

Volume LIII, Number 2, Second Quarter 1997

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VIEW FROM THE BORDERLANDS

Editorial

ON the cover of this issue is a symbolic interpretation of one of the possible purposes for which HAARP was designed. To many, the suggestion that HAARP's original purpose was to draw power from the Aurora Borealis will seem like the fruit of fanciful imaginations, and could be added to the already long list of speculative nonsense. But, after hundreds of hours of research, which resulted in the publication of over 1000 pages of reference material pertaining to the subject, we are quite confident that our assertions are correct. While some of the more conventional and highly publicized applications of HAARP will no doubt be exercised, the simplest and most direct manifestation of power acquisition was missed by all, save one thorough researcher. Gerry Vassilatos presents his thesis in the article, "Drawing Usable Power from the Aurora Borealis," and for the first time, clarifies this potential employment in detail. Recent confirmation of Mr. Vassilatos' conjecture was given to us in a conversation we had with one who worked intimately with the technology for several years (i.e., ionospheric heaters at Arecibo). This engineer, who had been offered a key management position on Project HAARP, stated that HAARP's "original purpose was the direct acquisition of Auroral energy."

It will probably be some time before we see any mention of this made by those most publicly outspoken on the subject of HAARP. I suggest that the reason for this, is that the premise just doesn't carry the sinister weight of most of the capricious and potentially clandestine suppositions currently discussed concerning the HAARP project. Enigmatic conspiracies and diabolical ruminations are always more interesting than the facts.

You will note that there is considerable interest in interstellar communications in this issue, with three articles taking on that subject. The biggest question, to me, does not concern the *method* by which communication would take place, but the *means* by which we would communicate. In order to convey the most information without language barriers, it seems that eidetic transfer, such as the exchange of complete pictures would be the most efficient means. This does not mean that we are referring to telepathic communication (although feasible) or channeling (which lends dubious results). We are talking about the actual transference of eidetic information through an external agency. In any case, when we do successfully command the technology, we can only hope that the pictures we receive will be pleasant.

Michael Theroux
Editor

Clips, Quotes, & Comments

Ground Radio

I read with great interest the article, "An Introduction to the Mysteries of Ground Radio" by Gerry Vassilatos that was published in Volume 53, Number 1 of your journal *Borderlands*. I have been working in the area of radio communications for the past 17 years, and had never run across the phenomenon described in your article. I was very intrigued by the concept presented that there appeared to be gain and that significant decreases in the size of the underground antenna were realized compared to above ground antennas. I have for the past two years been working with developing a commercial fuel cell for stationary backup power applications. During the course of this work, I have run into some strange phenomenon which made the cell appear to have nonlinear resistances in its electrode-electrolyte interfaces. After a great deal of library research I was finally able to locate some information on very thin oxide layers acting like tunnel junctions (just like a tunnel diode). These junctions have a negative resistance and under the right circumstances would act as amplifiers. Their signal levels are in the millivolt range, which while not able to be used for bulk power, could be very successful for boosting receiver signals. The use of an electrolyte (like copper sulfate or the molten salts I am working with), does not seem to affect the junction's operation, but may actually improve it. The other phenomenon of the very small antenna size may also have an explanation based on somewhat conventional physics. The dielectric constant of dry ground can be as high as 15. The reduction in physical dimensions of an antenna goes as one over the square root of the dielectric constant. It also turns out that wrought iron, if properly heat treated, can have a permeability of over 200,000. Most materials handbooks list the maximum as around 5000. *The American Institute of Physics Handbook of Materials and Tech-*

niques for Vacuum Devices is the only book giving this information about iron's permeability being in the 100,000 range. The size reduction for an antenna goes as one over the square root of the permeability also. This would be a size reduction of over 400X, not too shabby. A very thin layer of iron oxide can also act as a tunnel junction, so you get both amplification as well as size reduction. Copper oxide comes in two types, one of which forms tunnel junctions, the other being a genuine semiconductor, from which liquid junction solar cells can be made. Thank you for the excellent article.

– Phillip Pesavento, ppesavent@sara.com

Enjoyed your article on buried antennas. When I was a lad I collected an old tube shortwave radio and attached the chassis to ground and flipped it on and almost burned down the house! Isn't it dangerous to ground the antenna on some models?

– Ed McCabe

Well, since there isn't anything more than microcurrents being received by the radio (receiver) through the antenna, I don't see how you could suggest it would be dangerous (if you could derive enough power to burn down a house by this method, I would be very interested as we would indeed have solved the problem of free energy). In your case, there was probably a short in the radio from the power supply to the chassis, but it would be an extremely rare occurrence if there was a short to the antenna as it must be insulated from the chassis. Most of the dangers associated with these simple connections are related to operator error – a background in the fundamentals of radio would be a good start. The other dangers we had outlined in the experimenter article – such as the possibility that lightning could be a potential hazard when making connections to the ground.

Another way to boost reception in the AM band, without any connection to radio, would be to use a Select-A-Tenna from the C. Crane Co.

(see ad on page 37). The Select-A-Tenna inductively couples to the radio's internal ferrite antenna so there is actually no connection to the radio itself. For an even greater boost, I would suggest using the Model M Select-A-Tenna, as this has a ground connection built-in, and can be connected to any of the ground antennas we have already discussed. Our tests with a Model M Select-A-Tenna connected to a subantenna arrangement provided a much greater sensitivity than just the Select-A-Tenna alone, and reduced most of the background static. MT

French Miscellany from Ronald Crossley

French inventors (some of them very weird) flourished in the period between the two world wars. One man found a way to boost the scent of flowers, so much so that the neighbours, both near and far, complained and put a stop to it. His flowers could be overwhelmingly detected at a distance of 5 miles. Another character wrote a book called "Alchemy for Everybody" in which he gave precise instructions for making a sort of poor-man's philosopher's stone from distilled mercury and coal oil.

More serious researchers included Count Be'lizal and his partner Monsieur de Chaumery. They worked on ancient Egyptian shapes, particularly the half-sphere and designed a "gun" using several half-spheres linked up in series. This gave out a ray which they called "le vert negatif" (negative green ray) and which they said had the shortest wave-length in existence. Unfortunately, the ray was much more powerful than they thought. Monsieur de Chaumery got a blast which dried up all the fluids in his body and sent him into the next world and Count Be'lizal got a lesser blast which put him in a wheel chair. Much less dangerous was the Egyptian pendulum (see photo on next page). They contended that it was mentioned in the Book of the Dead, which was not the case, and this knocked hell out of their credibility. However, critics who thought that they were making all this up were in for a shock when the Ramses the Great exhibition took place in Paris (1976). The official catalogue of the exhibition showed the funeral artifacts of Nofrerati, a wife of Rameses, and there among the objects was a pendulum as described by Be'lizal and Chaumery many years earlier. The fact that such a high-ranking person should wish to carry such an

object into the next world showed that it was no ordinary pendulum. Personally, I consider it to be the best pendulum in the world on condition that it is made from clay from the Assoudu region since the matter is as important as the form.



Two other writers, Roger de Laforrest (who is still alive) and Jacques Bergier give accounts of curious or farcical happenings in France. Bergier worked with Helbronner (who together with Claude discovered how to make liquid air). In 1910, they made the first half-litre of liquid air and decided to celebrate by dining at a popular restaurant called the "Bouillon Chartier" at Montmartre. They asked for hot soup and as soon as the waiter's back was turned they added a few drops of liquid air and huge icebergs of frozen soup started floating in the liquid. They repeated this a few times and then told the waiter, "there's a spell on your soup, bring us two tender beefsteaks." A few drops of liquid air made the beefsteaks as hard as granite and broke the knives. By this time, the whole restaurant was in a panic. Customers fled, making the sign of the cross as they went and there was even talk of fetching the official exorcist from the church of the Sacred Heart ("le Sacre' Coeur").

During the war, Bergier was a Resistance Chief. One of his scouts was walking down a street in Lyon when a lady told him to hide

since the Germans were picking up all young people to force them to work in Germany. He started running and found himself at the gate of a small house. He rang the bell and a voice came through a speaker asking what he wanted. He explained, the door opened automatically and he found himself in a house without bedroom, kitchen or bathroom, no furniture but mirrors everywhere, of all shapes and sizes. After the war, Bergier and the scout returned to the street where the house had stood but found nothing but a huge crater. Inquiries revealed that the house had blown up just after the liberation. No body was discovered in the ruins and the owner, who had given his name as "Dupont" (the equivalent of "Smith" in English) had disappeared and was never found. The mystery remains.

Beware of antique dealers. Roger de Laforrest was a young journalist when he was sent to interview an old antique dealer. She told him that she had a collection of unlucky objects. Many, she added, were more than unlucky, they were positively lethal. So much so that she never even bothered to lock the door of the shop when she left at night. Seeing that he was skeptical, she gave him a small bull's head made of copper. He found it beautiful and took it away. However, getting off the bus he sprained his ankle. The next day he was fired on some futile pretext. He lost his wallet containing all his money then he broke his camera. He fell out with a dear friend and threw in the fire, by mistake, the manuscript of a novel on which he had been working for six months. Finally, his gas stove exploded. This was the last straw. He rushed back to the antique dealer and implored her to take the bull's head back. After this, his life became normal again.

The old antique dealer has been dead for years now and the shop has disappeared but what has happened to the unlucky and death-dealing objects? They are probably scattered all over France, in antique dealers' shops where some poor, unsuspecting person will walk in and buy one.

- Ronald Crossley, Poillé, France

HYDROGEN — Science Fact or Science Fiction

This compendium on hydrogen in *Borderlands* (Fourth Quarter 1996) is an excellent history and a credible attempt to overcome society's irrational fears of hydrogen, but has a few flaws and misconceptions.

Roger Billings and John Bockris are portrayed too favorably, omitting the dark side of their involvement with hydrogen. Both have made some contributions to the advancement and promotion of hydrogen as a vehicle fuel.

However, Billings' peccadilloes and scam mongering severely tarnish his self-promoted hydrogen-halo. He calls himself "Doctor", but has no legal doctorate. His "degree" was self-bestowed from his American Academy of Science, recently renamed "International Academy of Science". Not accredited by anyone to award degrees. It is more his own private religious cult than an educational institution. His highly touted "Laser Cell" car is not laser-related, but a discarded surplus U.S. Postal vehicle. Billings' sporadic "International Hydrogen Conferences" have bilked the American Government/Industry of megabucks of taxpayers' money. Serving no useful purpose.

Likewise, Bockris' contributions, if any, to our hydrogen cause were far overshadowed by his claims that he verified and duplicated Fleischman/Pons "Cold Fusion" flim-flam. *Science* magazine's expose' reported that Bockris' graduate assistant "salted" the "fusion ashes" with tritium to prove (falsely) that fusion occurred. His aggrandizement of "Brown's Gas as a new form of hydrogen was unconscionable. Bockris and his fellow-traveler, Yul Brown from "Down Under", have made P. T. Barnum's shenanigans look amateurish. Several years ago John Mattingly, the "Water Pik" inventor, funded a "hydrogen conference" for Bockris at College Station, TX, and had to fly an antique welding generator from Australia because Bockris/Brown claimed that only its "special electricity" could electrolyze water into "Brown's Gas" (unseparated hydrogen and oxygen). Wonder if they plug into California Power to produce "Brown's Gas" in Riverside, CA? They confounded and astonished techni-

cally illiterate conferees at the Texas conference with their phony implosion demonstration with their "new hydrogen".

A Big Question? Can you document that blow-off (vented) lift hydrogen was ever used in England or Germany to supplement the main airship fuel? The idea is sound and was used in World War I U-boats to dispose of battery boil-off, but was unlikely ever used by either British or German airships.

— Ben Jordan, Denver, CO

Power Manipulators

In reading your magazine over the years, I have come up with an interesting query. Two recent articles come to mind in relation to said quandary. The issue at hand is conspiracy related, but I am not someone who subscribes to conspiracy theories. When looking at the evolution of our technological society, one will notice the continual emergence of power manipulators, even conglomerate in form. Since the dawn of the modern electrical age, the presence of these power manipulators in conglomerate form has become more prevalent and obvious. As is known to Borderland Researchers, the more powerful of these conglomerates can be credited for the suppression and sequestration of true pioneers and their efforts. Rife, Reich, and Drown are but a few whose work falls into this ruthless pit of injustice. Tesla is a good example of the point that I am developing. Maybe I should introduce the point here — what is it that makes these conglomerates stick to control of the most inefficient of technologies? Can they not monopolize new technologies in many cases? Tesla's efforts and ideas when allowed to be utilized, were still subjected to the confines of Edison's system of delivery and consumption. The two recent articles that relate to this topic are "Breakthroughs in Home Health Care" (*Borderlands* 3rd Quarter 1996) and "Hydrogen Power" (*Borderlands* 4th Quarter). Both of these articles present revolutionary information that could change the way we live in the current age. The conglomerates can have their monopoly — just stop killing us so rapidly. It seems like it would be in their best interest in the long run anyway.

— Jack Mayo, Middlebury, VT

Ho "HUM"

I read your article entitled "Nocturnal HUM" ("Nocturnal Disturbances and the Infrasonic HUM," 4th Qtr., 1996) and have a couple comments. First of all, don't you think that in this day and age we live among the noisiest of all civilizations. I mean to me the phenomenon that you insist on glorifying as some cosmic communication or government death ray can be nothing more than Noise Pollution. That is why more people than ever are reporting hearing it. The fact that it is commonly compared to a distant diesel engine is because IT IS! It will never be competently recorded by normal means because when you filter out the noise of our hustle and bustle world, you have filtered it out. It is the commotion of our busy and automated society. For those of you "HUMmers" who live near military areas, you are hearing the infernal rumbling of our Nation's War Machine. What is the point in sensationalizing such a simple thing? It must be to preach to the converted. I don't see any new recruits lining up for the HUM after these types of articles are written. That is because to anyone with any semblance of common sense knows that the distant rumbling of a diesel engine is just that. End of story.

— John Swenson, Blaine, WA

Thank you for your humble opinion. You must have invested considerable time and effort in your research on the HUM. As for new recruits, we now have an entire army of "HUMmers", equipped with state-of-the-art, fully automatic recording devices with which to ferret out all those evil distant diesel engines. They'll be coming to your neighborhood soon.

Keep those letters, photos, and clippings coming! Please write to Borderlands CQC, P.O. Box 220, Bayside, California, 95524 USA. Letters may be edited for length and clarity.



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Drawing Usable Electrical Power from the Aurora Borealis

by Gerry Vassilatos

"Swift chases through the silent slipp'ry wind,
in transient moods of soft and perfumed light.
Resplendent in a gown of gossamer,
Aurora sighs, and lights her lamps again tonight."

IN two previous articles we have chronicled somewhat of the history and development of "earth batteries". But an equally fascinating, though oppositely directed study, involves the historical development of the "aerial battery". This remarkable invention, along with her earth-bound brother, also occupies a thoroughly extensive bibliography.

Certainly, the Aerial Battery merits an in-depth account of its noteworthy achievements. But her fair origins do not begin with the study of electricity, or indeed the past millennium. Facts which indicate the easily accessible Auroral Energy are plentiful. The road toward properly comprehending the technological regime which could make use of that unfathomable energy requires a slight historical digression.

Throughout this article, we will present evidence that the Aurora not only has sufficient power to drive the grinding wheels of industry, but has already demonstrated its ability to do so in several remarkable, but forgotten, experimental episodes of the last Century. We will present theoretical projections, considerations which support the notion that energy may be obtained from the Aurora Borealis in stupendous quantities.

A discussion of the practical requirements toward this goal, along with the fundamental components necessary toward constructing an Auroral Power Accumulator will be shared. In addition, we will give strong evidence that certain contemporary projects, stationed in the Active Auroral Zone, are already testing such components.

LIGHTNING RODS

It was the preoccupation with certain deadly "electrical" currents which spawned our present technology. The subsequent electrical science produced a simple tautology which has kept society helplessly bound to itself. The dependence on electrical machines to drive all of our industry, and the social addiction to electrical power, are only two aspects of this threefold cord. The third strand in the intolerable tide is that which closes the minds of experimenters to the great host of pre-electrical energies, the very deepest bondage of all.

Having thus set the world-stage for a new power demand, inventors began everywhere to investigate and develop new electrical generators, new electric modalities, and electric utilities. As the

demand for greater and greater electrical power increased with the year, certain more intuitive minds began casting their scientific attentions toward Nature, in hopes of deriving a more direct electrical source from the more environmental energy reservoirs. The "free electrical energy", so obviously plentiful throughout Nature, removed the necessity for burning endless supplies of fossil fuel. The financial motivations contributing to the pursuit of these objectives was so alluring, so compelling, that a group of inspired researchers began to search out those natural haunts where electrical energies were most strongly manifest.

The discovery that an elevated terminal could produce endless sparks spawned the first inventive wave of what later became known to patentees as "Aerial Batteries". The development of aerial batteries, more properly categorized as "aerial receivers" of natural electricity, began with the development of lightning rods and lightning protection systems.

For pioneers and settlers in the New World, lightning was a deadly threat. The opening of western lands in America promoted a veritable market in Lightning Rods, a fact which was humorously treated in a short story by Herman Melville entitled, *The Lightning Rod Man*. Toward the solution to this problem, a great many American inventors turned their prodigious skills.

