

# The Mind Physics of Leonard T. Troland [1889-1932]

*"Corpus quidem quasi vas est aut aliquod animi receptaculum"* Cicero

This is an exhibition in various media which presents personal solutions to one of the most persistent and deep-rooted themes in the history of philosophy. In fact no metaphysical problem is discussed today more vigorously than that of the relation between the mind and the body. During the 1990's there have been so many books written or conferences held on the nature of consciousness and advances in the simulation of human mental functions by means of computer technology that our present period is being called 'The Decade Of The Brain'. Interest in the nature of consciousness from the late 1940's through 1980's has been sporadic but intense as a result of a cultural background favouring psychological positions like behaviorism whether of a Watsonian or Skinnerian .

Mind-Physics generically can be defined not only as the study of the interactions between mass and energy [ the traditional definition of the physics of mass or Classical Mechanics], but also of consciousness giving rise to a spectrum of mass to consciousness traversed by energy, hence "DEGREES OF EMBODIMENT". Also Mind-Physics exceeds the model of interaction of consciousness with nature that has been postulated by Quantum Dynamics which emerged in the 1930's. In a time that considered the subjective and the objective realms to be forever separate [ the Western World up to the second half of the 19th Century], the concept of energy was based on the action of observed natural instrumentality , such as the periodic rotation of star clusters, the rolling of logs, or stones, etc., gave rise to the wheel. The power and flow of water allowed a way to model the, mysteries of electricity and magnetism. Eventually mathematics quantified energy into definable units. But the concept of energy remained attached to the assumption that it was some kind of single, simple, substance [an analog of the concept of mass]. Even the atom was defined as homogenous, impenetrable and without internal relationships, as it had been for the Greek philosophers Leucippus [fl. c. 440 B.C. ], Democritus [460-370 B.C.], Epicurus [341-270 B.C.] and the Roman poet Lucretius [95-55 B.C.]. It was not until 1808 that John Dalton [1766-1844] the English chemist and physicist placed the Ancient Western concept of the atom on a firm experimental basis, but even his model of the atom is essentially that which is indivisible.

One has to begin as far back as the Twelfth Century B.C. in Indian Philosophy [the beginnings of The Vedas] to find a concept of substance not dominated by Western thought in which Mind and Body are composed of Stuff that is on each occasion of existence presents itself as unique and totally penetrable Something that contains an infinite number of internal relationships. Thus Mind-Stuff and Matter-Stuff match each other in terms of complexity, giving rise to terms that were revived in the West by religious and occult organizations like The Theosophical Society, which was founded in New York City in 1875. Now everyone is familiar to some extent with terms such as Thought-Forms, Meridians, Acupuncture Points, the various centers of concentrated consciousness or The Chakras, bodies other than The Physical such as The Subtle Bodies [ Etheric, Astral, Mental Causal, Buddic, etc.]. These terms imply to Western thinking a kind of Neutral Monism: the doctrine that the basic entities of the world of experience are neither physical nor mental, but some neutral "stuff" , which when organized in one manner, yields physical entities, or bodies and when organized in another manner yields mind. Even our notions of PANPSYCHISM where everything is possessed of Soul, or HYLOZOISM where everything is possessed of life, fail to do justice to this Pre-Vedic Message.

The traditional solutions of the Mind-Body problem in the West have tended to be cultural non-sequiturs completely without creative accommodation, neither philosophical-scientific, nor artistic. Some variations are: 1. DUALISM: The Mind is that which has no history, The Body is that which has only history. If they interact in causal relations : When the Mind yields to the Body the Mind becomes consciousness, and when the Body yields to the Mind the Body becomes mass; 2. SUBSTANTIALISM: Hypostasis or the idea that form and matter are relative to each other. Both form and matter are ultimately abstractions as substances as they are in any art work; 3. MATERIALISM: It claims the only substance that exists is matter, therefore , there is no Mind-Body problem at all . So called "mental processes are in fact the physical processes of soulless bio-machines; 4. IDEALISM: the solution to the Mind-Body problem is to do away with matter entirely. There are only Minds and mental contents; 5. IDENTISM: An identity exists between mental phenomena and brain events . But there is one variation, however that became more open ended and was actually the final episode of a Western solution to the Mind-Body problem: PSYCHOPHYSICS - the direct precursor to Mind-Physics or the Physics Of Consciousness.

