and geometry. This problem becomes all the more significant because it lies at the very basic notion of all mentally interpreted worldviews, but there must be a way to quantify it because nature is one, holistic and not divided or reduced within itself. Extending the extrinsic geometry of Riemann over four-dimensional space-time to include the geometry of the embedding dimension does not specifically guarantee the three-dimensional continuity through that geometrically discrete point for the purposes of the quantum theory and/or the purposes of the 0-D point/twist Void for general relativity, it only makes it seem more significant. The method of extending it and the result of that method are what guarantees the continuity of the three-dimensional surface despite the discreteness of the points that constitute the surface.

The major 'point' of contention has now been reached and the question of how the discrete points (non-continuous infinities) of quantum theory can be equated to 0-D points of any kind in the Riemannian surface geometry can now be asked and answered. In other words, how does a non-continuous point fit into a measurable extension that consists of an infinite number of such discrete points? Or what provides continuity between the discrete points that constitute an extended line or surface and how can this be demonstrated physically? The answer is a 'discrete point compromise'. The 'discrete point compromise' is the point-location of overlap between the quantum absolute and continuous relative spaces, which solves the dilemma of the seemingly uncompromising and unsolvable differences between the 0-D point/twist Void of Riemannian geometry in relative space and the quantum discrete points in absolute space. However, it raises another ugly problem facing all of physics and physical mathematics: How do we deal with any mathematical infinities resulting from the application of mathematic to physical situations? This problem is not new and dates to the very foundations of physics in the first workable definitions of speed, instantaneous speed and acceleration, but are solvable if we take on one problem or group of problems at a time.

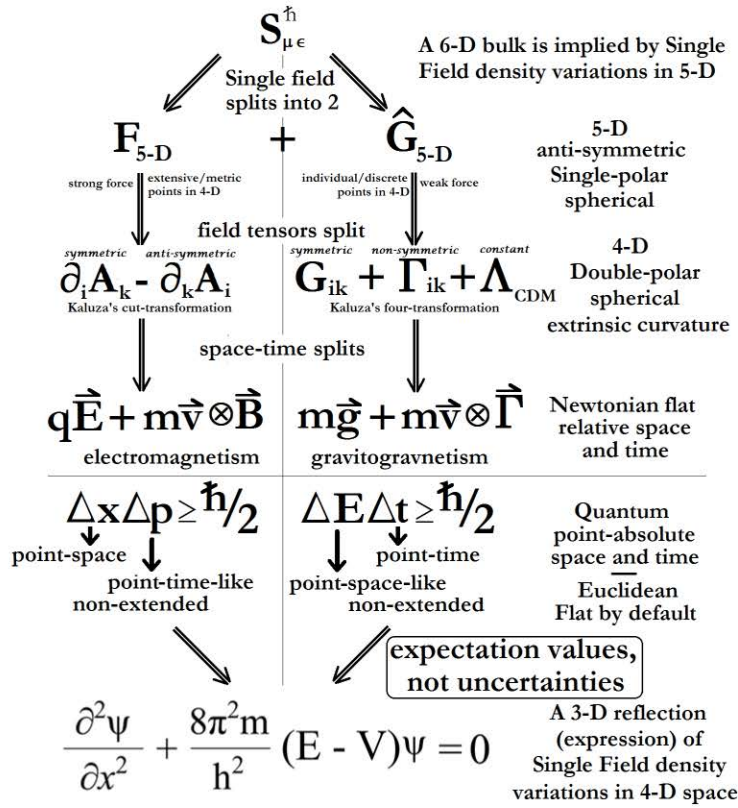
Furthermore, science also needs to deal with one other related question, which it has been avoiding throughout the whole of its history: Do infinities really exist in nature or are they just mathematical anomalies that have no real physical counterparts? In other words, the physical problem of distinguishing between discrete points and extensions in space-time is reflected in the purely mathematical problem of distinguishing between infinitesimals and infinities, all of which are distinguishable and thus real points of contention. It was only in the late nineteenth-century that the first attempts to count and account for infinities was made by George Cantor in set theory, which reflected ongoing problems in failing to solve the point/extension duality in both arithmetic and geometry. [57] Cantor realized that different ordinal numbers represented by sets in group theory could have different cardinals, which represented the size of the sets, rather than the ordinals of a pure number of 'infinity'. His discovery implied that a physics of infinities was possible whether infinities really exist in nature or not.

With these questions answered or possibly delayed until we have enough information or high enough level of intelligence and consciousness to really understand them, and if the other avenue of further generalizing Riemannian geometry is blocked to the unification, how do we unify general

relativistic gravity and electromagnetism as well as relativity and the quantum? Enough hints have been given to make that choice simple. You turn to the only successful unification ever accomplished, although it was questionable at the time because it used a vastly over-restricted hyperspatial geometry – Kaluza’s 1921 five-dimensional unification – which has been all but ignored by physicists at the time because it was so physically restrictive that it added nothing (it was not falsifiable) new to physics. It has now become necessary to consider the actual physical geometry of the fourth spatial dimension (or manifold) in which our three-dimensional space is embedded and extrinsically curved, but is also a single, although primary and very dense, surface.

Einstein and Peter Bergmann tried this approach in 1938 and later, being joined by Valentin Bargmann [58], but they, once again, did not go far enough. They ignored the mathematical notion of closure in the higher embedding dimension. The embedding dimension must restrict all of its A-lines to equal length and closed hyperspatial loops by returning to our three-dimensional surface to the bottom of the same discrete point from which they parted the top of the surface. Kaluza had this part correct, but he restricted the closure to infinitesimal distances instead of the macroscopic distances needed to explain our observed physical reality. Instead, this restriction closes and limits the higher embedding dimension to a macroscopically extended distance (circumference), which Einstein, Bergmann and Bargmann utilized, but renders it in a single-polar structure, which they did not even mention despite its significance to guaranteeing the precise physical properties that we observe on a regular basis within the three-dimensional surface that is our universe. [59]

Now, if a discrete geometrical point is geometrically equated to a Riemannian 0-D point/twist Void, [60] then Einstein and Bergmann’s 1938 interpretation of Kaluza’s successful five-dimensional unification with electromagnetism can be extended to represent a real five-dimensional macroscopically extended space-time whereby our four-dimensional double-polar spherical space-time continuum is embedded in a physically real five-dimensional single-polar spherical Riemannian manifold. Under these physical circumstances a complete model of unification can be developed as represented and summed up by the following diagram.



The single field density/stress tensor  $S$  manifests in two different ways in four-dimensional space (five-dimensional space-time) by splitting into two parts, representing point and extension, along the fourth direction of space. The point manifestation is far weaker and becomes the Gravitogravnetic tensor  $G$  while four-dimensional extension manifests as the much stronger the Electromagnetic tensor  $F$ . This split rather simply and eloquently solves the Hierarchy problem in physics which has bedeviled science and the philosophy of science for two centuries.

The Electromagnetic and Gravitogravnetic portions of the four-dimensional single field split again, each into two parts representing point and extension, when reduced to our commonly experienced four-dimensional space-time reality which our mind further splits into our three-dimensional space and separable time representing constant change. For electromagnetism, the anti-symmetric Faraday tensor emerges and for Gravity the anti-symmetric Schrödinger-Einstein-Cartan tensor emerges. When space and time are split apart to yield classical physics, these emerge as the Lorentz force for electromagnetism and Heaviside force for Gravity. The Faraday tensor is a primitive rank 2 tensor so there could still be more physics to emerge from the single field tensor  $F_{5-D}$ , while the Schrödinger-Einstein anti-symmetric tensor  $G_{5-D}$  splits into the Einstein non-symmetric tensor (normal metric tensor + dark energy) and a constant equal to  $\Lambda_{CDM}$ .

Splitting space from time yields Newtonian classical physics, but also gives rise to the Heisenberg uncertainty principle, which represents a purely mathematical (and thus an unnatural mental/philosophical rather than true physical) interpretation of physical events at the quantum scale of reality. In other words, the fundamental geometric concept of extension yields to discrete (0-D) points at the impossibly smallest level of reality, thus invoking the possibility of considering immeasurably small variations in space-time independent of one another through either space or



time alone, which manifests their binding constant  $\mathbf{h}$ . Physical events represent ‘change’ and thus the forward direction of time cannot occur in space without a corresponding time change although time can change at any point in space without a corresponding change in space. This fact differentiates space and time even though both are completely necessary for a true and comprehensive description of any physically real event.

On the other hand, the uncertainty principle unnaturally splits space and time apart mathematically (to create mathematical uncertainty) and not truly physically because they are naturally bound together in nature, and tries to interpret a new unnatural mental ‘reality’ from this split. In other words, the uncertainty principle looms at individual point events in space-time ‘AS IF’ they could be split apart to gather information and observational data about the physics of their smallest possible measurable effect. Within this unnatural context of mathematically discrete points, or rather in the quantum point absolute space that the uncertainty principle generates, quantum mechanics addresses either space ( $\Delta x$ ) and a pseudo-time element of momentum ( $\Delta p$ ) and/or time ( $\Delta t$ ) and a pseudo-space element of energy ( $\Delta E$ ) simultaneously.

The unnaturalness of this mental split is evident in the simple (classical) physical/calculus relationship (where integration implies continuity of the function being integrated).

$$E = \int (dp/dt) dx,$$

That is further reduced to

$$dE dt = dp dx$$

$$dE dt = \text{constant} = dp dx.$$

This equation represents the physical case, for mathematical purposes, wherein a measurable extension in space-time is approaching its limits as a point. This can be compared to the quantum uncertainty relationship

$$\Delta E \Delta t \geq \mathbf{h}/2 \leq \Delta p \Delta x,$$

in which the same four variables are shown not to be physically linked together despite centuries of direct observations to the contrary. However, in the quantum relationship, the opposite to the classical case is true since the discrete point representing these quantities is trying to approach a measurable extension, but cannot because even an infinite number of zeroes, discrete points, or nothings is still a nothing, which invokes the quantum limit as expressed by Planck’s constant and probability theory instead of real physical mathematics.

The classical portion of this relationship between the four stated variables ( $dE$ ,  $dt$ ,  $dp$  and  $dx$ ) occurs in relative space-time while their corresponding uncertainty variables ( $\Delta E$ ,  $\Delta t$ ,  $\Delta p$ ,  $\Delta x$ ) occur in a quantum absolute space with time. The four classical variables mathematically commute with each other, *i.e.*, they are real in real space-time, and thus bound by their physical relationships, *i.e.*, all four are continuous with one another. However, when split such that  $\Delta x$  and  $\Delta p$  make a non-commuting pair as do  $\Delta E$  and  $\Delta t$  in the quantum absolute space, any relationship between them is purely mathematical and thus mental and not necessarily physical even though they remain related in

the domain of real physical measurable quantities. The difference between classical continuity and discrete quantum-ness comes from the action of mentally and completely splitting space and time asunder by considering the possibilities of actually reaching instead of just approaching the zero and infinity limits, which invokes the appearance of the binding constant  $\hbar/2$  and quantum indeterminism yielding the basic equations of the misnamed uncertainty principle. If infinities do not truly exist in physical reality, then the quantum's uncertainty principle says the same thing as classical physics, *i.e.*, they both workhand-in-hand in five-dimensional relativistic space-time.

So  $\Delta E$  should at least be proportional to  $\int (\Delta p / \Delta t) \Delta x$  for any given physical reality, but not necessarily for any quantum absolute event. The complete unnatural split of space from time introduces the infinities that require mathematical 'renormalization' for quantum mechanics to even work when infinities, which do not truly exist in five-dimensional space-time, are falsely made to appear. It is rather strange that this integral contains all of the components that the total HUP contains, only the HUP splits these components apart as if they have no physical relationship to each other, when in fact they do. This mental/mathematical split itself, which is clearly unnatural such that it is not found in nature, but is impressed on nature by the observer and/or experimenter, clearly creates the uncertainty, which does not really exist in nature, by probabilistically and thus mathematically invoking the Planck constant as a mentalized prediction of nature and reality. This split further demonstrates that  $\hbar$  is nothing more nor less than the point-by-point binding constant of time to space. The point-by-point quantum space that is thus created represents an absolute space which is a probabilistic background to Einstein's relative space in general relativity, which explains why the two theories have not yet been unified.

The correct interpretation of the HUP is not as a

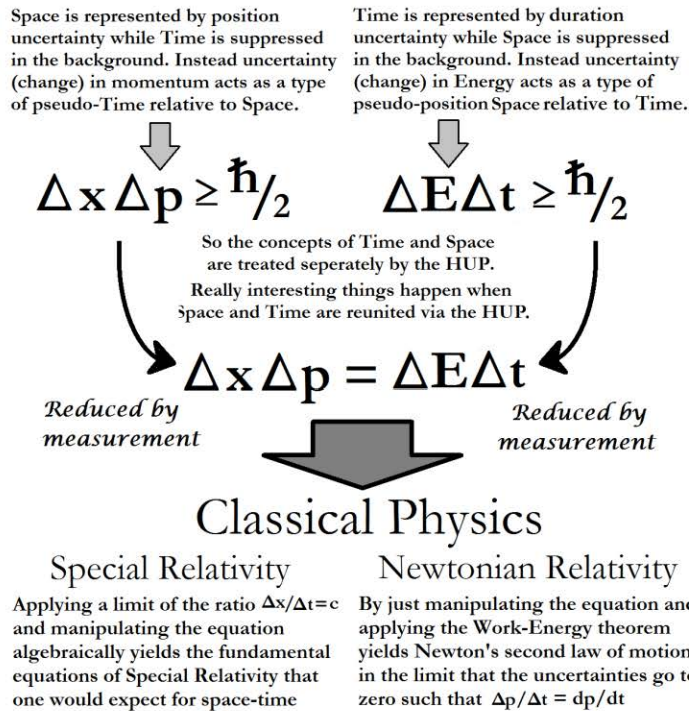
$$\Delta x \Delta p > \hbar/2 \quad \text{OR} \quad \Delta E \Delta t > \hbar/2$$

situation, but instead a

$$\Delta x \Delta p > \hbar/2 \quad \text{AND/OR} \quad \Delta E \Delta t > \hbar/2$$

situation. OR emphasizes the complete unnatural split of space and time and thus yields quantum mechanics, but AND yields classical physics given special conditions as summarized and described below. If we just say that  $\Delta x \rightarrow 0$  without ever reaching zero, then its non-commuting partner  $\Delta p \rightarrow \infty$  without actually reaching infinity, but remains countable although very large. This is exactly what happens in the real case of a discrete point in three-dimensional space that is extended in the fourth direction of a closed embedding space or manifold. This situation would still be perfectly classical and the two equations would be equivalent. It is only when  $\Delta x$  and  $\Delta p$  become zero and infinity in tandem with each other that we need to invoke quantum mechanics, real point particles and probabilities, and that only occurs in the quantum point-absolute space and never the real relativistic extension space.

It is clear from this break down of the uncertainty principle, that the specific certain 'hidden variables' that have been spoken of by other scientists are not present, but there are real 'suppressed variables' behind each formula of the uncertainty principle.



Time is suppressed and replaced by momentum, which acts as a pseudo-time variable for the purposes of deriving solutions, in one equation, while space is the ‘suppressed variable’ in the other equation where energy acts a pseudo-space variable. When the equations are placed back together algebraically, reuniting space and time, all quantum limits in the form of Planck’s constant disappear and both special relativistic and Newtonian relativistic conditions prevail. [61]

What we find then, both physically and mathematically, is that everything in three-dimensional space has a four-dimensional counterpart. This means that the Schrödinger  $\Psi$  function represents three-dimensional space or four-dimensional space-time and is coupled to a fifth-dimensional extension equivalent to the DeBroglie pilot wave [62] in his 1927 theory of the double solution. Likewise, the classical electromagnetic transverse wave in three-dimensional space or four-dimensional space-time has a fifth-dimensional longitudinal wave correlate as described by Edmund Whittaker at the beginning of the twentieth century. [63] Moreover, the missing Supersymmetric particles that have been predicted by the standard Model at higher energies than the Higgs boson are NOT missing despite the many attempts to detect them at the LHC and other accelerators. Just as consciousness is the fourth-dimensional extension pattern of body/brain/mind, the Supersymmetric particles are the point-by-point fourth-spatial dimension extensions of normal particles extending beyond that part of the real material particle within the primary three-dimensional ‘sheet’ of parallel surfaces.

This duality is also evident in quantum’s probabilistic mechanics where

$$\Psi(x) = \{\psi | f(x) | \psi\}.$$

One component of the uncertainty  $\psi$  corresponds to three-dimensional point-space and the other component  $\psi^*$  corresponds to a purely mental extension in the fourth dimension. Uncertainty exists

only in the points of three-dimensional space (not in three-dimensional metric extensions as described in general relativity) as a mental construct and a projection of our expectations onto physical reality. Within this context, the uncertainty principle is not really about uncertainty, at least not directly, but rather expectation values and infinities. This means that the uncertainty principle, quantum mechanics and the quantum theory in general have been grossly misunderstood since 1927, which has recently led physics into a dead-end avenue of theoretical research, *i.e.*, looking for point-particles that do not exist and other equally improbable mathematical schemes and contrivances that were invented for no more reason than to better describe or patch up what is already a damaged theoretical model.

Heisenberg tried to rid physics of its dependence on space and time and establish a new physics based on point-events themselves. His was a human mental and mindful choice, based on the brain's logic alone, to overcome the way that nature presents itself to scientists through our sensations and observation as a material reality. He changed the perspective of interpretation from external (event relative to the universe at large) space and/or time to that of the event's (chance event from which the universe arises) internal perspective. He and Bohr literally tried to turn physics inside-out and then force nature and physical reality to bend to fit their interpretations of nature and physical reality. Theirs was a good method within the prescribed limits and restrictions and worked well to demonstrate the outer (or inner) limits of space and time within nature, but scientists have since tried to apply their ideas and overly limited quantum methods across the whole spectrum of events and phenomena, without their inherent restrictions, and that will not work.

Quantum dilettantes have synthetically changed the language of physics to mathematical probabilities and in so doing planted their expectations (not uncertainties) of what the universe 'should be' and how nature 'should act and react' into immeasurably small discrete points rather than observe how the universe was connected/related to and affected those points and point-events. From the standard uncertainty principle, whereby science applies the relationships  $\Delta x \Delta p > \hbar/2$  OR  $\Delta E \Delta t > \hbar/2$ , we know that as any quantity increases its noncommutative partner decreases, and vice versa, between 0 and  $\infty$ , but uncertainties only range from 0 to 100%. Expectation values in probability theory, on the other hand, do range from 0 to  $\infty$  and are proportional to the squares of the probabilities,  $\psi\psi^*$ . Quantum theory should be about what science expects to discover about nature when nature is unnaturally stretched beyond its natural limits to completely real but logically impossible discrete points that represent events and particles, but are not really those events or particles which are, in reality, infinitesimally extended and still approaching but never reaching zero extension, *i.e.*, tricking nature into divulging her most intimate secrets, represented by Planck's constant, of how she binds space and time together to create our physical/material reality.

In all quantum experiments and observations, physicists 'expect' to find something within some three-dimensional volume of space or 'expect' something to happen within that three-dimensional volume of space, a quantum absolute space, so the associated probability (expressed as the uncertainty) is just the probability that the observation will yield what is 'expected' within that three-dimensional volume, even as that three-dimensional volume is reduced or shrunk to a point in space. The uncertainty (probability) is therefore limited to a value inside of that three-dimensional volume as the three-dimensional volume approaches or is shrunken into an exact absolute location at a discrete point in space, not to the wholeness of the surrounding space outside of the three-dimensional volume of the event, such that the probability does not and cannot apply to any

extended volumes or dimensions as expressed, observed and scientifically analyzed by measurements in relative space.

The three-dimensional point-space created by such a quantum measurement point-event is thus no more nor less than a Newtonian-like Euclidean absolute space. This interpretation allows a geometrically discrete point that is filled with an infinite number of corresponding 0-D point/twist Voids (its own geometry) so that it is continuous with the Riemannian surface differential geometry requirements that  $\Delta s \rightarrow 0$  on either side (the one-dimensional case) of the specified discrete zero point and no matter how small  $\Delta s$  is, even if it were shrunk to nothingness or zero, it would still consist of an infinite number (an  $\aleph_0$  infinity) of points and is therefore continuous with all other points in any given line, area or volume of space. [64] quantum discrete points are zero or 'nothing' having no value dimensionally, at best virtually one-dimensional, while 0-D point/twist Voids are virtually three-dimensional, so they have the same mathematical value (zero or nothing), but are philosophically different (if only virtually).

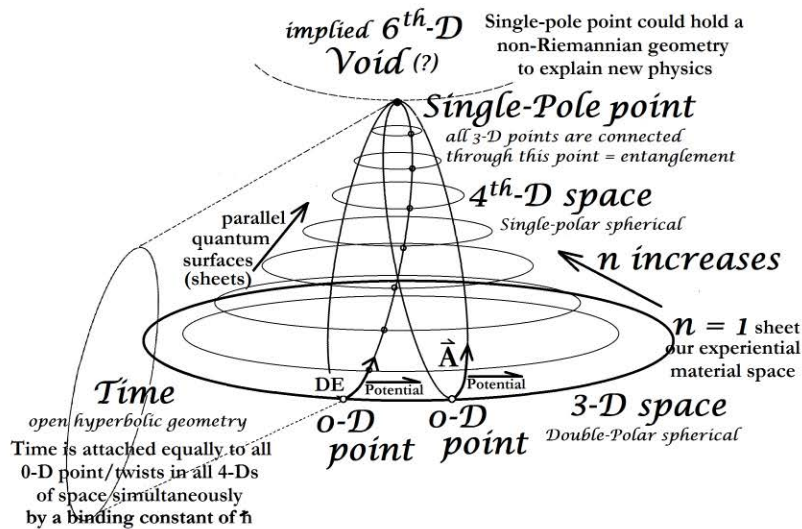
For the sake of physics and unification, these changes to the interpretation of the quantum allow the complete incorporation of the standard model into the new single field theory with the stipulation that all real particles are extended with a half-spin and all other point-particles are, at most, temporary single field energy resonance patterns that act as intermediaries or intermediate pseudo-particles before the emergence of real particles through spontaneous decay, if not just mathematical artifacts stemming from rigorized mathematical systems that have been purified and stripped of all physical content. This model relies on the physical truth that quantum theory depends completely on a point-based absolute space, the limits of which forces any uncertain quantities that arise in the uncertainty principle as zero points, physically realizing a 'point' in space-time where space and time can be rendered separate by involving the binding constant  $\hbar$ . So, it is not physical reality that is indeterminate, as Bohr and Heisenberg would have it, it is the true discrete point limit or the discrete points themselves that constitute the quantum absolute space that is indeterminate. Even then, the probability is strictly mathematical, a product of the calculations not the true physical variables themselves, and thus a purely mental interpretation and conscious representation of physical reality rather than an inherent physical feature of reality itself because those limits are only approached and never reached in physical reality and nature.

Indeterminism is forced unnaturally on, falsely projected from point to extension onto the extended wholeness of physical reality by the three-dimensional human mind and brain which are not yet capable of differentiating the wholeness of the single field in four-dimensional space without splitting it up into the geometric duality of point and extension in three-dimensional space. In the more practical terms of measurement for the sake of scientific observation, we cannot localize extended matter or a material body to a specific geometrically discrete point in three-dimensional space, but attempts to do so, even though they are sometimes only mental attempts, have greatly influenced the interpretation of quantum theory for the past ninety years (since 1927). So science has adopted the position, which is false and unnatural, that material particles themselves are points in space as expressed in the Standard Model.

In other words, quantum theorists, philosophers and mathematicians have it completely backwards, and this position has led to numerous problems in advancing physics as well as experimental and observational inconsistencies that scientists have had to deal with to advance physics any further. Everything in physics, including even the general concept of consciousness and

perhaps even individual consciousness itself, comes back to how we interpret individual discrete points as either relative locations in the space-time continuum (points in and constituting the extension) or events independent (discrete quantum points) of the space-time continuum. Only when they admit their mistaken worldview, the incompleteness of the quantum theory, and adopt the reality that their beloved probability and indeterminism is in the quantum discrete points that together constitute a quantum absolute point-space which they have mentally projected onto the physically real extended space-time which we observe and experience every day, will scientists and philosophers be ready to unify physics and science and the physics community be ready to accept true unification of the quantum and relativity.

Given this new attitude, science can now quantize the strictly Riemannian geometric model by equating Riemannian 0-D point/twist Voids in relativity theory to discrete points in the quantum theory, where points in relative space and absolute space coincide. A point in space is nothing more nor less than that point in space, despite these two ways of interpreting that single point which are merely reflections of three-dimensional mind projected onto physical reality. When this task is completed, the actual quantization of four-dimensional space-time (changing quantum points to quantum extensions), we can adopt Klein's implied suggestion that quantizing extensions in the embedding fourth dimension of space is equivalent to quantizing points, extended bodies and quantities in three-dimensional space.



This structural suggestion yields an infinite number of infinitesimally thin parallel three-dimensional surfaces constituting the overall extended embedding dimension of space-time, as pictured by Einstein and Bergmann in 1938. Although they did not attempt to quantize curvature in this manner, although they perhaps weakly and unknowingly implied such a picture, the result is a very large but finite number of quantized 'sheaves' or 'sheets' of parallel three-dimensional surfaces (perpendicular to and passing through each discrete point along the A-lines in the fourth direction of space) that extend into and thus constitute the higher embedding dimension

Per this structure, the single field (while remaining continuous) in three-dimensional space or four-dimensional space-time (the extrinsic curvature of the four-dimensional space-time continuum) is quantized by grouping parallel three-dimensional surface in the fourth direction of space into

‘sheets’ whose fourth-dimensional ‘thickness’ is proportional to the quantum: This ‘effective width’ of each of these ‘sheets’ of infinitesimally thin three-dimensional surfaces in the fourth direction of space is therefore governed by and proportional to the fine structure constant. Each point in three-dimensional space is extended into the embedding fourth dimension as point-vector potential, *i.e.*, magnetic vector potential and gravnetic vector potential, but gravnetic vector potential can take the form of Dark Energy in each point in free space and mass inertia under the curvature that marks particles and Higgs’ points within curvature around massive particles. From these relations and field characteristics, a single model of the atom, including both the nucleus and orbiting electron shells, has been developed based solely on quantized extrinsic space-time curvature of the  $n=1$  ‘sheet’ which constitutes our real materially sensed and experienced world. [65, 66]

This model implies the model of life, mind and consciousness stated above given that all material bodies, from simple atoms to the most complex, are constituted from a mixture of the same three field components – the curved matter/energy field, electric and magnetic fields. The three-dimensional quantized curvature complexity incorporates a living organism’s anatomy (curvature or form) and physiology (changing curvature as bio-chemistry and living processes or function). Mind and consciousness incorporate the whole body, but awareness of them only occurs in the brain where electric and magnetic patterns reach a high enough level of complexity to gain effective control of the body. But where is consciousness, in general, and what role does the concept of consciousness and/or Consciousness, if it is real and exists, play in the comprehensive cosmological model that the single field theory implies? Are the evolution of life and consciousness ‘chance’ events? Or are life and consciousness manifest (pre-ordained) in our physical universe? The concept of consciousness is essential in the human interpretation of the universe, nature and physical reality as presented in our physical theories of such.

In this respect, the infinities that play the most essential role are called singularities, just those discrete points or 0-D point/twist Voids in space where the density of matter (0/0) is mathematically thought to go to infinity, but physically need not do so. Those are the exact same points that the present quantum and relativity paradigms disagree upon: The point centers of particles, the point centers of black holes and the original singularity from which our universe is thought to have emerged and evolved as predicted by general relativistic modelling in the 1920s and the astronomical observations of Edwin Hubble in 1929 that the universe was expanding uniformly at equal distances from the Milky Way, our home. This expansion implies strongly that our universe must have been concentrated in a single point, the singularity, at some time in the distant past. Of these three, the so-called Big Bang model is the most important to the evolution and later development of our present universe.

So, the only ‘place’ and/or time that could yield an answer to this conundrum, what is the source of consciousness, is the one singular point where space and time are thought to have emerged, at their origin where they were first physically differentiated. So, with this more complete theoretical model of physical reality in hand, we now need to take a closer look at where our universe ‘supposedly’ came from and how it came to be what it now is. Quantum theory (point-space) gives no hints about the Big Bang event and general relativity (extension-space) can only predict the original singularity without telling us anything about it beyond educated speculations, but single field theory can. This fact necessitates a new interpretation and understanding of the Big Bang and the subsequent cosmic inflation that ‘created’ our universe as we now experience it.

## Neurocosmology

Modern scientific cosmology began in the 1920s, when the world's leading astronomers decided that the universe was not just the Milky Way Galaxy, our home, but that observed nebulae were actually other galaxies much further away. This discovery was followed in 1929 by Hubble's observation that the other galaxies were all receding from the Milky Way galaxy with those further away moving proportionally faster relative to their distance from the Milky way. He and nearly everyone else has interpreted this finding as observational proof that the universe is uniformly expanding. At that time, Einstein's general theory of relativity was a little more than a decade old, but fortunately for it Georges Lemaitre [67] and Alexander Friedmann [68] had already predicted that the universe should be expanding due to its overall energy content, confirming beforehand Hubble's expanding universe observations.

Einstein had crossed this bridge a decade before and added his cosmological constant to prevent the expansion yielding a static universe, but later admitted to Lemaitre that Lemaitre was correct in his findings and he was wrong. Since then, the Big Bang model of the universe, emerging and evolving from a point singularity approximately 13.5 billion years ago, has become the dominant paradigm in cosmology and astrophysics. The best alternative model, pushed by Fred Hoyle [69] in the 1950s and 60s, was the steady state universe which claimed the expansion was due to a constant renewal of matter being created elsewhere in the universe, which pushed the expansion forward and would have yielded a universe of infinite age and duration.

The Big Bang singularity model, however, is not without problems. The present expansion rate is far lower than that necessary to have created a universe of the measured size we now have. So, Alan Guth proposed in 1981 [70] that the early universe underwent an exponential expansion rate much faster than today immediately after the Big Bang singularity until it reached almost the size that the universe has today before slowing down. This 'cosmic inflation' was supposedly driven by a positive vacuum energy density (negative vacuum pressure). Guth's model of 'cosmic inflation' agreed well with the results of the Cosmic Microwave Background (CMB) mapping of the universe in 2006. However, serious problems still pop up regarding this model and perhaps the greatest is the simple fact that the protons in the universe were supposed to have been created when cosmic inflation ended, but the only way that that is presently thought to have been possible is if an equal number of anti-protons had been simultaneously created and those missing anti-protons have never been observed.

Many scientists have offered extremely speculative excuses why the equal number of anti-protons have never been observed, but real valid explanations 'why' are few and far between. So, the Big Bang model is at least incomplete if not wrong, or so the best scientific thinking goes today, but it is still the best model science has been able to develop to explain today's universe. But then, perhaps the model is correct as far as it goes, and the basic science that says protons can only be created in proton/anti-proton pairs is wrong, which means that the cosmic inflation model is correct, but does not go far enough by not adequately explaining how the era of cosmic inflation ended to give us our present slower rate of expansion. This seems to be more appropriate to the fact that the present paradigms of modern physics are both incomplete.

Both the general theory of relativity and the quantum theory, especially in its forms of both quantum mechanics and the Standard Model, have been found lacking in their expressions concerning the differences between point and extension, which would seem to have a direct bearing



on any questions regarding the point singularity from which our present universe supposedly emerged and evolved. General relativity, which predicts the existence of the Big Bang singularity at a fixed time in the past, is based upon the metric line element of  $\Delta s \rightarrow 0$ , which means that the length (metric) of a line (or volume of a three-dimensional object) gets smaller and smaller, approaching zero, but never reaching zero. Yet this geometrical element is being used to describe a supposed historical event that not only is a nothing equal to zero, but goes even beyond that to describe a no-thing that is not yet even up to being nothing of zero value. In other words, relativity theory is inadequate to describe the original singularity that it predicts.