Lightning Rod patents flood the patent archives, a magnificent assortment of remarkable designs. Recall that the sealing of these designs by patent were first predicated on the operative success of each system. Before such designs received official license for manufacture, each had to be tested in a "live" setting. Each such design had to prove its effectiveness in protecting against the rogue behaviors of lightning discharges. A grand variety of remarkable lightning rods were tested through the roughest of storm conditions, an awe-inspiring method.

This meant that each prospective design had to be tested in some appropriate location, the results witnessed by officials. Heavy wooden blocks formed the lightning rod test mounts, each design well placed on the tops of ridges or rocky peaks. Storms gathered, a shower of lightning blasts assailed the mount, and the shrapnel of inferior rods were tossed aside. The method was direct enough. Only those capable of withstanding the blast were granted patent.

On occasion, certain lightning rod inventors found that their designs, and the systems to which they were connected, remained curiously "charged". One particular inventor, J. S. Bryan, developed and patented a series of both "aerial" and "earth" batteries in this regard. Careful examination of his working patents reveals a host of anomalies. The patent texts describe electrical charging

phenomena which remain as yet, unknown in the science of electrodynamics. His use of magnetic induction coils, in the reception and transformation of ground-derived currents, is completely unfamiliar.

Patents such as those of Bryan helped stimulate awareness of the numerous different electrical power potentials throughout the natural environment. Being passive accumulators, these systems relied on the surplus of natural electrical reservoirs for their supply.

AERIAL BATTERIES

The early wireless experimenter, Dr. Mahlon Loomis, proved it possible to exchange telegraphic signals across twenty miles of mountainous space, entirely without artificial electrical supply (1862). Dr. Loomis conceived of an upper electrical stratum which bathed the stratosphere, a theoretical view which was based on the work of Franklin. Utilizing the free electrical potentials which were available in the upper aerial strata, Loomis proved the wireless exchange of signals "by aerial conduction" alone.

While this view of Loomis offered explanation for many aerial electric phenomena, it was later found that the presence of electrical currents was not limited to upper atmospheric regions. The work of several experimenters proved that electric currents flooded every part of the aerial stratum...immediately above the ground. In this regard, many individuals began discovering that power, tremendous power, could be obtained by the use of special "electrical collectors". The inventors of aerial collectors each empirically discovered easily exploited phenomena, by which it was possible to draw electricity from the environment. Various systems for the methodic accumulation and storage of the "atmospheric current" are represented in the patent archives (Vril Compendium Volume 1).

The "Electric Apparatus" of H.C. Vion (1860) precedes the work of Loomis by several years. This system obtained sufficient natural electricity for use in real Industrial Applications. His most powerful embodiments were exceedingly long metallic screens, well insulated from the mountain ridges on which they were placed. These screen collectors were interspersed by very tall metallic masts, also well insulated. Each were sharpened and placed so as to protrude into the mountain air. The electrical accumulators of Vion brought in a *prodigious and dangerous supply of usable electric current*. In his words, the system represented "an electrical pile of considerable strength".

A truly remarkable device, perfected and patented by W. H. Ward (1872), realized an atmospheric discovery of enormous importance. Taking the bizarre form of a very large funnel-like turret, the Ward towers were placed atop very tall mountain ridges. The entire upper portion of each such turret was designed to turn, and (as stated in the patent text) "intercept aerial currents of electricity". The Ward funnels engorged tremendous volumes of these natural electrified currents, which are apparently available in huge and unlimited quantities at high elevations.

In current terminology, we might refer to these natural electric currents as "cold ion currents", which in all likelihood accompany enormous aerial rivers of water vapor. Coursing every second above us, these vaporous rivers of charge represent a far better energy potential than wind power alone. The Ward system was used to supply power for telegraphic and telephonic systems, and proves

the existence of previously unsuspected electrical rivers, Coursing through the natural environment just at or above sea level, they represent yet another untapped reservoir of natural electricity.

M. Dewey (1889) raised a very tall wooden mast, fitted with a large and multi-spiked capacitor hood. Dewey also employed radioactive minerals to lessen the required absorptive potentials of his absorber. With this tower, in fair weather, he drew off sufficient electrical power to run motors and charge storage batteries.

Dr. M. A. Veeder, a scientific investigator, spent the better part of half a century correlating terrestrial charge processes directly with the solar condition. His numerous works, favored by Tesla, detailed the high correlations between solar activity and thunderstorms. Veeder understood that the geophysical process, through which both fair and foul weather electrostatic energy was developed, was therefore directly linked with Auroral conditions.

Dr. Veeder inferred that solar charging of the earth occurred at the poles, and once absorbed into the rocky matter of earth, was literally leaked away through the atmosphere into space. Dr. Veeder studied the Zodiacal Glow, the persistent luminosity which he believed was the escaping terrestrial charge. Therefore, in this view, Aerial Accumulators relied on Auroral activity; a process which was entirely dependent on inflowing solar charges.

Absorbed and conducted throughout the earth, any well-grounded elevated capacity would flow with energy. The problem was how to use this electrostatic energy. Charging capacitors and storage batteries became the modality of choice. Others discovered truly anomalous transforming principles in this regard, the static influx being found capable of operating transformers.

Later accumulator designs utilized metallic-studded balloons, apparatus capable of bringing in a very powerful surge of aerial current (Palinscar 1901, Pennock 1909). These extremely elevated accumulators actually required lightning arresters to limit their sudden "fair weather" surges. The Plausen aerial accumulator featured a special capacitance transformer, where *flowing dielectricity* was systematically converted into ponderable electric charges. This system was designed to charge large storage batteries and otherwise supply power for industrial applications.

There is repetitious proof that aerial accumulators comprise an enormous historical bibliography, and have a great number of recent invention entries. Despite their overwhelming success in providing significant quantities of electrical power, the aerial accumulators were systems whose true potentials were never fully appreciated or realized in their day. Some analysts have pointed out that these accumulators required large system volumes in order to yield their output minimum. Proportional increases in system volume therefore produce a somewhat fixed power output.

Turn of the Century passive aerial accumulators demonstrated their worth as viable electrical sources for industry. Their spartan and environmentally coupled placement offers no more inconvenience to planners than the large and costly requirements of solar mirror arrays yet being tested. Indeed, most aerial accumulators were capable of producing steady power outputs, with peak outputs above those obtained from modern photovoltaic systems. It is because of their constant power output that these accumulators are yet easily able to exceed the diurnal potential of any large solar panel array.

A continuing number of experimenters have used simple varia-

tions of these "passive" aerial accumulator designs to obtain enormous volumes of free electrical charge throughout the last four decades. So much excess "fair weather" power was obtained from a Swiss Alpine grid assembly, that sudden surges of energy often discharged from the main conductor bus. An unexpected power surge tragically killed one of the principle designers of this system.

If we yet consider aerial electrostatic accumulators, we will find a forgotten power source ready for use. Indeed, for industrial applications such systems have more than proven their tremendous efficiency. Demonstrations of these systems before highly credible academic witnesses have always produced spectacularly successful results.

It was through the arduous labors of private experimenters that these wonderful developments have been fixed in history. They leave their legacy throughout the last one hundred years of patent registrations. But, the wonderful developments and patents in this research realm do not adequately represent the final and most stunning technical feat. Indeed, a mysterious and unexpected regime of highpower accumulator systems subsequently emerged from the work of those who perfected passive accumulator experiments. The stunning feats, which we must now recount, were the result of exotic explorations in aerial accumulators...in trans-Arctic regions.

ELECTRICAL SKIES

Those who began their work in electrostatic accumulators first probed the sky from mountain aeries, the most likely place to intercept "aerial electricity". Loomis theorized the existence of an "atmospheric charge ocean" on the simple evidence provided by the most ordinary observation. It was clear that the sky was awash in electrical energy. Observations with gold-leaf electroscopes proved the existence of potent electrostatic fields even in fair weather.

As Galvani had described, experimenters observed the complete reversal of charges and fields during stormy conditions, a phenomenon which was interpreted as evidence of vital energy concentrations and dispersions by Dr. Galvani. The high alpine placement of accumulating screens and wire grids revealed the powerful persistence of stratospheric charge rivers, vaporous charge currents which betrayed their otherwise secret passage at much lower elevations.

But the intriguing facts concerning high alpine conditions gave promise that aerial accumulator stations would soon relieve regional industrial power burdens, possibly in place of some hydroelectric generators. In this view, several prominent developers selected mountain precipices and alpine ridges and discovered the secrets of "aerial electrical rivers". Obtaining great advantage over the low altitude apparatus of previous experimenters, these developers

successfully harvested enough power to run small mills, as well as telegraph and telephone systems.

This experimental foray had its participants scattered in a wide world distribution. A few European experimenters made an astounding discovery when their systems were placed, not only at high elevations, but in higher latitude locations. The combination of these two factors gave exponential magnifications of accumulated power, far in excess of that expected by the simple arithmetic volume increase of the tested systems.

When placed in the alpine elevations of trans-Arctic lands, the new aerial accumulators literally dwarfed the outputs of all previous recorded power potentials. Making power comparisons of these high altitude systems, both European and North American experimenters realized that the exponential power increase was directly proportional to North Polar proximity. There was little argumentation concerning the true source of electrical power in these locales. In the cold northern nights, the mysterious empowering agency was everywhere to be seen.



"It seemed to me as if the very doors of heaven have been opened tonight. So mighty, and beauteous, and marvelous were the waves of golden light that a few moments ago swept across the azure deep, breaking forth anon into floods of wondrous glory...THE WORLD IS ON FIRE!"

While off the coast of Baffin Island in 1861, explorer Charles

Francis Hall exclaimed these very words. The penetrating effect of the Aurora Borealis rarely failed to shake the most hardened adventurer into soaring and lovely poetic flights. Those who visited the regions of night were not strong enough to resist the majestic beauty and eternal voice of the Aurora, even against the severe warnings of their Eskimo guides. While European adventurers remained thoroughly awestruck at the sight of the mystifying aerial displays, Eskimo elders warned their white visitors to beware of the tempting luminous presence. But why? What did the Eskimo so fear? We will see that the fears of the Eskimo have greatest bearing on our present scientific discussion, a surprising key toward comprehending certain modern technological developments.

ACTIVE AURORAL ZONE

"The dance unfurls in violet rhapsodies,
now swift, her veil'd replies in red and gold,
whilst singing crystal stars of white attend
upon aeonian harps, the hymns of old."

The Aurora has spoken deep into the hearts of each of its

MYTHS OF THE ESKIMO

enthralled witnesses. But the people who are known as the Gwichin clan do not wonder over the lights with equal naive fascination as did their European visitors. The Gwichin, who live in the Canadian Northwest Territory, do not perceive beauty, wonder, or glory in the Auroral lights. They yet perceive death in the Aurora. Closer attention to the words of the aged and well-experienced Inuit clansmen brings startling scientific realizations from ancient legendary. The accounts, while forming the core of countless anthropological theses, brought certain Nineteenth Century Europeans ever toward the Polar wastelands with specific scientific intentions.

For the most northern wanderers, time flows along with few fixed mileposts. Ice flows, seas flow, fish and seals flow, and the Aurora flows. In the barren Northern landscape of snow, ice, and water, there are no other portents save those which ripple across the sky. Eskimo tribes of the far north, those who hunted nearly as far as the Pole itself, had fewer apprehensions of the Auroral energies than their brethren below the Arctic Circle. But why had the Gwichin developed a mythology which so feared and abhorred the Aurora?

How did the aerial rivers of light, which Inuit clans to the further north honor as "sacred roads", become in the Northwest territory the very embodiment of evil? What so separated the mythological themes of these related peoples?

Clans such as the Gwichin, who occupied lands within the Active Auroral Zone, have long known that the Aurora represents a hazard of the most alien and awesome kind. Among their traditional mythologies and habits, one finds ample evidence that the Aurora itself, with too great regularity, literally touches and "walks along" the earth. In this fact alone, we comprehend the preoccupation of geophysical research teams who frequent these lands. This pattern of danger becomes increasingly clarified, especially when we consider the myths of clans like the Gwichin.

Perhaps the difference in mythologies has much to do with the behavior of the Aurora Borealis along and above the Arctic Circle. The mappable band, which runs around the North Magnetic Pole, is the peak power Auroral Zone. Along this track, one experiences the most powerful Auroral expressions, manifestations which occur on a continual basis throughout the year. Therefore we find that, further north, the Aurora loses its fearsome aspects. The mythology of the Eskimo who frequent these regions clearly reflect this benign nature. For the Pole-wandering Inuit the Aurora is, with the exception of a few rare "horror tales", an oracle of divination which they regularly observe and enjoy.

"She sweeps, with cunning envies and deceits, well cloaked. In glowering sweet and flimmering guise, she mocks the rose in shades of rosy dawn, and steals the love of lovers from their eyes."

Inuit clans who occupy the Active Auroral Zone are those who experience the most powerful Auroral manifestations. They are the ones who especially avoid the lights for good reason. As often as severe Auroral displays occur, these people retreat into the safety of their huts, and do not venture out unless the lights diminish considerably in strength. Have Auroral columns indeed, in their hideous power, literally "walked along the ground"?

European interpreters thought the notion of a ground-walking Auroral stream quite imaginary and mythological, until they visited the alpine lands which lie just on the Arctic Circle. Certain Inuit legends of this defined Auroral zone clearly tell a tale of fear.



"When the Aurora falls, when it runs close to man, the mind goes mad."

"Once there was a young boy who whistled down the lights...and was driven insane when he was suddenly surrounded by the bright, dancing evil spirits from the sky."

Those unfortunate who are "caught by the light", often lose their

minds. In the warnings of Inuit elders, some captives of the Aurora do not regain their sanity. In other accounts, clan members have been known to lose their eyesight "when approached and touched by the walking lights". Yet others become permanently paralyzed by identical encounters.

So distinct are these latitude-restricted myths that we take note of the most extreme variety: myths which have a singularly macabre theme. Gwichin elders warn children "never to entertain the tempting lights" ...do not sing or whistle to them...be silent, be swift, run and hide...lest they come down after you". These Inuit myths abound, very precisely describing the manner in which Auroral columns are attracted to song and melody...with hideous consequences for those who successfully attract them.

The real instances, where clan members are "caught by the evil spirit lights" and abducted, describe grisly scenarios. The Gwichin tell of those who have been suddenly surrounded with "the evil flickering spirits", and who are later found in the snow...burned to cinders. In these stories of history, the elders retell actual events in which the Aurora literally touched ground and flowed without

restriction. The warnings inherent in the tales are not simply to frighten but, are intended to instruct. Apparently, Gwichin clan members have experienced the full power of the ground walking Aurora.

Perhaps the most frightening of all the tales is the one whose theme tells the exact process of execution by which the evil spirits sadistically murder their lonely victims. The Eskimo stories are very clear about the manner in which unfortunate Auroral victims are "struck" and killed, a process by which victims are literally "decapitated" by the evil lights. These tales tell how the wandering Auroral spirits "suddenly strike their victims... bending them backwards until they die". Once struck and bent backward, the victims are often incinerated, while the evil spirits "celebrate" the colored columns becoming brilliant in their intensity about the charred remains.

Grotesque and unscientific? Though clouded by centuries of superstitious retelling, each of these horror stories describes a reality with which we are completely unfamiliar. Their continuing story record tells of fatal Auroral encounters. How the "walking Aurora" has maimed and killed clan members throughout this century is a matter of great dread for the Gwichin, who have embellished these witnessed accounts with the ornaments of myth. The incidents which they recount provide the very heart of our discussion on Auroral Power.

AURORAL SOUNDS

"False glances shimmer on the soaring sky,
in jealous green, or virtuous gold to play.
Now winsome sighs, then seized in passionate fires,
Aurora cloaks her cold desires, and turns away."

For those who find the Gwichin tales completely untenable, there stand the scores of "more credible" and "more European" witnesses which flood the literature. Local citizens and academicians alike have had dangerous Auroral encounters within the active Auroral zone, and provide a database which should hold greater esteem among our astringent academic readership. Once recognizing the sheer power involved in the displays, scientists manifested an intriguing psychopathy. So great is the apprehension of the experience that doubt becomes the only protective measure. But even these doubting projections of fear did not keep scientific observers from observing and even experiencing the phenomena represented in Innuit mythologies.

Truly awe inspiring accounts may be found throughout the scholarly scientific journals, accounts of instances when the Aurora literally "descended" and "wandered freely" in full view of credible witnesses. When such streamers reach just above or even into the ground in full view, the greatest sense of awe has left the watchers spellbound. These events are experienced in a very narrow latitude band, just symmetrically disposed about the Arctic Circle, and Gwichin lands fall into this zone where the Aurora flows.

According to the tales, the first manifestations of danger involve phenomena with which fretful academes so struggle. The "sound of the Aurora", a great puzzlement for most scientific theorists, especially forms a core of contention among those who claim the experience. It is in this manifestation that the potential power of the Aurora first becomes more tangible to human experience.

The Aurora "sizzles...crackles...whispers...hisses...rustles".

Henri Becquerel (1871) presented evidence that Paul Rollier, a celebrated balloonist, indeed encountered an Auroral streamer while in the air. While descending toward Mount Ide in Norway, and yet at some 1300 meters above sea level, Rollier saw Auroral rays through a thin luminous mist. He then heard a "low roaring sound". Almost instantly, Rollier smelled "a suffocating sulfurous odor". The description indicates how narrowly Monsieur Rollier risked losing his life while passing through this deeply groundward penetrating Aurora.