The term "psychophysical parallelism" was introduced by Gustav Theodor Fechner [1801 - 1887] a German philosopher-psychologist who contended that there is a one to one correlation of psychical and physical events. From an external point of view everything is quantitative but internally all is life and soul. Both views are true, but the internal view is more fundamental. His major book "Elemente Der Psychophysik" written in 1860 and only recently translated [1966] into English, describes the effect of physical process [as intensity of stimulation] on the mental processes of an organism. Later in 1876 he related his work to aesthetics ["Vorschule Der Aesthtik"]. In this work he was influenced by such diverse sources as The Medieval Alchemists, Gottfried Wilhelm Leibniz [1646-1716], Emanuel Swedenborg [1688-1772] or the poet Johann Wolfgang von Goethe [1749-1832]. Because of Fechner's ability to converge science with religion, the American philosopher William James [1842 -1910] became interested in Fechner's type of thought. As a result James wrote his famous "The Principles Of Psychology " [2 vols.] [1890] in which he made the first references to parapsychology as a science were made. James had helped form The Society For Psychical Research in London in 1882 and The American Society For Psychical Research in 1885.

Also it was James who first speculated in the late 19th Century that either consciousness is a product of the brain and therefore dies with the brain; or consciousness is the result of the interaction between the mind and the brain, and at death the brain dies but the mind lives on to be a limitation to the soul in the same way the brain is a limitation to the mind; and further James went on to claim that the soul is a limitation to the Spirit.

Starting his career as a visual artist, James acquired the ability to think in a transdisciplinary manner allowing him to appreciate all aspects of life equally. This quality of thought drew into his presence students of similar scope during his teaching days at Harvard. One such student [an artist, engineer, philosopher, and inventor] became an assistant professor of psychology at Harvard under the influence of James. This was Leonard Thompson Troland [1889-1932], the mentor of our project. Born in Norwich Connecticut on April 26, 1889 [making him a Taurus - a fixed sign ruled by Venus - he possessed a powerful and sensitive emotional nature coupled with a high intellectual capacity. But because he lacked an awareness of his own inner motivations, he eventually became miserable by marrying someone who had no concept of what he was doing, the result of which drove him further into his work accompanied only by his own formidable acquisitive instincts. But before he entered M.I.T. in 1907 at the age of 18, he began to attend William James' world famous lectures that were always overcrowded.

Eventually Troland met James face to face who recognized the young man's genius and convinced him to do his graduate work at Harvard and stay there and move toward a professorship and would help Troland in any way he could. But before anything else Troland was determined to attend M.I.T. in order to become a physicist and an engineer. Graduating in 1912 from M.I.T., he immediately entered the Harvard Psychological Laboratory to work with James' assistants Munsterberg and Holt, as James had died two years previously. Even as a graduate student he was compared to thinkers like Hermann Ludwig Ferdinand von Helmholtz [1821-1894] the German physiologist, physicist and inventor who formulated the law of Conservation Of Energy along with Mayer, Carnot, Joule and Colding. By 1915 Troland was awarded a Ph.D. The next year as a Sheldon Fellow he did basic electronic research in the Nela Laboratory of the General Electric Company. Later that same year he returned to Harvard to become an instructor in the Psychology Department and eventually becoming an assistant professor in 1922 at age 33. His list of basic inventions and research projects are legion. Some examples are: 1. During World War I [c. 1916] he developed a proto-sonar to aid in the detection of submarines by the elimination of local sounds through interference; 2. In 1918 he explored color cinematography so that by 1922 the company of Kalmus, Comstock And Westcott could launch the first commercially successful color process for motion pictures; 3. Because of his lifelong interest in optics [for one year, 1922-1923, he was the president of The Optical Society Of America]. He did some basic research which led directly to the invention of the Laser in the late 1950's; 4. In 1924 he was awarded ~~DEP~~ The William James Foundation Grant In Psychological Research the first time it was offered. With the grant he set up a Parapsychology Laboratory at Harvard. One of his first students was J.B. Rhine who went on to be the director of THE FOUNDATION FOR RESEARCH ON THE NATURE OF MAN at Duke University, carrying Troland's work into the 1930's and 40's after his death.