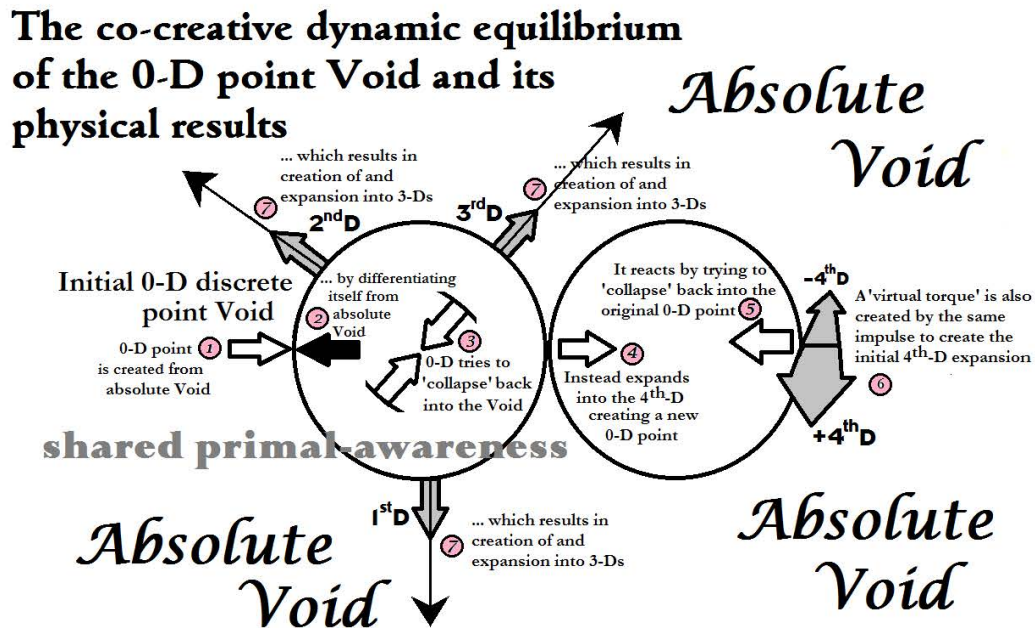
Quantum theory is no better than general relativity or classical Newtonian physics in this regard since it deals with non-commuting pairs of physically measurable variables that approach zero uncertainty (expectation), but never go to zero uncertainty (expectation) because that would be considered absolute and drive the non-commuting variable paired to the measured variable infinite, which is impossible. Since both of today's paradigms only refer to measurable quantities and do not even approach the possibility of addressing the what, they are completely unable to shed any light on the questions of 'how' and 'why' that are associated with the predicted Big Bang singularity. Both modern physics paradigms are about measurement and not things that cannot be measured only go so close to a zero of nothing as far as measurement if possible, so neither can offer anything valid about space and time in the pre-measurement era. Everything before measurement even became possible is mere unfounded speculation, and then not even valid speculation based on sound evidence or thinking. However, the single field theory model does deal directly with infinities and zero points, so it offers a guide as well as the only possible physical and reasonable insight into logically discussing and even 'imagineering' and thus realizing a new model of the Big Bang singularity.

Logically understanding the Big Bang model means understanding (1) How many 'nothings' can you put into a 'no-thing' until you get a 'something' that is nothing (zero)? (2) How many nothings (zeros) can you put into a nothing (zero) before it can expand into a something (extension)? (3) How many zeros lined up, one next to the other, does it take to grow or establish a measurable something (extension)? And finally, (4) How many moments of time will this process take? Modern physics is not even ready to ask these questions let alone answer these questions, but they are necessary to understand the early evolution of the Big Bang and our universe. It is clearly necessary to consider these questions to understand the Big Bang singularity that emerged in the suspected non-physical, no-thingness, not yet even timeless Absolute Void that is believed to have preceded, in some manner, the emergence of the initial singularity.

Existing in a period of indefinite or infinite timelessness, the singularity would have taken an infinite (undefined) amount of time to emerge, that is if time had even existed before the singularity formed. But when it did emerge, time began and then an infinite (undefined) amount of time would have passed before the singularity somehow morphed into a 0-D point Void which would have had some pre-physical, but still definable properties. The concept of the 0-D point Void was originally developed by Sperry Andrews who is not a trained mathematician or physicist, or even a scientist, but rather a physics intuitive who consciously senses the event. [71] The only semi-physical characteristics of that 0-D point Void would have been that it was virtually three-dimensional (reflecting the three-dimensionality of the space into which it would soon evolve) and it must have been able to differentiate itself from the Absolute Void from which it emerged.

That initial 0-D point Void must have somehow ‘felt’ or ‘sensed’ some type or form of ‘desire’, ‘need’, ‘wish’, ‘requirement’ or ‘obligation’ to collapse back into and return to the Absolute Void. From this description, it would seem that the initial 0-D point Void was somehow ‘aware’ of its own unique ‘self’, whatever that ‘self’ was, relative to the Absolute Void. Otherwise, without this awareness, the universe could not have ‘logically’ evolved into its present state in a manner that could be reasonably explained by the human mind. In other words, the 0-D point Void was also characterized by a non-physical ‘primal-awareness’ of its separation and continued separate existence from the Absolute Void.

Since the 0-D point Void was only virtually three-dimensional, it must have tried to collapse back into the Absolute Void, turning it into a 0-D point/twist Void. It would have experienced a virtual centripetal force at each virtual point on its virtual surface that created a two-dimensional twist relative to its overall three-dimensional virtuality. Like a two-dimensional spinning wheel in three-dimensional space that experiences a similar centripetal force at every point along its outer surface and creates a torque through its axle without actually collapsing inward, while just the attempt to collapse inward with a ‘twist’ of this type on its two-dimensional virtual surface would have created a virtual torque in each of the two direction of a perpendicular fourth dimension of space.



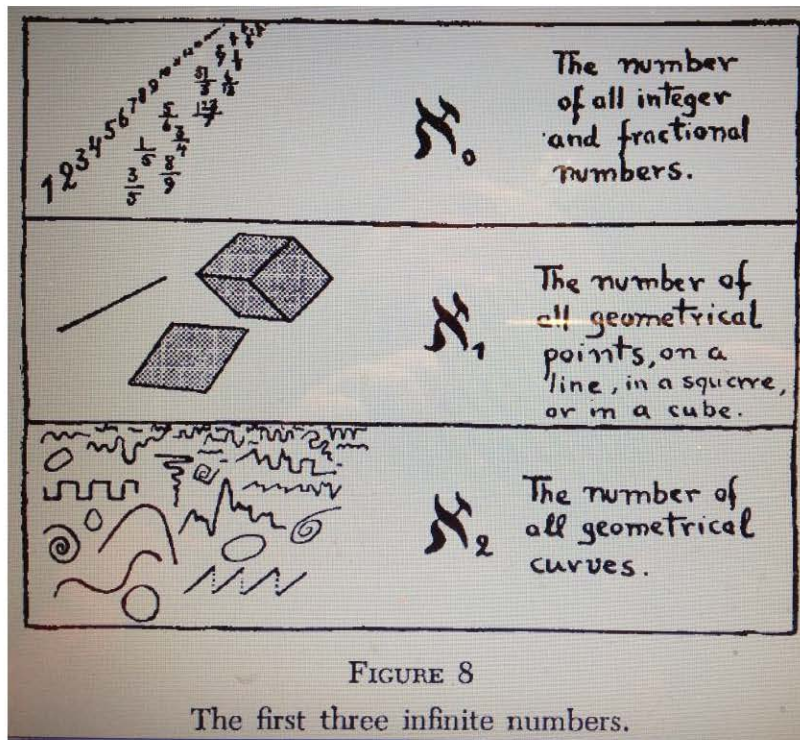
The virtual torque (positive above and negative below) would have been extended from its three-dimensional center to the three-dimensional center of a newly duplicated 0-D point/twist Void in the real fourth dimension. This action would have caused a reaction in the form of an equal and opposite rebound that would have created similar duplicate 0-D point/twist Voids in both directions of each of the three now real dimensions of space. This model demonstrates that something could have logically and reasonably come from nothing in the beginning, quite simply because that something and all subsequent somethings that derive from it ultimately add back to nothing, but only with the development of the ‘twist’. So, cosmic inflation would have begun in a manner that

can be easily and logically explain and remain completely consistent with the observed facts and physical characteristics of our present universe.

Having completed this first round of duplication and extension, three-dimensionality was no longer virtual, but had become a reality, although it is a strange reality. All of this occurred in the first moment of time, which had been created by the attempt and time would have been bound to the three dimensions of space as well as its fourth dimension by the binding constant  $\mathbf{h}$  or  $h/2\pi$ . Each of these new 0-D point/twist Voids would also be characterized by a virtual dynamic situation created by the twists that would guarantee their individual reality relative to the other 0-D point/twist Voids, such that they would not and could not collapse back into or impinge upon or overlap each other. The 'twist' thus defined and still defines the structural integrity of the 0-D point/twist Voids as discrete geometrical points in our three-dimensional physical space that correspond to moments (discrete points) of time duration. Yet space and time were not yet measurable even though extension and duration had just been created.

During every moment of time that passed, from this initial moment onward, this process recreated itself with each and every new 0-D point/twist Void previously created and space began its exponential expansion era of cosmic inflation growing into our present universe. Nothing truly physical existed before the event that ended cosmic inflation except for the passage of time. Everything was virtual at most, including extensible space itself. Since time (indefinite and as yet undefined) as well as space began when the initial singularity expanded or morphed into the primal 0-D point Void (the 'twist' not yet having been created), the space-time binding constant of  $\mathbf{h}$  that was created, although its present value was not yet determined or even determinable. It would have to grow with space-time into its presently accepted values because measurement was not yet a reality. One moment passed from the Void to the point-singularity and another from the point-singularity to the 0-D point Void. These moments were infinitesimally small, but still uncountable/immeasurable, so they occurred over infinite/indefinite time relative to our present concept of measurable time. In other words, measurable duration had not yet emerged and infinite, *i.e.*, undefined time ruled and distinguished these initial individual events. The very possibility and concept of measurement seemed to be inventing and establishing itself as part of the new physical reality.

In this virtually dynamic beginning to space-time, time and space were merely immeasurable collections of momentarily created 0-D point/twist Voids that had not yet become measurable temporal durations or spatial extensions, thus answering the question of how many no-things followed by nothings does it take to make a something of nothing or no value such as zero; an infinite or two numbers of infinities even though this is still a pre-countable period of time. By the time that enough somethings of zero value had collected to constitute a countable nothing of zero and then enough to constitute a measurable something, although still infinitesimally small at the exact point where  $\Delta S \rightarrow 0$ , another infinity of moments had passed, bringing the total of moments, now rendered countable, to the sum of  $\mathbf{N}_0$  or Aleph-naught.

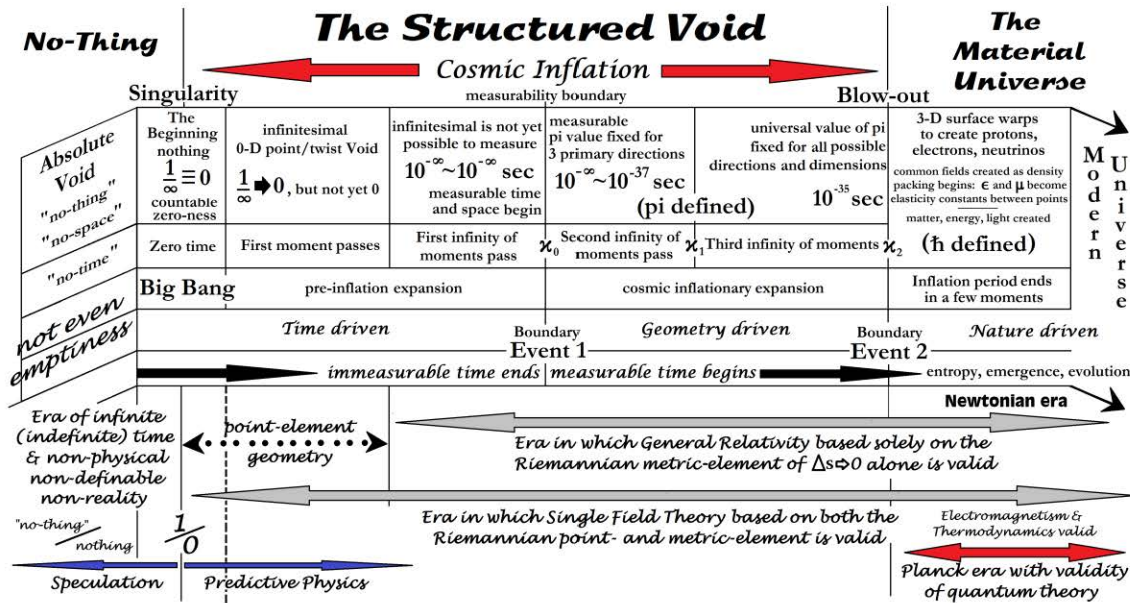


From George Gamow, "One, Two, Three, ... Infinity". [72]

$\aleph$ -naught (zero), one and two constitute the mathematical sets all of the possible discrete points in three-dimensional space, so  $\aleph_3$  would constitute the set all of the possible discrete points in all four-dimensions of space at any given time and  $\aleph_4$  would constitute the set all of the possible discrete points in five-dimensional space-time, or so the single field theory predicts. These are mathematical realities that are implied by physical necessity and are confirmed by the single field theory. The applied mathematics of physics implies these higher-level infinities, but the physics of them is not yet recognized in rigorous mathematics because our neural wiring has not yet become complicated or complex enough to overcome our three-dimensional mental bias.

Neither the mathematical nor the physical concept of a pure infinity, in general, cannot be fully cognized or pictured and thus understood by the human mind even though such infinities exist, as in the infinite time back in the past to the Big Bang singularity. Within this context, Aleph-naught is the lowest infinity that we can picture in mathematics, but only in the specially designed mathematics of set theory. Yet physicists persist in believing that the Big Bang singularity emerged from the Void at some specifically designed and measurable moment/s 13.5 or so billion years ago, when general relativity predicts that the universe began. In truth, though, the amount of time back that has passed since the emergence of the original singularity from which all emerged and evolved is infinite. So, the universe is far older than the predicted value of 13.5 billion years and it is useless to try and think about what existed before the singularity, at least at our present level of conscious awareness of the external world. The theoretically predicted 13.5-billion-year age of the universe only covers that part of the true age of the universe since measurability became a possibility.

Even though general relativity predicts the existence of the original point singularity in the Void, the theory can only take us back so far because the point-singularity cannot be completed defined or even approximately understood within the context of a completely extension-based or metric geometric model such as general relativity. Yet since single field theory is based upon both point- and metric-elements of geometry, *i.e.*, the concept of a 0-D point/twist Void, so it forms a logical basis to treat the initial point-singularity in the Void, whether measurable or immeasurable, such that the single field model has the capacity to go beyond that of either general relativity or the quantum theory.

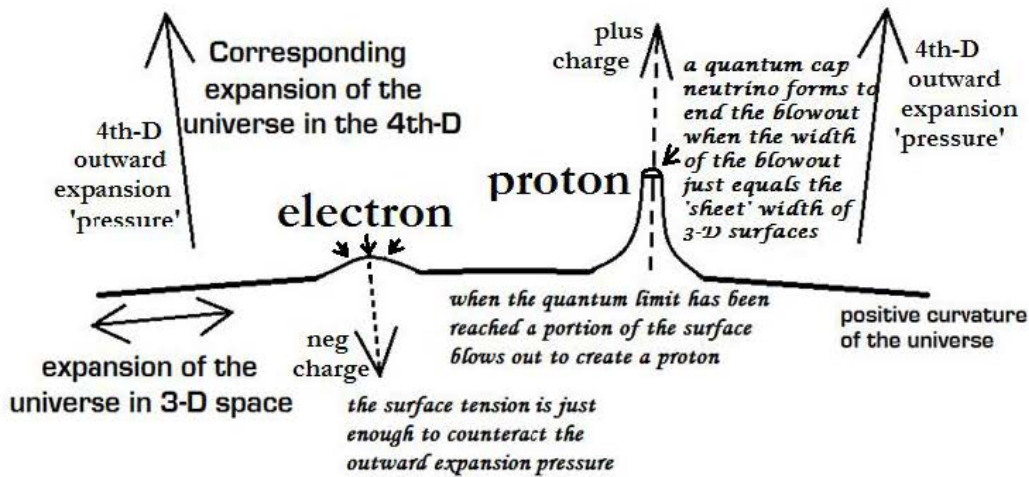


This process of duplication continued through another infinite number of iterations until  $\pi$  in the constant  $\mathbf{h}$ , since  $\mathbf{h} = h/2\pi$ , that binds space and time together reached its transcendental value as defined in modern mathematics in all three geometrical dimensions of space, an amount of time equal to an  $\mathbf{N}_2$  number of iterations and/or moments, before the last remaining quantum fluctuations caused the cosmic inflation ending event – the Big Blowout – at approximately  $10^{-35}$  seconds after the possibility of time measurement began per general relativity.

Physical reality as we know and experience it was first created in this Big Blowout event since nothing was physically real, except the passage of time, before the cosmic inflation ending event occurred. So, this era was characterized by what could be called the ‘Structured Void’. The ‘Structural Void’ only represented a virtual physical reality that was, at most, a semi-physical reality, except for the real passage of time and its measurable extent, from the original singularity until the Big Blowout that created our matter/energy dominant three-dimensional universe. Yet it must also be remembered that an infinite number of parallel three-dimensional surfaces were stacked above and below our primary three-dimensional surface in this process. Each parallel surface above and below is smaller (less extensive three-dimensionally) than the preceding surface, all the way to the single-pole point (where the three-dimensional extension is zero or just that point) to form the four-dimensional embedding space that is closed with respect to discrete points in our three-dimensional surface.

A Big Blowout of the increasingly faster expanding surfaces ended the era of cosmic inflation and drastically slowed the expansion of space, in all four of its dimensions, down to very near the present-day rate of expansion, essentially creating our universe in its present form. At that moment in history, the Structured Void morphed into our four-dimensional physical space, in both its quantum absolute and curved extension relative interpretations, or rather our relative five-dimensional space-time. Like an expanding elastic balloon in our three-dimensional space that has a two-dimensional elastic surface, it can only expand so far before encountering small elastic weaknesses, or in this case quantum fluctuations, in the continuity of the three-dimensional surface. In like manner, as cosmic inflation grew to a great enough strength to overcome the threshold strength of inherent quantum fluctuation weaknesses (discontinuities) at points in its three-dimensional surface, the Structured void overcame the fluctuations by blowing out the surface at the many points where they occurred. These points of blowout became the first protons, holes in the locally three-dimensional curvature of the surface until they were capped off by neutrons, but never anti-protons, which would have represented a blowout against the direction of expansion on the underside of the three-dimensional surface instead of a blowout. The expansion 'collapsed' simultaneously with the proton production and instead started compactifying the remaining points or 0-D point/twist Voids in the three-dimensional surfaces, substantially slowing the expansion.

The duplication process continued unabated, but now the greater part of the duplication of 0-D point/twist Voids turned inward relative to the surfaces, creating an increasingly greater 'compactification' of quantum discrete points (always approaching but never reaching zero points of infinitely small nothingness) three-dimensionally inside the individual parallel three-dimensional surfaces and only the remaining part contributed to a much slower expansion rate. This compactification also included the points along the fourth direction of space which caused a differential of single field density along the fourth direction. The Big Blowout literally 'materialized' our universe from the virtual four-dimensionality of the 'Structured Void'. But the compactification created new points of quantum fluctuation that forced a second round of Blowouts, so the process was not complete.



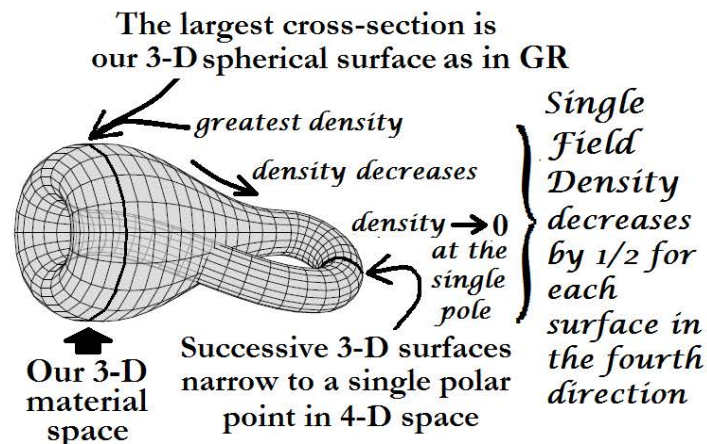
No anti-particles (oppositely directed bumps and hills) are created while the creation of protons and electrons slows expansion enough to end the inflationary period

This second round of blowouts came on the heels of the initial blowout, but this time the outward expansion ‘force’ was no longer great enough to completely blowout the remaining fluctuation points and was counteracted equally by the surface tension of the surfaces at each point of the Blowout. These particles were thus left with a much smaller mass than the protons, or with the maximum curvature just short of true blowout, like a small hill or bump in the surface, and having the opposite electrical charge to the protons since the surface tension pushed downward (or inward) relative to the expansion/blowout direction. Modern science calls these particles electrons.

When the three-dimensional compactification of the 0-D point/twist Voids began, elasticity constants were first created to maintain both the structural integrity and continuity between the newly compactified 0-D point/twist Voids. The elasticity constant between the points in the three-dimensional surfaces is today known as the electrical permittivity of free space and for the fourth dimension of space the magnetic permeability of free space. This creation maintains the integrity of the 0-D point/twist Voids while they infinitely compress to ever smaller infinitesimal dimensions over time, but it also established the speed of light as a three-dimensional constant/limit for free space. Simultaneously, the three-dimensional surface of our space in its wholeness reacted to the initial compactification by emitting a compression electromagnetic shockwave, the first truly energetic action/reaction event in our universe, and like a bell struck by a hammer the universe itself rung out creating the Cosmic Microwave Background that we can still detect today.

Yet that was still not quite enough to slow expansion to or near today’s rate and a third round of blowouts occurred of more newly created quantum fluctuations. The rate and force of expansion had slowed so much by this time that this round only produced small ripples in the surface that we today call neutrinos. Their cross-sectional diameters are equal to the ‘effective thickness’ or ‘effective width’ of a single quantum thickness or ‘sheet’ of parallel surfaces in the fourth direction of space, which rendered them electrically neutral, but also rendered smaller quantum fluctuations impossible, thus establishing today’s value of Planck’s constant,  $h$  and thus  $\hbar$ .

Expansion now slowed to approximately what it is today, leaving the single field density in the fourth direction of space of each surface and thus of each successive quantum ‘sheet’ of surfaces with half the density of the preceding surface.



The primary surface of our commonly experienced three-dimensional space has the greatest density of 0-D point/twist Voids of any similar surface in all four dimensions of space, and the single-pole

point has essentially zero density. After this last round of attempted Blowouts was finished, space was perfectly continuous, with no breaks or gaps, in any of its four directions, so the Blowouts came to an end just as abruptly as they began a few moments earlier.

The single field in the four dimensions of space was itself a product of the Big Blowout that ended the era of cosmic inflation. The virtual torques, positive and negative, above and below the primary three-dimensional surface, associated with each and every 0-D point/twist Void or discrete point of space collectively became the single (potential) field with the blowout and subsequent point compactification. The positive and negative potentials that emerged above and below the primary surface created the 'twist' in the fourth direction of space at the single-pole where they come together to form a continuity and closed fourth dimension at the single pole, giving all real particles a positive or negative half-spin depending on whether the particle is a point-centered local curvature above or below (which yields an anti-particle configuration) the primary three-dimensional surface and 'sheet'. But simultaneously, the semi-physical primal-awareness shared by each end every 0-D point/twist Void collectively became a semi-physical pre-consciousness potential field extended in the fourth direction of space.

The single potential field thus acts extensively across the relative distances of space subject to the physical limitations of space, both three-dimensionally and four-dimensionally, and matter, while the pre-consciousness potential field acts on and interacts with matter, both animate and inanimate, through the individual points, pointwise, throughout all dimensions of space. At the end of the cosmic inflation period, our present universe emerged from the collapse of the exponential expansion rate due to the creation of matter, light and the compactification of expanding space-time into **the single field** (extended and points) potential in four-dimensional space and a **semi-physical pre-consciousness potential field** in the very discrete points that make up three-dimensional space. The semi-physical pre-consciousness potential field now pushes (influences) physical and thus biological evolution in the universe toward higher and higher level complexities in everything from planets, to stars and star systems up to whole galaxies, as well as life, mind, and ever increasingly higher levels of consciousness

The semi-physical pre-consciousness potential field acts on inanimate matter to create order and ever increasing order within the universe. When that order reaches a high enough level of complexity, inanimate matter becomes or evolves into animate matter, creating life. Life or animate matter continues to evolve, growing ever more complex and developing newly emerging internal complexities, as do mind and consciousness which are aspects of all life, from the simplest to the most complex. Level of complexity is the only attribute that separates animate from inanimate, so there is a fine and difficult to identify line of demarcation between the two. Where to draw that line is mostly a matter of choice of any individual person or being. Life, mind and consciousness evolve with ever increasing complexities of the matter/energy, electrical **E** and magnetic **B+A** fields that constitute all matter in the universe.

When inanimate matter becomes animate, the pre-consciousness field continues to interact with the living organism to create the ever-increasing levels of stability and complexity that we normally associate with life, mind and consciousness. The process is known to science as evolution. However, in this case, the further evolution of these three levels of physical reality need not progress in tandem and each level can evolve within itself independent of the other two, but still within limits established by the other two. In other words, mind and matter can evolve and reach new levels of complexity and thus affect and directly influence or even drive the overall evolution of living



organisms, as can consciousness. This is different from the modern scientific view of evolution which can only occur as Darwin suggested or by genetic drift and mutation, which are bottom-up processes. This model predicts that evolution can occur top-down from consciousness and/or mind to body by directly affecting the human genome, which would most likely occur at the level of fundamental neural nets of the brain.

Moreover, just as all forms of matter can interact with the normal physical potential fields of gravity, electricity and magnetism to create forces, work and energy, the semi-physical pre-consciousness potential field can interact internally pointwise, or point-by-point, with an organism to create 'subtle forces' and/or 'subtle energies' (as they are called in western science) or Chi, Qi or Prana, as they are called in eastern science, philosophy and esoteric practices. While mind directs the body extensively (by means of extensions in the body) and electrically through the nervous and muscular systems to create work, force and energy, either internal or external, only consciousness can directly and magnetically direct the pre-consciousness field to action within the body on a pointwise basis to create the subtle forces or subtle energies of Chi or Qi and so forth. So, the activation of Chi or Qi by consciousness is far more difficult than just the mind signaling the muscles and body to do work and create the muscular energy to do so.

Chi or Qi is like free energy and force in that it takes no muscular action to activate and utilize it. We automatically know how to move and operate our muscles (through extension) from birth, although it takes a bit of practice at first. However, only a great deal of practice and experience can help a person become efficient in the activation and use of these subtle energies, while that experience, which is necessary to even find one's chi, is the same as that associated with a higher level of consciousness. The experience necessary to activate and utilize these subtle energies is normally gained through meditation and enlightenment, long practice of a meditative martial art, or through a very strong NDE that has mentally altered a person's worldview of what he or she can and cannot do. All of these are neural net rewiring experiences that render a person better able to develop a whole body coherence or cognitive state of being.

When this subtle energy is formed by consciousness, it cannot only move and influence objects in the external world, it can affect other animate organisms directly by suggestion or will, as is done by natural healers. It can also influence a person's own internal health and wellbeing, both physical and mental. Eastern medical practices, philosophies and esoteric studies as well as martial arts are based on an experiential knowledge and utilization of the subtle energies, Chi and Qi as well as Yoga, which activates Prana. In the East, many people understand the world through experience rather than through philosophy, school learning (reading, writing and arithmetic) and logical introspection (mind). They know how these subtle energies work intuitively and holistically throughout the human body, while Western medical practices have been built upon a completely different paradigm and worldview based on reasonable and logical knowledge of the internal three-dimensional material workings of the organism in the mind, at the expense of ignoring consciousness, in a reductionist manner. And therein lies the difference between East and West. So, to progress beyond their present limitations, to advance science and consciousness, on a more complete and comprehensive worldwide basis, both East and West need to learn from each other and adopt the best of each other's worldviews and scholarly systems.

\* \* \*

This theoretical attempt to bolster and supplement modern physics by eastern experiential practices has been necessitated by development of the single field theory and its inherent explanation of the world geometry as combined point and extension spaces as well as the newly proposed existence of the semi-physical pre-consciousness potential field that permeates the physical universe. This new discovery directly affects the area of physics called thermodynamics because thermodynamics proposes a universe dominated by disorder and entropy while the pre-consciousness field guarantees and is the source of order in the universe. In other words, thermodynamics is in direct conflict with the concept of a pre-consciousness field. The old thermodynamics of modern physics is not up to the caliber of this new reality, so this theory implies and should result in a new extended theory of thermodynamics which includes the evolution of physical systems within which the Darwinian/genetic theory of evolution is just a specialized sub-system of the physical theory of evolution presented in a new and more complete thermodynamics.

According to modern thermodynamics, entropy and disorder rule the universe, which implies that order and evolution are at best rare and accidental happenstances. This discrepancy is easy to explain, or perhaps explain away so it does not present a problem for thermodynamics, because the notion of entropy is based on closed systems, specific physical systems (mechanical devices and machines) that have no energy input from or output to the universe in general. Closed systems are only an idealization of real situations that are unnatural, so if any closed system such as a highly-ordered living organism is considered, a physicist need only redefine the limits of observation to consider a much larger system in which the overall entropy still increases over time, rather than the living organism alone, as the true physical reality.

Closed systems do not occur in nature and everything in nature is in balance without the need for closed systems, so thermodynamics essentially creates false conditions for physical analysis, but it works. Or so scientists would like us to think that it works. Quite frankly, even though it is a cornerstone of modern physics, thermodynamics is out of balance with nature and physical reality by its complete emphasis and total reliance on disorder and entropy. In most cases, the second law of thermodynamics – that the new amount of entropy always increases with the passage of time – which is the law most used in all of thermodynamics, never works without severe modification to render it more realistic and applicable. The other three laws only state obvious facts about the nature of reality, heat and temperature.

The second law is nearly always modified by Prigogine's principle and/or the mathematics of chaos theory (linear dynamics in physics), if it is to be of any use in science. So, Prigogine's principle and chaos theory should be elevated to laws of thermodynamics themselves out of scientific necessity. Prigogine literally developed a whole new classification of 'dissipative structures' which describe coherent spacetime (ordered) structures that form in thermodynamically open systems when there is an exchange of matter and energy between a system and its environment [73] and won a Nobel Prize in Chemistry for his efforts. In simpler terms, if a stable chemical equilibrium reaction is thrown out of equilibrium by the dissipation of energy or by the material exchange of chemical reactants, the system will move to a state of maximum chaos before returning toward a new equilibrium state at a higher level of stability (but lower energy). Nature always seeks lower energy states when choosing between two of more energy states, another fact of nature that is not yet included in thermodynamics or elsewhere in physics despite its natural truth.

The next law is very nearly self-evident. It would consider the 'emergence' of an ordered state from a more chaotic physical system. Under the influence of external environmental conditions

(gravity and other forces) the prevalent chaotic conditions (high entropy) of an open thermodynamic system (the atmosphere or intergalactic dust clouds) can tend toward the emergence of a complexity (and lower entropy) with physical characteristics wholly different from the system that gave rise to it. This statement defines a new fifth law of thermodynamics. It could be called the principle or law of chaos and/or emergence and is all the more significant because it takes into account the physical forces and other laws of nature that are missing from standard thermodynamical considerations and places them within the wider context of an ordered structure of the universe.

Given Prigogine's 'law' and the 'law' of emergence from chaotic systems, the concept of 'material system evolution' is directly implied. Prigogine's law presents the possibility of higher level stabilities emerging from a chaotic state while the concept of emergence deals with the self-organizational property of emergent systems due to the new physical properties of the emergent system. Together, these two result in the natural development of progressively higher levels of self-organizing systems, *i.e.*, 'material system evolution'. So here we have a new sixth law of thermodynamics: Individual systems and groups of systems undergo natural evolution toward ever-increasing complexity existing at more efficient and lower energy levels as time flows forward. This last addition gives science three new laws of thermodynamics to deal with nature, the way things really are in our experiential universe, in a more complete manner – (4) Prigogine's 'law', (5) 'law' of emergence, and (6) 'law' of systems evolution.

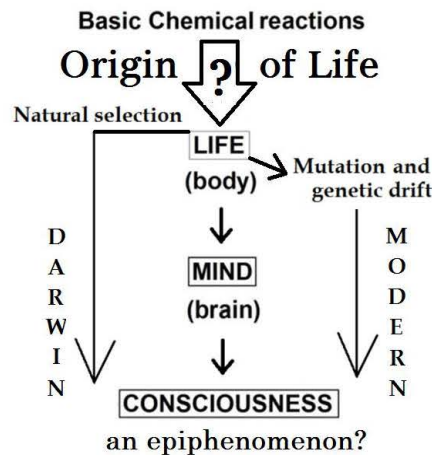
It may be presumptuous to call these additions to thermodynamics 'laws' or principles of nature instead of hypotheses and theories, but they have already been verified in so many other physical circumstances and they do have such an extremely wide and even universal range of applications that the presumption is easily justified. Yet, still more might be necessary. We still have Murphy's Law – if anything can go wrong it will go wrong – which will always be the 'Next' and/or 'Last' Law of thermodynamics. Better yet it could be described as the 'hubris' hypothesis or principle since it will always keep scientists in their place and honest, *i.e.*, nature and the universe will always offer surprises and unknowns for scientists to ponder because nature always trumps human thought, overactive imagination, mental biases and misinterpretations of the universe and experienced physical reality.