Though highly credible observers have heard "a swishing sound", while observing highly mobile arrays of "dancing colored streamers" (1901), academicians have claimed these sounds to be a ridiculous assortment of confabulations. Citing the fact that Aurorae occur at elevations of 100 kilometers, they miss the central fact that Auroral sounds occur simultaneously with the Auroral movements. This cannot, in their view, be an accurate assessment. But what this remarkable assertion actually represents is a misinterpreted discovery of great import, for the Auroras which produce these "instantaneous sounds" are therefore much closer to ground than most suppose. And if they are the result of physioelectric inductions, as some have theorized, then their intensity is all the greater — and more dangerous — at these proximities.

C.S. Beals, a geophysicist collected a great number of these accounts (1924). Researcher, Hans S. Jelstrup, along with his technician, noticed the faint whistling sounds of an Auroral display. The undulating whistles followed exactly those visual vibrations of the Aurora, the two scientific observers heard the sounds for a full ten minutes. In 1933, a group of explorers stopped the sleds on which they rode to watch a particularly beautiful and dense flowing Auroral display. While intently gazing on the powerful aerial spectacle in a two thousand foot mountain valley, the whole party distinctly heard the jetlike sounds of each Auroral surge. At times, the smooth jet sounds gave way to a distinct "crackling". Numerous such accounts fill the journals, and are certainly not the sole proof that the Aurora can induce enormously energetic responses in the earth beneath them.

MOUNTAIN GLOW

Those who study the geophysics of ground-induced currents have long recognized that Auroral surges can produce sizable magnetic, electrostatic, and electrodynamic disturbances in sufficiently conductive ground bodies. Measurement of induced geomagnetic fluctuations were early observed, especially by mariners. The inductive strength of supposed ephemeral sky light displays was clearly demonstrated, as they watched the wild movements of their magnetic compasses during Auroral storms. Physicists understood early that Auroral currents fluctuated in tremendous magnetic energy. Any supposed ephemeral light which was able to derange a marine compass at sea level had to carry tremendous energy.

But the Aurora has also induced electrical currents in telegraph and telephone lines, the result of magnetic inductions. Telegraph operators of the mid-to-late Nineteenth Century observed the induction of strong electrical surges in lines which were disposed along east-west orientations. As only very small electrical surges were observed in the lines of north-south orientation, it was con-

cluded that the Auroral induction effect in these wires was purely magnetic in nature. This phenomenon gave rise to increasing induced electrical strengths with proximity to the Auroral Active Zone. The subsequent literal electrocution of certain telegraph operators during Auroral storms was yet another evidence that the Auroral lights contained tremendous power. Certain inventors sought patents on schemes whereby such induction energy could be harnessed. The single requirement of each system was placement within the Auroral Active Zone.

There have been numerous contemporary instances where the flickering Aurora has induced electrical currents of an extreme order. The Alaskan Pipeline was carefully designed to withstand the potential Kiloampere currents which have been measured during Auroral events within the Active Zone. The careful welding of each pipe determined the overall safety of those working near the lines. It was well known that potential spark-induced explosions of flowing oil could occur if these welds sustained even small inconsistencies or breaks. In consideration of these energetic extremes, even electrical powerlines within the Active Zone are carefully designed to withstand the peak surges which are legendary in those northern regions. Engineers have measured these incredible surges, the result of magneto-induction effects along east-west powerline sections.

But there are those effects which exceed even these magneto-induction currents, effects which are entirely electrostatic in nature. The more conventionally astute scientific models do not admit the possibility that Auroral pressures can induce or evoke powerful responses from the grounds beneath their active focus. Nevertheless, strong and mysterious luminal displays have been observed from the ground and upward toward the Auroral lights.

Most of the phenomena to which we call attention are often observed on highly elevated mountain ranges, and are especially observed upon those rocky peaks which lie in the extreme north or southern regions of the world.

The reports hail from both the Central Alps of Europe, as well as the highest ridges of the Andes. Witnessed with respect to the Aurora are the strange "mountain glows" and "searchlight" displays which rise to meet the faintly downward thrusting Aurora. A familiar, but misunderstood phenomenon in these regions, there are those who would strongly suggest that these upward light discharges cannot possibly be the result of Auroral induction effects. Yet the facts stand, the observations of credible witnesses have consistently confirmed the effects.

The effects of thrusting Auroral energy produce luminous effects everywhere on earth. Indeed, there are sometimes strong "moun-

tain glow" phenomena in locations which stretch away from the Active Zone, a violation of the expected rule.

SEARCHLIGHT PHENOMENA

"Now whirling through a shimm'ring curtained sea,
in vap'rous throes, her lustrous curving wing
engrages thunders and capricious glares;
lets drip a fiery jewel instead, from off her ring."

Mountain glow represents a more persistent charging of the ground, while searchlight phenomena represent the more sudden or impulsive discharges which the earth yields to downward Auroral thrusts. It is not difficult to understand that Auroral surges represent an energetic addition to the geophysical energy balance. Downward Auroral thrusts not only influence the prevalent free charges in the ground, but they gradually seep into the rocky earth as a result of atmospheric ionizations.



Being a process, engaged since the atmosphere was formed, it is not also inconceivable that the total energetic sum of the terrestrial reservoir is constantly being increased with each Auroral thrust. The charge reservoir within the ground behaves with the Auroral electrostatic influences exactly as it does during lightning storms. In cases where the mountain glow is observed in absolutely clear night skies, one is otherwise hard-pressed to imagine a better explanation. These mountain glows represent the distant, possibly world-extensive response, to

charge-supplying Auroral thrusts which occur in Active Zones near each pole.

The Auroras, themselves, therefore need not be literally seen in all cases, although a great many such events do record faint whitish streaks across the sky. Mountains thus energized often "burst" with glowing electrical currents. These can produce "searchlight" displays or produce considerable discomfort and fear among climbing expeditions.

Undulating "searchlight columns" have been seen emerging from mountains on Spitzbergen island, despite the crystal clarity of night (1868). The pale wandering light "floated along the mountain". Mount Galene, in the Jura Mountains of Switzerland, became suddenly illuminated with an intense phosphorescent light (1885). Flashes of varying colored lights were seen by mountain climbers on the Swiss Alps (1903). The upward column of light shuddered without thunder, and "greatly resembled the Aurora Borealis". No Aurora was actually seen overhead.

On the same mountain range, the "quivering column of light"

was seen again (1911). Observers declared its attributes in every way identical with the Aurora Borealis which had been "observed in Scotland". The observers actually stated surprise at this manifestation at a much lower latitude. But how far toward the equator can the Aurora induce an upward streamer?

In 1929, light flares were observed on Pike's Peak, in Colorado. In Massachusetts, Mount Wachusett became completely covered with a violet glow (1937). Tingling sensations were strongly felt during the manifestation.

The historical records tell of instances in which the downthrusting Auroral agency is seen, and the response from earth toward the heavens becomes equally visible. Thus when a brilliant green Auroral Arch reached down across the horizon, several persons witnessed an accompanying green glow which "rose up from Mount Adams". This event occurred in New Hampshire, a region which lies to the far south of the Active Zone, but which nonetheless has occasionally been witness to the Auroral streamers (1941).

These bursting phenomena occur in latitudes which some imagine are too far from either Pole to be caused by Auroral surges. Nevertheless, there are repetitious observances of strong searchlights emerging from the Andean Range.

Despite the clarity of night skies in the Andes, and in the absolute absence of cloud cover there, several witnesses observed an astoundingly intense searchlight manifestation. They reported "tall fiery columns shooting skyward from a great number of peaks" (1906). The effect occurred "in bursts...greatly resembling the beams of a great searchlight". The colors varied during the display, shifting from green to yellow, and (on rare occasions) to red.

The identical phenomenon has been repeatedly observed (1912), and reaches great strengths. This color shift seems to indicate the presence of undetected Auroral activity. The Andean manifestation of Auroral induction effects is undoubtedly a phenomenon which, though largely unobserved and unreported, continues through the years. The continual columnar flashing from various Andean peaks was again seen in 1950. According to the principle witness, this display grew in both frequency and intensity, and continued long after midnight. Reports also indicate that the phenomenon is often directed toward the ocean, which lies to the west of the Cordillera Real.

On the island of Madeira (1954), several individuals observed a continuous flashing of brilliant white light from various mountain peaks. A low rumbling sound was heard. Not a cloud was in the sky.

Undoubtedly, these Auroral-response phenomena require mountainous altitudes. In all likelihood, the mountain peaks serve as focussing conductors for the launching of these luminal discharges. Not all the discharges are strictly electrical in nature, a topic well discussed by Reichenbach, Tesla, Reich, and others.

The impulsive searchlight phenomena do, on occasion, resolve into more frightening dense charge manifestations. The clarity of visibility on Mont Blanc did not prevent the manifestation of stinging electrical discharges. While climbing on several ridges, climbers felt the stinging and burning effects of electrostatic charge. These crags were strongly charged with static electricity to the great consternation of the endangered climbers (1854).

These phenomena have neither been preceded or followed by winds, rain, or thunderstorm activity. These charge effects represent enormous volumes of power, lasting for many hours. Barring the

Auroral induction mechanism, geophysicists have been at a loss to explain the actual supply of such discharge energies. Certain similar events, however, have been strongly correlated with distant Auroral induction effects (H. de Saussure, 1865).

Mountain climbers have regularly reported instances of "mountain bourdonnement", the "ringing resonance" of mountain rock under peculiar kinds of electrical stress. This "resonance" occurs when mountains become strangely and unexpectedly charged with enormous volumes of current, a probable piezoelectric phenomenon on a massive scale.

Other reports tell of instances when electrostatic corona and accompanying lightning superbolts have trapped climbers in caves for hours on end. So great is the energetic expulsion during such events that significant anomalies are almost always reported. Thus, we find that strange electrifications persist while climbers are securely and deeply recessed within large mountain caverns, a violation of the Faraday Cage principle.

AURORAL IMPULSE

Densified charge manifestations make their appearance with sudden and unexpected violence at times. From sizzling St. Elmo Fire phenomena, to ringing piezoelectric resonances, these focussed mountain effects often become explosive displays. Qualified personnel have observed the explosive emergence of brilliant fireballs between mountain peaks in the Taurus Mountains (1900). Tall sparklike luminous columns were seen projecting upward from mineral rich desert lands (1971), a veritable host of displays revealing the Aurora as their probable activating agent (Corliss).

Geophysicists consider the manner in which neutral solar plasma densities are separated into separate charges at the earthly gates. Arriving as gusting neutral impulses, each blast of solar particles becomes hazardous only when encountering the geomagnetic field. With the geomagnetic field effecting its gradual sidethrust, the gusts become a veritable current of 300,000 Amperes, having pressures rated at some 200,000 Volts. Consider then the Aurora as a source of pulsating electrostatic induction to the earth below.

The easiest hydrodynamic path, that path which the Aurora would take if unimpeded by geomagnetism, literally passes in a straight line directly through the earth. It is only the geomagnetic field which prevents this pressured flow from achieving its natural objective. The geomagnetic field effectively prevents such a catastrophic possibility from becoming a regular feature of the environment. Perhaps the past aeons witnessed such staggering events. Despite the sidethrusting, by which the Mega-currents are diverted, the powerful Auroral voltages modify the underlying atmosphere.

The easily ionized atmospheric blanket is a scant hundred miles thick, and successive impulses erode a tunneling pathway toward the ground. Possessed of such continued electrostatic pressures, the Auroral columns ever penetrate into deeper atmospheric strata.

European Aurora observers watched in amazement, when long beams of detached white light sailed down from the sky toward earth (1882). Large parallel streaks of white light pulsed down from an Aurora in Michigan (1893).

We would expect the process by which the Aurora achieves its objective, that of passing literally through the earth, to produce successive kinds of observable phenomena. It is the peculiar feature

AURORAL FOGS

of long-heralded Auroral observations which contributes to our appreciation of our proposed model. The process by which the atmosphere is eroded is gradual, sometimes failing to achieve the objective altogether. In its natural expression, the process is entirely dependent on the solar pressure source. Tunneling a conductive pathway to the ground requires that any Auroral event be possessed of special natural attributes.

Each phase of the Auroral penetration would extend its source pressures to deeper atmospheric strata, an erosion process which would necessarily manifest in a phenomenon sequence. After this sequence has been completed, the Aurora eventually reaches the ground. It thereafter forces its Gigawatt currents through the ground, wreaking hideous effects on the environment. When such natural events occur, it remains for natural instabilities to terminate the otherwise ever-growing flow.

Thus, when Auroral impulses strike the atmosphere with consistent rapidity, the Aurora can...and does...reach the ground. Before it does however, there are sequences of phenomena which we should expect to observe. The following accounts describe somewhat of the more overt and observable phenomena in the progressive sequence of Auroral grounding.

DESCENDING COLUMNS

So long doubting that the Aurora could descend from the celestial vaults, or rise in consequence of those sky-sourced thrusts, scientific observers were not believed by their European colleagues. Followed only after the skeptical prejudices were melted away by the overwhelming number of personal observations — some involving the very skeptics themselves — certain researchers began understanding the conditions which precipitate such Auroral grounding events. These phenomena can be comprehended only by accepting well-supported observations, evidence that the very strongest of natural Auroral pulsations can reach below certain altitudes.

Auroral "meteors" represent occasions when Auroral intensities reach such potentials that they are able to burst through the atmosphere and reach to the ground. Observers who have witnessed these strange events are literally observing the process by which Auroral currents initiate ground contact. The inductive mechanism involves consistently forceful Auroral surges of certain intensity.

A variety of tunneling ionizations brings the full force down. In this capacity, Auroral dynamics match those seen in thunderstorms, where stepped charge leaders descend, and positive streamers rise to meet them.

Even as lightning bolts seek from their enormous pillars, proximity with the highest elevations affords groundward Auroral streamers the very same grounding potential. But such elevations are not always required. When the downward Auroral thrusts are excessively strong and constant in force, the very same luminal displays manifest themselves.

We should expect streamers of certain polarity to rise up from the ground in response to powerfully downward Auroral pulsations. Indeed, this manifestation has been repetitiously observed on numerous occasions. Blue Auroral streaks were seen travelling directly from the ground toward the sky in Norfolk, England (1875).

The previous events describe the process of Auroral connection with the earth — that which is fulfilled when the Aurora actually makes flowing ground contact. Several astounding observations describe further such stages in the process of columnar Auroral connection to ground.

Auroral fogs precede the formation of Auroral discharge arcs into the ground. Auroral fogs reached to the ground in Italy, producing a luminosity so bright that the divisions of a watch face could clearly be read (1831). Several discrete columns of luminous fog passed closed to a ship which sailed near the Arctic Sea, the luminous columns of fog reaching sea level from the sky (1878). In each of these instances, we observe the kind of tunneling phenomena which bring sufficient Auroral energies down to ground level where discharges can occur.

The occasion of a powerful ground-touching Auroral Arch, actually illuminated the Colorado countryside (1890). Observers, who happened to be riding on a train, believed the prairie was on fire, for the whole region was covered in a strong luminous mist. The entire train was filled with passengers and railroad employees, who beheld the spectacle with awe.

After the initial appearance of Auroral fog, a spreading curtain of light is proliferated. This spreading curtain is one which, in every aspect, behaves exactly as do Auroral curtains when seen in the sky. Such Auroral curtains touch ground with greater natural regularity than most imagine. A great many professional persons, of gifted observational skills, have chanced to experience the rare effects of terrestrial electricity and hazardous, "close Auroral encounters". The supposed "geomagnetic pulses" which are claimed by some as the causative agencies behind UFO encounters do not in fact occur with sufficient frequency to be plausible (Persinger). More likely however is the notion that groundward Auroral discharges are responsible for the electrocutions and neural overloads which produce some "abduction events".

In New York State an Aurora touched down "not thirty rods from us, ...as a curtain of Auroral light passing through the valley." The stated height from the ground was some 30 feet (1852). Shooting streamers and rocket-like branches reached out of this ground shimmering curtain. These projective emanations repeatedly discharged toward the ground in a shower of pulsating streams. The observer stated that "it was the most splendid sight I ever beheld".

In one frightful account, several observers told of the "electrical sensation" produced by a low level flickering Aurora (1883). Yet another party of scientific observers once noted the powerful induction effects of an unusually brilliant Auroral streamer which struck ground all around them. On the Yukon River, an astounded witness saw an Auroral arch come "right over the water's edge" (1906). In Hartford, a university student walked through an Auroral fog, which seemed to be pierced by periodic flashing beams of light (1908). A team of government radio station operators were suddenly enveloped in a bright foglike substance. Their hands, extended into this surrounding curtain, "became colored by a kaleidoscopic light". It was "impossible to feel this current" (1917).

A radio engineer in the Northwest Territory told how he, along with several others, saw an Auroral curtain come down to within four feet of the ground. It was a pale green curtain into which he actually walked (1925).

In Abisko Sweden, an observer reported an Auroral streamer which came "below a completely cloudy sky" (1929).

In Colorado (1930), an observer reported a ground-contacting Auroral curtain, composed of "innumerable threads". The curtain happened to be flowing directly into a noted silver lode.