Troland created prototypes of most of the equipment that has been used for years in every parapsychology laboratory such as: ZENER CARDS [ simple standerized visual symbols - mandalas - used in telepathy experiments]; GRAVITY DICE RANDOMIZERS [ miniature sets of stairs for rolling dice down to test psychokinesis ]; 3. THE USE OF THE FARADAY CAGE [ exceptionally talented mediums were placed in these cages in order to test null hypotheses such as: can telepathy, clairvoyance, or communication with the dead, be blocked by appropriate electronic shielding?]; 4. On what was to be his final trip to The Mount Wilson Observatory in California [ approximately 16 miles North East of the crossing of Sunset Boulevard and The Pasadena Freeway in downtown Los Angeles] in The San Gabriel Mountians Wilderness, Troland died on May 27, 1932 from a fall into "Devil's Canyon" one of the very deep gorges that surround the summit of Mount Wilson. After a night of working in the observatory he decided to do some rock climbing with a friend. He had been suffering from a nervous breakdown working in hollywood on Technicolor research for a few months previous. Having just climbed the precipice, the associate then asked Troland if he would stand with his back to the edge of the cliff in order for the breathtaking view to be seen as the backdrop for a photograph. It was then that Troland fell hundreds of feet to his death below.

Some say he stepped back by accident. Others say he was pushed off. In October of 1931 , he was issued a controlling patent that embraced 234 pirate claims to his Technicolor process . Could it have been the movie moguls, who saw the obvious profit potential of his work, and simply wanted him out of the way permanently? Or was it The Government that wished to silence him? For approximately two years while he was fighting in the Los Angeles courts to defend his claim priorities, he conducted a series of experiments using the 100 inch reflector telescope of The Carnegie Institution installed in The Mount Wilson Observatory. Troland was friends with the astronomers Harlow Shapley, the director of The harvard University Observatory, and Edwin Hubble who moved to Mount Wilson in 1923. They let Troland use the Great Telescope thinking he was using it as a curious amateur. So perhaps another explanation about Troland's death might be the answer. Dr. Ruth Drown, one of the early pioneers of what we would call today as psionics, psychotronics, or radionics [ the instrumentality of Mind-Physics - or mass/consciousness interactive devices] lived in the 1930's at 4706 Oakwood Avenue in Los Angeles. She would often visit Mount Wilson in an attempt to use one of the telescopes but to no avail. One day in 1931 she noticed someone at a telescope that was not one of the regular astronomers. They met and soon she and Troland were working together on a project as they discovered their mutual interest in the engineering of psychic phenomena. They were on the same wavelength, so much so, that they fell deeply in love. Since both were married they planned to divorce their respective spouses at some point , meeting as they could during the interim. But as luck would have it, Drown became pregnant by her husband, and therefore she decided to end the affair for the sake of her firstborn.

She took the opportunity on the day of May 27, 1932, after their usual rock climb up Mount Wilson to tell him. She wanted one last photograph to remember him by. His extremely passionate and romantic nature sent him into shock, anger and panic. While feigning the attempt to find the most photogenic position, he simply walked backwards off the cliff. Now in the scandal ridden world of the "Hollywood -Dominated" Los Angeles of the 1920's and '30's, a classic "lover's-leap suicide" would not have rated even a minor "blip" on the silver screen's news of the day- EXCEPT for what they were doing. While Troland was looking for evidence of life on other planets in The Solar System, Drown was trying to test one of her inventions she called " a Radio-Vision Instrument"[ a radionic Etheric camera]. The "Radio-Vision" was said to be able to diagnose illness at great distances and then send healing rays back at the same distance. For the first part of her claim she received a patent on December 15, 1939. For the second part she received a jail sentence, and like Wilhelm Reich [inventor of the Orgone Healing Box], Drown died in prison. What Troland and Drown did, according to their notes, when they combined the telescope with the psychic camera, was the discovery of life on the planet Venus in the form of extremely large mobile plants. In the light rays from Venus they picked up mitogenic radiation pulses similar to those that one might detect from vegetation on Earth. BUT also present were photographs of what resembled humanoid plants walking around in the carbon dioxide rich and windy atmosphere of Venus where the average temperature is 120 degrees Fahrenheit because of the "greenhouse effect."