The beauty of these new laws of thermodynamics is that they equalize the process of thermodynamics and mitigate between the duality of disorder (entropy) and order (emergence from chaos), without having to draw on any outside sources or methods. In other words, they complete thermodynamics. The Zeroth law is perfectly balanced by the 'hubris hypothesis' and the first three laws dealing with entropy (chaos) are balanced by the newly added three laws that deal with order emerging from the chaos inherent in entropy. Together they render thermodynamics perfectly symmetrical. They also increase the explanatory power of thermodynamics. Thermodynamics can now explain how stars, planets, galaxies and other material bodies evolved out of chaos inherent in entropy in the early material universe, while the concepts of life, mind and consciousness can also be explained. Also the fact that the net entropy of the universe is increasing is still valid because the total amount of matter (individual particles) in the universe is approximately constant while the universe is expanding to a larger volume, which increases entropy relative to order.

Surprisingly, given this extension of the 'theory' of thermodynamics it should be evident to anyone and everyone that a truer theory of biological evolution is built into the very fabric of the physical universe and it is not just a biological process leading to humans and ending with the *Homo sapiens* branch of humans with their present level of consciousness. Everything in the universe

evolves, so biological life, in one form or another, should be ubiquitous throughout the universe. Taken together these two facts mean that the universe as a whole is also evolving, while higher levels of consciousness than human could presently be evolving or could have already evolved long ago elsewhere in the universe. Evolution is a continuous unending universal process that does not stop at any given point in time or plateau of development, such as our normal human consciousness. Evolution is an integral part of all processes, whether material or non-material, and all facets of physical reality. Everything in physical reality undergoes evolution in so far as time pushes forward. Indeed, emergence and evolution are the true arrows of time rather than entropy.

Order and disorder in the physics of the universe and thus the universe itself is now back in balance and the evolution of life as we know it is about to take a whole new twist. Modern Darwinian and genetic evolution see consciousness as an epiphenomenon, an accidental coincidence within the brain and mind, but that is obviously not true according to the single field theory model of evolution. Given the existence of the semi-physical pre-consciousness field, the evolution of consciousness and ever higher levels of consciousness are inevitable, not epiphenomenal. Whereas modern evolution occurs from the bottom-up, from the genome to the body, brain and mind to consciousness, this common modern interpretation of evolution raises very serious and unsolvable difficulties for the theory that most scientists either dismiss or ignore.

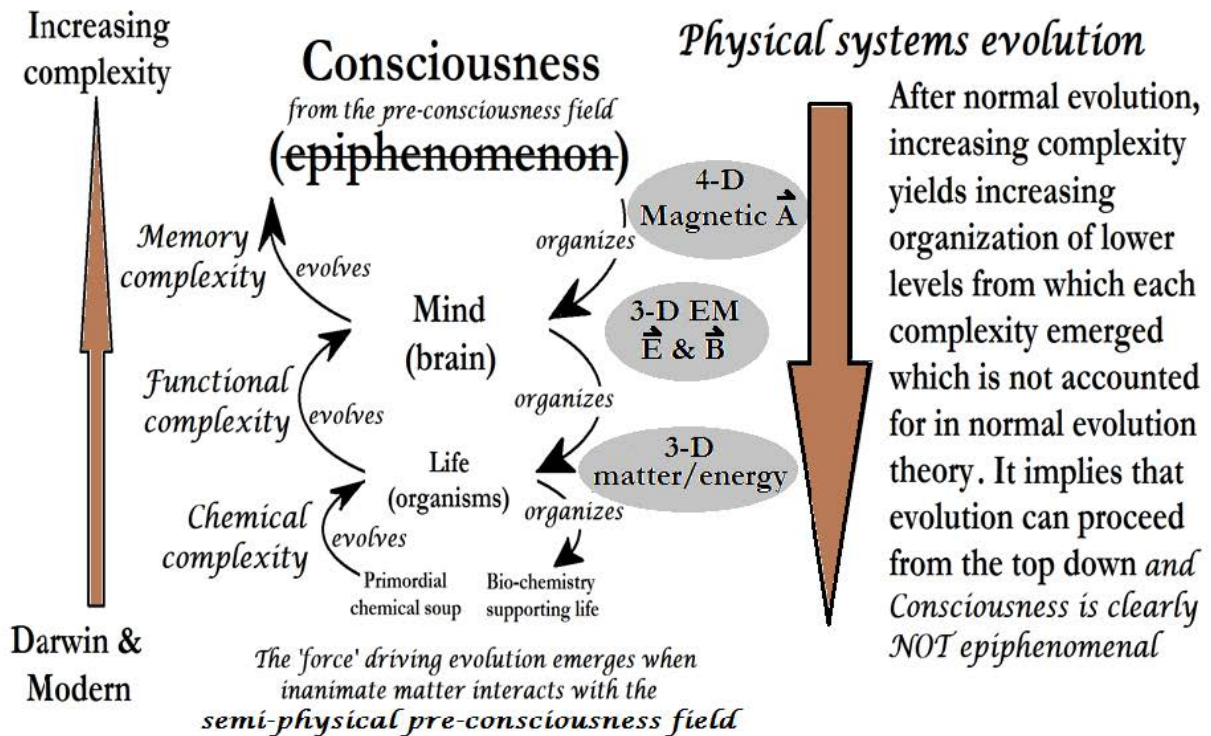


Modern science has completely dismissed the possibility of internal changes due to external ‘forces’ and ‘influences’ and refused to find a logical alternative.

This overly narrow modern view of evolution has left major gaps in the historical record of life on Earth in general and especially human life. Events like the Cambrian explosion, a two million-year period two hundred-million years ago, when simple one-celled life forms mysteriously evolved into extremely complicated and complex multi-celled organisms, has never been explained and in fact cannot be explained by modern evolution theory. Nor can it explain how or why modern Homo sapiens evolved between one- and two-hundred thousand years ago, differentiated from other Hominid species by their extremely large brain capacities and seemingly undeveloped (or not yet developed) open-ended mental abilities. In both of these cases, some form of top-down evolution seems to have been at play, and such discrepancies have resulted in a popular disbelief in evolution theory while fostering religious and metaphysical claims of ‘creation’.

Fortunately, the new thermodynamics implies a new theory of evolution which includes and even emphasizes top-down evolution as living organisms become more and more complex that fixes many of the problems of the old twentieth-century evolution theory. Life still originates via some form of chemical primordial soup, in fact a chemical complexity emerges that becomes the first form of life, but it is probably assisted in its emergence by some type of focused electromagnetic interference, anomaly or localization of effect. Even this first bit of life, probably not yet cellular in form, was highly adaptable and permeable to its environment and could have even been able to absorb beneficial chemical processes and structures that could enhance its energy efficiency and probability of survival, *i.e.*, longevity. Perhaps this early form of life even absorbed some form of proto-RNA that later evolved into a more modern DNA genome, which allowed early organisms to pass on their physical characteristics to their offspring, emphasizing species longevity over personal longevity and species survival over personal survival.

As with all modern life, this first form of life was a mixture of matter/energy field, electric field and magnetic field patterns and structures. In other words, it already had primal-mind such that it could make rudimentary choices based on interaction with its environment and a primal-awareness of its 'self' and its environment that are commonly associated with consciousness. These resulted in 'natural selection' based on increasing the probability and efficiency of survival in a sometimes-hostile environment.

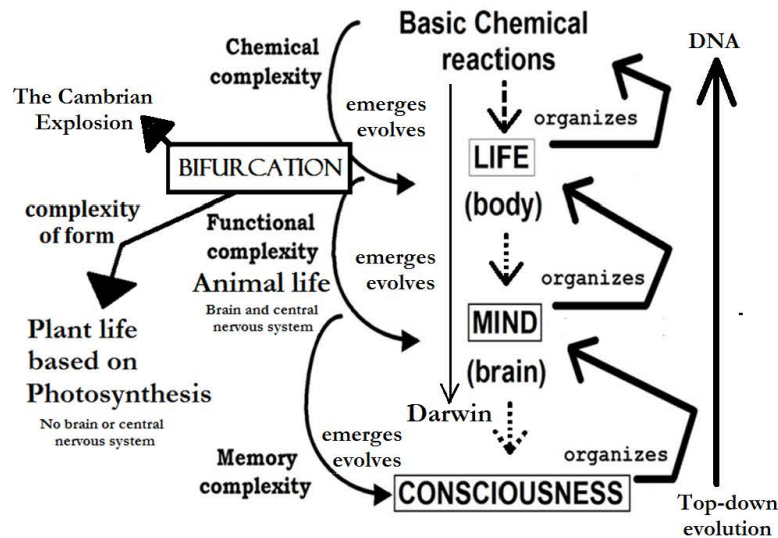


Over the first very long stretch of time, the single-celled organisms learned to communicate with like single-celled organisms via bio-photons and rudimentary electromagnetic signaling, just as individual cells in modern organisms communicate as well as store and retrieve simple non-complex memories. This allowed the single-celled organisms to form more complex groupings and colonies like sponges for their own mutual benefit and survival. However, at some point in time these individual cells

reached a new memory complexity in mind whereby they collectively realized or became aware of mutual survival and dependence on one another as opposed to personal survival and total independence from one another, which eventually ushered in a whole new paradigm of existence for life on earth.

In other words, over a long period of time, these single-celled colonies eventually reached a new level of individual complexity that was based on the collective electrical field patterns that today are associated with the mind. While simple life is a three-dimensional matter/energy complexity, this new complexity was a three-dimensional electromagnetic functional complexity of the electric **E** and magnetic **B** fields. This emergence of a new higher-level complexity occurred about two-hundred million years ago, and is commonly called the Cambrian Explosion because it literally precipitated the spontaneous emergence of large populations of many very different forms of complex multicell life forms. In chaos theory and linear dynamics, when a new complexity forms it is sometimes accompanied by a ‘bifurcation’ or splitting of the evolutionary line. In this case, the bifurcation led to a separation between and independent evolutionary lines of animal life and plant life based, respectively, on the duality of form (plant life) and function (animal life).

## The New Physics of Evolution



Animal life was based on the full functional complexity that involved the evolution of brains and nervous systems to carry signals to the different functional parts of the organism, while the plant life that emerged was based more on and emphasized form over function, which is why the outward appearance of many plants can be modeled on Mandelbrot sets and other forms of chaos system fractals.

Plants have no brains because they did not evolve along the same internal functional complexity as animals, *i.e.*, they did not form internal organs for performing necessary life-enhancing functions within the body that necessitated a single organ for control and coordination of the other functional organs, but they are still characterized by mind and consciousness that is not expressed in the same way as animals. The Cambrian Explosion thus resulted from a new complexity of memories forming

mind. These were long held memories of interaction with their environment and with similar cells in the collective sponge-like structures that they formed. Since this new leap in evolution was based on an electrical field complexity, *i.e.*, mind, it gave the resulting animal-line of evolution a propensity toward bicameralism or right-left symmetry of form, based on the principle of opposite electrical charges, that is still evident in animals today.


The emergence of the *Homo sapiens* species, between one-hundred thousand and two-hundred thousand years ago, was caused by the development of a new complexity of consciousness in the Hominids. In this case, a specific memory complexity emerged that gave humans which gave humans a new brain structure (neural net wiring complexity) with vastly increased capacity for advancing learning and experiential knowledge within the overall mental context of its new higher-level consciousness. The newly emerged level of consciousness complexity, which we still carry today, was characterized by a new ability to 'abstract' lower level memory complexities to develop new ideas and novel thought patterns, that are, themselves, higher level complexities. This new capacity went far beyond that of other *Homo* species and animals that could walk upright, develop and work with tools.

This new capacity gave humans the ability to abstract new and novel ideas through knowledge gained by experience and later by rote learning devoid of direct physical experience, or rather pass purely mental experiences from person to person through abstract means such as speech, writing, art and other conceptual and symbolic representations. These ideas reflected the interaction between different humans as well as between humans and their natural environment. Humans began to develop concepts of their local place in space and time relative to other places in space and time, they developed both histories of the past (legends and stories passed down through the ages by word of mouth) and the notion of future survival even after they died. These were followed by abstract concepts of space and time over several thousand years of learning and experience. These new mental abstractive abilities also allowed the new human mind to recognize and mentally reduce 'things' (as concepts) and notice patterns between them to explain 'how' things in the environment worked, and finally abstract these concepts further to use nature and overcome some environmental limits for the benefit of humans, *i.e.*, build simple machines.

At first, natural and animal spirits that were something like, but not exactly like humans, were thought to cause external environmental as well as internal health changes that were not obvious (not injuries but diseases) to other humans. These were eventually abstracted further to full-blown human-like Gods and finally to the abstract notion of a single God, sometimes human-like but sometimes not and yet beyond human. Yet at nearly the same time something else began to develop in the collective human psyche of the Ancient Greeks. Logical abstractions based on the collective memories of observations of the external world led to the development of Natural Philosophy, an attempt to explain and understand nature and the nature of events and external phenomena in logical terms, which over the next two-thousand years became science. When this emerged in the collective human psyche, the first mini-revolution in human thought (and even early science) began.

**This article will be continued and concluded in Part 3, to be published in the Summer, 2018, issue of the WISE Journal.**

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## References

- [1] Stuart Hameroff and Roger Penrose. (1995) "Orchestrated reduction of quantum coherence in brain microtubules: A model for consciousness." *Neural Network World* 5 (5): 793-804; (2005) "Conscious events as Orchestrated Space-Time Selections". PDF available online at <http://www.quantumconsciousness.org/penrose-hameroff/conscious-events.html>; Stuart Hameroff, J.E. Dayhoff, R.A. Lahoz-Beltra, Samsonovich and S. Rasmussen. (1992) "Conformational automata in the cytoskeleton: models for molecular computation." *IEEE Computer* (October Special Issue on Molecular Computing): 30-39.
- [2] Karl Pribram. (1991) *Brain and perception: Holonomy and structure in figural processing*. Hillsdale, N J: Lawrence Erlbaum Associates; David Bohm. (1990) "A new theory of the relationship of mind and matter." *Philosophical Psychology* 3 (2): 271-286; Bohm and B.J. Hiley. (1993). *The Undivided Universe: An ontological interpretation of quantum theory*. London: Routledge.
- [3] Huping Hu and Maoxin Wu. (2002) "Consciousness-mediated spin theory: Theory, experimental studies, further development & related topics." *Medical Hypotheses* 63 (2004): 633-646; (2007) Revised fifth version downloadable at <http://arxiv.org/abs/quantph/0208068>
- [4] Shinji Nishimoto, An T. Vu, Thomas Naselaris, Yuval Benjamini, Bin Yu and Jack L. Gallant. (2011) "Reconstructing Visual Experiences from Brain Activity Evoked by Natural movies." *Current Biology*. Available online at <http://gallantlab.org/publications/nishimoto-et-al-2011.html>
- [5] Martin J. Chadwick, Demis Hassabis and Eleanor A. Maguire. (2011) "Decoding overlapping memories in the medial temporal lobes using high-resolution fMRI" *Learning and Memory* 18: 742-746; Downloadable PDF version available online at <http://learnmem.cshlp.org/content/18/12/742.full.pdf+html>
- [6] Gerald A. Pollack. (2001) *Cells, Gels and the Engines of Life*. Ebner and Sons; (2013) *The Fourth Phase of Water: Beyond solid, liquid and vapor*. Ebner and Sons.
- [7] Chi-Shuo Chen, Wei-Ju Chung, Ian C. Hsu, Chien-Ming Wu and Wei-Chun Chin. (2012) "Force field measurements within the exclusion zone of water." *Journal of Biological Physics* 38: 113-120.
- [8] Chen et al.: 113.
- [9] Douglas C. Giancoli. (1991) *Physics: Principles with Applications*, third edition. Englewood Cliffs, New Jersey: Prentice Hall: 475.
- [10] James E. Beichler. (2013) *Four Pillars of Wisdom: The conceptual foundations of natural science*. Published as an Amazon Kindle ebook.



- [11] James E. Beichler. (2012) “The neurophysical basis of mind and consciousness: An electromagnetic model of the neuron.” A presentation at the annual Spring Meeting of the OSAPS, Ohio State University, April 2012. Available at “<http://www.neurocosmology.net>”; (2012) “The Body Magnetic: Physical source of consciousness, the paranormal and survival.” A presentation at the 36<sup>th</sup> Annual Meeting of the SPR, University of Northampton, UK, September 2012. Available at “<http://www.neurocosmology.net>”.
- [12] Tolga Cukur, Alexander G. Huth, Shinji Nishimoto and Jack L. Gallant. (2013) “Functional Subdomains within Human FFA.” *Journal of Neuroscience* 33 (42): 16748-16766.
- [13] Judith Graham. (2016) “Children and Brain Development: What We Know About How Children Learn”. Revised by Leslie A. Forstadt. Bulletin #4356, Children and Brain Development: What We Know About How Children Learn. University of Maine, Cooperative Education. <https://extension.umaine.edu/publications/4356e/>.
- [14] John T, Bruer. (1999) “Neural Connections: Some You Use, Some You Lose”. *Phi Delta Kappa* 81 (4): 264-77. At <https://www.oecd.org/edu/cei/31709587.pdf>;
- [15] Mo Costandi. (2012) “Does your brain produce new cells?” *The Guardian*. 23 February 2012. <https://www.theguardian.com/science/neurophilosophy/2012/feb/23/brain-new-cells-adult-neurogenesis>
- [16] Avi Karni and Dov Sagi. (1991) “Where practice makes perfect in texture discrimination: Evidence for primary visual cortex plasticity”. *Proc. Natl. Acad. Sci.* 88: 4966-4970. At <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC51788/pdf/pnas01061-0412.pdf>.
- [17] Robynne Boyd. (2008) “Do People Only Use 10 Percent of Their Brains?” *Scientific American*. At <https://www.scientificamerican.com/article/do-people-only-use-10-percent-of-their-brains>; Wikipedia. (2017) “The ten pe3rceetn brain myth”. At [https://en.wikipedia.org/wiki/Ten\\_percent\\_of\\_the\\_brain\\_myth](https://en.wikipedia.org/wiki/Ten_percent_of_the_brain_myth).
- [18] Hagnann P, Kurant M, Gigandet X, Thiran P, Wedeen VJ, Meuli R, et al. (2007) “Mapping Human Whole-Brain Structural Networks with Diffusion MRI”. *PLoS ONE* 2 (7): e597. <https://doi.org/10.1371/journal.pone.0000597>
- [19] “Neuroplasticity: An Extraordinary Discovery of the Twentieth Century.” *A to Z of Brain, Mind and Learning*. At <http://www.learninginfo.org/neuroplasticity.htm>.
- [20] Mariam Arain, Maliha Haque, Lina Johal, Puja Mathur, Wynand Nel, Afsha Rais, Rambur, and Sushil Sharma. (2013) “Maturation of the adolescent brain.” *Neuropsychiatr Dis Treat.* 9: 449–461. Published online 2013 Apr 3 at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3621648/>; David Dobbs. (2011) “Beautiful Brains.” *National Geographic Magazine*. Available online at <http://ngm.nationalgeographic.com/print/2011/10/teenage-brains/dobbs-text>
- [21] Stephanie Pappas. (2014) “Strange New Type of Brain Cell Discovered” *Live Science*. Available online at <http://www.livescience.com/47958-new-brain-cell-discovered.html>.
- [22] BBC Crew. (2017) “A Giant Neuron Has Been Found Wrapped Around the Entire Circumference of The Brain.” *Science Alert*. Available online at <http://www.sciencealert.com/a-giant-neuron-has-been-found-wrapped-around-the-entire-circumference-of-the-brain>.
- [23] John B. Watson. (1913) “Psychology as the Behaviorist views it.” *Psychology Review* 20: 159-177.
- [24] Susan M. Bowyer. “Coherence a measure of the brain networks: past and present.” <https://npejournal.biomedcentral.com/articles/10.1186/s40810-015-0015-7>.
- [25] Newsroom: Center for Consciousness Studies, University of Arizona. (2017) “Consciousness Depends on Tubulin Vibrations Inside Neurons, Anesthesia Study Suggests”. <http://www.newswise.com/articles/consciousness-depends-on-tubulin-vibrations-inside-neurons-anesthesia-study-suggests>; Craddock TJA, Kurian P, Preto J, Sahu K, Hameroff SR, Klobukowski M, Tuszynski JA. (2017) “Anesthetic Alterations of Collective Terahertz Oscillations in Tubulin Correlate with Clinical Potency: Implications for Anesthetic Action and Post-Operative Cognitive Dysfunction.” *Sci Rep.* 7 (1): 9877.
- [26] Michael L. Anderson. (2003) “Embodied Cognition: A field guide”. *Artificial Intelligence* 149: 91–130; Margaret Wilson. (2002) “Six views of embodied cognition”. *Psychonomic Bulletin & Review* 9 (4):

- 625-636; Lucia Foglia and Robert A. Wilson. (2013) "Embodied Cognition". WIREs *Cogn Sci* 2013. doi: 10.1002/wcs.1226. [https://www.researchgate.net/publication/264297475\\_Embodied\\_Cognition](https://www.researchgate.net/publication/264297475_Embodied_Cognition)
- [27] T. Kujira, M. D. Caramia, J. C. Rothwell, B. L. Day, P. D. Thompson, Ferbert, S. Wroe, P. Asselman and C. D. Marsden. (1993) Corticocortical Inhibition in human Motor Cortex." *Journal of Physiology* 471: 501-519; Wikipedia. (2017) "Cortico-Muscular Coherence." Downloaded 9/21/2017. [https://en.wikipedia.org/wiki/Corticomuscular\\_coherence\\_2/](https://en.wikipedia.org/wiki/Corticomuscular_coherence_2/)
- [28] Deborah Kotz and Angela Haupt, (2012) "7 Mind-Blowing Benefits of Exercise". 7 March 2012. At <https://health.usnews.com/health-news/diet-fitness/slideshows/7-mind-blowing-benefits-of-exercise>.
- [29] Rollin McCraty, Raymond Trevor Bradley and Dana Tomasino. (2015) "The Heart Has Its Own 'Brain' and Consciousness". At <http://in5d.com/the-heart-has-its-own-brain-and-consciousness/>; HeartMath. (2010) "The Energetic Heart Is Unfolding". At <https://www.heartmath.org/articles-of-the-heart/science-of-the-heart/the-energetic-heart-is-unfolding/>.
- [30] Richard E. Cytowic. (2017) "The Pit in Your Stomach is Actually Your Second Brain". *Psychology Today*. Posted Jan 17, 2017 at <https://www.psychologytoday.com/blog/the-fallible-mind/201701/the-pit-in-your-stomach-is-actually-your-second-brain>; Fiona MacDonald. (2016) "You Have a Second Brain". *Science Alert*. Posted 1 October 2016. At <https://www.sciencealert.com/you-have-a-second-brain>.
- [31] Wikipedia. (2017) "Body Memory". At [https://en.wikipedia.org/wiki/Body\\_Memory](https://en.wikipedia.org/wiki/Body_Memory); Robert Todd Carroll. (2017) "Cellular Memory". *The Skeptic's Dictionary*, Posted 9/26/2017. Available at <http://skepdic.com/cellular.html>.
- [32] Bob Yirka. (2012) "Research suggests cells communicate via biophotons". *Phys.org Blog*. Posted on 23 May 2012. At <https://phys.org/news/2012-05-cells-biophotons.html>; S. Mayburov. (2012) "Photonic Communications and Information Encoding in Biological Systems". At <https://arxiv.org/pdf/1205.4134.pdf>; Wikipedia. (2017) "Biophoton". At <https://en.wikipedia.org/wiki/Biophoton>.
- [33] James E. Beichler. (2000) "Life and death in the Big City: The geometrical structure of dying." *Yggdrasil: The Journal of Paraphysics* 2 (3): 232-260. Available at [https://www.academia.edu/7973990/Life\\_and\\_Death\\_in\\_the\\_Big\\_City\\_The\\_geometrical\\_structure\\_of\\_dying](https://www.academia.edu/7973990/Life_and_Death_in_the_Big_City_The_geometrical_structure_of_dying).
- [34] D.T. Suzuki. (1934, 1948) *An Introduction to Zen Buddhism*. Kyoto: Eastern Buddhist Soc. 1934. Republished with Foreword by C.G. Jung. London: Rider & Company, 1948.
- [35] G. Hessenberg. (1917) "Vectorielle Begründung der Differentialgeometrie," *Math. Annalen* 77:187-216.
- [36] Tullia Levi-Civita. (1917) "Nozione di parallelismo in una varietà qualunque e conseguente specificazione geometrica della curvatura riemanniana." *Rend. Circ. Mat di Palermo* 42: 173-215. Reprinted in *Opere Matematiche*, Vol.4 (1917-1928). Bologna: A Coura Dell' Accademia Nazionale dei Lincei, 1960: 1- 39.
- [37] Hermann Weyl. (1917) "Reine infinitesimale Geometrie." *Math. Zeitschrift*. Bd.2: 385-411; (1918) 201-216; Weyl, H. Hermann Weyl. (1918) "Gravitation und Electricität." *Sitz. Ber. Preuss. Akad. Wiss.* 26: 465-480. Translated as "Gravitation and Electricity." In Einstein, et al. *The Principles of Relativity*. New York: Dover, 1952: *Raum, Zeit, Materie*. Translated by H.L. Brose as *Space, Time, Matter*. London: Methuen, 1922; New York: Dover, 1952; (1919) "Eine neue Erweiterung der Relativitätstheorie." *Ann. d. Phys.* 59: 101.
- [38] Arthur Eddington. (1921) "A Generalisation of Weyl's Theory of the Electromagnetic Gravitational Fields." *Proceedings of the Royal Society of London A* 99: 104-122.
- [39] Albert Einstein. (1923) "Zur allgemeinen Relativitätstheorie." Preussische Akademie der Wissenschaften, Phys.-math. Klasse, Sitzungsberichte 1923, 32-38; (1923) "Bemerkung zu meiner Arbeit 'Zur allgemeinen; Relativitätstheorie'." Preussische Akademie der Wissenschaften, Phys.-math. Klasse, Sitzungsberichte 1923, 76-77; (1923) "Zur affinen Feldtheorie." Preussische Akademie der Wissenschaften, Phys.-math. Klasse, Sitzungsberichte 1923, 137-140.
- [40] Élie Cartan. (1923) "Sur une généralisation de la notion de courbure de Riemann et les espaces à torsion." *C. R. Acad. Sci. (Paris)* 174 : 593-595 ; Élie Cartan. (1923) "Sur les variétés à connexion affine et la théorie de la

- relativité généralisée." Part I: *Ann. Éc. Norm.* 40: 325–412, and (1924) 41: 1–25; Part II: (1925) 42: 17–88; *La géométrie des espaces de Riemanns*, fasc. 9 of *Memorial des Sciences Mathématiques*. Paris: 1925; "Espaces a connexion affine, projective et conforme." *Acta Mathematica* 48 (1926): 1–42; *Lecons sur les geometrie des espaces Riemann*, (Paris: 1928).
- [41] Yu.V. Nachalov. (2003) "The Basics of Torsion Mechanics", 2003. Available online. Accessed 3 September 2007 at [www.amasci.com/freenrg/tors/tors24.html](http://www.amasci.com/freenrg/tors/tors24.html); and E.A. Parkhomov. (2003) "Experimental detection of the torsion field." Available online. Accessed 29 September 2007 at [www.amasci.com/freenrg/tors/doc15.html](http://www.amasci.com/freenrg/tors/doc15.html); A.E. Akimov, A.E. and G.I. Shipov. "Torsion Fields and Their Experimental Manifestations." *Proceedings of International Conference: New Ideas in Natural Science* (1995). First page and bibliography reprinted: Available online. Accessed 29 August 2002 at [www.eskimo.com/~billb/freenrg/tors/torsd.html](http://www.eskimo.com/~billb/freenrg/tors/torsd.html); Also available as Preprint No 4a. Russian Academy of Natural Sciences, International Institute for Theoretical and Applied Physics, Moscow, 1995. Available online. Accessed 29 August 2002 at [www.binet.lv/firms/project/english/torsion.htm](http://www.binet.lv/firms/project/english/torsion.htm).
- [42] Theodor Kaluza. (1921) "Zur Unitätsproblem der Physik". *Sitzungsberichte der Preussischen Akademie der Wissenschaften* 54: 966-972; Wolfgang Pauli. (1921) *Theory of Relativity*, translated by G. Field. New York: Dover, 1981. Originally "Relativitätstheorie," *Encyklopädie de mathematischen Wissenschaften* 19. Leipzig: B.G. Teubner, 1921.
- [43] Albert Einstein and Peter G. Bergmann. (1938) "On a Generalization of Kaluza's Theory of Electricity." *Annals of Mathematics* 39, 3: 683-701.
- [44] James E. Beichler. (2012). "The Tie that Binds: A fundamental unit of 'change' in space and time." *Vigier VIII Symposium Proceedings*, 2012. Available at [https://www.academia.edu/7708594/THE\\_TIE\\_THAT\\_BINDS\\_A\\_FUNDAMENTAL\\_UNIT\\_OF\\_CHANGE\\_IN\\_SPACE\\_AND\\_TIME](https://www.academia.edu/7708594/THE_TIE_THAT_BINDS_A_FUNDAMENTAL_UNIT_OF_CHANGE_IN_SPACE_AND_TIME).
- [45] Oscar Klein. (1926) "Quantentheorie und Fünfdimensionale Relativitätstheorie." *Zeitschrift für Physik*: 895-906; also "The Atomicity of Electricity as a Quantum Theory Law." *Nature*, 118: 516; (1927) "Zur Fünfdimensionale Darstellung der Relativitätstheorie." *Zeitschrift für Physik* 46: 188-208; (1939) "On the Theory of Charged Particles." *New Theories in Physics*, International Institute of Intellectual Cooperation, Paris; (1947) "Meson Fields and Nuclear Interaction." *Arkiv for Matematik, Astronomi och Fysik* 34A: 1-19.
- [46] Erwin Schrödinger. (1944) "The Affine Connexion in Physical Field Theory." *Nature* 53: 572-575.
- [47] A. Einstein. (1929) "Field Theories Old and New." *New York Times*, 3 February, 1929. Reprinted New York; Readex Microprint, n.d.; (1929) "The New Field theory I, II." *Observatory* 51: 82-87; (1929) "Zur einheitlichen Feldtheorie." *Sitzsber. Preuss. Akad. Wissen. (1929)* (1): 2-7.
- [48] Sir Arthur Eddington. (1923) *The Mathematical Theory of Relativity*. Cambridge University Press.
- [49] Erwin Schrödinger. (1951, 1960) *Space-Time Structure*. Cambridge, England: At the University Press.
- [50] Quoted from 1947 Schrödinger-Einstein letter in Walter J. Moore. (1992) *Schrödinger, life and thought*. Cambridge University Press
- [51] Albert Einstein. (1925) "Einheitliche theorie von Gravitation und Elektrizität." *Sitzungsberichte der Preussischen Akademie der Wissenschaften (Berlin), Physikalische-mathematische klasse*: 414-419.
- [52] Albert Einstein. (1945) "A Generalization of the Relativity Theory of Gravitation." *Annals of Mathematics* 46: 578-84; Einstein and Strauss, E.G. (1946) "A Generalization of the Relativistic Theory of Gravitation II." *Annals of Mathematics* 47: 731- 741; (1956) *Meaning of Relativity*. 6th ed. Princeton: Princeton University Press.
- [53] C. Peter Johnson. (1953) "A Criticism of a Recent Unified Field Theory," Letters to the Editor. *Physical Review* 89: 320-1; Einstein "A Comment on a Criticism of Unified Field Theory," Letters to the Editor. *Physical Review* 89: 321; Einstein and B. Kaufman (1955) "A New Form of the General Relativistic Field Equations." *Annals of Mathematics* 62: 128-18.
- [54] R.T. Jantzen; P. Carini; D. Bini (1992). "The Many Faces of Gravitoelectromagnetism". *Annals of Physics* 215: 1–50. At [arXiv:gr-qc/0106043](https://arxiv.org/abs/gr-qc/0106043); (2000). "Gravitoelectromagnetism". *Reference Frames and Gravitomagnetism* - Proceedings of the XXIII Spanish Relativity Meeting. At [arXiv:gr-qc/0011014](https://arxiv.org/abs/gr-qc/0011014); "Gravitoelectromagnetism: A