In another case, an individual saw the Aurora playing among poplar trees, flimmering along the ground. He ran out into the display, the Auroral lights "playing all around me...with a sound not unlike rustling silk". The whole surrounding area "was sparkling" (1933).

The individual spoke very candidly about his potentially fatal experience.

AURORAL SENSATIONS

Dangerous proximity to the ground discharging Aurora has produced notable sensations in its observers. These accounts are frightening because of the potential lethality which could result with continued exertions of Auroral down-thrusting. There are a great number of chilling personal accounts where Aurora-generated sensations suffused the witnesses.

Especially noteworthy are those several occasions when the odor of the Aurora has been reported. Auroral odors were detected in London during a particularly strong period of Auroral activity (1726). The odor was detected amidst the bright spreading glow of an Auroral fog. The odor of the Aurora has been a familiar attribute of "sheet Aurora" phenomena in the Active Zones of Canada, Scotland, Sweden, and Siberia.

In northernmost Faroe and Shetland, where the Aurora is often seen not more than 40 or 50 feet from the ground, its sound is not only heard, but its strong odor is detected (1824). The reported odor was "not unlike that produced by a powerful electrostatic machine".

Especially rare because of their extreme distance from the Active Auroral Zone, "shooting Auroral sheets which went to the horizon" were reported by several persons in New Jersey, along with the accompanying "strong sensation" of the Auroral odor (1941). These latter incidents are not rare, and may together constitute yet another instance of direct neurostimulation. The close proximity of Auroral energy with the ground represents an essential terror for those who can conceive of the mammoth power contained in such a manifestation.

Auroral incursions toward earth produce phenomena which are completely anomalous, especially when viewed from an electrodynamic viewpoint. In Northern Ireland, a chemist examined several platinocyanide solutions which had suddenly become intensely fluorescent in a darkened laboratory. An Auroral storm was found to have been literally "playing all around the building" (1858). The permeation of extremely fine radiant matter, bombarding the laboratory walls through the Aurora, is especially evident in this account. The passage of a neutral, sub-electronic medium directly through the stonework of laboratory ceilings and walls, indicates that there is more to the Aurora than electrical charge. But discussion of this, however wondrous, constitutes a digression more thematically inclined toward researchers such as Tesla, Le Bon, Moray, and Farnsworth.

WALKING AURORAS

Scientific observation has reported the regularity of Auroral

discharges to the ground directly. We must consider the total power realistically conveyed to earth when the Aurora has successfully passed through the stage when luminous fogs have been sighted. When the Aurora has sufficiently forged itself a pathway to the very ground, the Auroral fog becomes a current. Then, it is, that the faint fluctuations become powerful and deadly electrical surges.

Groundward discharge occurs suddenly, after a sufficiently luminous column has been extended down toward the ground. This process occurs exclusively within the Active Zone. The Aurora reaches down toward the ground by an avalanche mechanism.

Indeed, Auroral surges have historically resulted in unexpected groundward lightning strokes. The nature of the lightning in these sudden discharges is completely different from normal storm lightning strokes, carrying unbelievable volumes of energy to the earth from space.

There are notable numbers of such discharge incidents throughout the scientific literature. There are reports of "sheet lightning from low altitude luminous Auroral masses" (1821), "heavy thunderstorms, with an overlying Auroral glow" (1883), "horizontal flashes of lightning followed by an Aurora" (1888), "spectacular Auroras followed by a violent thunderstorm" (1915), "Aurora followed by intense lightning, with flashes arcing through the zenith...more Auroral activity after thunderstorm" (1952).

Auroral lightning strokes are the strong precursors to Auroral contact with ground. When such lightning surges have achieved their work, the Aurora itself begins flowing freely into the ground.

Those who have risked extreme danger by walking into Auroral curtains may have barely escaped the horrifying "backward bending death", mentioned by the Gwichin elders. Those who foolishly enter such intense streams are electrified by a power which exceeds that of ordinary lightning in several fundamental aspects. The Auroral energy is stupendous in scope, far exceeding any discharge of lightning. Once the groundward channel is strengthened beyond the destabilizing disturbances of local weather patterns, then the Auroral downthrusts bring the whole sum of incoming energy directly into the ground.

Instances where the Aurora brings death by electrocution occurs, in all likelihood, when Auroral penetration of the atmosphere is sufficiently powerful to induce and attract the equally potent telluric currents. When the Aurora has raised an oppositely charged streamer from the ground, deadly hazard is imminent. But none have considered the actual power overflow which such a ground-flowing Aurora would bring to earth.

KARL SELIM LEMSTROM

"The trembling frozen rose, enrapt in snow
fixed in those floral prisons, bound in earth,
with lonely longing stare, aghast, unmoved,
stands vigil in the night, to watch her careless mirth."

Numerous theories on the exact nature of the Aurora preceded the development of Auroral accumulators. Halley believed them to be composed of "effluvia of a very subtle nature", an aphorism for "aether" (1716). Dalton believed that the Aurora was ferruginous in nature (1793). Jean de Mairan proposed the most notable early theory, proposing that the sun ejected particles of its own atmo-

sphere toward earth. Being self-luminous, de Mairan also asserted that the luminous vapor flowed toward ground through the poles — a remarkable advancement in thought.

Franklin believed the Aurora to a result of highly charged poleward winds (1779). The high stratospheric charge-laden winds then supposedly entered the dense, frigid cold atmosphere of the polar regions. There descending, an excess of charge flowed in great concentrations through the cold, moistureless air. This was then thought capable of producing downflowing luminous electrical discharges.

Others proposed variations of these latter two theories, finding certain validation in the innumerable electrostatic experiments of the day. Throughout the latter part of the Eighteenth Century, experimenters found that evacuated glass tubes produced flimmering ribbons of pale violet-red, and greenish-blue light. It was not then difficult to construct a purely mechanistic model of Auroral Phenomena.

With increased observation of the mystifying magnetic attributes of Auroral Light, many, along with Msr. de Mairan, questioned whether or not the Aurora was a special and distinct energy form. Baron Karl Reichenbach believed the Aurora represented a multicolored flow of luminous aetheric energy, which he termed "Odylic Current". Proof of his convictions came through personal observation, especially of strong magnets in highly evacuated containers. With the eyes properly prepared in absolute darkness, scientific observers could plainly see the large and flowing colors which, despite their enclosure in thick glass bell jars, projected forth from the magnetic poles to fill the room. This biodynamic proof was also thoroughly rejected by the mechanists, who began looking to geomagnetism for the luminal source of Auroral energy.

Discussion on the exact nature of the Auroral currents brought forth a series of truly bizarre and awe-inspiring experiments.

Dr. Karl Selim Lemstrom, a geophysicist who had become fascinated with the Aurora, began correlating each of the growing numbers of Auroral phenomena. In particular, Dr. Lemstrom was enthralled with those accounts which gave evidence of real ground-walking Auroral encounters. By 1874, he was able to publish his "Observations Upon the Electricity of The Atmosphere and The Aurora Borealis", a research treatise which should have made technological history. Only one or two chosen individuals had the insight to recognize Dr. Lemstrom's implications.

In keeping with the views of Reichenbach, his theoretical consideration was that Auroral energies were the result of geomagnetic projections. In order to prove his theory, Dr. Lemstrom boxed

several tons of electrical equipment, and headed for the high hills of Lapland. Starting in Helsinki, and travelling the difficult route to Sodankyla, Dr. Lemstrom constructed his famed *utstromnings* (discharge) *apparat*, a pancake spiral coil of immense dimensions. A small mountain was chosen for the experiment. Wrapped on telegraph poles was the large spiral, made of several hundred meters of copper wire. Each supporting pole was studded with a large, pointed iron spike. The thick braided cable lead line was drawn off to the bottom of the hill, connected to a large metallic disc, and buried.

On December 22, 1882, Dr. Lemstrom succeeded in producing an Auroral searchlight, one whose visible corona extended upwards from the spiral apparatus for hundreds of feet. The tremendous upward discharge occurred when an Auroral Streamer surged down from overhead. As long as the overhead activity continued, the upwelling searchlight discharge continued. Completely enthralled by the longlasting artificial Aurora, Dr. Lemstrom analyzed

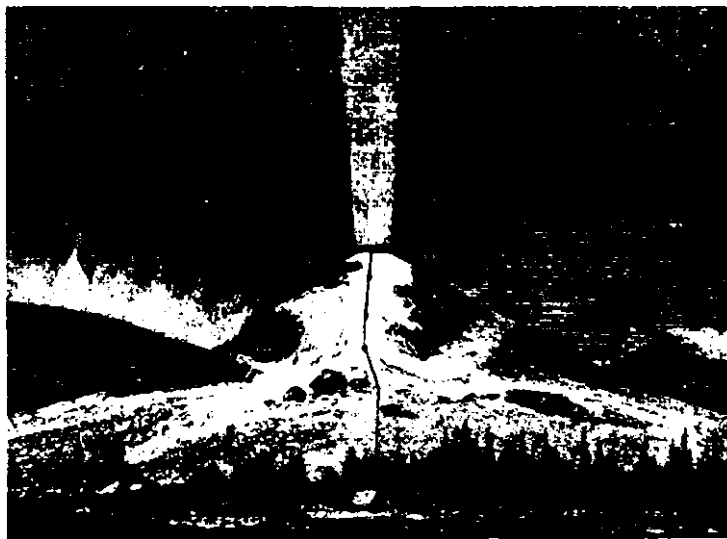
the glowing light with a spectroscope, later declaring it identical to natural Auroral light. In this first moment of technological triumph, the simple geophysically coupled apparatus produced the first manmade Aurora. This passive apparatus was the world's first Auroral Accumulator, a means by which the sizzling of millions of electrical watts could be both seen and heard.

In 1884, the French researcher C. Vassenat sought to outdo Dr. Lemstrom, and erected a much larger accumulator. Lacking both the focussing power and the proper capacity of the original design, this large accumulator produced no Auroral Searchlight.

What this Auroral Accumulator succeeded in producing was a stream of violent and large electrical discharges, a steady Megawatt supply which burned the researchers, and destroyed several pieces of scientific equipment.

These pivotal experiments proved it possible to derive vast quantities of electrical energy directly from the Auroral process. They were the probable inspiration for much of what Nikola Tesla later sought in his large scale tests with space energies. The Experimental Station of Nikola Tesla in Colorado (1899), is the result of applications most likely learned through these first experimental exposures to Auroral Power. The vast and critical difference between what Tesla did with the Lemstrom spiral accumulator experiment was that Tesla was stimulating a very special lightlike current which was non-electric.

While all the previous experiments were passive systems, limited to a passive process of absorption, Tesla applied electrical power to his large spirals. In this vein, Tesla was the very first to stimulate an aerial capacity with a highly active impulse of specific duration. His



Dr. Karl Selim Lemstrom's "utstromnings apparat"

experiments proved the ability of an activated system to stimulate Aurora-like streamers at much greater distances from the Active Auroral Zone. With this apparatus he was incidentally able to produce the flamelike discharges and variable colorful flashes which characterize the Auroral streams, a phenomenon successfully reproduced by no experimenter except Eric Dollard.

Although requiring far more activating equipment than that of Dr. Lemstrom, the geophysically coupled demonstration of Tesla in Colorado Springs made it possible to derive continuously powerful Aurora-like energies from outer space at any location below the Active Zone. Dr. Lemstrom showed the possibility of drawing Auroral energy down through passive systems. His apparatus did not produce consistent available outputs of the energy, a frustrating attribute. Dr. Tesla showed the active means by which energies which produce the Auroras could be drawn in from outer space at latitudes very distant from the Active Zone. These largescale effects have not been duplicated. However, there have been strange effects produced by shortwave transmitters which have accidentally stimulated certain Auroral dynamics, effects which produced anomalous surges of tremendous power... "from space".

JET MODULATOR

Certain poleward VLF stations were known to often display peculiar modulation phenomena. One such fascinating phenomenon is routinely observed between the magnetic poles themselves, where VLF signals in Siple Station, Antarctica, create strong audio disturbances at Roberval, Quebec (Brett). How indeed do these bizarre and unexpected modulations occur?

The Auroral Electrojets are hypersonic plasmas which continually travel around the geomagnetic poles. The circumference and distribution of each Electrojet defines the Auroral Active Zone, that region of earth directly beneath the overhead dynamic. During solar peak emissions, the Northern Auroral Electrojet represents a current of well over 300,000 Amperes...at a charging potential of 200,000 Volts. The potential power of the Auroral ring current is thus some 60 Gigawatts!

Certain VLF transmissions are able to modulate the Electrojet current. Well within the Active Zone, and conjugately related along similar lines of polar latitude, properly oriented VLF powerline aeriels can literally drive waves through the Electrojet current. Using it as a conductor of radiosignals has a rich historical bibliography and astounding implications. Applications of radiofrequency alternations to the overhead Electrojet causes a powerful "clustering action" to take place in the energetic plasma medium. The artificially induced clusters stimulate the powerful production of waves. These plasma waves resonantly travel throughout the Electrojet, where they are stored for a time.

Short Wave operators observed the periodic "swinging" and "deep fading" of strong high frequency radiosignals at poleward latitudes. The swinging occurred when very powerful commercial HF carriers were modulated by much smaller local HF transmitters. Later investigation proved that these stations were conjugately aligned along the Active Auroral Zone. In fact, SW radio modulation phenomena are completely reliant on the fluidic nature of Auroral Electrojet currents for their effect.

While similar phenomena have been observed along other orientations, especially near the Equator, this modulation effect

occurs with the greatest power in the extreme northern or southern latitudes. Because of Active Auroral "immersion", small HF radiostations have accidentally modulated the transmissions of much larger HF stations at great distances. In some cases, small transmitters have literally used the carriers of the much stronger transmitters to carry their weak signals around the globe! Conduction on a ribbon of plasma current — a wonder of natural behaviors in the Auroral Active Zone.

Widely spaced along the same latitude lines, and well inside the Active Zone, two different radio transmitters will therefore interact in a parasitic modulating manner. The large station provides the clustering action, which leads to plasma wave resonance in the Aurora. The smaller transmitter, usually never heard beyond a few miles distance, impresses its faint modulations upon this enormous current. As a result, one hears the weak signals, superimposed upon the stronger station signal.

Large transmitters can produce deep clustering action in the Electrojet, while small transmitters can modulate the powerful currents in opportunistic manner. Through ionospheric or geomagnetic channels, the highly mobile Auroral Electrojet can fluidically carry very weak impressions throughout the terrestrial matrix. The modulation of powerful radio signals, by small near-polar transmitters, reveals the Aurora as more than a dynamic energy transfer medium.

AMPLIFIER

It was also known that applied signals of certain frequency were mysteriously strengthened by an unknown, external energy source. These amplifications always occurred when VLF transmissions were "immersed" in Auroral activity, and only observed along conjugate transmission paths in the Auroral Active Zone. Clustered plasma waves, by continual modulation, become largescale plasmic deformations. These deformations can do more than simply transfer powerful wave energy around the fluidic medium of the Aurora. Such plasma waves in the fluidic Electrojet gain strength with continued such artificial modulation.

Successions of the resultant plasma waves produce a series of significant deformations in the Electrojet. With critical frequencies and continued carrier modulation, these deformations grow beyond the boundaries of the Electrojet itself. When the wave boundaries exceed the Electrojet periphery, pulse effects reach out along the incoming solar plasma. This process can be used to produce more power out than is actually applied in the artificial modulation process. But what volume of power is thus obtained?

When stored Auroral deformations reach this stage in the growth process of Electrojet waves, a sudden frightful "amplification factor" appears...an explosive power "jump" on an unheard-of scale. This is precisely the effect that some operators observed with VLF transmitters. But VLF energy is not the only source of Electrojet pumping modalities capable of achieving these effects. Shortwave energy (HF) can perform the very same effects, with far less size and input power.

It is known that, once critical wave thresholds have been reached, one can achieve such plasma amplitudes, that once the literal modification of incoming solar flux is engaged, the overflow of solar plasma streams toward earth. This is no ordinary modulation phenomenon, and has several critical requirements both for initia-

tion and management of the process. Those thresholds which enable "Electrojet Pumping" are reached with specific resonant frequency and transmitter intensities.

Once the deformations are excessive, the fluid medium of the Electrojet spills over, and pushes earthward with stupendous electrostatic pressures. With each successive wave, this enormous over-spilling reservoir provides an avalanche of electrical Gigawatts. The artificial production of critical wave amplitudes opens rarely unlocked power potentials. The perfection of Aerial Accumulator Technology is found in these dynamic activators.

INDUCTION

"The glass prevents the prayerful longing reach,
black midnight, unwinds the frigid endless wheel.
Whilst dreamers and their dreams transgress,
and groan...to reach and hold,
and sweep her down to earth in chains of steel."

Small HF radio transmitters have, on rare occasions, managed to pump the Electrojet. An incredible incident occurred in Norwood, Ontario during the winter of 1929. Clarified reception through a large indoor radio receiver was suddenly and abruptly quenched. Though the tubes were glowing brightly, and the aerial and ground secure, reception on all channels very suddenly "went dead". The gentleman went to a window in order to inspect his aerial, and noticed that a bright Aurora was in progress. Thinking that this activity was the cause of his reception problems, he went outside to observe the Aurora. Looking about himself in sudden shock, the gentleman quickly realized that a brilliant Auroral streamer had completely enveloped his aerial and house.