What Troland had asked Drown to do was substitute the pattern of mitogenic radiation for the usual blood spot sample she would normally use as a target for her camera. Information slipped out as to their activities. Information became rumors and rumors were quickly translated into local tabloid sensationalisms like "Mount Wilson scientists predict the attack of green men from Venus", etc. A Hollywood script writer by name of "Smiling Jack" Finney wrote the rumor up as a short story for his personal "backburner". Later the 23 year old Orson Welles [1915-1985] used his Mercury Theater Troupe to do a radio broadcast on Halloween of 1938 on the topic. Only Welles did an adaptation of "The War Of The Worlds" written in 1898 by H.G.Wells [1866-1946]. Orson Welles thought the "Green Men" should come from a planet more popularly known as an origin of "outer-space invasions : MARS.

It was not until 1956 when Don Siegel directed the classic science-fiction horror film "The Invasion Of The Body Snatchers" for Allied Artists that the implications of Troland and Drown's work were fleshed out. The intelligent plant life having realized that they are detected by intelligent animal life [humans] plan to attack Earth before Earth can muster its forces. In the form of spores that can survive the rigorous conditions of space travel, the plant forms from Venus begin a clandestine invasion of the Earth. The spores land in Santa Mira, a sleepy little town on the outskirts of Los Angeles. Setting up their "little shop of horrors", the spores proceed to drain the likenesses and minds from the sleeping humans. Soon the spores are transformed into huge seed pods that eventually open to reveal and release gruesomely imperfect doppelgangers of their human victims. The tone of the movie is one of complete despair and madness, as would be evoked by any attempt to use the human body as the vessel of an alien force. Whether the Avatars of Vishnu, the Christian Mystery of The Incarnation, demonic possessions, the Dybbuk [from Jewish folklore: a wandering soul that enters and controls a living body], zombies, or your consciousness being manipulated by a highly sophisticated form of robotics - the inhabitation of ordinary mortals by transcendent spirits leads to a form of horror more powerful than even the fear of death and results in abnormal behavior, perversion or insanity.

Harlow Shapley one of Troland's friends helped write the final report on Troland for The Faculty Of The Arts And Sciences at Harvard University. In his concluding remarks Shapley mentions: "In philosophy he formulated an epistemological view which he called PARAPHYSICAL or Psychical Monism and the final volume of his [1500 page] "Principles Of Psychophysiology", as yet unpublished, deals more fully with these views under the title, 'THE ULTIMATE THEORY OF MIND AND MATTER'. Like Helmholtz, Troland was directed by physics in his approach to the problems of the human mind. In the interests of what he once called "the method of mathematical hypothesis," he sought always to give his research the precision of mathematical form". Troland, of course, never finished the final volume. At his death his notes were placed in an academic time capsule somewhere in Harvard University to be opened in mid- 21st Century, something we plan for our own researches. For 66 years Troland's last notes have been gathering dust in some hidden corner, or most likely becoming dust themselves. Occasionally references appear as to his name and fragments of his notes of the Fourth Volume in books and magazines dealing with psychical research. But the basic mystery of the complexity of his work and range of topics on the paranormal have only been hinted at. Shapley summed up Troland's personality as "... essentially a timid and unaggressive person, surprisingly sensitive to both praise and criticism. He might have been a leader of a school of psychology had his personality and social contacts been as vigorous and stimulating as his intellectual work".

Even from what we know of Troland and his seminal work - that anticipates the world-view of the 21st Century - such "damning with faint praise" does little to explain a life that could be easily the subject of a film or an episode of "THE X-FILES". As an example of one of his insights, he was the first psychic researcher to realize that any instrumentality that one might invent in relation to the enhancement of psychic powers can be eventually discarded as the mind learns the invariance of the device. In essence he introduced the traditional practice of REAL MAGIC into 20th Century thought. Troland was as illusive as a phantom, unique as a non-repeatable experiment, and lived almost entirely within THE LUX or the non-albedo light of the mind. This is why we have chosen Troland to be our project mentor.