- Brief Review". At arXiv:gr-qc/0311030 in L. Iorio (ed.) (2007). *Measuring Gravitomagnetism: A Challenging Enterprise*. Nova: 29–39.
- [55] James E. Beichler. (2010) "The Physical Origins of Dark Matter and Dark Energy: Exploring Shadows on the Cave Wall". *Space-Time Ether and Cosmology: physical vacuum relativity and quantum physics*, Volume 3. Edited by Michael C. Duffy and Joseph Levy. Apeiron Press: 259-311.
- [56] Oliver Heaviside (1893) "A gravitational and electromagnetic analogy." *The Electrician* 31: 81-82.
- [57] Wikipedia. (2017) "George Cantor". At [https://en.wikipedia.org/wiki/Georg\\_Cantor](https://en.wikipedia.org/wiki/Georg_Cantor).
- [58] Albert Einstein, Peter Bergmann and Valentin Bargmann. (1941) "On the Five-Dimensional Representation of Gravitation and Electricity." In the *Theodor von Karman Anniversary Volume*. Pasadena, 1941: 212-225.
- [59] James E. Beichler. (2016) "Quantized space-time structure: The 0-D point/twist as co-creator of the continuum and single field". *Proceedings of the Vigier X Symposium*. Online at [https://www.academia.edu/27167490/Quantized\\_space-time\\_structure\\_The\\_0-D\\_point\\_twist\\_as\\_co-creator\\_of\\_the\\_continuum\\_and\\_single\\_field](https://www.academia.edu/27167490/Quantized_space-time_structure_The_0-D_point_twist_as_co-creator_of_the_continuum_and_single_field).
- [60] James E. Beichler. (2015). "Finishing Einstein Point by Point: The unification of quantum and relativity." *WISE Journal* 4, 4. At [https://www.academia.edu/16201568/Finishing\\_Einstein\\_Point\\_by\\_Point\\_The\\_unification\\_of\\_quantum\\_and\\_relativity](https://www.academia.edu/16201568/Finishing_Einstein_Point_by_Point_The_unification_of_quantum_and_relativity).
- [61] James E. Beichler. (2013) "The Point of Unification in Theoretical Physics." In *Proceedings of the 20th NPA Conference*. Available online at [www.worldsci.org/pdf/abstracts/abstracts\\_paperlink\\_7066.docx](http://www.worldsci.org/pdf/abstracts/abstracts_paperlink_7066.docx).
- [62] Louis DeBroglie. (1927) Solvay Conference. Published 1928, *Electrons et Photons: Rapports et Discussions du Cinquieme Conseil de Physique tenu a Bruxelles du 24 au 29 October 1927 sous les auspices de l'Institut International Physique Solvay*; (1987) "Interpretation of quantum mechanics by the double solution theory." *Annales de la Louis de Broglie* 12 : 1-23. Available online at [aflb.ensmp.fr/AFLB-classiques/aflb124p001.pdf](http://aflb.ensmp.fr/AFLB-classiques/aflb124p001.pdf).
- [63] Edmund T. Whittaker (1903) "On the Partial Differential Equations of Mathematical Physics." *Math. Ann.* 57: 333-355; (1904) "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions." *Proc. Lond. Math. Soc.* 1: 367-372.
- [64] James E. Beichler. (2012) "The Tie that Binds: A fundamental unit of 'change' in space and time." *Vigier VIII Symposium Proceedings*, 2012. Available at [https://www.academia.edu/7708594/THE\\_TIE\\_THAT\\_BINDS\\_A\\_FUNDAMENTAL\\_UNIT\\_OF\\_CHANGE\\_IN\\_SPACE\\_AND\\_TIME](https://www.academia.edu/7708594/THE_TIE_THAT_BINDS_A_FUNDAMENTAL_UNIT_OF_CHANGE_IN_SPACE_AND_TIME).
- [65] James E. Beichler. (2015) *The Einstein Unified Field Theory Completed: A direct challenge to the basic assumptions, theories and direction of modern and post-modern physics* (1<sup>st</sup> edition). An unpublished manuscript. Available at [https://www.academia.edu/12035946/The\\_Einstein\\_unified\\_field\\_theory\\_completed\\_A\\_direct\\_challenge\\_to\\_the\\_basic\\_assumptions\\_theories\\_and\\_direction\\_of\\_modern\\_and\\_post-modern\\_physics\\_1st\\_Edition](https://www.academia.edu/12035946/The_Einstein_unified_field_theory_completed_A_direct_challenge_to_the_basic_assumptions_theories_and_direction_of_modern_and_post-modern_physics_1st_Edition)
- [66] James E. Beichler. (2014) "Modern Fysics Phallacies: The best way not to unify physics." *Vigier IX Symposium Proceedings*, October 2015. Available at [https://www.academia.edu/7708652/MODERN\\_FYSICS\\_PHALLACIES\\_THE\\_BEST\\_WAY\\_NOT\\_TO\\_UNIFY\\_PHYSICS](https://www.academia.edu/7708652/MODERN_FYSICS_PHALLACIES_THE_BEST_WAY_NOT_TO_UNIFY_PHYSICS).
- [67] Wikipedia (2017) "Georges Lemaitre". Accessed 9/22/2017. [https://en.wikipedia.org/wiki/Georges\\_Lema%C3%AEtre](https://en.wikipedia.org/wiki/Georges_Lema%C3%AEtre).
- [68] Ari Belenkiy. (2012) "Alexander Friedmann and the origins of modern cosmology". *Physics Today* 65 (10): 38; doi: 10.1063/PT.3.1750. Online at <http://cosmo.fisica.unimi.it/assets/IntroAstro/IntroAstro1516/Alan-Friedmann-and-the-Origins-of-Modern-Cosmology.pdf>.
- [69] Wikipedia. (2017) "Fred Hoyle". Accessed 9/22//2017. [https://en.wikipedia.org/wiki/Fred\\_Hoyle](https://en.wikipedia.org/wiki/Fred_Hoyle);  
Burbidge, E.M., Burbidge, G.R., Fowler, W.A. and Hoyle, F. (1957) "Synthesis of the Elements in Stars". *Revs. Mod. Physics* 29: 547–650; (1981) "The big bang in astronomy". *New Scientist* 92 (1280):527.

- [70] Alan Guth. (1997) *The Inflationary Universe: The Quest for a New Theory of Cosmic Origins*. Perseus Books; "Inflationary universe: A possible solution to the horizon and flatness problems". *Physical Review D* 23 (2): 347–356.
- [71] Sperry Andrews and S. Salka, (2014) "Mapping the whole in everyone: An Essay on Non-existence as the engine and axis of existence." *Cosmos and History: The Journal of Natural and Social Philosophy* 10, 1: 15-33; Sperry Andrews and J. Tayloe. (2015) "Humanity's capacity to share a common sense: The absence that gives rise to our presence." *Cosmos and History: The Journal of Natural and Social Philosophy* 11, 2: 1-15.
- [72] George Gamow. (1947, revised 1961) "*One Two Three ... Infinity*". Viking Press.
- [73] Ilya Prigogine. (1961) *Introduction to Thermodynamics of Irreversible Processes* (Second ed.). New York: Interscience; Ilya Prigogine and G. Nicolis. (1977). *Self-Organization in Non-Equilibrium Systems*. Wiley.
- [74] Thomas Kuhn. (1996) *The Structure of Scientific Revolution*. Chicago: University of Chicago Press; 3rd edition, revised 1962.
- [75] John Roach. (2007) "Human Evolution Speeding Up, Study Says". *National Geographic News*, December 11, 2007. Online at <http://news.nationalgeographic.com/news/2007/12/071211-human-evolution.html>; Brandon Keim. (2007) "Humans evolving more rapidly than ever, say scientists". *WIRED Science*. Posted 12.10.07. Available at <https://www.wired.com/2007/12/humans-evolving/>.
- [76] Peter Tyson. (2017) "Are We Still Evolving?" NOVA, Posted 12.14.09. Available at <http://www.pbs.org/wgbh/nova/evolution/are-we-still-evolving.html>.
- [77] P.M.H. Atwater. (2017) *A Manual for Developing Humans*. Rainbow Ridge Press; Quoted in a Michael Tymn book review. *The Searchlight* 26, 5, October 2017: 11; P. M. H. Atwater. (2011) *Near-death Experiences, the Rest of the Story: What They Teach Us about Living, Dying, and Our True Purpose*. Hampton Roads Publishing; Also P.M.H. Atwater. (2005) *Beyond the Indigo Children: The New Children and the Coming of the Fifth World*. Bear & Company.
- [78] Richard Maurice Bucke. (1901) *Cosmic Consciousness A Study in the Evolution of the Human Mind*<sup>5</sup>. London: Dutton and Company. Available at <https://selfdefinition.org/christian/Cosmic-Consciousness-by-Richard-M-Bucke-text.pdf>.
- [79] Robert T. Browne. (1919) *The Mystery of Space. A study of the hyperspace movement in the light of the evolution of new psychic faculties, and an inquiry into the genesis and essential nature of space*. New York: E. P. Dutton and Company.

# Antigravity Turbine

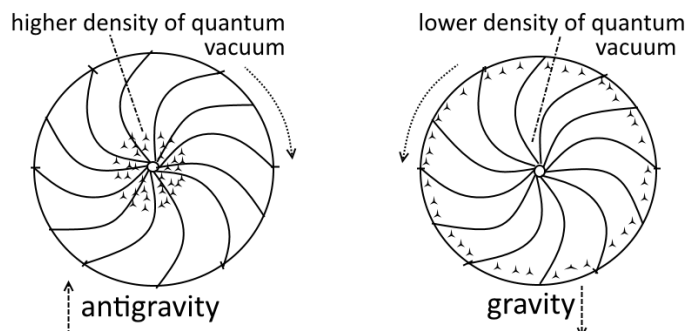
Amrit Sorli  
Foundations of Physics Institute  
Idrija Slovenia  
[www.fopi.info](http://www.fopi.info)

Back in 2015, we showed that time had only a mathematical existence and that time was not the 4<sup>th</sup> dimension of space <http://link.springer.com/search?query=sorli+amrit+>. This insight opened up a new perspective; namely, that universal space is a kind of super-fluid energy (also named “quantum vacuum”), which can be used as a source of “free energy” and the possibility to use the variable energy density of space as a source of antigravity.

In our theoretical model, the energy, mass and gravity of a given particle or solid body have a common source in the variable energy density of a quantum vacuum. In our model, the dragging effect of the space with the sun moves the space around the sun and causes a planet’s precession. With regard to the planet’s precession we obtained exactly the same result as Einstein. The article “Dynamic Quantum Vacuum and Relativity” is accepted for publication and will be published in October 2016 (the article is attached).

Accordingly to our model, technical device which will increase the energy density of space, will move in the opposite direction of gravity. We publish an article on that in <http://article.sciencepublishinggroup.com/pdf/10.11648.i.ajmp.s.2016050401.14.pdf>. Recently I made the design of such an antigravity device named »Antigravity Turbine«. An Antigravity Turbine (**AT**) is a turbine made from aluminium with 12 chambers in the shape of a pinwheel. The turbine has a diameter of 30cm and a height of 30cm. The inner walls of the pinwheel have a layer of a substance that has a high density, such as gold or osmium. We suppose that high density substances are less permeable for the energy of space and enable the chambers to work as closed volumes for the energy of space. When the turbine moves in a clockwise direction, the energy of space as a super-fluid moves along the chambers towards the centre of the turbine, and the energy density of space increases in the centre which causes antigravity. When the turbine moves in an anticlockwise direction, the energy density of space decreases in the centre of the turbine which has the effect of increasing the amount of gravity.

## Antigravity Turbine



We calculate that extremely small variations of the space energy density govern the entire cosmic dynamics. The energy density of space is stable throughout the entire universe. In the centre of a black hole, the energy density increases on the scale below  $E10^{-73}$  <http://article.sciencepublishinggroup.com/pdf/10.11648.j.ajmp.s.2016050401.11.pdf>. This means that the minimal displacement of space energy in 12 chambers of the **AT** caused by the clockwise rotation will give an antigravity effect and in the anticlockwise rotation a stronger gravity effect.

We have an agreement with Dr. Tajmar [https://tu-dresden.de/die\\_tu\\_dresden/fakultaeten/fakultaet\\_maschinenwesen/ilr/rfs/staff/portrait\\_deutsch](https://tu-dresden.de/die_tu_dresden/fakultaeten/fakultaet_maschinenwesen/ilr/rfs/staff/portrait_deutsch): his team will build our **AT** for €8,000. Now we are searching for entrepreneurs who are ready to invest in this futuristic project which has verified the theoretical basis on the cosmological level. The next step is the experimental verification at the technological level.

Amrit Srečko Šorli, 27.4.2015, Gorenja Trebuša

# THE BRIDGE BETWEEN HOMEOPATHY AND MESMERISM



by Dr. Charles McWilliams



Franz Anton Mesmer, a visionary 18th-century physician, who showed cures could be effected by having patients do things such as sit with their feet in a fountain of magnetized water while holding cables attached to a barrel full of iron chips and crushed glass. He believed the body was magnetized and health required a full flow of energy.

Mesmer then came to believe that magnetic powers resided in himself, and during highly fashionable curative sessions in Paris he caused his patients to have reactions ranging from sleeping or dancing into near convulsions. These reactions were brought about by hypnotic powers that Mesmer was at first unaware he possessed. Eventually, Mesmer's practices came to be called *mesmerism* (a term first recorded in English in 1784). The related word *mesmerize* (first recorded in English in 1829), having shed its reference to this hypnotic doctor, now lives on in the sense "to enthrall."

Mesmerism was considered a new and unnatural art in the early 19th century, yet there is every reason to believe that it is the oldest and most natural mode of healing of the human race. Whether the incantations of a shaman beating drums or the loving touch of a mother, or the hand of Jesus, Mesmer observed and validated the phenomena as a medical practice.

There are a large number of works that suggest that the origins of hypnosis as we know it today began a couple of hundred years ago in Switzerland. A famous Roman Catholic priest by the name of Father Gassner, who discovered in the late 1700s that he apparently had powers that enabled him to heal people and so he began practicing faith cures. Johann Joseph Gassner (1727–1779), a priest of the time, believed that disease was caused by evil spirits and could be exorcised by incantations and prayer. Father Gassner dressed in black robes, would address these groups of people and touch each in turn with a crucifix.

Among one of these groups of people in the 1770s was a young German physician - Franz Anton Mesmer who was incredibly impressed. Mesmer



deduced this energy and subsequently concluded that the human body has two poles, just like a magnet has two poles, and just like a magnet, the human body must therefore be emitting an invisible magnetic fluid of some kind. This led Mesmer to believe that any disease was then caused by some kind interruption or problem in the flow of this so-called fluid. So in order to cure people, the flow needed to be corrected. There you have Mesmer's theory that led to his definition of "animal magnetism".

Hypnosis entered the 19th century as a peculiar activity associated with Mesmer, and left it as a mainstream medical technique practiced in respected hospitals and universities today. This remarkable transformation was due to the persistence of individual physicians and researchers, who risked professional ostracism and ridicule to explore the techniques discovered by Mesmer. The reason they did so is because, despite all the mystical associations, an inconvenient fact remained – mesmerism worked. But Mesmer was also subject of a scientific, medical inquisition by the French Academy, and he escaped by going into hiding. His theories were just too much big for small minds to handle, in spite of the fact Mesmer had cured thousands of patients without drugs. So the King of France, appointed a 'commission' of inquiry to look into Mesmer and his treatment. Benjamin Franklin served as president, and curiously, Joseph Guillotine, who designed an apparatus for efficiently carrying out executions by beheading, was a distinguished inquisitor. Recount that the Kings of France implemented (invented) the inquisitions, including the trials of the Knights Templar. They not only denounced Mesmer's therapy as ineffective, they condemned the idea of magnetic forces. They also said that patients' improvements came not from Mesmer's magnetism but from their own desire to get better. Mesmer however, escaped with his life.

Mesmer's ideas didn't disappear, but spread out amongst a growing band of devotees to develop in ways he could never have imagined. In the early decades of the century, mesmerists fell into two camps; "fluidists", who persisted in the belief that 'animal magnetism' was tangible, being transmitted across the aethers; and "animists", who looked for a more psychological explanation (phenomenological psychology). In the 1850s, it came to the U.S. and became really popular. French physician Charles Poyen was one of its champions. He gave presentations in many states and after immigrating to America, even started the mesmerist publication *The Psychodinamist*. American mesmerists also used the power of suggestion to help patients with everything from health to family problems. Again, clients reported feeling better after their sessions, as though they'd "been set free by their treatments" and felt "spiritually invigorated".

Let's be clear, Mesmerism is not technically hypnosis but it had a very influential role in the events that shaped the beginnings of hypnosis and even radionics. Hypnosis as a term was first coined by James Braid in 1843 for a trance

phenomena derived from early Mesmerism/Animal Magnetism practice. The word hypnosis is derived from the Greek word *hypnos*, meaning sleep - hypnotism is believed to be a means of bringing on an artificial state of sleep to the participant, or less accurately described as a state of reduced consciousness while one is awake. Braid coined the term hypnotism in opposition to theories of Mesmerism, to stress the fact that the results were due to ordinary psychological and physiological processes, such as suggestion and focused attention, an animistic theory, rather than telepathy or animal magnetism. Thus, practitioners of hypnosis are truly asleep to its profound manifestations. As a result he recognised the psychological nature of the patient's condition and coined the word "hypnosis." It was Braid who started the first scientific studies of hypnosis as a psychological condition of scientific importance.

But a profound influence on Mesmerism came from James Esdaile (1808-1859), a Scottish surgeon who worked in India between 1845 and 1851. Here he performed over 300 major and 1000 minor operations using only hypnotic anaesthesia. In his book *Mesmerism In India, and its Practical Application in Surgery and Medicine*, Esdaile gives a summary of the 73 painless surgical operations he performed in the last eight months of his stay in India. These include arm, breast and, alarmingly, penis amputations, dental surgery and the removal of tumours. In addition, he used hypnosis to cure 18 nervous and medical complaints, including headaches, tics and convulsions, sciatica, inflammation of various body parts and a "feeling of insects crawling over the body." Esdaile was also a staunch fluidist as he proved the phenomena for himself by passing this fluid through the air, at a distance, and also in water as an alternative media. Later hypnotist, the famous Elman coined the term "Esdaile state" and taught a technique to induce it, now an industry standard!

He states: Mesmerism has been called " animal electricity," and if correctly named, we should expect it to resemble inorganic electricity in many particulars: but whether it is a modification of electricity or not, I can see no reason why water should not absorb an invisible animal fluid, as easily as a fluid which is imperceptible and organic. There is nothing in the known laws of physics to make it improbable that water can be mesmerised, as well as electrified. On the contrary, it seemed to me so probable from analogy, that I fully believed the statements of others regarding it, and made my first experiment with considerable confidence. Deleuze, a most honest and trustworthy man, and who had practised Mesmerism, for thirty-five years in France, with great success, gives the following directions for mesmerising water. "It is to be poured over the tips of the fingers, and the glass is then to be mesmerised by passing the hands down its sides, and the water may also be breathed upon." (*Mesmerism in India*, J. Esdaile)

### **The Homeopathic Parallel**

The similarities between Mesmer and Hahnemann, both in career and in ideas, are surprisingly close. Humans are multi-dimensional beings composed of many aspects - physical, emotional, mental, and spiritual bodies - with connections to many dimensions. The human as well as the Universe is far more complex than scientists lead you to believe. As exoteric physics is the science of the physical realm and its laws and functions, metaphysics is the science of all realms, their laws and functions. From a metaphysical viewpoint, the physical world that we see before us is simply the 3rd dimension.

THE subtle body is one of a series of psycho-spiritual constituents of living beings, according to various esoteric, occult, and mystical teachings. According to such beliefs each subtle body corresponds to a subtle plane of existence, in a hierarchy or great chain of being that culminates in the physical form. There are other physical dimensions ranging from aetheric, to astral, to mental, and to causal, and above.

Mesmer came to believe that there was a fluid of personal energy, a psychic force, and if transferred to sick patients, they would heal them. Likewise, Hahnemann believed there was a 'sick force,' miasma, that pervaded all of humanity since the fall. This vital fluid can be made to flow from one person to another, as from doctor to patient, to restore equilibrium and thereby cure illness. Mesmer stroked his patients first with magnets and later with only his hands, to confer this animal magnetism. Doctors following his techniques are said to practice mesmerism, the forerunner of hypnotherapy. The laying on of hands is a religious ritual that accompanies certain religious practices, which are found throughout the world in varying forms for eons. Chirothesia means "Led by the healing hand of God."

Mesmer's concept can be found in all ancient and traditional medicines: A fluid universally diffused, so continuous as not to preclude a vacuum, incomparably subtle, and naturally susceptible of receiving, propagating, and communicating all nervous disturbances, as the means of its noxious influence. It is by this action, the most universal which occurs in nature, that the exercise of active relations takes place between the heavenly bodies, the earth, and its constituent parts. The animal body experiences the effects of this astral agent, and is directly affected by its insinuation into the substance of the nerves. The properties of animal magnetism are displayed, analogous to and guided by those of the bar magnet, particularly in the human body, in which diverse and opposite poles are likewise to be distinguished, yin and yang, positive and negative, and these may be communicated, changed, destroyed, and reinforced accordingly. Mesmer's vital fluid can have both positive or negative properties, based on the source.

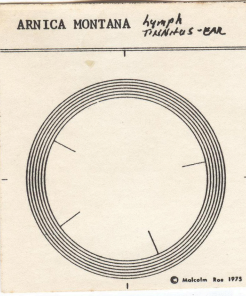
It was these properties of the human body which renders it susceptible of the influence of heavenly bodies, the lunar tides, and of the reciprocal action of those

which environ us on earth, animals and plant life, and which manifests its analogy. By its observed transmission by the ordinary permanent magnet, that decided Mesmer to adopt the term of animal magnetism. Likewise, it was Hahnemann who recognized that the properties of animal magnetism could be released into water from plant and animal matter, as well as inanimate objects like stones, acids and alkalis, oils, etc. to make medicinal substances. The action and virtues of animal magnetism, thus characterized, may be communicated to other animate or even inanimate bodies for toxicological studies (proving), as well as for medicinal properties, yielding his similitude, his most famous theory of medicine. Hahnemann chose as the medium or recipient of his vital energy water and sac lac (milk sugar).

These facts show, in accordance with the practical rules Mesmer and Hahnemann both established, that this principle will cure nervous diseases directly, and other diseases indirectly. Note this important and tantamount understanding: in principle will cure nervous diseases directly, and other diseases indirectly. In other words, the media for reception of this energy in the human body is the nervous system by which every cell of the body is so permeated. In order for this energy to be received and transmitted, the nervous system must be receptive, like a tuning dial, and thus 'hypnosis' making the person highly responsive and suggestive, is required. In other words, the consciousness must be focused and directed for its reception rather than scrambled with the ordinary, daily bombardment of light, sound, symbols, noise, odors, etc. litany of distractions.

By its aid and complete understanding, the physician so enlightened can use this vital medicine, and may render its action more perfect, and can provoke and direct salutary healing energies as well as crises (detoxification/exorcism), so as to completely control them. Possessed of this knowledge, the physician may judge with certainty of the origin, nature, and progress of diseases, however complicated they may be; he or she may diagnosis the affliction, hinder their development and accomplish their cure without exposing the patient to dangerous and troublesome consequences of crude drugs and surgery, irrespective of age, temperament, and sex. Even women in a state of pregnancy, and during parturition, may reap the same advantage by use of animal magnetism and homeopathy. This doctrine of astral medicine will finally enable the physician to decide upon the health of every individual, and of the presence of the miasmatic diseases to which he can ascertain from the patients by their emotional state, constitution, countenance, signs and symptoms of disorder. In this way the art of healing may be brought to absolute perfection through proper case taking, hypnotic regression, resolving discourse, laying of hands, preparing remedies in suitable media, energetically removing toxic and noxious magnetic forces by the use of external agents, and directing the flow of normal energies and polarities in the human (and animal) body.

So really, the entire basis of Mesmerism, as in Reiki, is Thought-Forms. Thought forms are not only the basis of memories, both long and short, but are also the basis for psychosomatic complaints. Thought forms as discrete entities of astral matter is not only commonly understood but is far more significant when understood in terms of psychology, hypnosis, and even homeopathy. Further, thought forms possess an energetic chemistry which yield poisons and toxins. What may appear as a simple statement regarding a chief complaint, to the attuned and astute physician versed in astral medicine, often reveals its mark on someone so infected and infested that the belief itself can be seen to fester like a decayed root canal, or even a malignant tumor - woefully ignored until picked up by diagnostic imaging. Astrotoxins, like root canals, lurk energetically just like stomatorrhagia, halitosis or malodorous oral plumes. Astral toxins, just as their physical counterparts, can be cleansed, detoxified, debrided, sterilized, and even surgically (psychical) removed. This latter phenomenon, psychic surgery, the author has personally witnessed and filmed.

	<p>These astral toxins, I believed, were the very 'vibrations' picked up by Albert Abrahms, Dr. Miller (Radioclast), and Ruth Drown. That these emanations are astral substance, travel through aether, and can be sequestered into electronic equipment by 'tuning' and placed into water (Hieronymus' <i>Aqua Potentia</i>). Malcolm Rae identified these also have 'geomagnetic fields' which could be placed on specially designed <i>Rae Cards</i> for their homeopathic employment.</p>
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# Entanglement of Large Sized Objects – Part 2

by

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## Abstract

The objective of this paper is to copy quantum entanglement into the everyday macro world. Entanglement is usually associated with, say, 2 electrons emitted from the same atom remaining in contact with each other when separated by vast distances. This paper shows how it is possible for 2 large physical bodies to communicate information to each other over considerable distances, without any apparent intermediate medium. One sheet of A4 paper, torn in half, is all that is required to generate 2-body entanglement, provided that the 2 sheets of paper are sufficiently far apart so they create a psi-line with nodes, that mediates the entanglement. Quantitative experiments involving auras are detailed and demonstrate that the mind is intrinsically connected to psi-lines and quantum entanglement.

## Key Words

*Mind, intent, psi-lines, nodes, subtle energies, entanglement, weights, auras, common source.*

## Introduction

This paper builds on published research regarding psi-lines and macro entanglement <sup>6</sup>, which is referenced at the end of this paper. The author's paper in 2008 <sup>1</sup> showed that there were 5 ways of obtaining long range non-quantum entanglement of large physical objects.

1. By placing 2 **dissimilar** objects on a naturally occurring psi-line. Applying pressure to one object increases the size of its aura <sup>13, 12</sup>, whilst the aura of the other object also increases in unison.
2. By placing 2 **dissimilar** objects on a mind created psi-line. The aura of both increases as pressure is increased on any one of the objects.
3. As in method 2 above, no physical pressure was applied, but purely thought pressure was introduced to one object producing the same entangled results.
4. A live leaf torn in two creates a psi-line as the 2 pieces are separated. As above, their auras remain entangled.
5. When a crystal is broken in two and each part is separated, both parts automatically become entangled and create an interlinking psi-line.

Common to all the above entanglement findings was the involvement of a standard Type 4 **psi-line**, with Type 9 nodes <sup>3</sup>. If an existing psi-line was not available, a major finding of the above experiments was that a **common source** was essential for 2-body macro entanglement. This requirement is compatible with quantum entanglement.

For all of the above experiments, several people measured the auras of the 2 entangled objects and demonstrated that the physical properties that could be remotely entangled included the transmission of pressure and magnetism <sup>5</sup>.

The author's 2013 paper <sup>4</sup> showed that short-range entanglement naturally occurs for any 2 large bodies when their auras are in contact. In this case, a complex pattern of subtle energies<sup>8</sup> is produced and involves the 2 bodies being linked by different subtle energy and

properties to the long-range Type 4 entanglement<sup>15, 16</sup>. It is therefore not a subject for this paper.

All of the above experiments only produced qualitative results. This paper sets out quantitative findings that are of a more scientific demonstration of macro entanglement.

### Experimental Protocol

The experiments were designed so they can easily be reproduced noetically by a layperson who is aware of subtle energies and auras of physical bodies. Prior to the experiments, checks were made that no existing subtle energy lines existed in the vicinity that could interfere with the experiment’s findings. Existing lines were either avoided or deleted by the mind’s intent.

A common source was obtained by tearing an A4 sheet of paper in half to form 2 x A5 sheets. A standard Type 4 psi-line, with Type 9 nodes, is automatically created only after the 2 pieces of paper, from the same source, have been separated sufficiently, so there is no short-range 2-body interaction, as discussed above. Until this point is reached, no entanglement occurs. This is illustrated in Table 1, which shows how separation increases until a psi-line with at least one node is created. It is noted only when the 2 sheets of paper are separated by a psi-line of 1.56m does the aura of each sheet of paper increase significantly (typically by about 33%) indicating that entanglement has taken place. This is much quicker and easier than detecting a psi-line having Type 4 subtle energy, and Type 9 nodes.

Location of the 2 x A5 sheets	Separation Distance between the 2 Sheets metres	Core Aura measured from edge of narrowest side of each A5 sheet		Comments
		A mm	B mm	
Superimposed	0	135	135	No psi-line created
Sides Touching	0	134	136.5	No psi-line created
Separated	1.36	133.7	129.0	No psi-line created
Separated	1.56	176	178	Psi-line created

Table 1. A simple and quick method to prove when entanglement has been reached

The two sheets of paper were labelled A and B. Weights were placed on sheet A and the auras of both sheets A and B were measured in unison. Although auras are 3-dimensional<sup>9</sup>, a 1-dimensional measurement is sufficient to demonstrate expanding auras, and was made from the middle of the shortest side (14.5mm) of the A5 sheets. Each measurement was repeated 4 times: twice by moving a pointer outwards until the core aura boundary was detected. Similarly the core aura boundary was measured whilst moving the pointer inwards towards the sheet of paper.

Sheets A and B were then separated sufficiently far apart so that no 2-body interaction occurred. In the following experiments, not only was a separation of 13.8 metres chosen but also 3 walls existed between the 2 sheets of paper so a sufficiently large distance with obstacles would demonstrate entanglement.

As measurements of subtle energies and psi-lines are affected by many factors including the rotation of the Earth<sup>9</sup> and the Earth's orbit round the Sun<sup>10,11</sup>, it is essential to collect data as quickly as possible. For example, the same experiment performed again 2 hours later had auras 20 mm shorter.

Weight on Sheet A	Core Aura of Sheet A					Core Aura of Sheet B					
	Grams	1st mm	2nd mm	3rd mm	4th mm	Average mm	1st mm	2nd mm	3rd mm	4th mm	Average mm
0	110	111	111	111	111	<b>110.75</b>	111	110	111	110	<b>110.50</b>
22	120	119	119	119	119	<b>119.25</b>	117	116	117	116	<b>116.50</b>
43	124	123	126	125	125	<b>124.50</b>	126	125	124	124	<b>124.75</b>
101	128	125	126	125	125	<b>126.00</b>	124	124	125	125	<b>124.50</b>
201	135	132	134	136	136	<b>134.25</b>	135	136	135	134	<b>135.00</b>
402	146	147	147	146	146	<b>146.50</b>	147	146	147	145	<b>146.25</b>
828	150	150	149	151	151	<b>150.00</b>	149	150	149	152	<b>150.00</b>
1928	278	277	274	277	277	<b>276.50</b>	278	273	274	276	<b>275.25</b>
2756	418	428	415	425	425	<b>421.50</b>	418	442	439	438	<b>434.25</b>
3890	680	684	669	672	672	<b>676.25</b>	670	672	673	674	<b>672.25</b>
4718	734	734	737	736	736	<b>735.25</b>	732	734	735	731	<b>733.00</b>

Table 2. The expansion of the auras of sheets A and B as the weight on sheet A is increased

### Findings

Table 2 sets out the details of the above experiment, and shows that the range of weights used was 0 – 4,718 grams, which produced a 7-fold increase in the auras of both sheets A and B. (As these experiments were performed on different dates to those in Table 1, they produced slightly different values of auras).

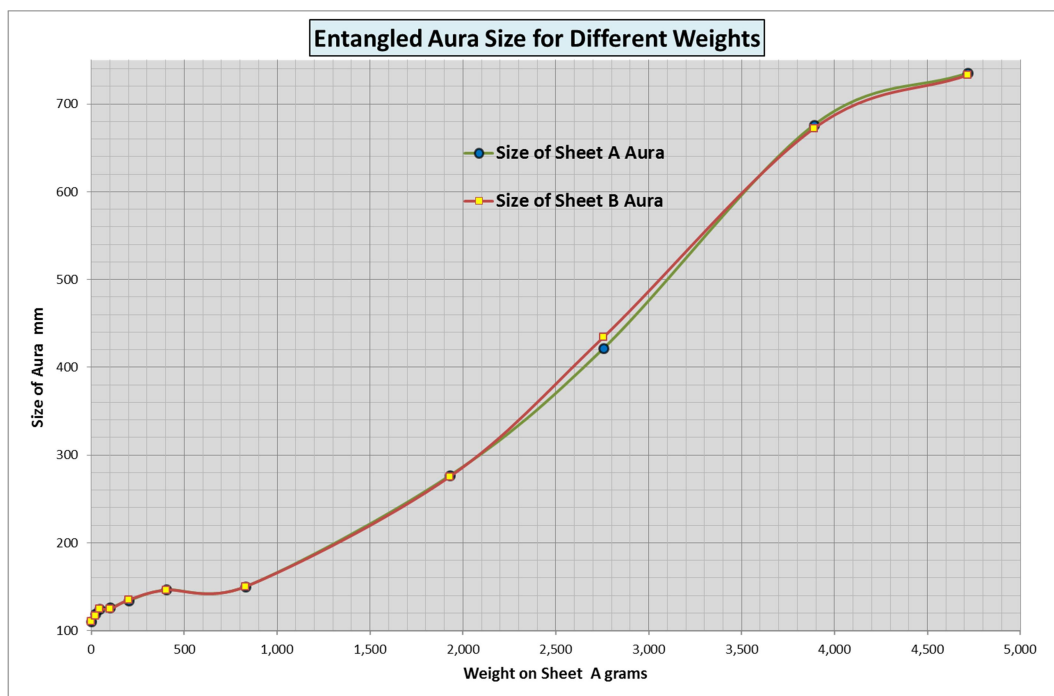


Figure 1. A graphical representation of findings showing the increase size of auras with increased weight on one sheet of entangled paper

Figure 1 is a graphical representation showing the increased size of auras with increased weights on one of the sheets of entangled paper. The curves plotted for both sheets A (the



green line) and B (the red line) are, within experimental error, superimposed. A remarkably accurate result that demonstrates entanglement has taken place.