Though maintaining a distance of several feet from the house walls, the streamer became a veritable curtain. The brilliant multi-colored display shimmered with pulsating change, its scintillating appearance continually "snapping" ...continually and visibly sparking to ground. The weak and insignificant receiving oscillator, acting in the dual function of both stimulating transmitter and resonant absorber, had successfully drawn an Auroral streamer down to ground (Corliss).

The source of his radio "disturbance" having thus been found, the gentleman stood enthralled for a long time near the shimmering curtain. Completely astounded at the entire display, he neglected the advice of intuition, which often severely informs of possible extreme personal danger. He should have fled the area immediately, and narrowly risked being among those whom the ground-walking Aurora incinerates. But this leads us to the next part of our discussion on Active Aerial Accumulators. How must one prepare for the unimaginable downdraft of Electrojet energy?

POWER MANAGEMENT

The enormous resultant pumping action which can occur, requires a means by which conductive "contact" is made. This means that a literal conduction path must somehow be tunneled from the Auroral Electrojet toward the grounded Transmitter. This is a fearful prospect requiring greatest care. One does not easily or carelessly mishandle celestial fire without great risk.

To understand the dynamics of this possibility, we must examine

some of the stages engaged by artificial Auroral evocations. Once a significant deformation in the Auroral Electrojet has been stimulated, the very pressure of the oncoming solar wind exaggerates the deformation. This swollen neutral solar wind enters the geomagnetic field structure and is processed and separated into opposed charge flows. It is here that the larger electrical particles (electrons and protons), are effectively separated by opposed magnetic sidethrusts. The resultant unified current, which is a procession of protons and electrons which circulate in opposite directions, is the Auroral Electrojet.

But the deformation which a grounded transmitter can evoke is so resonantly absorptive, that solar wind pressure is drawn down in a continual flood. This forces the solar wind, as it is more forcibly and artificially drawn through the geomagnetic field, to now separate into a much greater current. This is the amplification power.

CONTACT

Once the conditions have produced the exaggerated plasma deformations in the Electrojet, a strong pressure effect will propel charges deeper into the dense portions of the atmosphere. The engineering question becomes one of access: how do we make contact with such currents from earth? We must examine the height from which these currents are to flow down toward earth.

ALT (Km)	STRATUM
700	AURORAL G LAYER
200	F LAYER
90	E LAYER
80	NOCTILUCENT CLOUDS
70	AURORAL D LAYER
25	AURORAL OZONE LAYER
20	SULPHATE
10	CIRRUS
0	SEA LEVEL

We see that the lowest Auroral Stratum lies somewhere within a 45 kilometer average. Considering the currents which are involved and the means by which we hope to harness such energy, this is a reasonably low separation from sea level. Careful study of work done by Nikola Tesla should further elucidate on the conductivity of the atmosphere under the inductive impact of cyclical electrostatic exertions. While utilizing the more neutral particles of the solar plasma, recall that Tesla achieved potent results.

We have established that Electrojet clusters can be distorted to the point of spilling over. The mere presence of a resonantly entuned receiver can create such a powerful energy trough, that overabundant Electrojet wave energy will begin to pour toward the ground site and into the tuning components. This is exactly what occurred in the Canadian account with an ordinary receiver. Provided the wave energy has been naturally or artificially primed, Auroral Streamers can forcibly be drawn down to a resonantly entuned site.

Enormous pressure drives the plasma wave clustres down to lower altitudes. If a significant succession of these is applied to the Auroral ring current, then energetic streaming toward the ground will continue. Absorbing incoming energy, and pressured by



momentum from the solar wind, these travelling waves feel an enormous exertion which drives them groundward. If each radio pulse draws the electrojet down in successions, and if the "pull" frequency is timed just right, then the Auroral current will begin flowing groundward.

In their rapid orbit about the geomagnetic pole, the deformations fall into a literal cyclonic stream toward the transmitter. The entire process is a massive MHD phenomenon, and is one in which cyclical radioenergy forces a steady leakage from a height above 45 kilometers. The distant arriving solar wind then "blows through" this leakage zone, separates through the geomagnetic field, and spirals toward the lower atmosphere.

The inability of the underlying atmosphere to sustain these increased charge impacts produces an artificial Auroral Streamer. Substantially immersed in the effect of an Auroral current, an insignificant current can grow to very large and very influential proportions. The stimulating signal does not have to be strong at all in order to attract an Auroral avalanche to the ground. When successfully captured, the stream provides an endless and incalculable current to ground.

When sufficient deformations are applied with periodicity, Auroral streamers can touch ground. Once flowing "contact" is made, once charges begin streaming down from the Auroral ring current, the transmitter site becomes the recipient of an avalanche phenomenon growing in magnitude beyond imaginable bounds. Thus it is through the smallest of stimulations that tremendous power can be obtained. The limitless and eternal radiant energy of the sun is

harnessed during night as well as day.

This requires a massive accumulator of tremendous absorptive capacity. In order to appropriate the incoming Auroral energy, one needs a VERY LARGE absorber. Preparation for this flowing charge requires a substantially large metallic capacity terminal. A blanket of braided copper cable would be the best, simple means for spreading out the enormous incoming charge. Such a broad capacity structure would also prevent the frightening devastation of an Auroral Discharge to ground.

Toward the goal of preventing such a mishap, safety measures are numerous. The first, and most obvious control of hazardous discharge phenomena has to do with managing transmitter frequency and output. We may envision the entire device to be a very large, highly separated triode "valve". In the analogy, the HF radio transmitter acts as both the controlling grid and resonant structure.

This may be established through an immense screen of highly insulated conductive material. Having a large surface area, this absorptive structure would also necessarily have some dimension of volume and strength. The incoming charge streams are immense in potential. The transmitter creates the "hole" or "sink", into which plasma waves will enter. The frequencies critical to this production lie in several radio bands, and are best absorbed by Tesla Impulse methods, not by conventional sinusoidal radio energy.

The Aurora itself serves as the analogous cathode, the absorptive copper screen is the anode plate. With proper control at the transmitter site, Auroral Power flows down into the screen. From there, it must be used as quickly as it is obtained. Thereafter, the linking of the Auroral Accumulator to the regional electric grid systems resolves itself into a straightforward engineering problem.

POWERPOINT

In the late Nineteenth Century, some visionaries believed it possible to derive enormous energies directly from the Auroral Electrojet. Among the most overtly obvious contemporary designs for an Auroral Power Accumulator is HAARP (High Frequency Active Auroral Research Project). The "Ionospheric Research Instrument" (IRI) itself has not yet been completed on the Alaskan North Slope near Gakona. Its developmental prototype, the DP has been in operation for some time. The DP, as presently established, consists of a primary HF transmitter field, an assemblage of HF antennas, and a host of sophisticated diagnostic equipment.

While HAARP is a project whose Staff and Advisement Council have been determined by Phillips Laboratories (Air Force) and the NRL directly, it is not owned and funded by those groups. In addition, while Raytheon allocates the Project, it did not initiate the Program. In this we perceive the blind alleys and typical convolutions which powerful geopolitical agencies have predetermined. Supplied by the abundant bibliographies at our disposal, and with a "spark of intuition", we can safely project the pyramidal models, geopolitical strategies, and scenarios which precipitated HAARP.

A distinct variety of resonant technique is being developed in Gakona. The DP utilizes a circularly polarized beam, the result of whole array phase shifting. The DP is designed to induce rhythmic HF pulsations of circular polarization in the Auroral Electrojet. The DP applies this energy to a large section of Aurora. If the rotations are timed properly then swirling energy reaches the Auroral ring, bunching highly mobile solar electrons. Auroral charge bunching is

consistently concentrated and deformed toward the ground site. Timed pulsations in the station maintain the resonant downdraft of charge, a steady staggering supply.

Successions of ever increasing deformations produce cyclonic spiralling of Auroral charge toward ground. Auroral streamers begin reaching the station within a specified time, Auroral Columns following.

The DP is equipped with a cross-hatched grid of very heavy gauge copper cable, perhaps one inch in thickness. Wired and welded together. The large receiving area spreads out the incoming power. Downflowing electrical energy is safely absorbed in this highly conductive screen. Once the energetic ion flow has been secured, it can be modulated to the need of any load. The transmitters offer moderation, control over this groundward ion stream.

Sixty Gigawatts of natural, non-polluting energy at no cost for those who own the system. And this could be tapped from a single large terminal base. Several such stations would vastly amplify the amount of induction energy. Pulsations of power derived directly from the Aurora. If it were possible to handle such an output of energy, whole regions could be supplied with electricity for centuries. Once the initial phases of such an experiential station have been assessed, then proper parameters can establish a first model commercial station. □

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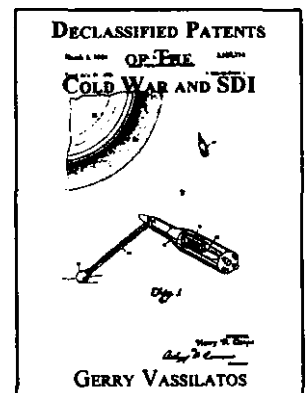
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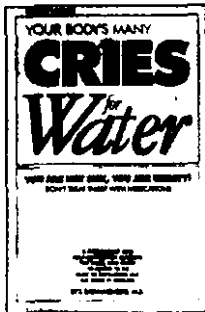
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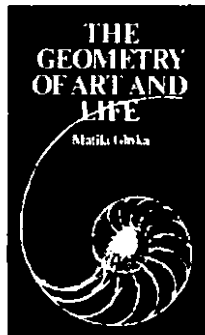
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Colloidal Silver: A Closer Look

by Peter A. Lindemann

DURING the last two years, a number of books and articles have appeared in public on the subject of colloidal silver. Some of these include: the *Bio-Tech News Special Report*, "Hi-Yo Silver"; *Colloidal Silver, The Natural Antibiotic Alternative*, by Zane Baranowski; *Colloidal Silver*, by Tonita d'Raye; and "Banishing Disease with Three Nine Volt Batteries, parts I & II," by Mark Metcalf. Literally hundreds of other newsletters and small publications have repeated the information in these articles without checking the content for accuracy.

The appearance of these materials two years ago was the first wave of public education concerning colloidal silver. Today, most health food stores carry and sell several brands of colloidal silver, scores of MLM companies have colloidal silver products in their lines, and prices are starting to drop. While it is still possible to spend as much as \$10/oz. for colloidal silver in health food stores, prices can be as low as \$5/oz. Some mail order catalogs sell it for as little as \$2.50/oz., and I have seen small classified ads selling it for under \$1/oz. The trend is definitely toward a lower price.

One of the phenomena driving the price down is the appearance of the devices that allow people to make their own colloidal silver. At this time, (Spring 1997) the cottage industry of colloidal silver generators is starting to penetrate the larger market. This is starting to cause alarm in high places. One major commercial manufacturer of colloidal silver has recently issued a warning statement to its customers, alerting them to the dangers of the "inferior quality" of colloidal silver made by these devices. CNN and other major media have also tried to scare the public away from colloidal silver by showing a blue-skinned person who "suffers" from Argyria, a cosmetic condition caused by the build-up of silver compounds under the skin. Even JAMA (The Journal of the American Medical Association) has run articles warning of Argyria and the toxicities associated with "colloidal silver proteins." On January 16, 1997, new labeling guidelines concerning colloidal silver went into effect, issued by the FDA. Other FDA rulings on "safety and effectiveness" are still pending. With all of these developments, it doesn't take a rocket scientist to see that the whole situation around colloidal silver is heating up!

The purpose of this article is to raise the level of public knowledge to a higher degree of accuracy. Knowledge is power, and the public needs to know the truth about colloidal silver.

The first thing people need to know is that there are at least FOUR different products on the market being called COLLOIDAL SILVER.

The first type of product is the classic, original kind, usually called "electro-colloidal silver." This product is made either by the "electro-arc" method in deionized water, or by the "low voltage electrolysis" method in distilled water. This product is usually found in concentrations between 3-5 ppm (parts per million), but some-

times as high as 100 ppm. Properly made, this product consists of microscopic particles of pure, elemental silver suspended in water, with no other elements present. Each particle of silver carries a POSITIVE electrical charge. Colloidal silver made this way appears either transparent-clear or transparent-light yellow.

The second is called "mild silver protein." This product chemically binds microscopic particles of silver to a protein molecule. It is usually found in concentrations between 20-40 ppm. Its appearance may be transparent-clear or amber.

The third are "silver salts." These products can be made either chemically or electro-chemically and usually create a form of silver that DISSOLVES in the water. Concentrations range between 50-500 ppm. Its appearance is transparent-clear. The silver particles do carry a POSITIVE electrical charge, but almost invariably, these products contain other elements or compounds other than silver.

The fourth is sometimes referred to as "powdered silver." This product was developed by the Russians and is made when a pure silver wire is rapidly disintegrated by an high voltage electrical discharge, similar to an old photographic flash bulb. The microscopic silver dust is collected and either dissolved in water or added to salves and creams for topical use. Concentrations range from 100-500 ppm.

All of these products work, to one degree or another, as a broad spectrum germicide because they all contain microscopic particles of SILVER. That said, it is important to understand a number of things: 1) all of these products are not "colloidal suspensions" of silver, 2) these products DO NOT all behave the same in the body or in laboratory tests, 3) effectiveness and dosage varies from product to product, 4) quality varies from product to product and from batch to batch with the same product, and 5) they are NOT all uniformly safe and non-toxic. There are no industry standards that manufacturers voluntarily follow to assure quality control and there is no governmental regulation of the industry.

On the other hand, there are millions and millions of satisfied colloidal silver users who would like to have continued, free access to the product, and a growing number of manufacturers entering the market with a wide variety of new products.

The critical factors that make a "good" colloidal silver product are particle size, purity, concentration, and cost. The only way to authoritatively determine the first three is by laboratory analysis. The best way to determine particle size is by electron microscope photograph. The best way to determine purity is by mass spectroscopy or by x-ray defraction analysis. The best way to determine concentration is by chemical analysis of total dissolved solids. The cost of the product should be calculated in reference to the total quantity of silver present, such as: \$5.00/oz of 100 ppm is equal to 25¢/oz of 5 ppm (the first has 20 times more silver by volume and costs 20 times more by volume.)

Making Your Own

The simplest way to control these factors is to make the colloidal silver for yourself. By doing this, you will not know exactly what is there unless you do laboratory testing, but you will have a pretty good idea. Without laboratory testing of commercial products, you don't know much more, because the quality control batch to batch is loose with most brands. Also, by making it yourself, you will end up with real "colloidal" silver, which is the product referred to in most of the literature.

If you are already making your own colloidal silver, please pay special attention to this section because much of the information you now have may be incorrect.

The simplest way to make real colloidal silver at home is by the "low voltage electrolysis" method. A few batteries may be connected to some silver electrodes and placed in a glass of water. This process will cause small particles of silver to be sintered off the electrodes and enter the water. This deceptively simple method is very easy to do **WRONG**, and most people who are making colloidal silver at home are making an inferior product.

It's In The Water

When you do this yourself, it is very important to control the purity of the water, because the purity of the water is one of the factors that controls how small the particles of silver will be. Only high quality **DISTILLED** water should be used. You cannot use purified or filtered water because it still has too many dissolved minerals in it. You cannot use deionized water because it doesn't conduct electricity well enough to start the reaction. Distilled water is just perfect to start the reaction slowly and let it proceed properly.

Another variable that influences particle size is the water temperature. The warmer the water, the faster the reaction will take place, and the smaller the particles will be.

Please Pass The Salt

Regardless of what anyone has said to the contrary, silver chloride will **ALWAYS** form if any amount of salt is present. *Never add anything to the water that will make the water conduct electricity better.* Never add salt, sea salt, or Celtic sea salt to the distilled water because the salt puts chloride ions in the water that react with the silver to form silver chloride. The presence of salt increases the electrical conductivity of the water and this dramatically speeds up the reaction. As the reaction speeds up under these circumstances, it produces larger particles. The product produced is invariably cloudy-white in appearance. Actual electron microscope photographs of this material show silver particles in the range of .05 to .15 microns. These particles are **TOO LARGE** to form a colloidal suspension, and the proof is that the material will settle to the bottom of the container in a very short period of time. Therefore, this home brewed "colloidal silver" product is dangerous to consume internally because of the production of large particles.

The Best Is Yet To Come

The very best voltage for the reaction is 30 volts, because the electrodes run the cleanest at this voltage. If you have a small power supply, set it for 30 volts. If you are running on batteries, it is best to start at 36 volts (three 12 volt batteries or four 9 volt batteries) and let the batteries drain down from there. Holding the silver electrodes

at a uniform distance away from each other yields a better product.

When 30 volts is applied across silver electrodes held uniformly apart in distilled water, a totally different event happens. First, the reaction proceeds very slowly. Often, for the first 15 minutes nothing seems to be happening. Then finally, a faint yellow mist will begin to form. Within a few minutes, the reaction will speed up, but the particles produced will be a golden-yellow as viewed with a flashlight. Using this method, 8 ounces of distilled water at room temperature can be made into a 3-5 ppm colloidal silver preparation in 20-25 minutes. Made this way, colloidal silver can cost under 10¢/oz to make. Electron microscope photographs of this product show a silver particle size in the range .001 to .004 microns. During manufacturing, the particle cloud is a golden-yellow. These particles will hang in the water at the level they are produced, and for the most part, will not fall to the bottom of the glass. This is what a "colloidal" preparation of silver looks like. After the particles disperse, the water will look clear again, but may turn a light yellow if the concentration is high enough and after the particles have become evenly dispersed.