At present, the auras involved in these experiments can only be detected by the mind. This suggests that a universal consciousness is involved in entanglement; a conclusion drawn in several other experiments, not only by the author, but also other researchers in consciousness and at associated conferences.

### **Experimental Error**

As it is possible to detect and measure subtle energies to within  $\pm 2$  mm, the worst cases in Table 2 of the 4 similar readings is better than  $\pm 2\%$ . The major source of experimental error is in noetically detecting the boundary of the core aura. Even so, the highest variance of similar figures in Table 2 is about 3%. As the weights were measured on an up to date electronic machine, their accuracy is well within this range.

### **Conclusions**

Psi-lines that contain nodes are required for entanglement. Objects that come from the same source produce such a psi-line when sufficiently separated. As illustrated in Figure 1, it cannot be a coincidence that, to a very high degree of accuracy, the measurements for the auras of entangled objects are identical. This result strongly suggests that, once again, the mind, consciousness, and psi-lines are intimately connected to the structure of the universe.

### **The Way Ahead**

As a result of the author's 10-year experience of entanglement experiments, it is felt that these findings can be generalised so that further experiments can demonstrate that any 2 objects from a common source, automatically generates a psi-line with nodes that enables entanglement to take place. Psi-lines have a complex fractal structure <sup>2</sup> that keeps their diameter constant, and their path, preferentially, in a straight line <sup>7</sup>. Future research is required to find if quantum entanglement has the identical mechanism.

### **References to the Author's Relevant Research Papers**

1. [\*Entanglement of Large Sized Objects – Part 1\*](#)  
April 2008 Published on author's website [www.jeffreykeen.co.uk](http://www.jeffreykeen.co.uk)
2. [\*The Structure of Noetically Perceived Columnar Vortices;\*](#)  
23 November 2014 Published as an e-print in <http://vixra.org/abs/1411.0547>
3. [\*Categorising Different Types of Noetically Perceived Fields - v2\*](#)  
October 2014; The Journal of the World Institute for Scientific Exploration, Vol. 3 No. 2  
31 March 2014 Published as an e-print in <http://vixra.org/abs/1403.0974>
4. [\*2-Body Interaction, Bifurcation, Chaos, Entanglement, and the Mind's Perception\*](#)  
June 2014; NeuroQuantology; Vol 12, No 2.
5. [\*Psi Lines, Standing Waves, Nodes, and their Affect on Perceived Measurements\*](#)  
July 2013, Vol. 42 No. 316– Dowsing Today - The Journal of the British Society of Dowsers 25 January 2013 Published as an e-print in <http://vixra.org/abs/1301.0154>
6. [\*Psi-Lines, Chaos, Spirals, Magnetism, and Entanglement\*](#)  
September 2012 NeuroQuantology Vol 10, No 3

7. [\*The Mind, the Macro Properties of Psi-lines, and the Structure of the Universe\*](#)  
September 2012 NeuroQuantology Vol 10, No 3
8. [\*The Mind, Intergalactic Space, and Phi -v2\*](#)  
December 2011 NeuroQuantology Vol 9, No 4
9. [\*Variation in Dowsing Measurements due to the Combined Vorticity in the Ecliptic Plane of the Earth's Orbit around the Sun, and the Spin of the Earth around its Tilted Axis\*](#)  
27 May 2011 Published as an e-print in <http://vixra.org/abs/1105.0039>
10. [\*Variations When Making Dowsable Measurements; Part 3 - Monthly and Annual Variations caused by Gravity\*](#)  
24 December 2009 Published as an e-print in <http://vixra.org/abs/0912.0049>
11. [\*Variations When Making Dowsable Measurements; Part 2 - Daily Variations Caused by the Earth Spinning on Its Axis\*](#)  
10 December 2009 Published as an e-print in <http://vixra.org/abs/0912.0024>
12. [\*Auras Revisited - Part 3\*](#)  
March 2005 Vol. 40 No 28, *The Journal of the British Society of Dowsers - Dowsing Today*
13. [\*Auras Revisited - Part 2\*](#)  
September 2004 Vol. 40 No 285, *The Journal of the British Society of Dowsers - Dowsing Today*
14. [\*Auras Revisited - Part 1\*](#)  
December 2003 Vol. 40 No 282, *The Journal of the British Society of Dowsers - Dowsing Today*
15. [\*Two Body Interaction - Part 2\*](#)  
March 2003 Vol. 40 No 279, *The Journal of the British Society of Dowsers - Dowsing Today*
16. [\*Two Body Interaction - Part 1\*](#)  
December 2002 Vol. 39 No 278, *The Journal of the British Society of Dowsers - Dowsing Today*

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# On a Problem in Euler and Navier-Stokes Equations

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**Abstract** – A study respect to a problem found in the equations of Euler and Navier-Stokes, whose adequate treatment solves a centennial problem about the solution of these equations and a most correct modeling of fluid in movement.

**Keywords** – Euler equations, Navier-Stokes equations, Eulerian description, Lagrangian description, breakdown solutions, non-uniqueness, vector pressure.

## 1 – Introduction

This article is a better version of [1], which in turn was motivated by my works on Lagrangian and Eulerian descriptions in Euler<sup>[2]</sup> and Navier-Stokes<sup>[3]</sup> equations, where I used for velocity's components the relation

$$(1.1) \quad \begin{cases} \frac{\partial u_i}{\partial x_j} = 0, & i \neq j, \\ \partial x_i = u_i \partial t \end{cases}$$

because the construction of the non-linear terms  $u_1 \frac{\partial u_i}{\partial x} + u_2 \frac{\partial u_i}{\partial y} + u_3 \frac{\partial u_i}{\partial z}$  in these equations was based on the 2<sup>nd</sup> law of Newton,  $F = ma$ , making

$$(1.2) \quad a = \frac{Du}{Dt} = \frac{\partial u}{\partial t} + \frac{\partial u}{\partial x} \frac{dx}{dt} + \frac{\partial u}{\partial y} \frac{dy}{dt} + \frac{\partial u}{\partial z} \frac{dz}{dt},$$

with

$$(1.3) \quad \begin{cases} \frac{dx}{dt} = u_1 \\ \frac{dy}{dt} = u_2 \\ \frac{dz}{dt} = u_3 \end{cases}$$

I now realize that it is possible, or better said, it is necessary for a more appropriate modeling of fluids in motion, the simultaneous use of both velocities, in the Lagrangian and Eulerian descriptions, in the same equation (Euler equations or Navier-Stokes equations), what we will see in section 4. For while, we think in each description or formulation separate of the other, i.e., used exclusively, in an equation.

The equations (1.3), writing synthetically as  $\frac{dx_i}{dt} = u_i$ , with  $x_1 \equiv x$ ,  $x_2 \equiv y$ ,  $x_3 \equiv z$ , show us that the velocity's component  $u_i$  is dependent only of coordinate  $x_i$ , regardless of the values of others  $x_j$ ,  $j \neq i$ , justifying the use of (1.1).

Following this idea, the original system for  $n = 3$  spatial dimension and volumetric mass density  $\rho = 1$ ,

$$(1.4) \quad \begin{cases} \frac{\partial p}{\partial x} + \frac{\partial u_1}{\partial t} + u_1 \frac{\partial u_1}{\partial x} + u_2 \frac{\partial u_1}{\partial y} + u_3 \frac{\partial u_1}{\partial z} = \nu \nabla^2 u_1 + \frac{1}{3} \nu \nabla_1 (\nabla \cdot u) + f_1 \\ \frac{\partial p}{\partial y} + \frac{\partial u_2}{\partial t} + u_1 \frac{\partial u_2}{\partial x} + u_2 \frac{\partial u_2}{\partial y} + u_3 \frac{\partial u_2}{\partial z} = \nu \nabla^2 u_2 + \frac{1}{3} \nu \nabla_2 (\nabla \cdot u) + f_2 \\ \frac{\partial p}{\partial z} + \frac{\partial u_3}{\partial t} + u_1 \frac{\partial u_3}{\partial x} + u_2 \frac{\partial u_3}{\partial y} + u_3 \frac{\partial u_3}{\partial z} = \nu \nabla^2 u_3 + \frac{1}{3} \nu \nabla_3 (\nabla \cdot u) + f_3 \end{cases}$$

can be transformed in

$$(1.5) \quad \begin{cases} \left( \frac{1}{u_1} \frac{\partial p}{\partial t} + \frac{Du_1}{Dt} = \nu (\nabla^2 u_1) \Big|_t + \frac{1}{3} \nu (\nabla_1 (\nabla \cdot u)) \Big|_t + f_1 \Big|_t \right. \\ \frac{1}{u_2} \frac{\partial p}{\partial t} + \frac{Du_2}{Dt} = \nu (\nabla^2 u_2) \Big|_t + \frac{1}{3} \nu (\nabla_2 (\nabla \cdot u)) \Big|_t + f_2 \Big|_t \\ \left. \left( \frac{1}{u_3} \frac{\partial p}{\partial t} + \frac{Du_3}{Dt} = \nu (\nabla^2 u_3) \Big|_t + \frac{1}{3} \nu (\nabla_3 (\nabla \cdot u)) \Big|_t + f_3 \Big|_t \right) \end{cases}$$

thus (1.4) and (1.5) are equivalent systems, according validity of (1.2) and (1.3), since that the partial derivatives of the pressure and velocities were correctly transformed to the variable time, using  $\partial x = u_1 \partial t$ ,  $\partial y = u_2 \partial t$ ,  $\partial z = u_3 \partial t$ . The nabla and Laplacian operators are considered calculated in Lagrangian formulation, i.e., in the variable time. Likewise for the calculation of  $\frac{Du}{Dt}$ , following (1.2), and external force  $f$ , using  $x = x(t)$ ,  $y = y(t)$ ,  $z = z(t)$ . The integration of the system (1.5) shows that anyone of its equations can be used for solve it, and the results must be equals each other, except for a constant of integration. Then this is a condition to the occurrence of solutions, if the velocity  $u$  and external force  $f$  are given and the pressure  $p$  must be calculated.

We use the following transformations (omitting the use of  $\Big|_t$ , the calculation at time  $t$  of the position  $(x, y, z)$  of the moving particle):

$$(1.6.1) \quad \frac{\partial u_i}{\partial x_j} = \begin{cases} \frac{\partial u_i / \partial t}{\partial x_i / \partial t} = \frac{1}{u_i} \frac{\partial u_i}{\partial t}, & i = j \\ 0, & i \neq j \end{cases}$$

$$(1.6.2) \quad \nabla \cdot u = \sum_{j=1}^3 \frac{\partial u_j}{\partial x_j} = \sum_{j=1}^3 \frac{1}{u_j} \frac{\partial u_j}{\partial t}$$

$$(1.6.3) \quad \nabla_i (\nabla \cdot u) = \frac{\partial}{\partial x_i} \left( \frac{\partial u_1}{\partial x} + \frac{\partial u_2}{\partial y} + \frac{\partial u_3}{\partial z} \right) = \frac{\partial}{\partial x_i} \frac{\partial u_i}{\partial x_i} = \frac{\partial / \partial t}{\partial x_i / \partial t} \frac{1}{u_i} \frac{\partial u_i}{\partial t}$$

$$= \frac{1}{u_i^2} \left[ -\frac{1}{u_i} \left( \frac{\partial u_i}{\partial t} \right)^2 + \frac{\partial^2 u_i}{\partial t^2} \right]$$

and

$$(1.7.1) \quad \frac{\partial^2 u_i}{\partial x_j^2} = \begin{cases} \frac{1}{u_i^2} \left[ -\frac{1}{u_i} \left( \frac{\partial u_i}{\partial t} \right)^2 + \frac{\partial^2 u_i}{\partial t^2} \right], & i = j \\ 0, & i \neq j \end{cases}$$

$$(1.7.2) \quad \nabla^2 u_i = \frac{\partial^2 u_i}{\partial x_i^2} = \frac{1}{u_i^2} \left[ -\frac{1}{u_i} \left( \frac{\partial u_i}{\partial t} \right)^2 + \frac{\partial^2 u_i}{\partial t^2} \right]$$

and thus the system (1.5) can be integrated, finding the pressure  $p$  on the particle in motion.

From equations (1.5) to (1.7) it is possible to construct the Euler and Navier-Stokes equations in a new Lagrangian description from the respective Eulerian description. Although in the Eulerian description a position  $(x, y, z)$  refers to any position, generally adopted as fixed in time, when we want it to refer to a particle motion we arrive at this new Lagrangian description aforementioned. While in this Introduction the equations (1.5) to (1.7) lead to a new Lagrangian formulation of the Euler and Navier-Stokes equations, in section 4 and Conclusion we will see the respective modification of the Eulerian formulation, or a kind of mixed description.

Next, in section 2 we will deduce the equations of Euler, in section 3 we will deduce the equations of Navier-Stokes, the section 4 will show a new expression for the equations of Euler and Navier-Stokes, with the simultaneous use of the Eulerian and Lagrangian formulations (or a correction of the Eulerian formulation), and in the section 5 we will give examples of the need to use the new equations here deduced, rather than the traditional equations known.

The section 6 deals with the issue of breakdown solutions, section 7 on non-uniqueness of solutions, and section 8, finally, will be our conclusion.

Except for sections 2 and 3 we use mass density  $\rho = 1$ , otherwise if it is necessary replace the pressure  $p$  by  $p/\rho$  and the viscosity coefficient  $\nu$  by  $\nu/\rho$ . I believe that the new equations presented here really need to be accepted, and we will have exact solutions found faster for the various applications.

## 2 – Deduction of Euler equations

Many deductions of the Euler (and Navier-Stokes) equations start from the assumption that the pressure is a scalar magnitude, equal in all directions at the same point. Particularly I do not think this needs to be this way, or rather, I believe

that the pressure can be a vector entity, rather than a scalar, so there is a vector pressure such that  $p = (p_1, p_2, p_3)$ , which would make it extraordinarily simple to solve the Euler and Navier-Stokes equations. Instead of using the gradient of  $p$ , the vector  $\nabla p \equiv \left(\frac{\partial p}{\partial x}, \frac{\partial p}{\partial y}, \frac{\partial p}{\partial z}\right)$ , we should use the vector  $\left(\frac{\partial p_1}{\partial x}, \frac{\partial p_2}{\partial y}, \frac{\partial p_3}{\partial z}\right)$ , and then

$$(2.1) \quad p_i = \int_{x_i^0}^{x_i} \left[ - \left( \frac{\partial u_i}{\partial t} + \sum_{j=1}^3 u_j \frac{\partial u_i}{\partial x_j} \right) + f_i \right] dx_i + \theta_i(t),$$

for  $i = 1, 2, 3$ , solves the Euler equations, i.e., calculate the components of pressure given the velocity and an external force, conservative or not, and an “arbitrary” (well behaved, smooth, physically reasonable) function of time  $\theta(t)$ . This will be a pressure with independence of path, depending only of the initial and final points,  $(x_1^0, x_2^0, x_3^0)$  and  $(x_1, x_2, x_3)$  respectively. Without wanting to deepen this subject now, we will continue using scalar pressure, at least in general.

We will follow the deduction of Landau & Lifshitz<sup>[4]</sup> and as they we will use  $\mathbf{v}$  to indicate velocity and bold characters for vectors. They *emphasize that  $\mathbf{v}(x, y, z, t)$  is the velocity of the fluid at a given point  $(x, y, z)$  in space and at a given time  $t$ , i.e., it refers to fixed points in space and not to specific particles of the fluid; in the course of time, the latter move about in space. The same remarks apply to  $\rho$  and  $p$ .*

*Let us considerer some volume in the fluid. The total force acting on this volume is equal to the integral (the minus signal indicates a compressive force)*

$$- \oint p d\mathbf{f}$$

*of the pressure, taken over the surface bounding the volume. Transforming it to a volume integral, we have*

$$(2.2) \quad - \oint p d\mathbf{f} = - \int \mathbf{grad} p dV.$$

*Hence we see that the fluid surrounding any volume element  $dV$  exerts on that element a force  $-dV \mathbf{grad} p$ . In other words, we can say that a force  $-\mathbf{grad} p$  acts on unit volume of the fluid.*

See that an equality similar to Gauss's law was used with the previous acceptance of scalar pressure. The same equality, with equal reason, could be rewritten, using a vector pressure  $\mathbf{p} = (p_1, p_2, p_3)$ , as

$$(2.3) \quad - \oint \mathbf{p} d\mathbf{f} = - \int \left( \frac{\partial p_1}{\partial x}, \frac{\partial p_2}{\partial y}, \frac{\partial p_3}{\partial z} \right) dV,$$

i.e., without assuming that  $p_1 = p_2 = p_3 = p$  and with the convention that  $\mathbf{p}$  is a resultant vector of pressures applied on a volume element  $dV = dx dy dz$  centered at point  $(x, y, z)$  and time  $t$ .

Continuing Landau & Lifshitz, *we can now write the equation of motion of a volume element in the fluid by equating the force  $-\mathbf{grad} p$  to the product of the mass per unit volume ( $\rho$ ) and the acceleration  $d\mathbf{v}/dt$ :*

$$(2.4) \quad \rho d\mathbf{v}/dt = -\mathbf{grad} p.$$

*The derivative  $d\mathbf{v}/dt$  which appears here denotes not the rate of change of the fluid velocity at a fixed point in space, but the rate of change of the velocity of a given fluid particle as it moves about in space. This derivative has to be expressed in terms of quantities referring to points fixed in space. To do so, we notice that the change  $d\mathbf{v}$  in the velocity of the given fluid particle during the time  $dt$  is composed of two parts, namely the change during  $dt$  in the velocity at a point fixed in space, and the difference between the velocities (at the same instant) at two points  $d\mathbf{r}$  apart, where  $d\mathbf{r}$  is the distance moved by the given fluid particle during the time  $dt$ . The first part is  $(\partial\mathbf{v}/\partial t)dt$ , where the derivative  $\partial\mathbf{v}/\partial t$  is taken for constant  $x, y, z$ , i.e., at the given point in space. The second part is*

$$(2.5) \quad dx \frac{\partial\mathbf{v}}{\partial x} + dy \frac{\partial\mathbf{v}}{\partial y} + dz \frac{\partial\mathbf{v}}{\partial z} = (d\mathbf{r} \cdot \mathbf{grad})\mathbf{v}.$$

*Thus*

$$(2.6) \quad d\mathbf{v} = (\partial\mathbf{v}/\partial t)dt + (d\mathbf{r} \cdot \mathbf{grad})\mathbf{v},$$

*or, dividing both sides by  $dt$ ,*

$$(2.7) \quad \frac{d\mathbf{v}}{dt} = \frac{\partial\mathbf{v}}{\partial t} + (\mathbf{v} \cdot \mathbf{grad})\mathbf{v}.$$

*Substituting this in (2.4), we find*

$$(2.8) \quad \frac{\partial\mathbf{v}}{\partial t} + (\mathbf{v} \cdot \mathbf{grad})\mathbf{v} = -\frac{1}{\rho} \mathbf{grad} p;$$

*it was first obtained by L. Euler in 1755.*

*If the fluid is in a gravitational field, an additional force  $\rho\mathbf{g}$ , where  $\mathbf{g}$  is the acceleration due to gravity, acts on any unit volume. This force must be added to the right-side of equation (2.4), so the equation (2.8) takes the form*

$$(2.9) \quad \frac{\partial\mathbf{v}}{\partial t} + (\mathbf{v} \cdot \mathbf{grad})\mathbf{v} = -\frac{\mathbf{grad} p}{\rho} + \mathbf{g}.$$

Using the vector pressure, the correspondent to equation (2.9), with a generic density of external force  $\mathbf{f}$  (not only gravitational), is

$$(2.10) \quad \frac{\partial \mathbf{v}}{\partial t} + (\mathbf{v} \cdot \mathbf{grad})\mathbf{v} = -\frac{1}{\rho} \left( \frac{\partial p_1}{\partial x}, \frac{\partial p_2}{\partial y}, \frac{\partial p_3}{\partial z} \right) + \mathbf{f},$$

therefore a new kind of Euler's equation, and whose integration does not involve major difficulties.

It is interesting observe that Batchelor<sup>[5]</sup> wrote (chap. 3.3) "*The simple notion of a pressure acting equally in all directions is lost in most cases of a fluid in motion*", thus shown that the imposition or acceptation of a pressure equal in the three rectangular coordinates is, in fact, something fragile, possibly not true in the nature, for fluids in motion.

### 3 – Deduction of Navier-Stokes equations

Among several deductions of the equations of Navier-Stokes, we will choose the one described in Richardson<sup>[6]</sup>(1950), for its brevity, simplicity and understanding.

Richardson firstly makes his deduction of the Euler equations (*Acad. Berlin*, 1755),

$$(3.1) \quad \left\{ \begin{array}{l} \frac{\partial U}{\partial t} + U \frac{\partial U}{\partial x} + V \frac{\partial U}{\partial y} + W \frac{\partial U}{\partial z} = X - \frac{1}{\rho} \frac{\partial p}{\partial x} \\ \frac{\partial V}{\partial t} + U \frac{\partial V}{\partial x} + V \frac{\partial V}{\partial y} + W \frac{\partial V}{\partial z} = Y - \frac{1}{\rho} \frac{\partial p}{\partial y} \\ \frac{\partial W}{\partial t} + U \frac{\partial W}{\partial x} + V \frac{\partial W}{\partial y} + W \frac{\partial W}{\partial z} = Z - \frac{1}{\rho} \frac{\partial p}{\partial z} \end{array} \right.$$

where the velocity of fluid is  $(U, V, W)$ , the external force (on unit mass) is  $(X, Y, Z)$ , the pressure is  $p$  and the volumetric density of mass is  $\rho$ .

*The equations are constructed from the statement of Newton's Second Law of Motion, i.e., that the total force acting on a particle is the product of its mass and acceleration.*

*If  $x, y, z$  are the rectilinear co-ordinates of a small cube of the material (density  $\rho$ ) of volume  $\delta v$ ,  $\ddot{x}, \ddot{y}, \ddot{z}$  the components of its acceleration and  $X, Y, Z$  of forces on unit mass, let  $X_p, Y_p, Z_p$  be the components of the external forces acting normally on the three surfaces of area  $\delta S$  due to the differences of pressure (Fig. 1).*



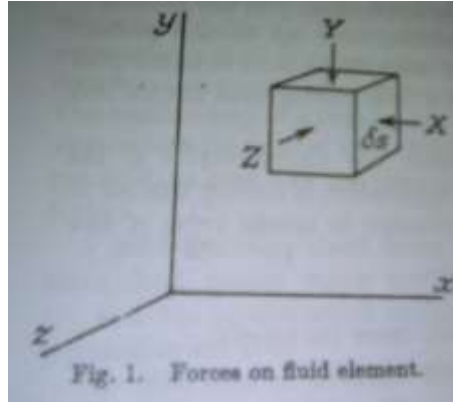


Fig. 1 – Forces on fluid element.

*Setting aside the frictional forces for the moment (which resulting in Navier-Stokes equations), we have these conditions of equilibrium:*

$$(3.2) \quad \begin{cases} \rho \ddot{x} \delta v = X \rho \delta v + X_p \delta S \\ \rho \ddot{y} \delta v = Y \rho \delta v + Y_p \delta S \\ \rho \ddot{z} \delta v = Z \rho \delta v + Z_p \delta S \end{cases}$$

*In place of  $X_p, Y_p, Z_p$  we shall insert the pressure gradients in the corresponding directions, i.e.*

$$(3.3) \quad \begin{cases} X_p \cdot \delta S = \frac{\partial p}{\partial x} \cdot \delta v \\ Y_p \cdot \delta S = \frac{\partial p}{\partial y} \cdot \delta v \\ Z_p \cdot \delta S = \frac{\partial p}{\partial z} \cdot \delta v \end{cases}$$

*For (3.3), in an ideal fluid, the pressure acts equally in all directions in the interior and at right angles to any surface presented to it. Then  $X_p, Y_p, Z_p$  are each derived from  $p$ , the mean hydrostatic pressure at the point in the fluid circumscribed by the cube.*

*Substituting in (3.2) we get*

$$(3.4) \quad \begin{cases} \rho \ddot{x} = \rho X - \frac{\partial p}{\partial x} \\ \rho \ddot{y} = \rho Y - \frac{\partial p}{\partial y} \\ \rho \ddot{z} = \rho Z - \frac{\partial p}{\partial z} \end{cases}$$

*These equations are not suited to direct application since the quantities  $x, y, z$  appear in them at once as dependent and independent variables. There are two ways of adapting them to suit experimental observation. We can ask ourselves, "At a given point, what fluid occupies the element of space subsequently?" or, "Where does a given particle find itself as times goes on?" The first attitude*

corresponds to that of a fixed observer, the second to that of an observer who moves with the general velocity of the medium.

Mathematically, the first question can be put thus: "What function of  $x, y, z$  and  $t$  are the velocity components  $U(= \dot{x})$ ,  $V(= \dot{y})$ ,  $W(= \dot{z})$ ?" We proceed to retain  $x, y, z$  as independent variables but eliminate their dependent aspects to obtain

$$(3.5) \quad \frac{d^2x}{dt^2} = \frac{dU}{dt} = \frac{\partial U}{\partial t} + \frac{\partial U}{\partial x} \cdot \frac{dx}{dt} + \frac{\partial U}{\partial y} \cdot \frac{dy}{dt} + \frac{\partial U}{\partial z} \cdot \frac{dz}{dt}, \text{ etc.}$$

which with (3.4) resolve into the Eulerian equations (3.1).

Answering to the first question, Richardson says that *the second form of our question* ("Where does a given particle find itself as times goes on?") *can be translated thus*: "What functions of time and place are those co-ordinates – let them be  $a, b, c$  – which characterize a given particle?" To answer this, we get rid of  $x, y, z$  as independent variables but retain them where dependent and arrive at the Lagrangian (*Mem. Acad. (Berlin), 1781*) form of the equations of motion:

$$(3.6) \quad \left\{ \begin{array}{l} \left( \frac{\partial^2 x}{\partial t^2} - X \right) \frac{\partial x}{\partial a} + \left( \frac{\partial^2 y}{\partial t^2} - Y \right) \frac{\partial y}{\partial a} + \left( \frac{\partial^2 z}{\partial t^2} - Z \right) \frac{\partial z}{\partial a} + \frac{1}{\rho} \frac{\partial p}{\partial a} = 0 \\ \left( \frac{\partial^2 x}{\partial t^2} - X \right) \frac{\partial x}{\partial b} + \left( \frac{\partial^2 y}{\partial t^2} - Y \right) \frac{\partial y}{\partial b} + \left( \frac{\partial^2 z}{\partial t^2} - Z \right) \frac{\partial z}{\partial b} + \frac{1}{\rho} \frac{\partial p}{\partial b} = 0 \\ \left( \frac{\partial^2 x}{\partial t^2} - X \right) \frac{\partial x}{\partial c} + \left( \frac{\partial^2 y}{\partial t^2} - Y \right) \frac{\partial y}{\partial c} + \left( \frac{\partial^2 z}{\partial t^2} - Z \right) \frac{\partial z}{\partial c} + \frac{1}{\rho} \frac{\partial p}{\partial c} = 0 \end{array} \right.$$

As we known, the form due to Euler is, however, more generally used.

Now let us introduce the frictional forces. We define the coefficient of viscosity,  $\eta$ , as the force per unit area of two parallel laminae of fluid unit distance apart, measured across the direction of flow. Thus, if  $U$  and  $U + \delta U$  (Fig. 2) are the velocities (in the direction of  $x$ ) at two planes  $\delta y$  apart, the force per unit area on the fluid in either plane is  $\eta \cdot \partial U / \partial y$ , i.e., the product of the coefficient of viscosity and the velocity gradient perpendicular to the direction of flow. If  $A, B$  and  $C$  are such laminae, each of area  $S$ ,  $A$  exerts a force on  $B$  equal to  $-\eta \cdot \partial U / \partial y \cdot S$ ;  $C$  exerts a force on  $B$  equal to  $\eta \cdot (\partial U / \partial y + \partial^2 U / \partial y^2 \cdot \delta y) \cdot S$ , so that the net force on  $B$  is

$$(3.7) \quad \eta \cdot \frac{\partial^2 U}{\partial y^2} \cdot \delta y \cdot S = \frac{\eta}{\rho} \cdot \delta m \cdot \frac{\partial^2 U}{\partial y^2} = \eta \cdot \delta v \cdot \frac{\partial^2 U}{\partial y^2}$$

where  $\delta m$  is the mass of fluid between  $A$  and  $B$  and  $\delta v$  is the respective volume. The factor  $\eta / \rho$ , written  $\nu$ , which we shall often require, is called the kinematic (coefficient of) viscosity. (It should be noted that it is here assumed that  $\eta$  is constant for a given fluid, invariable with  $\partial U / \partial y$ , but a more general proof also is made posteriorly in [6], here omitted.)

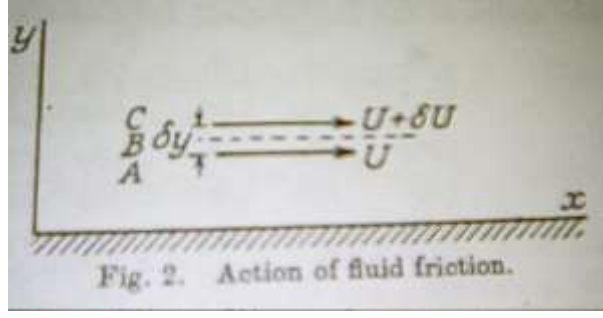


Fig. 2 - Action of fluid friction.

In the general case, the total viscous force on an element of mass  $m$  due to the component  $U$  will be

$$\eta \cdot \delta v \cdot \left( \frac{\partial^2 U}{\partial x^2} + \frac{\partial^2 U}{\partial y^2} + \frac{\partial^2 U}{\partial z^2} \right)$$

written shortly  $\nu m \nabla^2 U$ . This force must be added to those on the right-hand side of the equations we have already derived (Euler equations), resulting in the equations ascribed to Navier (Mem. Acad. Sci. (Paris), 1822) and Stokes (Camb. Trans., 1845),

$$(3.8) \quad \begin{cases} \frac{\partial U}{\partial t} + U \frac{\partial U}{\partial x} + V \frac{\partial U}{\partial y} + W \frac{\partial U}{\partial z} = X - \frac{1}{\rho} \frac{\partial p}{\partial x} + \nu \nabla^2 U \\ \frac{\partial V}{\partial t} + U \frac{\partial V}{\partial x} + V \frac{\partial V}{\partial y} + W \frac{\partial V}{\partial z} = Y - \frac{1}{\rho} \frac{\partial p}{\partial y} + \nu \nabla^2 V \\ \frac{\partial W}{\partial t} + U \frac{\partial W}{\partial x} + V \frac{\partial W}{\partial y} + W \frac{\partial W}{\partial z} = Z - \frac{1}{\rho} \frac{\partial p}{\partial z} + \nu \nabla^2 W \end{cases}$$

with  $\nu = \eta/\rho$  the (kinematic) viscosity coefficient.

Confirming the difficulty of the Lagrangian description of the Euler and Navier-stokes equations, based on [7], the Navier-Stokes equations without external force and with volumetric mass density  $\rho = 1$  are, describing the velocity as  $(u_1, u_2, u_3)$  and the spatial coordinates as  $(x_1, x_2, x_3)$ ,

$$(3.9.1) \quad \frac{\partial^2 X_i}{\partial t^2} = - \sum_{j=1}^3 \frac{\partial A_j}{\partial x_i} \frac{\partial p}{\partial a_j} + \nu \sum_{j=1}^3 \sum_{k=1}^3 \sum_{l=1}^3 \left( \frac{\partial^2 A_l}{\partial x_k \partial x_k} \frac{\partial u_i}{\partial a_l} + \frac{\partial A_j}{\partial x_k} \frac{\partial A_l}{\partial x_k} \frac{\partial^2 u_i}{\partial a_j \partial a_l} \right),$$

$$(3.9.2) \quad \frac{\partial A_j}{\partial x_i} \equiv \frac{\partial}{\partial x_i} X_j(x_n, t) |_{x_n = X_n(a_m, s|t)},$$

where  $a_m$  is the label given to the fluid particle at time  $s$ . Its position and velocity at time  $t$  are, respectively,  $X_n(a_m, s|t)$  and  $u_n(a_m, s|t)$ . The respective deduction of these equations we will omit, but the reader can consult [7] for more details.

#### 4 – A new form of Euler and Navier-Stokes equations

The Eulerian (equations (3.1) and (3.8)) and Lagrangian (equations (3.6) and (3.9)) forms are not the unique possible equations for description of fluids. Other equation for modeling of fluids is possible, based on them, with the great advantage of linearity. It is what we will show in this section.

The system (1.3), for the sake of mathematical rigor, needs to be replaced by

$$(4.1) \quad \begin{cases} \frac{dx}{dt} = u_1(t) \\ \frac{dy}{dt} = u_2(t) \\ \frac{dz}{dt} = u_3(t) \end{cases}$$

emphasizing that the velocity components that appear as the time derivative of the coordinate  $(x, y, z)$  are legitimate functions of time, i.e., can be considered as representative of the Lagrangian description,  $u_i(t)$ , unlike the derivatives of  $u_i$  in  $\frac{\partial u_i}{\partial t}, \frac{\partial u_i}{\partial x_j}, \nabla \cdot u$  and  $\nabla^2 u_i$ , that are in the Eulerian description, function of  $(x, y, z, t)$ .

Representing the Eulerian velocity and respective components with the letter E indicated as upper index, and the corresponding Lagrangian components with the letter L, the system (1.4) is rewritten as

$$(4.2) \quad \begin{cases} \left( \frac{\partial p}{\partial x} + \frac{\partial u_1^E}{\partial t} + u_1^L \frac{\partial u_1^E}{\partial x} + u_2^L \frac{\partial u_1^E}{\partial y} + u_3^L \frac{\partial u_1^E}{\partial z} = \nu \nabla^2 u_1^E + \frac{1}{3} \nu \nabla_1 (\nabla \cdot u^E) + f_1 \right. \\ \left. \frac{\partial p}{\partial y} + \frac{\partial u_2^E}{\partial t} + u_1^L \frac{\partial u_2^E}{\partial x} + u_2^L \frac{\partial u_2^E}{\partial y} + u_3^L \frac{\partial u_2^E}{\partial z} = \nu \nabla^2 u_2^E + \frac{1}{3} \nu \nabla_2 (\nabla \cdot u^E) + f_2 \right. \\ \left. \frac{\partial p}{\partial z} + \frac{\partial u_3^E}{\partial t} + u_1^L \frac{\partial u_3^E}{\partial x} + u_2^L \frac{\partial u_3^E}{\partial y} + u_3^L \frac{\partial u_3^E}{\partial z} = \nu \nabla^2 u_3^E + \frac{1}{3} \nu \nabla_3 (\nabla \cdot u^E) + f_3 \right. \end{cases}$$

being the pressure  $p$  and external force  $f$  implicitly defined in the Eulerian description. A more concise notation for (4.2) is simply, for  $i = 1, 2, 3$ ,

$$(4.3) \quad \frac{\partial p}{\partial x_i} + \frac{\partial u_i}{\partial t} + \alpha_1 \frac{\partial u_i}{\partial x} + \alpha_2 \frac{\partial u_i}{\partial y} + \alpha_3 \frac{\partial u_i}{\partial z} = \nu \nabla^2 u_i + \frac{1}{3} \nu \nabla_i (\nabla \cdot u) + f_i,$$

where  $p, f_i, u$  and  $u_i$  are in Eulerian description and  $\alpha_i = \alpha_i(t)$  in Lagrangian description, i.e.,  $\alpha_i = \frac{dx_i}{dt}$ , with the radius vector  $r = (x_1, x_2, x_3) \equiv (x, y, z)$  function of time and indicating a motion of a specific particle of fluid starting from position  $(x_1^0, x_2^0, x_3^0) \equiv (x_0, y_0, z_0)$ .

The equations (4.2) and (4.3) shows us that the nonlinear form disappear, facilitating the obtaining of its solutions, transforming when  $\nabla \cdot u = 0$  into a linear

and second-order partial differential equation of elliptic type, already well-studied<sup>[8]</sup>. If  $\nu = 0$  (Euler equations) we have equations of first order, obviously, which is also widely studied<sup>[9]</sup>. We realize that for each possible value of  $\alpha_i$  it is possible to obtain different values of  $u_i$ , and reciprocally, i.e., there is not an one-one correspondence between  $\alpha_i$  and  $u_i$ , thus it is convenient choose more easy time functions for the  $\alpha_i(t)$ , provided that compatible with the physical problem to be studied.

Nevertheless, even though it is very interesting to study other mathematical solutions for the original system (1.4) or the new system (4.2), I understand that the final conclusion made in [2] and [3] remains valid: it is possible to exist velocities in the Eulerian formulation that do not correspond to a real movement of particles of a fluid, according to the Lagrangian formulation. When I wrote this the first time I did not have the equations (4.2) and (4.3), deduced later in [1], but if it is true (as it is) that we should have (1.3) and (4.1) for a motion of fluid particle, then  $x_i$  and its respective velocity  $u_i$  are closely related, and the initial use of (1.1) in section 1 is valid. This is an excellent question to be examined with examples, which we will see in the next section.

But even when the relationship (1.1) is not required, a general solution for the new Euler equations ( $\nu = 0$ )

$$(4.4) \quad \frac{\partial p}{\partial x_i} + \frac{\partial u_i}{\partial t} + \alpha_1 \frac{\partial u_i}{\partial x} + \alpha_2 \frac{\partial u_i}{\partial y} + \alpha_3 \frac{\partial u_i}{\partial z} = f_i$$

or

$$(4.5) \quad \frac{\partial p}{\partial x_i} + \frac{Du_i}{Dt} = f_i,$$

in the case which the pressure  $p$  and external force  $f = (f_1, f_2, f_3)$  are given and the velocity  $u = (u_1, u_2, u_3)$  is calculated, is

$$(4.6) \quad u_i = u_i^0 + \left( \int_0^t \left( f_i - \frac{\partial p}{\partial x_i} \right) |_L dt \right) |_E,$$

using

$$(4.7) \quad \frac{Du_i}{Dt} = \frac{Du_i^E}{Dt} = \left( f_i - \frac{\partial p}{\partial x_i} \right) |_L.$$

$u_i^0$  is the component  $i$  of the initial velocity  $u^0$ ,  $|_L$  represents the use of transformation from Eulerian description to Lagrangian description and  $|_E$  represents the inverse transformation used in  $|_L$ , returning to Eulerian description. We use implicitly  $u_i^0 = (u_i^0 |_L) |_E$  as well as  $u_i = (u_i |_L) |_E$ .

So here we conclude that the new Euler equations have a natural physical solution when the pressure and external force are given (or chosen) and the integration in (4.6) is possible, for  $i = 1, 2, 3$ , solution which varies with the specific movement of particles that is used. Boundary conditions must be in accordance with the solution (4.6) and it is also necessary substitute (4.6) in (4.4) for verification of possible conditions to be obeyed by each  $u_i^0$  and  $\alpha_i$ .

In special, when  $\left(f_i - \frac{\partial p}{\partial x_i}\right) |_L$  is a function without temporal dependence, a constant function, the solution (4.6) is

$$(4.8) \quad u_i = u_i^0 + \left(f_i - \frac{\partial p}{\partial x_i}\right) |_L t,$$

which is an exact solution and it is relatively fast and easy to simulate computationally. Substituting (4.8) in (4.4) we have

$$(4.9) \quad \alpha_1 \frac{\partial u_i^0}{\partial x} + \alpha_2 \frac{\partial u_i^0}{\partial y} + \alpha_3 \frac{\partial u_i^0}{\partial z} = 0,$$

then a condition to be obeyed in this case.

We will see in section 8, Conclusion, an even better form of these equations, where we use

$$(4.10) \quad \frac{D\alpha}{Dt} = \left(\frac{\partial u^E}{\partial t} + \alpha_1 \frac{\partial u^E}{\partial x} + \alpha_2 \frac{\partial u^E}{\partial y} + \alpha_3 \frac{\partial u^E}{\partial z}\right) |_t .$$

## 5 – Verification of physically reasonable solutions

### § 1

Of a point of view purely mathematical, it is not necessary to have the adoption of (1.1). It is possible forgotten that the Euler and Navier-Stokes equations have something relation with motion of fluids, liquids or gases, and accept that they are just equations of high level and difficulty of Pure Mathematics, but in this section we want to keep the bond or link between theses equations and the motion of fluids, and thus the use of (1.1) is born and can be used, as we will see.

If a particle (or some volume) of fluid has the movement governed according to the position vector  $r = (x, y, z)$ , with a temporal dependence  $x = x(t)$ ,  $y = y(t)$ ,  $z = z(t)$ , then the respective velocity of this particle (or volume) of fluid is  $u = \frac{dr}{dt} = \left(\frac{dx}{dt}, \frac{dy}{dt}, \frac{dz}{dt}\right)$ , also, *a priori*, dependent of time (except if all three derivatives are equal to constant).

The first equation of (1.1),

$$(5.1.1) \quad \frac{\partial u_i}{\partial x_j} = 0, \quad i \neq j,$$

is valid when we intend to follow the movement of a particle (or group of particles in a small volume) because in a mechanical movement we have by definition

$$(5.1.2) \quad u_i = \frac{dx_i}{dt},$$

i.e., the component  $i$  of velocity is dependent only of component  $i$  of position, which is obvious, then we have  $\frac{\partial u_i}{\partial x_j} = 0$  if  $i \neq j$ , according we saw in section 1.

From equation (5.1.2) we conclude that  $dx_i = u_i dt$ , or

$$(5.1.3) \quad \partial x_i = u_i \partial t,$$

the second equation of (1.1).

Thus we emphasize that if it is not necessary to have some particle or group of particles in the elementary volume  $dV = dx dy dz$  in position  $(x, y, z)$  at time  $t$  then the use of (1.1), or (5.1.1) and (5.1.3), can be ignored, and we will have a problem purely mathematical.

Even if there is some bond or link between the coordinates, as  $x^2 + y^2 + z^2 = R^2$  and  $x\dot{x} + y\dot{y} + z\dot{z} = 0$  in a circular motion of constant radius  $R$ , the relation (5.1.2) is still true, by definition, and we do not need despise (5.1.1), a calculation facilitator, except if the external force is intrinsically dependent of the more than one spatial coordinate in at least one of the three orthogonal directions and we have  $\nabla p \neq f$ .

Then, what can be done when it is indispensable to use a determined relation between  $x, y$  and  $z$ , for example, when the particles need to be moving on a specific surface or manifold as  $z = g(x, y)$ ? We try to first solve the equations using each variable in isolation, following (5.1.1), and at the end we use the dependence  $z = g(x, y)$ , i.e., the final solution for velocity will be

$$(5.1.4) \quad \begin{cases} u_1 = \varphi_1(x, t) \\ u_2 = \varphi_2(y, t) \\ u_3 = \varphi_3(z, t) = \varphi_3(g(x, y), t) = h(x, y, t) \end{cases}$$

and so we have indeed, in final consequence,  $\frac{\partial u_3}{\partial z} = 0$ . Obviously, if such procedure is not mathematically possible for some situation or configuration, we should abandon the use of (5.1.1) in this specific case.

We will check now the use of the relations (4.1),

$$(5.1.5) \quad \left\{ \begin{array}{l} \frac{dx}{dt} = u_1(t) \\ \frac{dy}{dt} = u_2(t) \\ \frac{dz}{dt} = u_3(t) \end{array} \right.$$

origin of the fundamental difference between the traditional equations and the new equations presented here. In fact, when we use and distinguish in a same equation the Eulerian  $u^E$  and Lagrangian  $u^L$  velocities the use of (1.1) is of secondary importance.

## § 2

Be the example 1

$$(5.2.1) \quad \left\{ \begin{array}{l} x = x_0 + t, \quad \frac{dx}{dt} = 1 = u_1^L, \quad \frac{Du_1^L}{Dt} = 0 \\ y = y_0 + 2t, \quad \frac{dy}{dt} = 2 = u_2^L, \quad \frac{Du_2^L}{Dt} = 0 \\ z = z_0 + 3t, \quad \frac{dz}{dt} = 3 = u_3^L, \quad \frac{Du_3^L}{Dt} = 0 \end{array} \right.$$

in fact a movement of total acceleration equal to zero,  $\frac{Du_1^L}{Dt} = \frac{Du_2^L}{Dt} = \frac{Du_3^L}{Dt} = 0$ , each particle starting from a generic initial position  $(x_0, y_0, z_0)$ .

Suppose that the introduction of external force, internal frictional forces and internal pressure generated a solution for velocity, in the Eulerian formulation, such that, for example,

$$(5.2.2) \quad \left\{ \begin{array}{l} u_1^E = x, \quad \frac{Du_1^E}{Dt} = \frac{Dx}{Dt} = \frac{D(x_0+t)}{Dt} = 1 \\ u_2^E = y, \quad \frac{Du_2^E}{Dt} = \frac{Dy}{Dt} = \frac{D(y_0+2t)}{Dt} = 2 \\ u_3^E = z, \quad \frac{Du_3^E}{Dt} = \frac{Dz}{Dt} = \frac{D(z_0+3t)}{Dt} = 3 \end{array} \right.$$

The acceleration as used in the Euler and Navier-Stokes equations is

$$(5.2.3) \quad \left\{ \begin{array}{l} \frac{Du_1^E}{Dt} = \frac{\partial u_1^E}{\partial t} + u_1^E \frac{\partial u_1^E}{\partial x} + u_2^E \frac{\partial u_1^E}{\partial y} + u_3^E \frac{\partial u_1^E}{\partial z} = x, \quad x(t) = t \neq 1 \\ \frac{Du_2^E}{Dt} = \frac{\partial u_2^E}{\partial t} + u_1^E \frac{\partial u_2^E}{\partial x} + u_2^E \frac{\partial u_2^E}{\partial y} + u_3^E \frac{\partial u_2^E}{\partial z} = y, \quad y(t) = 2t \neq 2 \\ \frac{Du_3^E}{Dt} = \frac{\partial u_3^E}{\partial t} + u_1^E \frac{\partial u_3^E}{\partial x} + u_2^E \frac{\partial u_3^E}{\partial y} + u_3^E \frac{\partial u_3^E}{\partial z} = z, \quad z(t) = 3t \neq 3 \end{array} \right.$$



i.e., the use of the expression according to the traditional Euler and Navier-Stokes equations generates a wrong value for the value of the acceleration  $\frac{Du^E}{Dt}$ .

By other side, using the correct form of the new Euler and Navier-Stokes equations, according (4.2), we have

$$(5.2.4) \quad \begin{cases} \frac{Du_1^E}{Dt} = \frac{\partial u_1^E}{\partial t} + u_1^L \frac{\partial u_1^E}{\partial x} + u_2^L \frac{\partial u_1^E}{\partial y} + u_3^L \frac{\partial u_1^E}{\partial z} = 1 \\ \frac{Du_2^E}{Dt} = \frac{\partial u_2^E}{\partial t} + u_1^L \frac{\partial u_2^E}{\partial x} + u_2^L \frac{\partial u_2^E}{\partial y} + u_3^L \frac{\partial u_2^E}{\partial z} = 2 \\ \frac{Du_3^E}{Dt} = \frac{\partial u_3^E}{\partial t} + u_1^L \frac{\partial u_3^E}{\partial x} + u_2^L \frac{\partial u_3^E}{\partial y} + u_3^L \frac{\partial u_3^E}{\partial z} = 3 \end{cases}$$

therefore the correct and expected result conform (5.2.2) for the acceleration  $\frac{Du^E}{Dt}$ , but with the disagreement  $\frac{Du^E}{Dt} \neq \frac{Du^L}{Dt}$ .

For that to be  $\frac{Du^E}{Dt} = \frac{Du^L}{Dt}$  for all time and position it is necessary too, by a logical necessity of consistency between both velocities, that

$$(5.2.5) \quad u^E(x(t), y(t), z(t), t) = u^L(t),$$

so, from (5.2.1)

$$(5.2.6) \quad \begin{cases} u_1^E = 1, \frac{\partial u_1^E}{\partial t} = \frac{\partial u_1^E}{\partial x_j} = 0 \\ u_2^E = 2, \frac{\partial u_2^E}{\partial t} = \frac{\partial u_2^E}{\partial x_j} = 0 \\ u_3^E = 3, \frac{\partial u_3^E}{\partial t} = \frac{\partial u_3^E}{\partial x_j} = 0 \end{cases}$$

and now  $\frac{Du^E}{Dt} = \frac{Du^L}{Dt} = 0$ .

### § 3

Be now the example 2

$$(5.3.1) \quad \begin{cases} x = x_0 + u_0 t + f \frac{t^2}{2}, \frac{dx}{dt} = u_0 + ft = u_1^L, \frac{Du_1^L}{Dt} = f \\ y = y_0 + v_0 t + g \frac{t^2}{2}, \frac{dy}{dt} = v_0 + gt = u_2^L, \frac{Du_2^L}{Dt} = g \\ z = z_0 + w_0 t + h \frac{t^2}{2}, \frac{dz}{dt} = w_0 + ht = u_3^L, \frac{Du_3^L}{Dt} = h \end{cases}$$

for constants  $x_0, y_0, z_0, u_0, v_0, w_0, f, g, h$ , a movement of constant acceleration  $(f, g, h)$ .

Suppose again that the introduction of external force, internal frictional forces and internal pressure generated a solution for velocity, in the Eulerian formulation, such that, for example,

$$(5.3.2) \quad \left\{ \begin{array}{l} u_1^E = u_0 + ft, \quad \frac{Du_1^E}{Dt} = f \\ u_2^E = v_0 + gt, \quad \frac{Du_2^E}{Dt} = g \\ u_3^E = w_0 + ht, \quad \frac{Du_3^E}{Dt} = h \end{array} \right.$$

without dependence of spatial position and with  $u^E = u^L$ .

The acceleration as used in the Euler and Navier-Stokes equations is

$$(5.3.3) \quad \left\{ \begin{array}{l} \frac{Du_1^E}{Dt} = \frac{\partial u_1^E}{\partial t} + u_1^E \frac{\partial u_1^E}{\partial x} + u_2^E \frac{\partial u_1^E}{\partial y} + u_3^E \frac{\partial u_1^E}{\partial z} = \frac{\partial u_1^E}{\partial t} = f \\ \frac{Du_2^E}{Dt} = \frac{\partial u_2^E}{\partial t} + u_1^E \frac{\partial u_2^E}{\partial x} + u_2^E \frac{\partial u_2^E}{\partial y} + u_3^E \frac{\partial u_2^E}{\partial z} = \frac{\partial u_2^E}{\partial t} = g \\ \frac{Du_3^E}{Dt} = \frac{\partial u_3^E}{\partial t} + u_1^E \frac{\partial u_3^E}{\partial x} + u_2^E \frac{\partial u_3^E}{\partial y} + u_3^E \frac{\partial u_3^E}{\partial z} = \frac{\partial u_3^E}{\partial t} = h \end{array} \right.$$

i.e., this time the use of the expression according to the traditional Euler and Navier-Stokes equations generates a correct value for the acceleration  $\frac{Du^E}{Dt}$  because there is no dependence of position.

Besides this, using the correct form of the new Euler and Navier-Stokes equations, according (4.2), we have

$$(5.3.4) \quad \left\{ \begin{array}{l} \frac{Du_1^E}{Dt} = \frac{\partial u_1^E}{\partial t} + u_1^L \frac{\partial u_1^E}{\partial x} + u_2^L \frac{\partial u_1^E}{\partial y} + u_3^L \frac{\partial u_1^E}{\partial z} = \frac{\partial u_1^E}{\partial t} = f \\ \frac{Du_2^E}{Dt} = \frac{\partial u_2^E}{\partial t} + u_1^L \frac{\partial u_2^E}{\partial x} + u_2^L \frac{\partial u_2^E}{\partial y} + u_3^L \frac{\partial u_2^E}{\partial z} = \frac{\partial u_2^E}{\partial t} = g \\ \frac{Du_3^E}{Dt} = \frac{\partial u_3^E}{\partial t} + u_1^L \frac{\partial u_3^E}{\partial x} + u_2^L \frac{\partial u_3^E}{\partial y} + u_3^L \frac{\partial u_3^E}{\partial z} = \frac{\partial u_3^E}{\partial t} = h \end{array} \right.$$

therefore the correct and expected result conform (5.3.2) for the acceleration  $\frac{Du^E}{Dt}$ , this time with the agreement  $\frac{Du^E}{Dt} = \frac{Du^L}{Dt}$ .

#### § 4

We will next use the solution (4.6) of (4.5),

$$(5.4.1) \quad u_i = u_i^0 + \left( \int_0^t \left( f_i - \frac{\partial p}{\partial x_i} \right) |_L dt \right) |_E,$$

solution of the new Euler equations, for the special and easier case that  $f_i = \frac{\partial p}{\partial x_i}$ , i.e., the external force is conservative, a gradient field, being the pressure its respective potential, and

$$(5.4.2) \quad u_i = u_i^E = u_i^0, \quad \frac{Du_i^E}{Dt} = \frac{\partial u_i^E}{\partial t} = 0,$$

and with

$$(5.4.3) \quad \left\{ \begin{array}{l} x = x_0 e^{-t}, \quad \frac{dx}{dt} = -x_0 e^{-t} = u_1^L, \quad \frac{Du_1^L}{Dt} = x_0 e^{-t} \\ y = y_0 e^{-t}, \quad \frac{dy}{dt} = -y_0 e^{-t} = u_2^L, \quad \frac{Du_2^L}{Dt} = y_0 e^{-t} \\ z = z_0 e^{-t}, \quad \frac{dz}{dt} = -z_0 e^{-t} = u_3^L, \quad \frac{Du_3^L}{Dt} = z_0 e^{-t} \end{array} \right.$$

for constants  $x_0, y_0, z_0$ , a movement of contraction from  $(x_0, y_0, z_0)$  to  $(0, 0, 0)$ , with  $\frac{Du^L}{Dt} = (x_0, y_0, z_0)e^{-t} = (x(t), y(t), z(t))$ .

The acceleration as used in the traditional Euler and Navier-Stokes equations is

$$(5.4.4)$$

$$\left\{ \begin{array}{l} \left( \frac{Du_1^E}{Dt} = \left( \frac{\partial u_1^E}{\partial t} + u_1^E \frac{\partial u_1^E}{\partial x} + u_2^E \frac{\partial u_1^E}{\partial y} + u_3^E \frac{\partial u_1^E}{\partial z} \right) \Big|_t = \left( u_1^0 \frac{\partial u_1^0}{\partial x} + u_2^0 \frac{\partial u_1^0}{\partial y} + u_3^0 \frac{\partial u_1^0}{\partial z} \right) \Big|_t \\ \frac{Du_2^E}{Dt} = \left( \frac{\partial u_2^E}{\partial t} + u_1^E \frac{\partial u_2^E}{\partial x} + u_2^E \frac{\partial u_2^E}{\partial y} + u_3^E \frac{\partial u_2^E}{\partial z} \right) \Big|_t = \left( u_1^0 \frac{\partial u_2^0}{\partial x} + u_2^0 \frac{\partial u_2^0}{\partial y} + u_3^0 \frac{\partial u_2^0}{\partial z} \right) \Big|_t \\ \frac{Du_3^E}{Dt} = \left( \frac{\partial u_3^E}{\partial t} + u_1^E \frac{\partial u_3^E}{\partial x} + u_2^E \frac{\partial u_3^E}{\partial y} + u_3^E \frac{\partial u_3^E}{\partial z} \right) \Big|_t = \left( u_1^0 \frac{\partial u_3^0}{\partial x} + u_2^0 \frac{\partial u_3^0}{\partial y} + u_3^0 \frac{\partial u_3^0}{\partial z} \right) \Big|_t \end{array} \right.$$

which shows us the possibility of being valid  $\frac{Du_i^E}{Dt} \neq 0$  with  $\frac{\partial u_i^E}{\partial t} = 0$ .

Being necessary in this case that  $\frac{Du_i^E}{Dt} = \frac{\partial u_i^E}{\partial t} = 0$ , for  $i = 1, 2, 3$ , we have

$$(5.4.5) \quad \left\{ \begin{array}{l} u_1^0 \frac{\partial u_1^0}{\partial x} + u_2^0 \frac{\partial u_1^0}{\partial y} + u_3^0 \frac{\partial u_1^0}{\partial z} = 0 \\ u_1^0 \frac{\partial u_2^0}{\partial x} + u_2^0 \frac{\partial u_2^0}{\partial y} + u_3^0 \frac{\partial u_2^0}{\partial z} = 0 \\ u_1^0 \frac{\partial u_3^0}{\partial x} + u_2^0 \frac{\partial u_3^0}{\partial y} + u_3^0 \frac{\partial u_3^0}{\partial z} = 0 \end{array} \right.$$

which is valid, for example, for initial velocities such that

$$(5.4.6) \quad u_i^0 = k_i \phi_i(ax + by + cz),$$

with

$$(5.4.7) \quad k_1 \phi_1 a + k_2 \phi_2 b + k_3 \phi_3 c = 0,$$

$k_i, a, b, c$  real numbers,  $\phi_i: \mathbb{R} \rightarrow \mathbb{R}$  differentiable functions, for  $i = 1, 2, 3$ . If the condition of incompressibility  $\nabla \cdot u = \nabla \cdot u^0 = 0$  is required in the resolution of a given problem then it is also necessary that

$$(5.4.8) \quad k_1 \phi_1' a + k_2 \phi_2' b + k_3 \phi_3' c = 0,$$

always satisfied when (5.4.7) is true.

With the correct form of the new Euler and Navier-Stokes equations we have, using (5.4.2),

$$(5.4.9)$$

$$\begin{aligned} \left( \frac{Du_1^E}{Dt} = \left( \frac{\partial u_1^E}{\partial t} + u_1^L \frac{\partial u_1^E}{\partial x} + u_2^L \frac{\partial u_1^E}{\partial y} + u_3^L \frac{\partial u_1^E}{\partial z} \right) \right) \Big|_t &= \left( u_1^L \frac{\partial u_1^0}{\partial x} + u_2^L \frac{\partial u_1^0}{\partial y} + u_3^L \frac{\partial u_1^0}{\partial z} \right) \Big|_t = 0 \\ \left\{ \frac{Du_2^E}{Dt} = \left( \frac{\partial u_2^E}{\partial t} + u_1^L \frac{\partial u_2^E}{\partial x} + u_2^L \frac{\partial u_2^E}{\partial y} + u_3^L \frac{\partial u_2^E}{\partial z} \right) \right\} \Big|_t &= \left( u_1^L \frac{\partial u_2^0}{\partial x} + u_2^L \frac{\partial u_2^0}{\partial y} + u_3^L \frac{\partial u_2^0}{\partial z} \right) \Big|_t = 0 \\ \left( \frac{Du_3^E}{Dt} = \left( \frac{\partial u_3^E}{\partial t} + u_1^L \frac{\partial u_3^E}{\partial x} + u_2^L \frac{\partial u_3^E}{\partial y} + u_3^L \frac{\partial u_3^E}{\partial z} \right) \right) \Big|_t &= \left( u_1^L \frac{\partial u_3^0}{\partial x} + u_2^L \frac{\partial u_3^0}{\partial y} + u_3^L \frac{\partial u_3^0}{\partial z} \right) \Big|_t = 0 \end{aligned}$$

which also has by solution, for example,

$$(5.4.10) \quad u_i^0 = k_i \phi_i(ax + by + cz),$$

supposing  $\phi_i: \mathbb{R} \rightarrow \mathbb{R}$  differentiable functions and  $k_i, a, b, c$  real numbers, for  $i = 1, 2, 3$ , but this time with

$$(5.4.11) \quad a u_1^L(t) + b u_2^L(t) + c u_3^L(t) = 0,$$

or equivalently

$$(5.4.12.1) \quad u_1^L(t) = -\frac{1}{a}(b u_2^L(t) + c u_3^L(t)), \quad a \neq 0,$$

$$(5.4.12.2) \quad u_2^L(t) = -\frac{1}{b}(a u_1^L(t) + c u_3^L(t)), \quad b \neq 0,$$

$$(5.4.12.3) \quad u_3^L(t) = -\frac{1}{c}(a u_1^L(t) + b u_2^L(t)), \quad c \neq 0,$$

for all  $t \geq 0$ , or all  $\phi_i'$  are constants. For that  $\nabla \cdot u = \nabla \cdot u^0 = 0$  it is necessary also be valid (5.4.8) or all  $\phi_i$  need be constant.

According to the solution (5.4.10) and for the chosen movement given by (5.4.3), the condition (5.4.11) imposes that

$$(5.4.13.1) \quad x_0 = -\frac{1}{a}(b y_0 + c z_0),$$

$$(5.4.13.2) \quad y_0 = -\frac{1}{b}(a x_0 + c z_0),$$

$$(5.4.13.3) \quad z_0 = -\frac{1}{c}(a x_0 + b y_0),$$

respectively if  $a \neq 0$ ,  $b \neq 0$ ,  $c \neq 0$ , therefore each initial position of a specific particle or group of particles need to obey the previous condition, in this case: initial positions on a plane for each family of coefficients  $(a, b, c)$ .

Note that in this way the Lagrangian solution is which governs the movement of fluids, or rather, explains what happens in the fluid, with respect to velocity. We can choose many different  $\phi$  functions for Eulerian solution of  $u^E$ , but the individual motion of the particles or group of particles is the same with each prefixed choice of  $u^L$ . Thus, it is unnecessary to choose complicated initial velocities in the Eulerian formulation when the movement in the Lagrangian formulation is simpler, at least when the external force is a conservative field.

As made in § 2, by a logical necessity of consistency between both velocities and for that  $\frac{Du^E}{Dt} = \frac{Du^L}{Dt}$  for all time and position it is necessary too that

$$(5.4.14) \quad u^E(x(t), y(t), z(t), t) = u^L(t),$$

so, from (5.4.3) we have

$$(5.4.15) \quad \left\{ \begin{array}{l} u_1^E = -x, \quad \frac{\partial u_1^E}{\partial t} = \frac{\partial u_1^E}{\partial y} = \frac{\partial u_1^E}{\partial z} = 0, \quad \frac{\partial u_1^E}{\partial x} = -1 \\ u_2^E = -y, \quad \frac{\partial u_2^E}{\partial t} = \frac{\partial u_2^E}{\partial x} = \frac{\partial u_2^E}{\partial z} = 0, \quad \frac{\partial u_2^E}{\partial y} = -1 \\ u_3^E = -z, \quad \frac{\partial u_3^E}{\partial t} = \frac{\partial u_3^E}{\partial x} = \frac{\partial u_3^E}{\partial y} = 0, \quad \frac{\partial u_3^E}{\partial z} = -1 \end{array} \right.$$

and now  $\frac{Du^E}{Dt}|_t = \frac{Du^L}{Dt} = (x(t), y(t), z(t))$ , but it is a compressible motion, with  $\nabla \cdot u^E = -3$ .

## § 5

In this present case we will analyze the same Lagrangian solution in (5.4.3), but now with time dependent Eulerian solution, i.e., with some or all  $\frac{\partial u_i^E}{\partial t} \neq 0$ . Again with  $\nabla p = f$  and  $\frac{Du^E}{Dt} = 0$ , the Lagrangian solution is

$$(5.5.1) \quad \left\{ \begin{array}{l} x = x_0 e^{-t}, \quad \frac{dx}{dt} = -x_0 e^{-t} = u_1^L, \quad \frac{Du_1^L}{Dt} = x_0 e^{-t} \\ y = y_0 e^{-t}, \quad \frac{dy}{dt} = -y_0 e^{-t} = u_2^L, \quad \frac{Du_2^L}{Dt} = y_0 e^{-t} \\ z = z_0 e^{-t}, \quad \frac{dz}{dt} = -z_0 e^{-t} = u_3^L, \quad \frac{Du_3^L}{Dt} = z_0 e^{-t} \end{array} \right.$$

for constants  $x_0, y_0, z_0$ , a movement of contraction from  $(x_0, y_0, z_0)$  to  $(0, 0, 0)$ , with  $\frac{Du^L}{Dt} = (x_0, y_0, z_0)e^{-t} = (x(t), y(t), z(t))$ .

We have in this case for Eulerian representation in the traditional meaning

$$(5.5.2) \quad \begin{cases} \left( \frac{Du_1^E}{Dt} = \left( \frac{\partial u_1^E}{\partial t} + u_1^E \frac{\partial u_1^E}{\partial x} + u_2^E \frac{\partial u_1^E}{\partial y} + u_3^E \frac{\partial u_1^E}{\partial z} \right) \Big|_t = 0 \right. \\ \left. \frac{Du_2^E}{Dt} = \left( \frac{\partial u_2^E}{\partial t} + u_1^E \frac{\partial u_2^E}{\partial x} + u_2^E \frac{\partial u_2^E}{\partial y} + u_3^E \frac{\partial u_2^E}{\partial z} \right) \Big|_t = 0 \right. \\ \left. \frac{Du_3^E}{Dt} = \left( \frac{\partial u_3^E}{\partial t} + u_1^E \frac{\partial u_3^E}{\partial x} + u_2^E \frac{\partial u_3^E}{\partial y} + u_3^E \frac{\partial u_3^E}{\partial z} \right) \Big|_t = 0 \right. \end{cases}$$

Choosing for respective solution

$$(5.5.3) \quad u_i^E = k_i \phi_i(ax + by + cz + dt),$$

with  $\phi_i: \mathbb{R} \rightarrow \mathbb{R}$  differentiable functions and  $k_i, a, b, c$  real numbers, for  $i = 1, 2, 3$ , we have

$$(5.5.4) \quad k_1 \phi_1 a + k_2 \phi_2 b + k_3 \phi_3 c + d = 0,$$

otherwise all  $\phi_i$  are constants. If the condition of incompressibility  $\nabla \cdot u = \nabla \cdot u^0 = 0$  is required in the resolution of a given problem then it is also necessary that

$$(5.5.5) \quad k_1 \phi_1' a + k_2 \phi_2' b + k_3 \phi_3' c = 0,$$

always satisfied when (5.5.4) is true.