"The Yellow Color"

There has been a fair amount of controversy in the public literature concerning the appearance of the "yellow" color. A lot of well meaning people have told me that "yellow is bad", "silver isn't yellow", "yellow is sulfur contamination", "yellow is iron contamination", and lots of other things. I finally found what I believe to be the answer to this question in a book entitled *Practical Colloid Chemistry*, published in London in 1926. In the section on the "Colours of Colloidal Metals", sub-section on the "Polychromism of silver solutions" on page 69, I found the following statements: "The continuous change in colour from yellow to blue corresponds to a change in the absorption maximum of the shorter to longer wavelengths with a decreasing degree of dispersion. This is a general phenomenon in colloid chemistry illustrating the relation between colour and degree of dispersion." This section goes on to describe the colors that show up in a wide variety of colloidal metal solutions. Interestingly, they **ALL** have a yellow phase. For true "electro-colloidal" silver, the particle size range that can appear yellow is .01 to .001 microns (10 to 100 angstroms) because that is the size of silver particle that best absorbs the indigo light, leaving only its inverse color, yellow, to be observed. The final transparent-yellow appearance only shows up after the particles have become evenly dispersed.

The Brown Glass Bottle

Once you have gone to the trouble of making colloidal silver particles as small as .001 microns, it is important to protect them. The particles stay away from each other in suspension because they each have a positive electrical charge (+) and these "like charges" repel each other. Anything that can strip this charge off the particles will degrade the quality of the colloidal silver by a process called re-coagulation, where the particles clump together again to form larger aggregates. Ultraviolet light from the sun and many plastics can cause this process to occur. Therefore, colloidal silver is best stored in dark, glass containers. The two kinds of glass container that are suitable for this are the dark amber and the cobalt blue.

The Same Difference

The biggest "secret" about the manufacture of high quality colloidal silver is that it is nearly impossible to standardize the product. Silver is apparently reactive to a number of natural forces that have yet to be identified. Even when the voltage, the water, and the water temperature are identical, different batches will proceed at different rates on different days. The speed of the reaction can vary by over 100% depending on the day. On "normal" days, the reaction is proceeding well by 15 minutes, with a visible cloud of particles. On "slow days" it may take 30 minutes before any visible production of yellow particles begins. Because of this variation, it is always wise to observe the reaction with a strong flashlight so you can see how quickly the reaction is happening. Once the yellow cloud starts forming, time the batch for 5 more minutes. This is the best way to standardize your home brewed colloidal silver.

Colloidal or Ionic?

Another big controversy surrounds the question of whether this method produces "colloidal" silver or "ionic" silver. Most people have been told that colloidal silver is "good" and ionic silver is "bad." Once again, the truth might be unpopular. The word "colloidal" refers to a condition where, in this case, a solid particle is SUSPENDED in a liquid (silver in water). The solid particles are too large to be considered DISSOLVED, but are too small to be filtered out. This colloidal condition is most easily detected by what is called the "Tyndall effect", where a narrow beam of light is shined through the liquid to produce a cone shaped dispersion of the light. The particles so illuminated also exhibit a random, zig-zag activity called "Brownian motion" when observed under a microscope. When something is completely dissolved, both the Brownian and Tyndall effects disappear.

The word "ionic" refers to a condition where a particle has an electric charge. In the case of "electro-colloidal" silver, this electric charge is ALWAYS POSITIVE. Silver will not form a negatively charged ion. So, the truth is that electro-colloidal silver is BOTH colloidal and ionic. It is considered colloidal because of the particle SIZE and it is considered ionic because of the particle CHARGE. In fact, most of the biological studies suggest it is colloidal silver's ionic characteristics that make it such a good germicide. It is also interesting to note that the old chemistry books make no distinction between the colloidal and ionic states of the electro-colloidal metals.

Purity of Silver

The quality of your finished product depends entirely on the purity of the water you start with and the purity of the silver you start with. Most of the current literature suggests that only 99.9999% pure silver can be used. Most home brew systems use 99.9% pure silver. So, what is the difference? To find out, I contacted Academy Metals, a company in Albuquerque, New Mexico, that produces commercial silver. The total allowable impurities in 99.9% (.999 fine) silver is 1000 ppm or 1 part in 1000. These impurities and their maximums are 1) Copper, 800 ppm, 2) Lead, 250 ppm, 3) Iron, 200 ppm, and 4) Bismuth, 10 ppm. This product is readily available in wire form and costs about \$3.00 above the market (spot) price of silver. When this product is used to make electro-colloidal silver at a concentration of 5 ppm, the total impurities from the silver drop to 4 ppb (parts per billion) copper, 1.25 ppb lead, 1 ppb iron, .05 ppb bismuth.

With all allowable impurities at these low levels, there is a reasonable argument for not being concerned. Still, sometimes small things make a big difference. 99.99% silver (.9999 fine) has total allowable impurities of 100 ppm of the same metals in the same ratios, and costs (in wire form) between \$50-\$90 above the spot price of silver. 99.999% silver (.99999 fine) has total allowable impurities of 10 ppm, and in wire form costs about \$250 above the spot price. 99.9999% silver, in wire form, costs more than gold and is very difficult to find commercially.

In one sample of 10 ppm colloidal silver we sent out for total analysis (made with 99.9% silver electrodes), the primary impurities found were: 1) Sodium, 470 ppb, 2) Calcium, 260 ppb, 3) Manganese, 70 ppb, 4) Potassium, 50 ppb, and 5) Magnesium, 24 ppb. Since none of these impurities could have come from the silver, it suggests that the purity of the water should be of greater concern to the person making their own colloidal silver, than spending extra money on purer silver.

Concentration

The concentration of silver in the water is usually measured in parts per million, or ppm. While this is the standard convention, ppm is a "ratio" and not an indicator of quantity. When a laboratory tests colloidal silver for concentration, they report the findings in milligrams per liter (mg/L). Milligrams per liter is an actual measurement of weight per volume, and therefore is a real quantity measurement. In the metric system, one liter of water weighs 1000 grams, and one milligram is one thousandth (1/1000) of a gram, so 1 mg/L is the same as 1 ppm, as long as we are talking about water. Silver weighs a little more than water, but the equivalence is very close, and the terms are often used interchangeably. With this in mind, we can calculate that one teaspoon of 5 ppm colloidal silver has about 25 mcg (micrograms) of silver in it.

Dosage

In 1940, R. A. Kehoe reported that under normal circumstances, the average daily intake of fruits and vegetables would provide between 50-100 mcg of silver as a trace element. Since that time, the commercial farm soils of this country have become extremely deficient in trace minerals. Although I do not have authoritative figures for silver, according to the *Earth Summit Report*, issued in 1992, the levels of soil based minerals in North America have dropped over 85% in the last 100 years. Assuming that our ancestor's diet used to contain trace silver, and that our diet probably has greatly reduced levels, there is a reasonable argument for supplementing with colloidal silver. Two teaspoons of 5 ppm colloidal silver provides about 50 mcg of silver and could be considered a "nutritional" amount, if taken on a daily basis. Any amount above four teaspoons a day or 100 mcg should be considered a "therapeutic" amount. That said, it should not be assumed that electro-colloidal silver is equivalent to or has the same metabolic effect as receiving trace silver from dietary plant sources. But since few plant sources of trace silver are available today, colloidal silver is probably the best substitute. If you want to experiment with taking colloidal silver for an extended period of time, stay within the amounts considered to be nutritional. If you want to experiment with larger doses, do so with caution, and only for a day or two at a time.

Safety and Toxicity

Silver can act as a heavy metal poison in the body. It can also act as a trace mineral nutrient. The difference is in the particle size, NOT the concentration. Colloidal silver with a particle size of .001 microns has particles 100 times smaller than a preparation of silver with a particle size of .1 microns. The smaller the particle, the less likely it will behave as a toxin. Typically, the worst toxic reaction from metallic silver, cited in the medical literature, is a condition called Argyria. Argyria is primarily a cosmetic condition characterized by a permanent, bluish discoloration of the skin. Argyria causes no physical discomfort, and does not have any other known side effects. Your skin just looks bluish-gray. In fact, the term "blue bloods," in reference to the royal families of Europe, probably refers to a mild, argyrial condition caused by the constant eating of food from silver plate settings. It is interesting to note, however, that there has never been a case of Argyria reported from the use of electro-colloidal silver, free of salts or other impurities.

Argyria, while not being a deadly condition, certainly is undesirable. It is usually caused by the massive intake of silver salts, such as silver nitrate, silver sulfate, and silver chloride. To determine just how toxic these substances are, I contacted the Agency for Toxic Substances and Disease Registry through their on-line information service at (<http://atsdr1.atsdr.cdc.gov:8080/ToxProfiles>). All of these silver salts are talked about as toxins, but the only consequence of even high exposure in humans that is listed is Argyria. EPA issues a "control code" for each toxic substance it tracks that can cause human illness. Silver nitrate and silver sulfate have control codes, but silver chloride does not. I received essentially the same information when I spoke with Dr. Eidson at the Department of Epidemiology in Santa Fe, New Mexico. Apparently, the government thinks silver and silver compounds are toxins that essentially have no significant toxic effects other than the ability to discolor your skin.

Looking just a little deeper into the situation, I pulled out *Lectures on Homeopathic Materia Medica* by J.T. Kent. In the section on the use of metallic silver as a homeopathic remedy, there are 7½ pages of indications (symptoms) that include actions on the nerves and cartilage, as well as increased tendency toward emotional outbursts and mental excitability. In fact, the list of symptoms is rather extensive. So, exposure to silver may not kill you or cause organic disease, but that may not mean there is no toxicity. Apparently, silver has the ability to act as a subtle irritant as well as lodge in certain tissues. This suggests that taking colloidal silver every day may not be a good idea, especially for people who already have these symptoms.

Effectiveness

In a study done, in part, by the Institute of Microbiology in Rome, Italy, and published in *Applied and Environmental Microbiology*, in December, 1992, various forms of silver were tested for their ability to kill micro-organisms. Pure electro-colloidal silver out performed silver nitrate, silver chloride, and silver sulfadiazine as a broad spectrum germicide. For all classes of bacteria, fungus, and mold samples tested, pure electro-colloidal silver worked better, and at much lower concentrations. They concluded that any additives reduced the effectiveness of the pure silver ion; the silver salts being as much as 100 times less effective.

Electro-colloidal silver's effectiveness as a broad-spectrum germicide is directly related to the number and size of the particles. The same volume of space taken up by one silver particle .1 microns in size, will hold about 10,000 silver particles .001 microns in size. This reduction in particle size not only allows for a greater distribution of the silver, but it also greatly increases the total surface area of silver available for interacting with the environment. These, plus the stability of the electrical charge, are the most important factors when considering the effectiveness of colloidal silver.

The Regulators

While silver has been shown to be a very effective germicide, killing gram-negative bacteria, gram-positive bacteria, yeasts, molds, and viruses in laboratory experiments, this does not mean that it will invariably cure disease conditions in the body caused by these organisms. Colloidal silver is a fantastic adjunct to the home, but it is by no means a "cure-all". The biggest obstacle to using colloidal silver as a "home remedy" is the lack of information in the public domain on how to use it effectively in any given situation. The FDA has tested colloidal silver extensively and found that different micro-organisms succumb to its action at a wide variety of concentrations and exposure times. If any of this information entered the public domain, the FDA would consider their own research "unsubstantiated medical claims" and reason enough to classify colloidal silver as a "new drug." The "new drug" classification would be "required" because "new use protocols" had been developed that did not exist before 1938.

Here is an example of the problem. It is now estimated that one in four women will develop breast cancer in their lifetime. I have spoken to two women who claim to have cured themselves of breast cancer with colloidal silver. They were both diagnosed by biopsy. After the diagnosis, they took 2 teaspoons of colloidal silver a day until their surgery. One took a home made product, the other took a silver protein product. In both cases, the biopsy of the removed breast tissue and lymph nodes was *cancer free*. The question is, will colloidal silver work this well for all cases of breast cancer? Probably not, but in the current legal and political environment, we may never know. No pharmaceutical company can control or monopolize ownership of colloidal silver, so none of them will ever fund the testing, which currently costs over \$10 Million and takes 10 years. FDA says if you claim that colloidal silver cures breast cancer, that would classify it as a new drug, and the public cannot be given access to new drugs without proper testing. Using the FDA model, it could cost the public \$1Billion to "prove" to the FDA what the FDA already knows about colloidal silver. Politics has definitely entered this picture. FDA does not want to be exposed as an enforcer for the drug companies, or be seen as an agency clearly not acting in the public's best interest. While these ideas are not new to some of us, it would be a startling revelation if a large portion of the population began thinking this way. FDA would certainly like to avoid this "public relations" embarrassment. The fact is, FDA has never spent our tax dollars discovering something important, and then published their findings for the benefit of the public at-large; especially when it involved something that was powerful, safe, and inexpensive for the public to make for themselves. Obviously, empowering the population to be self-reliant and frugal in relation to their own healthcare is not the FDA's responsibility.

Colloidal silver clearly has some extraordinary capabilities and hundreds of legitimate uses. But without standardization, quality control, and extensive medical testing, the public will never know how best to use colloidal silver in a given situation. FDA may yet try to restrict public access to colloidal silver, claiming it is unsafe, even though they know how "safe and effective" it CAN BE when used properly. In the absence of the release of this authoritative testing data, the public is left just experimenting and groping for the answers. A big fight over the public's access to colloidal silver may be looming because the cost of healthcare in this country is out of control, and the public is looking for inexpensive solutions that work. In that sense, colloidal silver could be "just what the doctor ordered."

Digestive Interactions

Colloidal silver is apparently able to kill nearly all microorganisms, including the "friendly flora" your digestive system needs for proper function. I have spoken with hundreds of people who have taken colloidal silver on a daily basis and have noticed no digestive upset, even after prolonged use. I have also spoken to two individuals who reported digestive upset after taking colloidal silver one time. So, in my experience, the die-off of friendly flora is possible, but rare.

There are a number of strategies that can reduce the probability of digestive interactions. The simplest one is to swish the colloidal silver around in your mouth for 30 seconds before swallowing. This promotes an absorption of the colloidal silver into the body away from the intestinal tract. Another strategy is to take smaller doses, multiple times per day, or with meals. Either way, if you do experience a die-off of friendly flora, they can be re-populated by taking any of the acidophilus products on the market.

Septic Tanks

Septic tanks are like your home's intestinal tract. They only work when populated with friendly flora. If you live in a rural area with your house on a septic system and you are making your own colloidal silver, make sure you don't throw a lot of it down the sink or your septic system may stop working properly. This problem can be handled by using a product like RID-X periodically, which is a good idea anyway.

Conclusions

Colloidal silver is an extraordinary product. It can enhance your health and the health of your family in hundreds of ways. Everyone should learn how to make high quality colloidal silver, and have that capability in their home, in case the regulators restrict its availability at some point in the future. This could be the best "health insurance" policy you ever implemented!

If you buy one of the colloidal silver makers on the market, make sure it can make the "yellow" particles. When you make it yourself, make sure you are making the "yellow" particles. If you have any doubts about the quality of the product you are making or buying, you can send samples to any of the following laboratories for definitive testing.

For particle size testing with electron microscope, contact:
EMS Laboratories, 117 West Bellevue Drive, Pasadena, CA 91105

(818) 568-4065. Price will be under \$200 per sample.

For concentration test (mg/L) of total dissolved solids, contact:
Associated Laboratories, 806 North Batavia, Orange, CA 92668
(714) 771-6900. Call for prices.

For elemental analysis, including "Tyndall effect" and "precipitation" test, contact:
Kimball Laboratories, 600 East 11800 South, Draper, UT 84020
(801) 571-3695. Call for prices.

These companies are busy professionals who have no idea I am listing them in this article. Please don't waste their time unless you plan to submit samples for testing with payment. □

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The Association for Advanced Colloid Research, 232 NE Lincoln St. Ste. "G", Hillsboro, OR 97124, private conversations.

Pure silver strip available from: Academy Metals and Supply, 3201 4th St. NW, Albuquerque, NM 87107 (505) 344-8323.

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The Mystical Properties of Water

by Haroldine

Relative to the Mystical Properties of H₂O, the question is 'Do the forms of the living organism merely betray the character of the watery phase through which they have passed, or is it that the water itself, impressionable as it is, is subject to limiting, formative forces and creative ideas of which it is but the visible expression?' If so, water as such would be the embodiment of a world of higher forces penetrating through it into the material world and using it to form the living organisms.

— From *Sensitive Chaos*, by Theodor Schwenk

WATER is the most available commodity on the surface of our planet and the largest component of the human body. It is the least understood via its properties of any substance yet studied. *Living* or *mature* waters are found in endless forms and the one common factor all of these waters share is that *the hydrogen binds the oxygen*. This process of Mother Nature's laboratory is not yet fully understood. This one complex process can not be spoken about too strongly to alert any one who has any interest in *living* water studies. The angle of the hydrogen bonding causes mature waters to contain various energy balancing properties. These properties aid the suffering souls who require assistance to move back towards central balance. Green, immature, or polluted waters have lost much of Nature's vital life force through a reverse process where *oxygen binds hydrogen*. An extreme final result of this destructive force in the human body is cancer.