With the correct form of the new Euler and Navier-Stokes equations we have

$$(5.5.6) \quad \begin{cases} \left( \frac{Du_1^E}{Dt} = \left( \frac{\partial u_1^E}{\partial t} + u_1^L \frac{\partial u_1^E}{\partial x} + u_2^L \frac{\partial u_1^E}{\partial y} + u_3^L \frac{\partial u_1^E}{\partial z} \right) \Big|_t = 0 \right. \\ \left. \frac{Du_2^E}{Dt} = \left( \frac{\partial u_2^E}{\partial t} + u_1^L \frac{\partial u_2^E}{\partial x} + u_2^L \frac{\partial u_2^E}{\partial y} + u_3^L \frac{\partial u_2^E}{\partial z} \right) \Big|_t = 0 \right. \\ \left. \frac{Du_3^E}{Dt} = \left( \frac{\partial u_3^E}{\partial t} + u_1^L \frac{\partial u_3^E}{\partial x} + u_2^L \frac{\partial u_3^E}{\partial y} + u_3^L \frac{\partial u_3^E}{\partial z} \right) \Big|_t = 0 \right. \end{cases}$$

which also has by solution, for example,

$$(5.5.7) \quad u_i^E = k_i \phi_i(ax + by + cz + dt),$$

for  $\phi_i: \mathbb{R} \rightarrow \mathbb{R}$  differentiable functions,  $k_i, a, b, c$  real numbers,  $i = 1, 2, 3$ , but this time with

$$(5.5.8) \quad a u_1^L(t) + b u_2^L(t) + c u_3^L(t) + d = 0,$$

or equivalently

$$(5.5.9.1) \quad u_1^L(t) = -\frac{1}{a}(b u_2^L(t) + c u_3^L(t) + d), \quad a \neq 0,$$

$$(5.5.9.2) \quad u_2^L(t) = -\frac{1}{b}(a u_1^L(t) + c u_3^L(t) + d), \quad b \neq 0,$$

$$(5.5.9.3) \quad u_3^L(t) = -\frac{1}{c}(a u_1^L(t) + b u_2^L(t) + d), \quad c \neq 0,$$

for all  $t \geq 0$ , or all  $\phi_i'$  are constants. For that  $\nabla \cdot u = \nabla \cdot u^0 = 0$  it is necessary also be valid (5.5.5) or all  $\phi_i$  need be constant.

According to the solution (5.5.7) and for the chosen movement given by (5.5.1), the condition (5.5.8) imposes that

$$(5.5.10.1) \quad x_0 = -\frac{1}{a}(b y_0 + c z_0 - d),$$

$$(5.5.10.2) \quad y_0 = -\frac{1}{b}(a x_0 + c z_0 - d),$$

$$(5.5.10.3) \quad z_0 = -\frac{1}{c}(a x_0 + b y_0 - d),$$

respectively if  $a \neq 0$ ,  $b \neq 0$ ,  $c \neq 0$ , therefore each initial position of a specific particle or group of particles needs to obey the previous condition, in this case: initial positions on a plane for each family of coefficients  $(a, b, c, d)$ .

Note that a solution in the Lagrangian description may correspond to two (or even more) solutions in the Eulerian description, for example, a steady state solution as well as a non-steady state solution, as can be seen by comparing the solutions in § 4 and § 5, so it is convenient to look for, or pre-define, simpler formats for Eulerian solutions.

On the other hand, as we have already said, for to have logical consistency between both velocities, it is necessary that

$$(5.5.11) \quad u^E(x(t), y(t), z(t), t) = u^L(t)$$

and  $\frac{Du^E}{Dt}|_t = \frac{Du^L}{Dt}$  for all time  $t \geq 0$ , and we came back to the solution obtained in (5.4.15), a steady state solution, i.e.,

$$(5.5.12) \quad \left\{ \begin{array}{l} u_1^E = -x, \quad \frac{\partial u_1^E}{\partial t} = \frac{\partial u_1^E}{\partial y} = \frac{\partial u_1^E}{\partial z} = 0, \quad \frac{\partial u_1^E}{\partial x} = -1 \\ u_2^E = -y, \quad \frac{\partial u_2^E}{\partial t} = \frac{\partial u_2^E}{\partial x} = \frac{\partial u_2^E}{\partial z} = 0, \quad \frac{\partial u_2^E}{\partial y} = -1 \\ u_3^E = -z, \quad \frac{\partial u_3^E}{\partial t} = \frac{\partial u_3^E}{\partial x} = \frac{\partial u_3^E}{\partial y} = 0, \quad \frac{\partial u_3^E}{\partial z} = -1 \end{array} \right.$$

a compressible motion with  $\nabla \cdot u^E = -3$  and  $\frac{Du^E}{Dt}|_t = \frac{Du^L}{Dt} = (x(t), y(t), z(t))$ .

§ 6

Lastly, we will see the new Navier-Stokes equations. As the Lagrangian description governs the movement of particles or group of particles, while the Eulerian description is a kind of complicating of the real (or approximate, say) behavior of fluids, at least when the external force is conservative and the pressure is its potential ( $\nabla p = f$ ), we will try an Eulerian solution for velocity using (1.1), i.e., given  $u^L = (u_1^L, u_2^L, u_3^L)$  we will use the form

$$(5.6.1) \quad u_i^E = u_i^E(x_i, t) = \phi_i(x_i)\varphi_i(t)$$

in the equation

$$(5.6.2) \quad \frac{Du_i^E}{Dt} = \nu \nabla^2 u_i^E + \frac{1}{3} \nu \frac{\partial}{\partial x_i} (\nabla \cdot u^E),$$

with

$$(5.6.3) \quad \frac{Du_i^E}{Dt} = \frac{\partial u_i^E}{\partial t} + u_1^L \frac{\partial u_i^E}{\partial x} + u_2^L \frac{\partial u_i^E}{\partial y} + u_3^L \frac{\partial u_i^E}{\partial z}$$

and  $\nabla \cdot u^E$  without specific value, thus

$$(5.6.4) \quad \phi_i(x_i)\varphi_i'(t) + u_i^L(t)\phi_i'(x_i)\varphi_i(t) = \frac{4}{3} \nu \phi_i''(x_i)\varphi_i(t),$$

an ordinary differential equation, for  $i = 1, 2, 3$ , supposing  $\phi_i$  and  $\varphi_i$  differentiable and continuous functions how much is needed.

By the superposition principle we can also add solutions,

$$(5.6.5) \quad u_i^E = u_i^E(x_i, t) = \sum_{j=1}^{\infty} u_{ij}^E(x_i, t) = \sum_{j=1}^{\infty} \phi_{ij}(x_i)\varphi_{ij}(t),$$

and then

$$(5.6.6) \quad \phi_{ij}(x_i)\varphi_{ij}'(t) + u_i^L(t)\phi_{ij}'(x_i)\varphi_{ij}(t) = \frac{4}{3} \nu \phi_{ij}''(x_i)\varphi_{ij}(t),$$

but the better use of (1.1) is when we give completely the Lagrangian and Eulerian solutions for velocity (i.e., a choose obeying the required initial and boundary conditions as well as the compressibility condition) and the external force is conservative, such that,

$$(5.6.7) \quad \begin{cases} p = \int_L \left( -\frac{Du^E}{Dt} + \nu \nabla^2 u^E + \frac{1}{3} \nu \nabla (\nabla \cdot u^E) + f \right) \cdot dl \\ u_i^E = u_i^E(x_i, t) \end{cases}$$

for  $i = 1, 2, 3$ , i.e., the pressure is the unique function which we do not have *a priori* and need be calculated, while the choose components of velocities have the



necessity to be logically consistent with the problem in question. In section 6 we will see again this solution.

We now will make the Eulerian solution even easier than (5.6.1) by removing the dependence of time,

$$(5.6.8) \quad u_i^E = u_i^E(x_i) = \phi_i(x_i),$$

with

$$(5.6.9) \quad \frac{Du_i^E}{Dt} = u_1^L \frac{\partial u_i^E}{\partial x} + u_2^L \frac{\partial u_i^E}{\partial y} + u_3^L \frac{\partial u_i^E}{\partial z} = \nu \nabla^2 u_i^E + \frac{1}{3} \nu \frac{\partial}{\partial x_i} (\nabla \cdot u^E),$$

$\nabla \cdot u^E$  with free value, and so

$$(5.6.10) \quad u_i^L(t) \phi_i'(x_i) = \frac{4}{3} \nu \phi_i''(x_i)$$

or

$$(5.6.11) \quad u_i^L(t) = \frac{4}{3} \nu \frac{\phi_i''(x_i)}{\phi_i'(x_i)} = c_i,$$

a spatial solution which obviously cannot varies in time and for this reason it is necessary that the function  $u_i^L(t)$  is a real constant  $c_i$ . The solution is exponential in relation to coordinate  $x_i$ :

$$(5.6.12) \quad u_i^E = \phi_i(x_i) = k_i e^{3c_i x_i/4\nu},$$

which in fact solves (5.6.9) for  $k_i, c_i, \nu > 0$  real constants.

Note that although (5.6.12) is a spatially unlimited function for  $x_i \rightarrow +\infty$  if  $k_i \neq 0$  and  $c_i > 0$ , the respective Lagrangian solution  $u_i^L(t) = c_i$ , which indicates a motion of constant velocity, is well behaved, smooth and limited, for all position and all  $t \geq 0$ . Then this is another case (as in § 2) in that we have a regular motion in the time in Lagrangian description but with possibility of an unlimited solution in Eulerian description. By other side, if  $k_i \neq 0$  and  $c_i < 0$  the respective component  $u_i^E$  decreases with position for  $x_i > 0$  and it is unlimited for  $x_i \rightarrow -\infty$ , which also is not compatible with the respective motion of those particles or group of particles, but nevertheless it is a possible solution in Eulerian description.

Also note that in each of the examples in this section, we had initially in general  $u^L(t) \neq u^E(x, y, z, t)$ , except if  $t = 0$  and  $x = x_0, y = y_0, z = z_0$  is the initial position, or some specific set of positions  $(x, y, z)$  and  $(x_0, y_0, z_0)$  at time  $t$  (in special,  $x = x(t, x_0), y = y(t, y_0), z = z(t, z_0)$  according defined in the respective Lagrangian description) or if  $u^E$  is not dependent of position (as in § 3), so by the

chain rule the correct form of the total acceleration  $\frac{Du^E}{Dt}$  in a particle of fluid (or elementary volume  $dV$  or group of particles) is

$$(5.6.13) \quad \frac{Du^E}{Dt} = \frac{\partial u^E}{\partial t} + u_1^L \frac{\partial u^E}{\partial x} + u_2^L \frac{\partial u^E}{\partial y} + u_3^L \frac{\partial u^E}{\partial z},$$

because we have in general

$$(5.6.14) \quad u_1^L \frac{\partial u^E}{\partial x} + u_2^L \frac{\partial u^E}{\partial y} + u_3^L \frac{\partial u^E}{\partial z} \neq u_1^E \frac{\partial u^E}{\partial x} + u_2^E \frac{\partial u^E}{\partial y} + u_3^E \frac{\partial u^E}{\partial z}.$$

We are using implicitly the initial position  $(x_0, y_0, z_0)$  in the Lagrangian description  $u^L(t)$  as constant, although it has the same meaning as in  $u^L(t, x_0, y_0, z_0)$ .

In the last example of this § 6 for that

$$(5.6.15) \quad u^E(x(t), y(t), z(t), t) = u^L(t) = \frac{d}{dt}(x(t), y(t), z(t))$$

and  $\frac{Du^E}{Dt}|_t = \frac{Du^L}{Dt}$  for all  $t \geq 0$  it is necessary to have, for  $t = 0$ ,

$$(5.6.16) \quad u_i^E(x_0, y_0, z_0, t = 0) = u_i^L(0) = c_i$$

and then, from (5.6.11) and (5.6.12),

$$(5.6.17) \quad k_i = c_i e^{-3c_i x_i^0 / 4\nu}$$

and

$$(5.6.18) \quad u_i^E = c_i e^{3c_i(x_i - x_i^0) / 4\nu}$$

where  $(x_0, y_0, z_0) \equiv (x_1^0, x_2^0, x_3^0)$  is the respective initial velocity, a motion of constant velocity  $c = (c_1, c_2, c_3)$  for each particle or group of particles in Lagrangian description, without compressibility along time, but an exponential function in Eulerian description and with  $\nabla \cdot u^E \neq 0$ .

Also thinking about other time values,  $t > 0$ , we cannot accept this solution, and then the unique possible solution here is

$$(5.6.19) \quad u_i^E(x_i(t)) = u_i^L(t) = c_i,$$

thus

$$(5.6.20) \quad x_i = x_i^0$$

and so, no movement,

$$(5.6.21) \quad c_i = 0.$$

The conclusion in this case is that it is necessary to have time dependence in the velocity  $u^E$ .

## 6 – The question of the breakdown solutions

Without passing through the Lagrangian formulation, given a velocity  $u(x, y, z, t)$  at least two times differentiable with respect to spatial coordinates and one respect to time and an integrable external force  $f(x, y, z, t)$ , perhaps the better expression for the solution of the equation (1.4) is

$$(6.1) \quad \begin{aligned} p(x, y, z, t) &= \int_L S \cdot dl + \theta(t) = \sum_{i=1}^3 \int_{P_i^0}^{P_i^1} S_i dx_i + \theta(t), \\ S &= (S_1, S_2, S_3), \\ S_i &= - \left( \frac{\partial u_i}{\partial t} + \sum_{j=1}^3 u_j \frac{\partial u_i}{\partial x_j} \right) + \nu(\nabla^2 u_i) + \frac{1}{3} \nu(\nabla_i(\nabla \cdot u)) + f_i, \end{aligned}$$

supposing possible the integrations and that the vector  $S = - \left[ \frac{\partial u}{\partial t} + (u \cdot \nabla)u \right] + \nu \nabla^2 u + \frac{1}{3} \nu \nabla(\nabla \cdot u) + f$  is a gradient function, where it is necessary that

$$(6.2) \quad \frac{\partial S_i}{\partial x_j} = \frac{\partial S_j}{\partial x_i}.$$

This is the development of the solution of (1.4) for the specific path  $L$  going parallelly (or perpendicularly) to axes  $X, Y$  and  $Z$  from  $(x_1^0, x_2^0, x_3^0) \equiv (x_0, y_0, z_0)$  to  $(x_1, x_2, x_3) \equiv (x, y, z)$ , since that the solution (6.1) is valid for any piecewise smooth path  $L$ . We can choose  $P_1^0 = (x_0, y_0, z_0)$ ,  $P_2^0 = (x, y_0, z_0)$ ,  $P_3^0 = (x, y, z_0)$  for the origin points and  $P_1 = (x, y_0, z_0)$ ,  $P_2 = (x, y, z_0)$ ,  $P_3 = (x, y, z)$  for the destination points.  $\theta(t)$  is a generic time function, physically and mathematically reasonable, for example with  $\theta(0) = 0$  or adjustable for some given condition. Again we have seen that the system of Navier-Stokes equations has no unique solution, only given initial conditions, supposing that there is some solution. We can choose different velocities that have the same initial velocity and also result, in general, in different pressures.

The remark given for the system (1.5), when used in (1.4), leads us to the following conclusion: the integration of the system (1.4), confronting with (1.5), shows that, except for a constant or free term of integration, respectively  $A(y, z, t)$ ,  $B(x, z, t)$  and  $C(x, y, t)$ , anyone of its equations can be used for solve it, and the results must be equals each other, if the velocity  $u$  and external force  $f$  are given and the pressure  $p$  must be calculated. Then again this is a condition to the

occurrence of solutions, otherwise there is not any solution, which shows to us the possibility of existence of “breakdown” solutions, as defined in [10].

By other side, using the first condition (1.1),  $\frac{\partial u_i}{\partial x_j} = 0$  if  $i \neq j$ , due to Lagrangian formulation, where  $u_i = \frac{dx_i}{dt}$ , the original system (1.4) is simplified as

$$(6.3) \quad \begin{cases} \left( \frac{\partial p}{\partial x} + \frac{\partial u_1}{\partial t} + u_1 \frac{\partial u_1}{\partial x} = \frac{4}{3} \nu \frac{\partial^2 u_1}{\partial x^2} + f_1 \right. \\ \left. \frac{\partial p}{\partial y} + \frac{\partial u_2}{\partial t} + u_2 \frac{\partial u_2}{\partial y} = \frac{4}{3} \nu \frac{\partial^2 u_2}{\partial y^2} + f_2 \right. \\ \left. \frac{\partial p}{\partial z} + \frac{\partial u_3}{\partial t} + u_3 \frac{\partial u_3}{\partial z} = \frac{4}{3} \nu \frac{\partial^2 u_3}{\partial z^2} + f_3 \right) \end{cases}$$

where  $u_i$  is a function only of the respective  $x_i$  and  $t$ , but not  $x_j$  if  $j \neq i$ . When it is required the incompressibility condition,  $\nabla \cdot u = \left( \frac{\partial u_1}{\partial x} + \frac{\partial u_2}{\partial y} + \frac{\partial u_3}{\partial z} \right) = 0$ , then the constant  $\frac{4}{3}$  in (6.3) should be replaced by 1.

If the external force has potential,  $f = \nabla V$ , then the system (6.3) has solution

$$(6.4) \quad \begin{aligned} p &= \sum_{i=1}^3 \int_{P_i^0}^{P_i} \left[ - \left( \frac{\partial u_i}{\partial t} + u_i \frac{\partial u_i}{\partial x_i} \right) + \frac{4}{3} \nu \frac{\partial^2 u_i}{\partial x_i^2} + f_i \right] dx_i + \theta(t) \\ &= V + \sum_{i=1}^3 \int_{x_i^0}^{x_i} \left[ - \left( \frac{\partial u_i}{\partial t} + u_i \frac{\partial u_i}{\partial x_i} \right) + \frac{4}{3} \nu \frac{\partial^2 u_i}{\partial x_i^2} \right] dx_i + \theta(t), \end{aligned}$$

$V = \int_L f \cdot dl$ , which although similar to (6.1) has the solubility guaranteed by the special functional dependence of the components of the vector  $u$ , i.e.,  $u_i = u_i(x_i, t)$ , with  $\frac{\partial u_i}{\partial x_j} = 0$  if  $i \neq j$ , supposing  $u$ , its derivatives and  $f$  integrable vectors. In this case the vector  $S$  described in (6.1) is always a gradient function, i.e., the relation (6.2) is satisfied. Note that if  $f$  is not an irrotational or gradient vector, i.e., if it does not have a potential, then the system (6.3), with  $u_i = u_i(x_i, t)$ , it has no solution, the case of “breakdown” solution in [10].

When the incompressibility condition is imposed ( $\nabla \cdot u = 0$ ) we have, using (1.1), a small variety of possible solutions for velocity, of the form

$$(6.5) \quad u_i(x_i, t) = A_i(t)x_i + B_i(t),$$

$A_i, B_i \in C^\infty([0, \infty))$ , with

$$(6.6) \quad A_1(t) + A_2(t) + A_3(t) = 0,$$

if the coordinates  $x_1, x_2, x_3$  are independent of each other. In this case it is valid  $\nabla^2 u = 0$ , i.e., the system of equations has a solution for velocity independent of viscosity coefficient, equal to Euler equations, and except when  $u = 0$  (for some or all  $t \geq 0$ ) we have always  $\int_{\mathbb{R}^3} |u|^2 dx dy dz \rightarrow \infty$ , the occurrence of unbounded or unlimited energy, which is not difficult to see.

Another class of solutions  $S$  for velocity gives more possibility for the construction of the components of velocity  $u_i$ , but maintains a bond between  $x_1, x_2, x_3$  and  $t$  such that

$$(6.7) \quad S = \{(u_1, u_2, u_3); u_i \in C^1(\mathbb{R} \times \mathbb{R}_0^+), (x_1, x_2, x_3, t) \in \mathbb{R}^3 \times \mathbb{R}_0^+, \nabla \cdot u = 0\},$$

where  $\mathbb{R}_0^+ = [0, \infty)$ , and there is a scalar function  $\varphi_3$  with  $x_3 = \varphi_3(x_1, x_2, t)$  or similarly  $x_1 = \varphi_1(x_2, x_3, t)$  or  $x_2 = \varphi_2(x_1, x_3, t)$ . The dependence between  $x_1, x_2, x_3$  and  $t$  is necessary for that  $\nabla \cdot u = 0$  in these points  $(x_1, x_2, x_3)$  at each time  $t$ , forming a surface or manifold which is the domain of the solutions and which varies in time.

Being correct that (1.1) and (4.1) can be used, which we saw in section 5, the solution (6.4) for pressure can therefore be replaced by

$$(6.8) \quad \begin{aligned} p &= \sum_{i=1}^3 \int_{P_i^0}^{P_i} \left[ -\left(\frac{\partial u_i}{\partial t} + \alpha_i \frac{\partial u_i}{\partial x_i}\right) + \frac{4}{3} \nu \frac{\partial^2 u_i}{\partial x_i^2} + f_i \right] dx_i + \theta(t) \\ &= V + \sum_{i=1}^3 \int_{x_i^0}^{x_i} \left[ -\left(\frac{\partial u_i}{\partial t} + \alpha_i \frac{\partial u_i}{\partial x_i}\right) + \frac{4}{3} \nu \frac{\partial^2 u_i}{\partial x_i^2} \right] dx_i + \theta(t) \\ &= V + \sum_{i=1}^3 [p_i(x_i, t) - p_i(x_i^0, t)] + \theta(t), \end{aligned}$$

where  $\alpha_i = \alpha_i(t)$  is the component  $i$  of the velocity in Lagrangian description of a particle of fluid in motion,  $u_i = u_i(x_i, t)$  is the component  $i$  of the velocity in Eulerian description,  $p_i(x_i, t) = \int_{x_i^0}^{x_i} \left[ -\left(\frac{\partial u_i}{\partial t} + \alpha_i \frac{\partial u_i}{\partial x_i}\right) + \frac{4}{3} \nu \frac{\partial^2 u_i}{\partial x_i^2} \right] dx_i$  and the other meanings already given previously in this article. As we have already seen, when it is required the incompressibility condition then the constant  $\frac{4}{3}$  in (6.8) should be replaced by 1 and the general solution (6.5) for velocity with the condition (6.6) remains valid, if the coordinates  $x_1, x_2, x_3$  are independent of each other, as well as (6.7) with possible dependence between  $x_1, x_2, x_3$  and  $t$ .

In section 8, Conclusion, we will see other cases of breakdown solution, when the Euler and Navier-Stokes equations have no solution.

## 7 – The non-uniqueness of solutions

The new equations presented here have clearly non-unique solutions (when there is at least one solution) in the following sense:

1) For the same initial Eulerian velocity, indicated as  $u^0$ , we can propose different velocities in the Lagrangian description,  $u^L$ , to compose the new equations, also with possibility of collisions between the particles belonging to the different movements described by each  $u^L$ . This can result in a rather chaotic Eulerian solution for velocity, in fact many velocities for a same point, and consequently also for the pressure, if it has not previously been chosen.

2) When we analyze the uniqueness of solutions  $(u^E, p)$  bearing in mind that the Lagrangian velocity  $u^L$  is predetermined, if only the initial velocity  $u^0$  is given we have the non uniqueness of the pair  $(u^E, p)$  because we can construct many possible and different velocities  $u^E$ , as  $u^E = \varphi(t)u^0 + \tau(t)$ ,  $\varphi(0) = 1$ ,  $\tau(0) = 0$ ,  $\varphi: [0, \infty) \rightarrow \mathbb{R}$ ,  $\tau: [0, \infty) \rightarrow \mathbb{R}^3$ , all smooth functions, and the pressure will be given by (6.8), where we are supposing the use of (1.1), i.e.,  $u_i^E = u_i^E(x_i, t)$ , with  $\frac{\partial u_i^E}{\partial x_j} = 0$  if  $i \neq j$ . Note that in this case we have  $\nabla \times u^E = 0$  and the equation has solution, again with many possible pressures.

3) If is given a boundary condition of type  $u^E|_{\partial S} = u^\partial$  (Dirichlet condition), with  $u^\partial \in C^\infty(\mathbb{R}^3 \times [0, \infty))$  and  $u^\partial(x, y, z, t = 0) = u^0$ , then we can use the solution for velocity as  $u^E = u^\partial$  and also we have the non uniqueness of the pair  $(u^E, p)$ , because for the pressure to be unique it needs to be known the values of  $p_1(x_0, t)$ ,  $p_2(y_0, t)$ ,  $p_3(z_0, t)$ , i.e., the pressure is dependent of the values of  $x_0, y_0, z_0$ , and moreover  $\theta(t)$ , according (6.8). Naturally, the velocities  $u^\partial$  and  $u^0$  must, themselves, obey to the new equations of Euler and Navier-Stokes,  $u^\partial$  for  $t \geq 0$  and  $u^0$  for  $t = 0$ . Note that in our convention the functions  $p_1(x_0, t)$ ,  $p_2(y_0, t)$ ,  $p_3(z_0, t)$  denote the pressure value in a generic time  $t \geq 0$ , respectively at the positions  $(x_0, y, z)$ ,  $(x, y_0, z)$ ,  $(x, y, z_0)$ , where  $(x_0, y_0, z_0)$  is the initial position. In this condition we have  $\theta(t = 0) = 0$ .

## 8 – Conclusion

In fact we saw two problems in Euler and Navier-Stokes equations, not only one:

1) the pressure is (or may be) a vector, which was viewed briefly in sections 2 and 3 during the deductions of these equations;

2) the nonlinear characteristic of these equations is not correct for modeling of motion of fluids, because the use of chain rule in  $\frac{Du}{Dt} = \frac{\partial u}{\partial t} + \frac{\partial u}{\partial x} \frac{dx}{dt} + \frac{\partial u}{\partial y} \frac{dy}{dt} + \frac{\partial u}{\partial z} \frac{dz}{dt}$  implies that  $u_1 = \frac{dx}{dt}$ ,  $u_2 = \frac{dy}{dt}$  and  $u_3 = \frac{dz}{dt}$  are time functions only, without spatial dependence, which we viewed in section 4.

We propose a new form for the Euler ( $\nu = 0$ ) and Navier-Stokes equations, where there is the simultaneous use of Euler and Lagrangian descriptions in a same equation, i.e., for  $i = 1, 2, 3$ ,

$$(8.1) \quad \frac{\partial p}{\partial x_i} + \frac{\partial u_i}{\partial t} + \alpha_1 \frac{\partial u_i}{\partial x} + \alpha_2 \frac{\partial u_i}{\partial y} + \alpha_3 \frac{\partial u_i}{\partial z} = \nu \nabla^2 u_i + \frac{1}{3} \nu \frac{\partial}{\partial x_i} (\nabla \cdot u) + f_i,$$

where  $p$ ,  $f_i$ ,  $u$  and  $u_i$  are in Eulerian description and  $\alpha_i = \alpha_i(t)$  in Lagrangian description, i.e.,  $\alpha_i = \frac{dx_i}{dt}$ , according equation (4.3). Of this manner the nonlinear form of these equations disappear, replacing it by linear equations, a second-order equation of elliptic type if  $\nu > 0$  or first order equation if  $\nu = 0$ .

Obviously, using the vector nature of pressure the equation (8.1) needs to be modified to

$$(8.2) \quad \frac{\partial p_i}{\partial x_i} + \frac{\partial u_i}{\partial t} + \alpha_1 \frac{\partial u_i}{\partial x} + \alpha_2 \frac{\partial u_i}{\partial y} + \alpha_3 \frac{\partial u_i}{\partial z} = \nu \nabla^2 u_i + \frac{1}{3} \nu \frac{\partial}{\partial x_i} (\nabla \cdot u) + f_i.$$

In (8.1) it is still necessary to have a resultant conservative field, a gradient vector, specifically for the integrable vector  $S = (S_1, S_2, S_3)$ , with

$$(8.3) \quad S_i = \left( \nu \nabla^2 u_i + \frac{1}{3} \nu \frac{\partial}{\partial x_i} (\nabla \cdot u) + f_i \right) - \left( \frac{\partial u_i}{\partial t} + \alpha_1 \frac{\partial u_i}{\partial x} + \alpha_2 \frac{\partial u_i}{\partial y} + \alpha_3 \frac{\partial u_i}{\partial z} \right),$$

whereas in equation (8.2) this is no longer necessary.

In section 4 we conclude that the new Euler equations have a natural physical solution when the pressure and external force are given (or chosen) and the integration in (4.6), which is the mentioned solution,

$$(8.4) \quad u_i = u_i^0 + \left( \int_0^t \left( f_i - \frac{\partial p}{\partial x_i} \right) |_L dt \right) |_E,$$

is possible, for  $i = 1, 2, 3$ , in general a non unique solution varying with the transformations indicated as  $|_L$  and  $|_E$ . Beside this, boundary conditions must be in accordance with this solution, as well as it is necessary the verification of possible conditions to be obeyed by each  $u_i^0$  and  $\alpha_i(t)$ , substituting the solution in the equation, for that the mentioned solution effectively satisfies the equation of a mathematical point of view.

The functions  $\alpha$  describe the velocity of the particles of the fluid over time, so the importance of them can be considered greater than that of velocity  $u$ , that is, it is convenient to choose initial velocities  $u^0$  as simple as possible that are compatible with the selected movement described by the  $\alpha$  functions, in special:  $u^0(x_0, y_0, z_0) = \alpha(t = 0, x_0, y_0, z_0)$ . Without the compromise of the equality in time of the Eulerian and Lagrangian descriptions, it is even possible that different velocities  $u$ , for example  $u' \neq u''$ , correspond to the same motion described by  $\alpha$ , and we have  $\text{div } u' = 0$  and  $\text{div } u'' \neq 0$ . So, seems that the incompressibility condition is not of priority importance for the description of motion of fluids. Note that similarly to what we have already said in section 5, we use implicitly the initial position  $(x_0, y_0, z_0)$  in the function  $\alpha(t)$  as constant, although it has the same meaning as in  $\alpha(t, x_0, y_0, z_0)$ . Other constant parameters also can be included, of course:  $R, \theta_0, \omega, \nu, \rho$ , etc., able to describe a very large class of motions.

It is also possible an easier form for the Euler ( $\nu = 0$ ) and Navier-Stokes equations, that is

$$(8.5) \quad \frac{\partial p_i}{\partial x_i} + \frac{D\alpha_i}{Dt} = \nu \nabla^2 u_i + \frac{1}{3} \nu \frac{\partial}{\partial x_i} (\nabla \cdot u) + f_i,$$

where we can substitute  $p_i$  by  $p$  if  $p_1 = p_2 = p_3 = p$  is scalar pressure. Here  $\frac{D\alpha_i}{Dt}$  is, in fact, a function only of time (and possibly constant parameters), without explicit dependence of  $x, y, z$ . The new forms for these equations are most didactic, because they can remind us of the need to be valid

$$(8.6) \quad u^E(x(t), y(t), z(t), t) = u^L(t) = \alpha(t) = \frac{d}{dt}(x(t), y(t), z(t))$$

and

$$(8.7) \quad \frac{Du^E}{Dt} \Big|_t = \frac{Du^L}{Dt} = \frac{D\alpha}{Dt} = \left( \frac{\partial u^E}{\partial t} + \alpha_1 \frac{\partial u^E}{\partial x} + \alpha_2 \frac{\partial u^E}{\partial y} + \alpha_3 \frac{\partial u^E}{\partial z} \right) \Big|_t$$

when we analyze a fluid motion, a physical system, not only the solution of a problem purely mathematical, without application.