Dipolarity is very essential in nature for all to maintain balance. *Ideally, it is essential for living matter to contain a higher ratio of implosion force than explosion force* to continue the best quality of life bringing ever fresh and renewing vitality through the natural spiral force of centripetence. There are always two forces at work in nature that exist to maintain balance for the continuance of the life cycle. One of the forces works through a *suction* type action called Implosion or Centripetence (clockwise) and the other through a *pressure* type force considered Explosion or Centrifugence (counterclockwise).

These forces have been at work on the planet since life began and only now are we finally starting to investigate, study and duplicate

the wonders of the centripetence force. We've known for years how the apple falls down from the tree through gravity. As we more thoroughly understand nature's implosive force, it shall bring forth the understanding of how as Walter Russell stated "the apple got up the tree in the first place." The very properties of implosion create a drop in temperature, an absence of friction, suction, and biological improvement. This creates or generates magnetic force called diamagnetism — a special type of vital energy which no creature could survive or live without. A simple example of implosion would be a child *pulling* a wagon, instead of *pushing* it.

The other force to complete nature's duality is Explosion, pressure, or Centrifugence. Its direction is excentric and is basically heat and friction producing qualities beyond the balancing fulcrum, creating decay, destruction, deterioration, and degeneration towards ruin and often death in the human being.

Water is defined by science as H₂O — two parts hydrogen to one part oxygen. Serious studies prove water is much greater than that simple definition. Defining water as "liquid crystals" is a definition that is a great deal more true as one begins to study and understand the various structures of water.

Dan Winter in his book, *The Crystal Dance*, speaks of Crystal Structure, The Key to an Instrument That Heals: "We are advised to recall that our names for crystal structures are our attempt to embrace their shape and quality through symbol. It is our challenge to do more than link a list of qualities with a list of names for crystals. We should ask what archetype of geometry as molecule, produces a service for our technology — spiritual or electronic. It is the geometry of wave — as proton, electron, molecule, crystal — whose morphology (shape) designs a path for our needful window of conductivity.

"It is useful to describe the atom's electrical family in terms of outer electron shell array... electron valency... but much is to be gained in visualizing the wave shape which that implies. The very poetic and at first seemingly romantic visions of atomic dancing from *Occult Chemistry*, clairvoyant studies by Leadbeater, have since been justified to sub-atomic physics: *PSI Perception of Quarks* by Phillips (both Theosophical Press).

"Oxygen is described by Leadbeater as helical coil. Oxygen has a columnar and captivating role as the coil-spring of life in water, in DNA, in photosynthesis, in cell metabolism, in quartz. The quartz crystal has scryed the witchcraft and electronics of our well timed world. Quartz's atoms, SiO₂, are arranged cubically ... and the cubes seen hexagonally from their tips, are arranged helically, sent in a sense, in a widening gyre by the very wave shape of oxygen itself.

"The function of the helix, as wave-shape morphological archetype, in DNA, in quartz, in the chakras, in oxygen, is as the choreography of a ritual dance which brings emotion to life. The rotation of speed, elegance, and information density, is permitted to ratchet gracefully touching in turn the rungs of a Jacob's Ladder between the levels of life. The helical spring like asymmetry is the link between frequencies. Sound to light... piezo (firelike) electric. Oxygen is the coil of life."

Water is a liquid which displays properties differing greatly from most other liquids that chemically should resemble it. Its behavior is anomalous. More and more it is being found out that the deeper the studies of properties of water go, the greater the anomalies. Water is at its maximum density at 4°C (39.2°F). It expands turning

into ice at lower temperatures and it also expands as it rises higher in temperatures above 4°C (maximum density). The dielectric constant of water at 25°C is 78.30, which is reported as a very high value for dielectric constant of common liquids with the exception of four other liquids, hydrogen cyanide, formamide, sulphuric acid, and hydrogen fluoride. This is important to note, for it is spoken that the ideal temperature to insure oneself maximum health and longevity is 68°F in surrounding atmospheres.

The surface tension of water is remarkably higher than that of the other common liquids. Only the surface tension of hydrogen peroxide has a value slightly greater than that of water.

The latent heat of ice fusion is the greatest known with the single exception of ammonia. The latent heat of water vaporization is certainly the greatest known. The specific heat of water is abnormally high and the difference between specific heat in the liquid state and in the solid state is also abnormally large. The specific heat of water is at a minimum at 35°C. Between 30°C and 40°C many of water's properties reveal certain oddities, a sign that at that temperature something very important occurs with respect to the structure of water. It was evident that something very important was taking place in the structure of water around 35°C. Magot advanced a working hypothesis which held that the anomalies in question were linked to the *transformation of a vibration in a rotation* and he immediately saw the biological importance of this general fact.

That liquid water is made up of different kinds of molecules was postulated in early studies of liquid water by Roentgen and Sutherland, between 1900 and 1933, to explain unusual properties of liquid water.

Water is an ionizing liquid and contains many subtle properties yet to be understood by modern science. In 1933 Bernal and Fowler put forth new ideas based upon spectroscopic data. Their ideas revolutionized concepts of the constitution of water. "The nature of the waters is determined by different geometrical arrangements of the same molecules in small regions of the liquid due to a different amount of molecular movement, imposed by the temperature. In each small region the arrangement is *pseudo-crystalline*. These regions have an appreciable electric moment, and are needed to account for the large dielectric constant of water, which is practically identical with that of crystalline ice for low frequencies." The work of Bernal and Fowler proved them to be two pioneers of the modern theory of the structure of water. Bernal and Fowler pointed out that in the case of solid silicas (SiO₂) there exists a similar four-fold coordination. The variations of the polymorphous forms of silica show that tetrahedral coordination alone is however not sufficient to determine the structure completely. The forms are: cristobalite, tridymite, and quartz. *Ice is isomorphous with tridymite.*

The maximum of density at 4°C would thus be easily explained theoretically. Bernal and Fowler acknowledged three types of structure, corresponding to three types of water:

- Water I: Ice and tridymite-like, light, viscous
- Water II: Quartz-like, heavy, semi-viscous
- Water III: Liquid ammonia-like, light, non-viscous.

Liquid water is much more than H₂O!!! Belief is held that the structure of water melts at 35°C. Thus there exists in water below 35°C a tridimensional self-perpetuating structure.

Colloidal chemistry is defined in an article written in 1935 "as the science which converts those elements into particles so minute that they can be utilized by the living cell." (Chemistry deals with molecules and larger bodies of nature's aggregates.) Today, with more advancement in sciences, what originally was labeled "colloidal chemistry" is written, studied, and called by the "new" name, sub-atomic/particle physics or Quantum Physics. Nature's basic laws and components seldom change, only man's word symbols in their efforts to learn and understand more. The continual different labeling unfortunately causes more confusion than desired simplification.

The 1935 Colloidal Chemistry article nicely gives an excellent example which one might utilize to stretch the mind's comprehension a bit more readily: "Suppose we have a cube of iron measuring an inch on each edge. The total surface would be six square inches. The electrical charge is on the surface; therefore, the greater the surface the greater the charge. If we divide the cube of iron into smaller pieces we increase the surface area. By colloidal chemistry (nature's particle physics), that iron cube can be divided into particles so minute that they are invisible, hence instead of six square inches of surface emanating electrical energy, we have something like 127 acres."

Something quite similar occurs for the well-being of human cells through the application of Homeopathic remedies or the Higher Mind creative energy forces directed by healers into human cells or into water. All three of these techniques impose a type implosion energy force upon the liquid waters that absorb, store, and radiate for beneficial use, this diamagnetic *vital life energy force*.

Crystals are the most perfectly organized structure of matter on our planet. Crystals (including particles which are also crystals of various elements) reflect and radiate "now" energy when encapsulated in living water. This allows a continual spiral motion to be reflected from higher planes into our three dimensional earth plane and all its living biological life forms — those long sought after promises of "perpetual motion" or the "eternal fountain of youth." The tools have always been available. Human comprehension is presently still pretty much in the primary stages of learning to apply those tools wisely for one's own well-being, as well as to give positive support to this whole planet's existence in beneficial ways.

Unique creative beneficial forces were a gift given by the universe to every human being. Unless there is awareness, most of the time those wondrous gifts are used in destructive rather than beneficial application. We need only to reflect upon the condition of our planet in its present state to realize how these prized creative forces have been utilized to wound and injure nature by emphasizing the *pressure force*, Centrifugence, which has created vast biological deterioration. Centrifugence creates a type of aging from excess "gravity," infecting many of the waters upon this planet with pollution — the withdrawal of the vital life force. It creates endless destruction. A perfect example of this process is acid rain.

Energy in the universe is endless and limitless. The most abundant element of the universe is hydrogen the universe is the macrocosm. Considering the earth and ourselves as part of the microcosm, smaller can always move into larger and becomes expansive. This is what occurs in the physical body when one ingests beneficially structured H₂O intake where hydrogen strongly bonds the oxygen. *Like attracts like*. The macrocosm hydrogen links to the

hydrogen bonding within the microcosm cells, and the body moves along in golden spiral direction connecting with the universal flow in a type *now* energy that is both beneficial and supportive, where all becomes *one*.

Conversely polluted, green, or immature water, where the oxygen has bound the hydrogen, sets up a resistance force with the great hydrogen macrocosm – when you try to put something larger into something smaller, fragmentation occurs. The atomic bomb when detonated is such an example. In the human body when there is excess centrifuge then force, pressure, heat, and destruction withdraw the vital life force, which is essential for health and biological life support.

By applying the implosion energy force of centripetence, *Living H₂O* is created, gravity is overcome, and we jump into the golden spiral force direction of the ever new and refreshing, as the Tao flows in our universe. We work in sync with nature preserving all her bountiful and beautiful treasures that she shares with us, through respect and appreciation. Structured crystal waters called "Living Waters" support all biologically beneficial life forces. □

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EXPERIMENT: EVOKING IMAGES

From *The Journal of the American Society for Psychological Research*, Volume XXX, Number 9, September 1936

By Meade Layne, M.A.

The purpose of the present paper is to set down, in as impersonal a manner as possible, certain facts connected with what is known as "meditation without argumentation" — or, more popularly, as "entering the silence." Data of this sort are not lacking, but it is nearly always vitiated by some bias of the observer. The experimenter usually has some religious or mystical point of view, and interprets his experiences in accordance with it. There is a real lack of "cold-blooded" reporting of such experiments, while on the other hand the data involved possess a genuine psychological interest.

There are various methods, familiar to most readers, for securing the required mental control. The one most practicable in my own case consisted merely in first concentrating the attention on a monotonous and repetitive sound, such as the ticking of a watch. After five or ten minutes of this, the sound was muffled and an attempt made to hold the mind entirely free from images and thought sequences. In this condition, the images of the unconscious appear freely. The phenomenon is of course familiar to most of us, especially at the borders of sleep. But it should be emphasized that for purposes of observation the mind must be not only "blank" to ordinary thinking, but also especially alert and watchful. The slightest drowsiness defeats the purpose entirely.

Interest in images arising under such conditions inheres (1) in the symbolism, and its apparent future as well as back-reference; (2) in the comparison of the meditation images with dreams, which they resemble in some respects, but differ from greatly in other ways; (3) in the mixed origin of the images, and the impossibility of finding any association or pattern-relation for many of them; (4) in the illusion of objectivity, or rather the almost total disappearance of any sense of distinction between subjective and objective forms; (5) in color effects, perspective and other details; (6) in the sense of what may be called mental structure, as of overlying zones of consciousness perceptible at the same moment. There are also (7) various phenomena such as the appearance of white vapors, sounds and lights, presumably of a "subjective" order. In this connection the fact should be emphasized (since it is too seldom noted explicitly) that the observation of unconscious or subconscious images is itself a kind of clairvoyance, and is the first step in the development of that power. Since clairvoyance, along with telepathy and other forms of extra-sensory perception, is now by way of being definitely recognized as a fundamental datum of science, the term can presumably be used without awakening prejudice.

It should also be stated frankly that many experiences, in experiments of this sort, are related to the basic concepts of spiritism — that is, are susceptible of interpretation from that point of view. The present purpose, however, is almost wholly descriptive, without reference either to spiritistic ideas or special psychological theories. It is also necessary to refer at times to emotional effects, since these

are mental facts as much as a flow of color or a configuration of images. All observations here noted were made in complete darkness, usually with the eyes open; their prerequisite is wakefulness and alertness, and there is no reason to believe that any of them are, or border upon, sleep-dreams. The images described are examples taken at random from an immense number, and are for the most part commonplace enough; the writer is not unaware of the conventional interpretations, Freudian and otherwise, which the reader may apply to them, but as a rule these seem to him unsatisfactory.

Examples, *passim*, of images observed with eyes open, complete darkness, mind as nearly "blank" as possible. In some instances the meaning of the images comes into consciousness along with them, without reflective effort; if it does not, the meaning is usually undiscoverable. The term "No reference" means that the image has no discoverable relation to anything in present consciousness or memory of the experimenter:

1. A cottage surrounded by a picket fence; a road and side-path running past this fence. An old man in ragged clothing with a pack on his back walking down this path. House and fence are white. Momentary, but clear. No reference.

(With regard to color, there is often a curious sense of merely knowing that an object has a certain color, without seeming to see the color itself. But in later experiments color is often seen in a sense analogous to ordinary perception. No action motion: the man is as if photographed in act of walking.)

2. An old stone-paved walk between brown stone walls, suggesting a scene in Mexico or Spain. Old houses and ruins on the left, on a hill-slope. No reference.

3. A strait of the sea between rocky shores, winding toward the east; open sea beyond. I seem to be on a ship entering this strait. On the coast is an old stone city, clearly visible but in a blue-black light (if the expression is intelligible - there is no other way to describe it) and very beautiful. No reference.

4. A rake lying across a path, from which leaves and sticks have been partially raked away; a large boulder in the background. Probable reference to personal difficulties partly cleared up - the means to solve them is at hand but temporarily neglected.

5. A bird falls flat on a path and turns over on its back (idea that bird is dying); then a ghostly bird, its duplicate, emerges quickly from the dead bird and flies away. Reference to personal problems

comes with the image. No color. Sense of motion.

6. An empty schoolroom; all seats unoccupied except one. In this seat is a large Newfoundland dog, which turns its head and looks at me with an air of canine friendliness. Probable reference to concern over a young man entering college.

7. A clear vision of the experimenter himself as standing erect and holding out a drinking glass. A hand and arm appear, and the hand pours a liquid into the glass; in the bottom of this draught are black and unpleasant looking dregs. Probable reference to concern over outcome of a present difficulty.

8. A wooded valley with stream flowing through it; overhead, an airplane falling out of control; a flight of planes toward the west, high up. No reference.

The elements of all such images are of course drawn from experience; that is, the experimenter has seen ships and rakes and ruined houses and dogs. Now and then there are images which clearly are in their entirety no more than latent memories, promptly identified with some past scene or event. But most of the combinations are new. There is no discoverable relationship to account for the sequence of the images — either in the images, or (in the case of obvious symbols) of the things symbolized. These images flash up into consciousness without warning and without apparent relation to that which has preceded them. Out of four images, A, B, C, D, in time sequence, A may be an obvious symbol with either past or future reference, B a visualization of a well-remembered event, C an unknown scene without discoverable meaning, D again symbolic. It is impossible of course to deny flatly that symbolism exists in all the images, even in memory scenes, or that there is some obscure association at work; one can only insist that such relations are not accessible by introspection. The facts deserve more analysis, but at present I wish to mention several examples of scenes of remarkable beauty. The scene numbered 3 above is an instance of this sort; others are:

1. While sitting in complete darkness I suddenly have the idea, which comes partly as a visual glimpse and partly as an intuitive sense, that some one pulls aside a heavy curtain hanging before me and a little to my left (there is no curtain in the room, however). Looking up quickly, I see very clearly a squarish patch of night sky thickly strewn with stars. This appearance lasts for three or four seconds, and the brilliant display of stars gives a feeling of intense pleasure. The "illusion of objectivity" (if we must call it that) is perfect; there is no feeling of observing a mental image only.

2. The image of an immense scroll, partly unrolled; the open portion seems to be about two feet in breadth by some four or five in length. This scroll is covered with writing in luminous script of great beauty. In front of it, between my eyes and the scroll, floats a whitish and semi-luminous mist, and this prevents my reading the script, or even identifying the language. Meanwhile an indistinct voice makes a comment, of which I seem to grasp the general sense, without hearing a single word clearly. The remarkable beauty of the scroll and of the luminous vapors makes the vision a memorable

one.

3. An immense castle which I seem to view from a distance of perhaps a half-mile. This castle is on an eminence, and towers upward to great height, so that its turrets touch the cloud-strata far overhead. It is partially illuminated, and fires sparkle on the summits of its towers. The effect of this is awe and wonder; the mind seems to climb upward with the towers and to widen and expand in consciousness. The conscious association is with illuminated tower-like buildings I have seen, but these have been aggrandized into an appearance of remarkable beauty. These, and similar experiences such as I shall suggest later, convey so extraordinary a pleasure that they are in themselves sufficient inducement for experiments of this type.