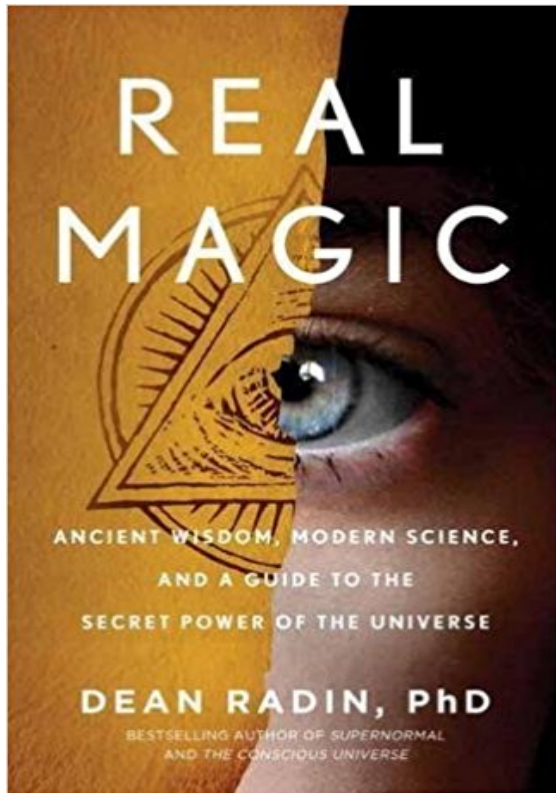
Now, to solve the equations of Navier-Stokes, and especially the Euler equations, is no more difficult than solve the traditional equations of mathematical physics, as heat equation, wave equation, Laplace and Poisson equations, etc., all of them linear differential equations. Despite this, in case of scalar pressure, if  $\nu = 0$  and the external force is non conservative there is no solution for Euler equations, as well as if the initial velocity is gradient ( $u^0 = \nabla\phi^0, \nabla \times u^0 = 0$ ) and the external force is non conservative, which leads us to the case of breakdown solution described in [10], when the pressure is a scalar function, because is not possible the calculation of pressure, according rule (6.2) viewed in section 6.



Note that the application of a non conservative force in fluid is naturally possible and there will always be some movement, even starting from rest. So that this is not a paradoxical situation it seems certain that the pressure in this case cannot be scalar, but rather vector, and thus the equations returns to solution in all cases (assuming all derivatives are possible, etc.). It is as indicated in (8.2) and (8.5). With the use of vector pressure the conditions mentioned for systems (1.4) and (1.5) also becomes unnecessary.

## References

- [1] Godoi, Valdir M.S., *Draft on a Problem in Euler and Navier-Stokes Equations*, available in <http://vixra.org/abs/1704.0064> (2017).
- [2] Godoi, Valdir M.S., *Solution for Euler Equations – Lagrangian and Eulerian Descriptions*, available in <http://vixra.org/abs/1604.0283> (2016, 2017).
- [3] Godoi, Valdir M.S., *Solution for Navier-Stokes Equations – Lagrangian and Eulerian Descriptions*, available in <http://vixra.org/abs/1604.0244> (2016, 2017).
- [4] Landau, Lev D. and Lifshitz, Evgenii M., *Fluid Mechanics*, Course of Theoretical Physical, vol. 6. New York: Elsevier Butterworth Heinemann (2004).
- [5] Batchelor, G. K., *An Introduction to Fluid Dynamics*. Cambridge: Cambridge University Press (2000).
- [6] Richardson, E. G., *Dynamics of Real Fluids*. London: Edward Arnold & Co. (1950).
- [7] Bennett, Andrew, *Lagrangian Fluid Dynamics*. Cambridge: Cambridge University Press (2006).
- [8] Volpert, Vitaly, *Elliptic Partial Differential Equations*, 2 vols. Basel, Switzerland: Birkhäuser, Springer Basel AG (2011).
- [9] Courant, Richard and Hilbert, David, *Methods of Mathematical Physics*, vol. 2. New York: Interscience Publishers John Wiley & Sons (1962).
- [10] Fefferman, Charles L., *Existence and Smoothness of the Navier-Stokes Equation*, in <http://www.claymath.org/sites/default/files/navierstokes.pdf> (2000).



## **Real Magic: Ancient Wisdom, Modern Science, and a Guide to the Secret Power of the Universe**

**by Dean Radin, Ph.D.**

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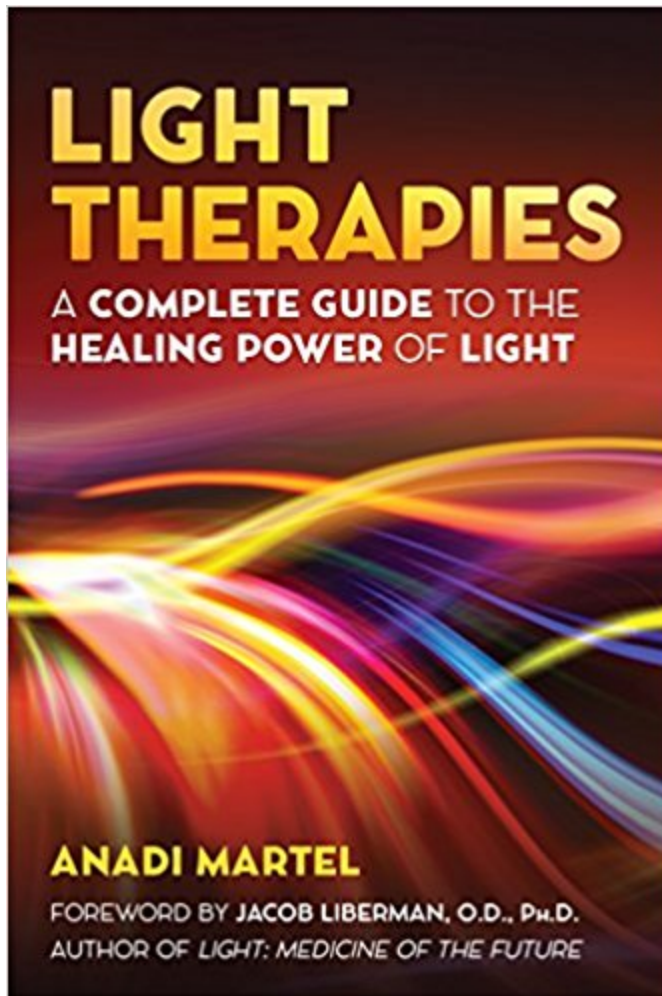
Dr. Dean Radin, the chief scientist at the [Institute of Noetic Sciences \(IONS\)](#), turns a critical eye toward such practices as telepathy, clairvoyance, precognition and psychokinesis.

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## Light Therapies: A Complete Guide to the Healing Power of Light

by Anadi Martel (Author), Jacob Liberman O.D. Ph.D. (Foreword)

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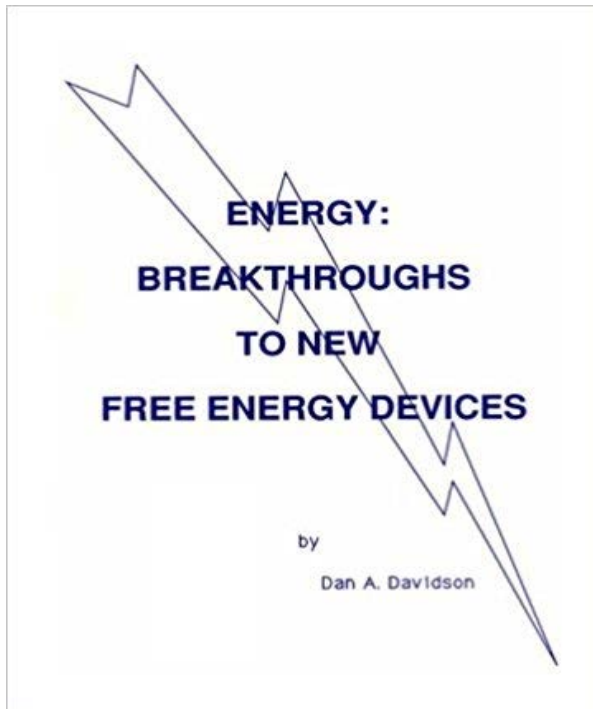
**This excellent book is a comprehensive guide to the therapeutic benefits of light and color and how they affect our physical and psychological well-being:**

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- Examines several forms of light therapy, including chromotherapy, heliotherapy, actinotherapy, and thermotherapy
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Investigating the many laser, monochrome, audiovisual, and infrared machines designed to heal disease and treat emotional disorders, Martel also reveals promising medical applications for light that are currently in development, inviting the reader not only to appreciate the complexities of light but to maximize its therapeutic dimensions.



## **ENERGY: BREAKTHROUGHS TO NEW FREE ENERGY DEVICES**

**by Dan A. Davidson**

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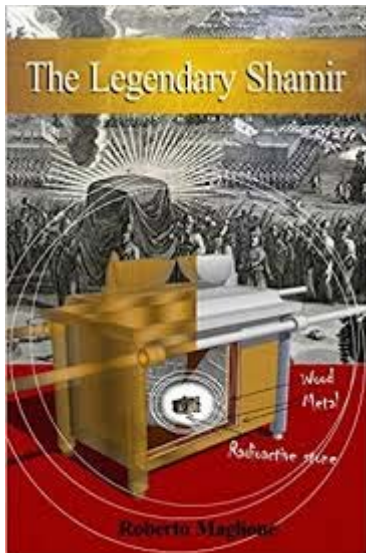
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### **This is the book that got the Free Energy Movement Energized**

The ideas of "Free Energy" are fast becoming a reality to a small body of dedicated researchers who have discovered new and rediscovered old methods of tapping into the free energy structure of the universe. All the major world powers are quietly working on free energy concepts. Free energy research is alive and well in the USA., Japan, Canada, Germany, France and Russia. Evidence is mounting that free energy is a very big reality and new theories are being propounded as well as old theories being dusted off and revamped. The research contained in Mr. Davidson's book would be of interest to anyone interested in energy and finding out about these startling new yet old concepts. The book contains a plethora of good hard facts that are an excellent source to those interested in free energy whether from an armchair physicist or laboratory experimenter point of view.

The book covers the free energy researchers back as far as 1680 with such noted devices as Johann Bessier's magical wheel, Keely's aetheric disintegrator, Moray's radiant energy device, Tesla's ideas and many others. John Keely's aerial propeller (anti-gravity device), and verification of the frequencies to break down water to sub-atomic levels are discussed in great detail. Also included is an interesting chapter on energy from shape power. Another chapter is on Walter Schauburger's 100,000 watt zokwendle. New light on T. Henry Moray's radiant energy device that was demonstrated to output 60 kilowatts directly from the cosmic rays. Free energy from whistlers is discussed in detail with the actual patent drawings depicting the techniques to tap enough energy to run a house or automobile.

There are also chapters on magnetic motors, orgone energy and detailed histories of the various free energy inventors and how they were suppressed and stopped from putting out their breakthrough inventions.



## THE LEGENDARY *SHAMIR*

by Roberto Maglione

- **Print length:** 432 pages ( XVI + 416, 8 colored plates, 51 figures, 9 tables)
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[Available for sale from the publisher, click here](#)

The author, Dr. Roberto Maglione, has made an excellent comparative study of Moses' Ark of the Covenant, and Reich's orgone accumulator, by investigating some of the most important religious and historical texts, such as the *Old Testament*; the *Mishnah*; Ginzberg's *The Legends of the Jews*; Josephus' *Antiquities of the Jews*; and the *Jewish Encyclopedia*. He has observed that the behavior of the Ark of the Covenant has been extraordinarily similar to that of an orgone accumulator, and the greater part of the phenomena the Ark has demonstrated might be explained by resorting to the results obtained by Reich in the *Oranur* experiment, where one mg of radium-226 was kept inside powerful orgone accumulators for very short times<sup>1</sup>. Many of the accounts reported in the *Old Testament*, such as those regarding the 24,000 killed after Israelites apostasy (Numbers 25:3-9); the Israelites killed after complaining for the lack of food (Numbers 11:31-33); the leprosy of Miriam (Numbers 12); the death of Shammua and other nine explorers to the land of Canaan (Numbers 14:36-38); the death of Korah and his group (Numbers 16:1-45); the death of 14,700 people from a plague (Numbers 16:46-50); the death of Philistines/Israelites in Ashdod, Ekron, Gath, and Beth Shemesh (1 Samuel 4:1-11; 5; 6); the leprosy of Uzziah (2 Chronicles 26:16-23); the plague outbreak during Sennacherib siege of Jerusalem (2 Kings 19:20-36); and the leprosy of Hezekiah (Isaiah 38) might be considered the result of the nefarious effects on individuals or groups exposed to a very high *Oranur* field whose characteristics were extraordinarily similar to those of a radioactive field.

Besides, the author has argued that the deaths occurred as a consequence of the anger of the Lord, as in the case of Nadab and Abihu (Aaron's sons) (Leviticus 10:1-5); Korah and his group (Numbers 16:1-45); and Uzzah (1 Chronicles 13:7-11), were all the result of high electrical discharges due to the extremely high tensions formed at the two electrodes of the Ark, considered as a capacitor. By resorting to in-house laboratory experiments on orgone devices, the author demonstrated these electrical phenomena were the direct consequence of a high *Oranur* field created inside the Ark when a radioactive substance was kept inside it.

The author has analysed also a third group of phenomena that included Aaron's rod budding (Numbers 17); the fertility increase of Obed-Edom's women (1 Chronicles 13:12-14); and the tree fruits increase in Solomon's Temple (Tan., Terumah, xi.; also with slight variations, Yoma 39b). He has seen they might be ascribed to the capacity of the Ark to enhance biological and life qualities. An increase of the biological activity was also observed during experiments performed

<sup>1</sup> Reich W, *The Oranur Experiment: First Report (1947-1951)*, The Wilhelm Reich Foundation, Rangeley, Maine, 1951.

inside orgone accumulators with seeds, and seedlings where an increase of the yield and other related parameters were seen. Use of the same apparatuses on human organisms provided indications of a higher biological activity with a parallel increase of the health conditions. And the use of a radioactive source to substantially increase the energy concentration inside orgone apparatus to improve life qualities might be perfectly plausible and coherent with what suggested by Reich in his experiments<sup>2</sup>.

The author has then investigated the possible sources of radioactivity used by Moses, and then by Joshua, during the wandering of the Hebrews in the desert, and has found it in the legendary *Shamir*, presumably, a stone with the size of a barleycorn, with radioactive qualities that was mentioned twice in the *Old Testament*. This hypothesis was first put forward by Velikovsky<sup>3</sup>. The fact the *Shamir* had to be stored for safe-keeping in a lead container, and that specific rules had to be followed when using it might be clues, according to Velikovsky, that it could have been a material with very potent radioactive properties and characteristics. Maglione estimated that the *Shamir* might have been around 370 times more potent than the one mg of radium-226 used by Reich in his *Oranur* experiment.

The author has then made a review of the work of Isaacs<sup>4</sup> who did an extensive and accurate etymological study of the origin and derivation of some of the Hebrew words that the *Old Testament* used to describe events and phenomena related to the use of the Ark of the Covenant<sup>5</sup>. Isaacs found that Hebrew words such as holy, glory, sanctify, sin, iniquity, punishment, atone, plague, clean, unclean, and even soul have either been mistranslated or not clearly understood over time, and had acquired other possible translations and meanings within the context of the events recorded in Exodus, Leviticus and Numbers. Isaacs assumed they were one way or another all strictly connected to a radioactive field emanated by the Ark and by the Tabernacle. And all the rules and procedures to be followed, including the festivals, had the only aim to protect the priests and the people in the camp from being contaminated by this radioactive field.

Maglione has then discussed the connection between the accounts of the *Old Testament* analysed in the book, the work of Reich, and that of Isaacs and has come to the conclusion that the Ark, whose core it was of the Tabernacle, had been primarily an *Oranur*-based power plant that could have continuously produced extremely high amounts of electric energy. The use of the Ark as a war machine, or as a communication device (as assumed by Isaacs and other authors) were only secondary functions to this main function. In parallel the author had assumed that Reich's orgone motor, whose working principle was never revealed by Reich, was similarly powered by a radioactive source. Theoretical and experimental bases, including the Y-factor, for the development of Reich's orgone motor were also included and described in the book<sup>6</sup>.

<sup>2</sup> Reich W, *Contact with Space, Oranur Second Report (1951-1956)*, Core Pilot Press, New York, 1957.

<sup>3</sup> Velikovsky I, *Shamir, Kronos*, Vol VI, N° 1, Fall 1980.

<sup>4</sup> Isaacs RD, *Talking with God: The Radioactive Ark of the Testimony. Communication Through It. Protection From It*, Sacred Closet Books, Chicago, 2010.

<sup>5</sup> Isaacs compared many Ark-related Hebrew words with their counterparts in Sumerian, Assyrian, Babylonian, Egyptian, Ugaritic, Eblaite, Hittite, Greek, and many other ancient languages, by assuming that these neighboring cultures shared words from their languages with Hebrew, with the aim of clarifying the intent of the early biblical scribes. In particular, he considered those words that were older or contemporary with Hebrew because they would have been especially instrumental in developing the Ark-related terminology.

<sup>6</sup> A more detailed description of the laboratory investigations and the theoretical basis of the Y-factor and the Reich orgone motor can be found in Maglione R, *Electric Currents in Orgone Devices. The Route towards the Reich Orgone Motor? A State of the Art*, *Journal of Psychiatric Orgone Therapy*, August 27, 2017; Maglione R, Ferrari D, *Electric Currents in Orgone Devices. The Route Towards the Reich Orgone Motor? Early and Mid-term Laboratory Experiments with Orgone Apparatus*, *Journal of Psychiatric Orgone Therapy*, September 26, 2017; and Maglione R,

Finally, the author has investigated the fate of the *Shamir* after its radioactive power had vanished, making a parallel with what became of the small amount of radium used by Reich after a few years from the conclusion of the *Oranur* experiment. Reich observed that it had lost its radioactive qualities by transforming itself into a stone with highly beneficial and life-enhancing properties, called the *Orur*<sup>7</sup>. The author has speculated that the *Shamir*, after disappearing from the religious scene, had turned into a stone with very high life-enhancing properties. Qualities that might have been appropriated, later on, by historical groups such as the Templars and the alchemists, or of esoteric origins, thus giving rise to the legends relating to the Holy Grail or to the Philosopher's Stone, where the body of literature was less in importance only to the religious one.

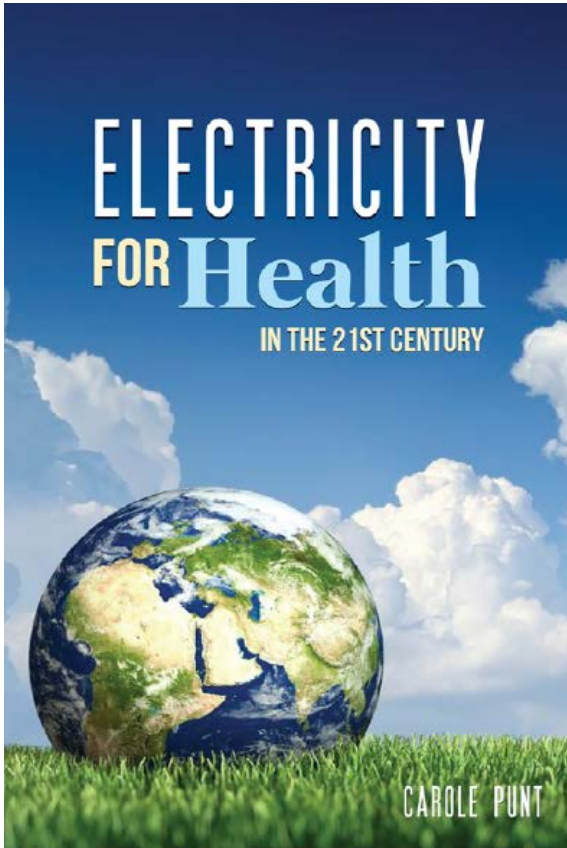
The author has argued that, if the results, as a whole, or even a small part of what is described in his book, holds true, then a completely new picture appears of the Egyptian elite and its rulers; of the wandering of the Hebrews in the Sinai desert; of the use of the Tabernacle, and of the Ark of the Covenant as the dwelling place of Yahwe, or God; of the meaning of the Chosen People, and of the Hebrew offerings and feasts; of the qualities of a tiny stone called *Shamir*; and above all of the type and characteristics of the protagonists of this whole venture, might be disclosed. Or, in a very few words, a new understanding of our history of the last thousand years might emerge.

And in all this the author has also drawn our attention to the role of a science of the ether (or orgone energy), unknown to us until very recently, which seemingly indeed was already very well known even at the dawning of our civilization, all those eons ago.

Ferrari D, Electric Currents in Orgone Devices. The Route Towards the Reich Orgone Motor? A Hypothesis on the Y-factor, *Journal of Psychiatric Orgone Therapy*, October, 2017.

<sup>7</sup> Reich W, *Contact with Space, Oranur Second Report (1951-1956)*, Core Pilot Press, New York, 1957; see also Reich W, *History of the Discovery of the Life Energy. Atoms for Peace vs the HIG Documentary*, Supplement N° 3, A-XII-EP, Orgone Institute Press, Orgonon, Maine, 1956.





## **Electricity for Health in the 21st Century**

**by Carole Punt**

Paperback: 58 pages

Publisher: Natural Health Productions, 2017,

<http://www.naturalhealthproductions.com/>

ISBN: 0-9687103-0-1

[Freely available as a PDF, click here](#)

Take a journey to understand the body's innate ability to heal itself. In this book you will discover how our bodies function electrically and heal electrically. This book features technologies, based on the work of Robert C. Beck and the Beck Protocol, used for healing with gentle

currents of electricity and pulsed magnetic fields (PEMF)

Carole Punt reveals what conventional science does not explain, in simple, easy-to-understand language. She discusses the pioneers who unraveled the secrets of our electrical nature and the modern day researchers who are forging paradigm shifts in how cells communicate and heal. And she shows how light and sound trigger the body's electrical system to stimulate energy and improve health.

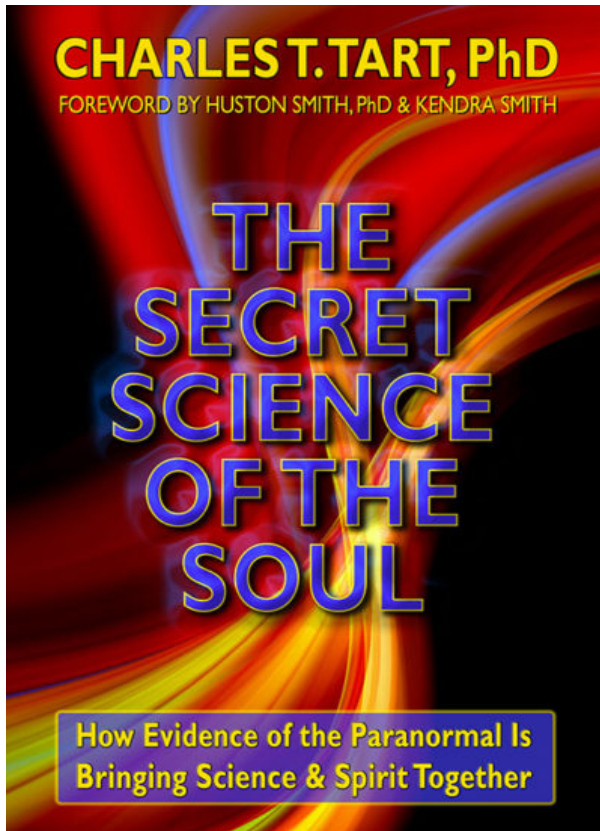
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**The chapters of this book are shown on the following page:**

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## **The Secret Science of the Soul: How Evidence of the Paranormal is Bringing Science & Spirit Together**

by Charles T. Tart, Ph.D.

**Paperback:** 430 pages

**Publisher:** Fearless Books; 2 edition  
(September 3, 2017)

**Language:** English

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**ISBN-13:** 978-0692937693

**Product Dimensions:** 6 x 1 x 9 inches

[Available for sale on Amazon.com, here](#)

In the first paperback edition of this groundbreaking book, Charles T. Tart, Ph.D. reconciles the scientific and spiritual worlds by looking at empirical evidence for the

existence of paranormal phenomena that points toward our spiritual nature, including telepathy, clairvoyance, precognition, psychokinesis, and psychic healing.

Dr. Tart presents over fifty years of scientific research conducted at the nation's leading universities that proves humans do have natural spiritual impulses and abilities. THE SECRET SCIENCE OF THE SOUL makes an elegant argument for the union of science and spirituality in light of this new evidence, and explains why a truly rational viewpoint must address the reality of the spiritual world. Tart's work marks the beginning of an evidence-based spiritual awakening that will profoundly influence your understanding of the deeper forces at work in our lives.

Science seems to tell us that we are all unintended products of blind biological and chemical forces, leading meaningless lives that will eventually end in death. The truth, as Dr. Tart eloquently shows with scientific evidence, is that unseen forces such as telepathy, clairvoyance, precognition, psychokinesis, psychic healing, and other phenomena inextricably link us to the spiritual world. While many skeptics and scientists deny the existence of these phenomena, the experiences of millions of people indicate that they do take place, and the evidence that Dr. Tart presents confirms the reality of those experiences.

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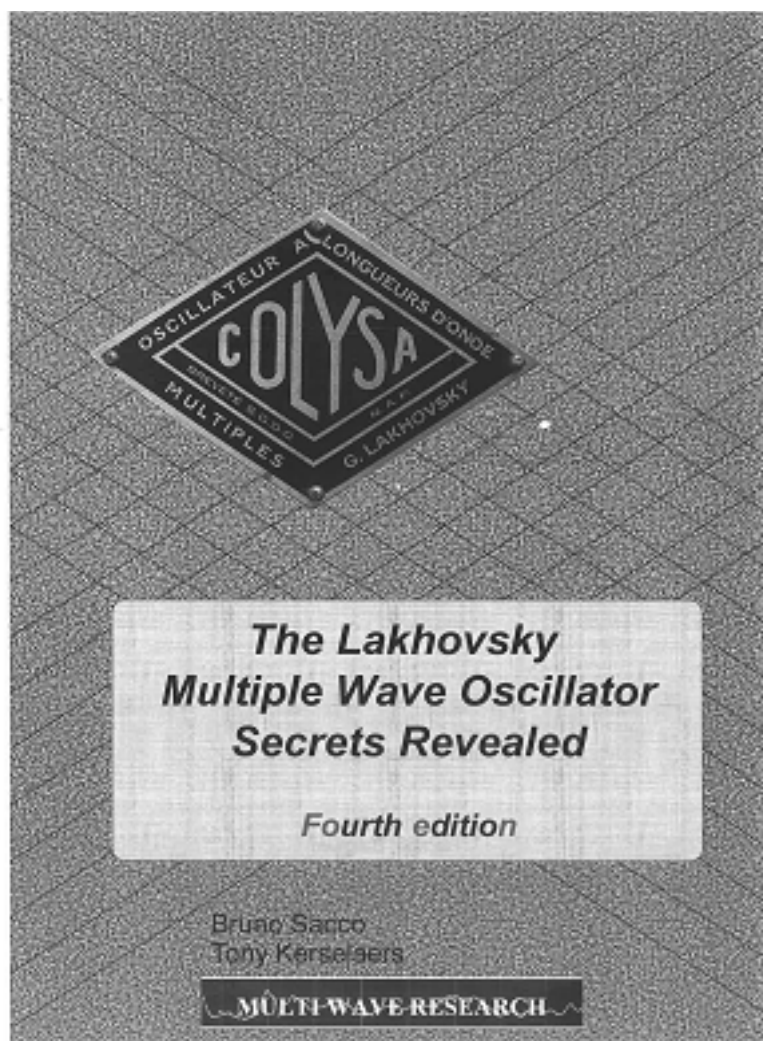
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## **The Lakhovsky Multiple Wave Oscillator – Secrets Revealed, 4<sup>th</sup> Edition, 2016**

**by Bruno Sacco and Tony Kerselaers**

**Publisher: Multiple Wave Research, Torino, Italy/Herselt, Belgium**

**Language: English**

**Book Dimensions: 8.5x11 inches**

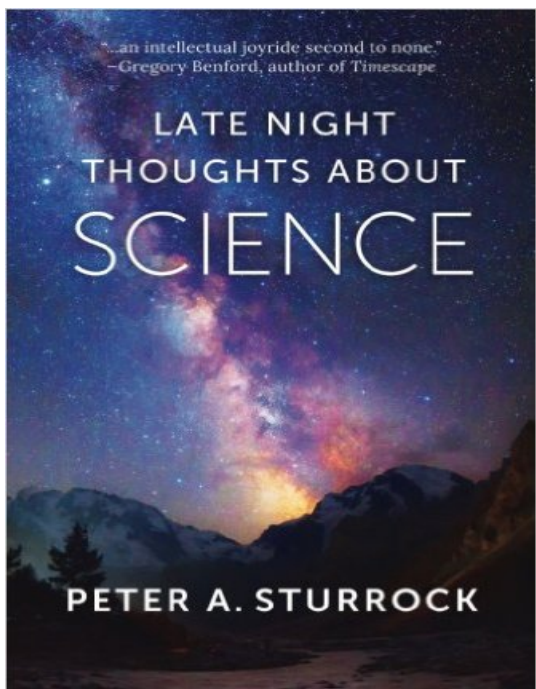
**Page count: 444 pages**

**Available from the publisher, [Multiple Wave Research](#). For price and ordering information, email the publisher at: [multiwaveresearch@skynet.be](mailto:multiwaveresearch@skynet.be)**

**This is the finest and most detailed book ever written about the Lakhovsky Multiple Wave Oscillator (MWO), a device originally invented by Georges Lakhovsky in the 1930s, which was used to treat cancer, microbial diseases, and numerous other diseases and disorders. It was also used to rejuvenate animals and plants from debilitated conditions back to health and vigor.**

**Both authors are electrical engineers, with over 25 years experience, and were able to locate and analyze original Lakhovsky Multiple Wave Oscillators produced by the C.O.L.Y.S.A. company in France during the period 1931 to 1940. The great detail of their analysis is shown in the book's Table of Contents below.**

**In addition to providing a huge amount of information about how Lakhovsky's device was constructed and how it worked, the authors also provide information about the life of Georges Lakhovsky, researchers who worked with him or used his device during those early years, as well as, researchers who successfully used the Lakhovsky MWO in Europe and the United States after Lakhovsky died in 1942. Original documents have been found, translated into English, and added to this book. Much of the material has never been published before and it for further experimentation in this field by competent researchers.**



## Late Night Thoughts About Science

by Dr. Peter A. Sturrock

**Publisher:** Palo Alto, CA: Exoscience Publishing (Oct. 31, 2015)

**Language:** English

**ISBN-10:** 098426146X

**ISBN-13:** 978-0984261468

**Paperback:** 186 pages, illustrated

**Product Dimensions:** 6 x 9 inches

Available at [Amazon.com](https://www.amazon.com)

Most books that are written by scientists for the general public proudly present what scientists know and understand. By contrast, this carefully researched and

clearly written book by the well-known Stanford University physicist and astrophysicist Peter Sturrock discusses, with some humility, topics that scientists do not understand. Study of these topics, many of which are of keen interest to the general public, may lead and should lead to breakthroughs in our knowledge of science. Sturrock advocates that instead of always reacting with “It can’t happen,” scientists should sometimes wonder “How does it happen?”

The list of topic begins with a puzzle well known to most scientists - ball lightning – an atmospheric phenomenon that has remarkable properties, and which - after 150 years of research – continues to defy explanation. The book then moves to less known physical phenomena: the peculiar behavior of some pendulums at the time of a solar eclipse; so-called "cold fusion"; and evidence that radioactive decay rates (usually considered to be constant for any element) may vary in response to solar and other influences.

The topics continue with several so-called "psychic" phenomena - precognition, clairvoyance, remote viewing, and psycho-kinesis - and some “consciousness” or “mind-body” puzzles, including anomalous healing, out-of-body experiences, and reincarnation.

There is a necessarily brief but nevertheless challenging discussion of "Unidentified Flying Objects " or "UFOs" which – 70 years after the first observations - are still unrecognized and un-investigated by the scientific community. There is also a discussion of the enigmatic "crop circles" (which are nowadays much more intricate than simple circles), and the catastrophic explosion that occurred at Tunguska in Siberia in 1908 (which apparently was due neither to a meteorite nor a comet).

The list of topics ends with a puzzle that one would not expect to find in a scientific text, but can to some extent be addressed in scientific terms: *Who wrote the plays and poems conventionally attributed to "Shakespeare"?* (A question that is considered heretical by the relevant scholarly community.)

Each chapter contains one or two examples of the topic under discussion with notes on and portraits of some of the principal investigators and references for further reading. The appendices include an extensive guide to further reading, a formal procedure (the "Basin" Procedure) for evaluating hypotheses, and a proposal for an "Office of Public-Centered Science" to promote the scientific investigation of topics of public interest - something that is very much needed.



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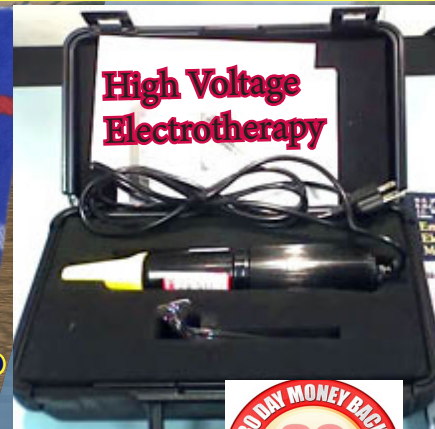
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