Concentration on a remote and luminous image — in place of trying for "blankness" of mind — as on the image of a star, produces a curious effect. The star will often shine out through the darkness of the closed room, quite as distinctly and brilliantly as under normal observation; at the same time there is a weird sense of detachment from the body and of floating in space.

As a matter of procedure, the experimenter should take care to observe the subjective images as closely as possible, holding each one in turn until it vanishes of itself. By practice of this sort one can observe more and more details, and maintain the images longer in position. This is a procedure followed by spiritualists in their unfoldment classes, and it is undoubtedly effective in developing a form of clairvoyance. We must remember that experience is of different types and enters consciousness in various ways — by one particular sense, by several senses at a time, and also in an extra-sensory manner *via* the unconscious. In the latter case the objective world may come into consciousness as a veridical image, but this is difficult to distinguish from mere memory images, synthetic inventions of the unconscious activity, symbols, and so on. This is obviously one source of errors and confusions of all sorts in the practice of clairvoyance. And it is interesting to note that the effect of objectivity increases as one gains power to hold and study the mental images. The eyes are focused in observing them, and if they are in movement the eyes follow them exactly as in ordinary observation, so far as one's sense of eye-movement can be trusted. We are reminded of common phenomena of the seance room, where lights, forms, and sounds are often visible to one or two persons only: on this account investigators regard them as of no importance. But this may well arise only from the degree of individual sensitiveness. And when, as sometimes happens, two or three clairvoyants will describe a spirit form in the same way and at the same spot, the fact — if suggestion can be eliminated — points to some kind of independently existing cause; just as the testimony of two or more witnesses to the existence of a chair or table points to its independent being also, of some nature. All these problems are familiar, but it is perhaps worth-while to repeat that only by arbitrary definition of the terms is one justified in describing a clairvoyant perception in every case as "unreal," "subjective," and "illusory." And images perceived "in the silence" have reality on their own level of experience, and quite possibly as existents in their own right. In the metaphysics of the East, a thought-form has temporal and spatial being and is endowed with its own life-like energy. But this takes one much too far afield.

A fact of no small interest and importance is that it becomes possible, in time, to put questions to this extra-conscious source and receive answers from it. These are sometimes highly instructive, sometimes whimsical or ironical. When I ask, in so many words, how to handle certain literary material which has been puzzling me, the reply is in the form of an image, first of a rotating disk, then of a round potter's table with the wheel, then of a disk of clay being turned and fashioned, and of hands at work shaping it. The accompanying idea arises along with it — turn your subject around and around, and do it yourself instead of asking. Another question, as to the source of all unconscious ideas, is answered by a clear vision of a dignified and grave-faced individual shaking his head slowly. It is well to take note always of the first interpretation which comes to the mind; it is usually more plausible than those discovered by analysis. How far one can go with question and answer is an unsolved problem, and possibly of great importance. There are a half-score of contemporary writers who urge upon us the necessity of "listening to the mind" in the solving of difficulties, and as many more forms of religious belief or of mental therapeutics which depend in one way or another on communication with the unconscious. From the psychological standpoint there is much interesting material which is quite inaccessible except through introspection of this type, but which should not be disregarded on that account. The experiments lead directly into clairvoyance, and it is only by this means that the phenomenon can be conveniently studied at first hand.

In addition to the aesthetic value of some of the images, there are further experiences of a pleasurable type, of more emotional tension; one is a little reluctant to intrude such matters, yet they are as factual as any other. There is an experience which consists at first in the consciousness of a light, seemingly remote; if the attention be held on it, it presently seems to inundate the entire consciousness. The effect of this is a sudden sense of extraordinary well-being and power and refreshment; though it last no more than part of a second, the experience is never forgotten. Another effect, perhaps less "mystical" in description but of subtle implications, can best be described by illustration. While sitting in the darkness I am suddenly aware — not of the appearance — but of the disappearance of a huge golden dome or bowl-shaped object which I had been contemplating with rapt interest without being aware of myself as observer. Contradictory as it seems in statement, I was nevertheless acutely aware of the object and delighted with its strange beauty; as soon however as the I-consciousness appeared — as soon as I said to myself, "What a remarkable object this is which I am looking at" — there was the usual snap-back into normal consciousness and the dome vanished. Now this self-estrangement, this seeming diminution and loss of self-consciousness, is in fact no loss at all, but rather a remarkable sense of exaltation, of expansion and strange pleasure. It seems to point toward a possible state of consciousness which is a kind of greater self, in which, nevertheless, the lesser self is not truly lost, but aggrandized.

The bearing of this type of experience on various religious, philosophical and mystical concepts is obvious; it makes intelligible, too, the groping for language and figurative expressions of those who have tried to explain such states. It may remove the matter a little from the domain of mysticism to point out that this self-estrangement, transfer and identification of observer with the object, is familiar to everyone in principle. It occurs in some degree

whenever the subject is "rapt in attention", "carried out of himself", "lost to the world" in some all-absorbing event. If one sees, for example, an impending accident, the attention flows out to the situation, the event, and possible victim. The whole consciousness of the watcher is "there" so to speak; the body itself responds with a complex of nervous and muscular and chemical changes, and all sense of personal identity is for the moment lost. So too with complete absorption in music, a work of art of any sort, a problem, a story. This psychic identification is usually involuntary — there is no sense of diminution and loss of consciousness, but rather the contrary. Psychologically this seems identical with the so-called mystical experience. Its significance, it seems to me, has not been properly considered by psychologists.

A further phenomenon of some interest is that of the white vapors. I am not unaware of the physiological explanation of part of these appearances — nor of the fact that this explanation leaves a good deal to be desired. These whitish appearances are seen at first on the edge of the visual field (they are quite distinct from the well-known grayness of the dark); they often roll in by successive waves toward the center of the field, or seem to descend from overhead. They may come from one side only, or from both. Later, they tend to remain stationary in front of one, and take on a globe or disk shape, brightest in the center, with nebulous boundaries. They can be seen about equally well with eyes either open or closed. In the case of clairvoyants who develop their powers by spiritistic methods, these clouds often seem to develop human-like shapes, so that the phenomenon is regarded as one of etherealization.

Psychologists are usually unwilling to study such phenomena at first hand, by personal experience, on the somewhat dubious ground that they lose the necessary objectivity of judgment, and even that the practice is dangerous to mental balance. The present writer has always felt that the psychologist whose mentality was too delicately balanced for personal experiments of this type is much too highly organized for psychology or any other useful pursuit. And the methods used by spiritualists in their unfoldment classes (taking these at their best) is well worth study. There is no doubt at all (in my own mind, after many years of observation) that a large percentage of sitters develop extra-sensory perception, along with various forms of physical phenomena — and also that it is mere nonsense to suppose the results are those of hallucination and nervous disorders.

Results obtained by sitting "in the silence" of course vary widely with the individual. It is not wise to attempt such experiments unless one has reasonably good health and a fair degree of mental and nervous control. Occasionally one may be visited by sights which are far from agreeable, not only of human suffering and peril, but of existents corresponding to the "elementals" of the occultists. Very little attempt has been made to describe these latter in print, for reasons obvious to those who have seen them. For our present purpose a single sketchy account of one of the least disagreeable of the species must suffice. This singular and wholly disgusting appearance resembled a large inflated bladder, some three or four feet in length, semi-transparent, and filled with writhing wormlike intestines; it possessed short rear legs with toes ending in claws, the toes partly joined by a membrane. The head was about the size of a large apple, with short ear-like projections, and the whole image was dark red and blackish in color. This exceedingly unpleasant visitor

appeared in the corner of the room (seemingly), standing erect on its hind legs; it then rose slowly and disappeared through the ceiling. With whatever incredulity it be received, such an experience is not different psychologically or logically from any other unconscious or clairvoyant imagery. It has often been suggested that appearances of this type account for some of the terrors of delirium, and especially of acute alcoholism; if so there may well be an area of existence, or of psychic experience, which is, so to speak, populated by these monstrosities, and which is penetrated by an observer under definite psychological conditions. The problem, like most in this field, remains unexplored by psychology.

The principal difficulty in all subjective observation is of course that of mental control; everything depends on it. And the final purpose of all psychic disciplines is to slow down the mental activity, while retaining the power of alert observation. The effort toward control, and the practice of "entering the silence" even if regarded as a relaxation period only, is wholly salutary if done in the proper manner. It is also the approach to a great number of introspective data of extreme importance, accessible in no other manner. The psychologists, in whose territory this material properly falls, have so defined their own subject matter as to exclude most of it, though such exclusion is arbitrary and unprofitable. □

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COMMUNICATING WITH MARS

The Experiments of Tesla & Hodowanec

by Robert A. Nelson

Nikola Tesla

While Nikola Tesla was conducting experiments with his Magnifying Transmitter at Colorado Springs in 1899, he detected coherent signals which he determined had originated on Mars. Tesla was widely criticized for his astounding claims, yet no one could seriously dispute him; he was a solo pioneer without peer. No one since then has reported constructing a Magnifying Transmitter or otherwise replicated his experiments; the issue remains unresolved and the mystery unsolved. Tesla revealed no technical details in his pronouncements and publications of that period (other than the pertinent patents). His Colorado Notebooks were published in the 1980s, but they make no mention of his alleged contact with Mars.

Tesla elaborated on the subject of "Talking With the Planets" in *Collier's Weekly* (March 1901):

"As I was improving my machines for the production of intense electrical actions, I was also perfecting the means for observing feeble efforts. One of the most interesting results, and also one of great practical importance, was the development of certain contrivances for indicating at a distance of many hundred miles an approaching storm, its direction, speed and distance traveled....

"It was in carrying on this work that for the first time I discovered those mysterious effects which have elicited such unusual interest. I had perfected the apparatus referred to so far that from my laboratory in the Colorado mountains I could feel the pulse of the globe, as it were, noting every electrical change that occurred within a radius of eleven hundred miles.

"I can never forget the first sensations I experienced when it dawned upon me that I had observed something possibly of incalculable consequences to mankind. I felt as though I were present at the birth of a new knowledge or the revelation of a great truth.... My first observations positively terrified me, as there was present in them something mysterious, not to say supernatural, and I was alone in my laboratory at night; but at that time the idea of these disturbances being intelligently controlled signals did not yet present itself to me. The changes I noted were taking place periodically and with such a clear suggestion of number and order that they were not traceable to any cause known to me. I was familiar, of course, with such electrical disturbances as are produced by the sun, Aurora Borealis, and earth currents, and I was as sure as I could be of any fact that these variations were due to none of these causes. The nature of my experiments precluded the possibility of the changes being produced by atmospheric disturbances, as has been rashly asserted by some. It was sometime afterward when the thought flashed upon my mind that the disturbances I had observed might

be due to an intelligent control. Although I could not decipher their meaning, it was impossible for me to think of them as having been entirely accidental. The feeling is constantly growing on me that I had been the first to hear the greeting of one planet to another. A purpose was behind these electrical signals...."

Decades later on his birthday in 1937, he announced: "I have devoted much of my time during the year past to the perfecting of a new small and compact apparatus by which energy in considerable amounts can now be flashed through interstellar space to any distance without the slightest dispersion." (*New York Times*, Sunday, 11 July 1937.)

Tesla never publicly revealed any technical details of his improved transmitter, but in his 1937 announcement, he revealed a new formula showing that "The kinetic and potential energy of a body is the result of motion and determined by the product of its mass and the square of its velocity. Let the mass be reduced, the energy is reduced by the same proportion. If it be reduced to zero, the energy is likewise zero for any finite velocity." (*New York Sun*, 12 July 1937, p. 6.)

About 40 years later, Arthur Mathews claimed that Tesla had secretly developed the "Teslascope" for the purpose of communicating with Mars. The late Dr. Andrija Puharich met with Mathews, and discussed him in an interview (*Pyramid Guide*, May-June & July-Aug. 1978):

"[Arthur Mathews] came from England. Mathews' father was a laboratory assistant to the noted physicist Lord Kelvin back in the 1890s. Tesla came over to England to meet Kelvin... to convince him that Alternating Current was more efficient than Direct Current. Kelvin at that time opposed the AC movement.... In 1902, the Mathews family left England and immigrated to Canada.... When Mathews was 16 his father arranged for him to apprentice under Tesla.... He eventually worked for him and continued this alliance until Tesla's death in 1943....

"It's not generally known, but Tesla actually had two huge magnifying transmitters built in Canada, and Mathews operated one of them.... People mostly know about the Colorado Springs transmitters and the unfinished one on Long Island. I saw the two Canadian transmitters. All the evidence is there....

"[The Teslascope is] the thing Tesla invented to communicate with Beings on other planets. There's a diagram of the Teslascope in Matthew's book [*The Wall of Light*]. In principle, it takes in cosmic ray signals.... Eventually the signals are stepped down to audio.... Speak into one end, and the signal goes out the other end as a cosmic ray emitter...."

Mathews' diagrams of the Teslascope is shown are Figures 1a

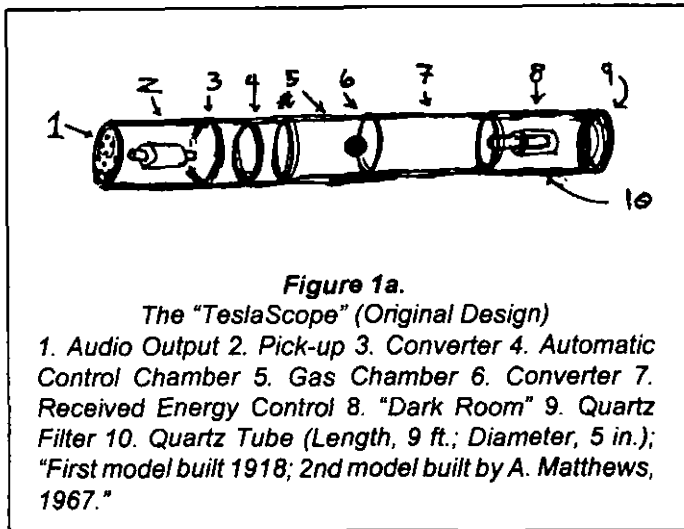


Figure 1a.

The "TeslaScope" (Original Design)

1. Audio Output 2. Pick-up 3. Converter 4. Automatic Control Chamber 5. Gas Chamber 6. Converter 7. Received Energy Control 8. "Dark Room" 9. Quartz Filter 10. Quartz Tube (Length, 9 ft.; Diameter, 5 in.); "First model built 1918; 2nd model built by A. Matthews, 1967."

and 1b. They make minimal electronic sense. No one has ever confirmed the reality of the Teslascope.

Several years after Tesla announced his reception of signals from Mars, Guglielmo Marconi also claimed to have heard from an alien radio transmitter. However, Marconi was more easily dismissed by his contemporaries, who claimed that Marconi had received interference from another radio station on Earth.

In the 1970s, L.G. Lawrence (field manager of the Ecola Institute) described his "Communication by Accident" with ET intelligences:

"On October 29, 1971... while conducting exploratory RBS [Remote Biological Sensing] experiments in Riverside County, CA,

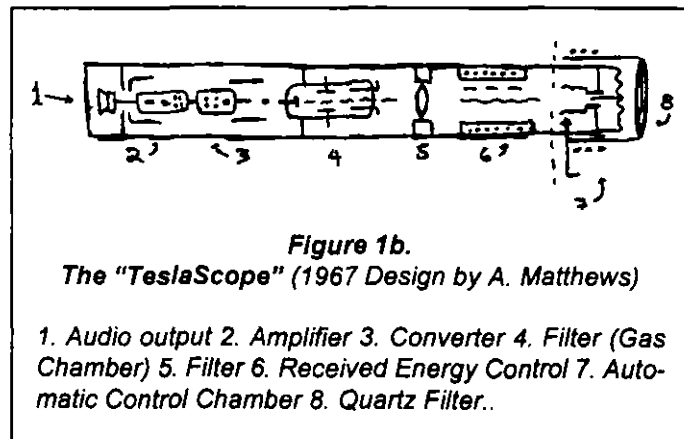


Figure 1b.

The "TeslaScope" (1967 Design by A. Matthews)

1. Audio output 2. Amplifier 3. Converter 4. Filter (Gas Chamber) 5. Filter 6. Received Energy Control 7. Automatic Control Chamber 8. Quartz Filter..

our field instrumentation's organic transducer complex intercepted a train of apparently intelligent communication signals (tight spacing and discrete pulse intervals) while accidentally allowed to remain pointed at the constellation Ursa Major during a short rest period. The phenomenon prevailed for somewhat over 33 minutes....

"A somewhat similar phenomenon was observed on April 10, 1972.... The apparent signals, aside from seemingly growing weaker, appear to be transmitted at great intervals ranging from weeks to months, possibly years. A faint, coherent, binary-type phenomenon was noted during aural monitoring.... Intervals between rapid series

of pulse trains ranged from... 3 to 10 minutes....

"Because our equipment is impervious to electromagnetic radiation and found free of internal anomalies, the tentative conclusion of biological-type interstellar communications signals has emerged....

"As a mere audio presentation, the instrumentation tape is unpleasant to listen to. However, a fascinating degree of enchantment tends to emerge after the tape has been played back three or more times, typically over a period of weeks. We ascribe this to psycho-acoustical adaptation.... The tape contains a short, incremental series of deep, harmonious oscillations resembling nonsense chatter or background modulations. An intelligent character of the overall pulse is applied by discrete spacing patterns, apparent repetitions of sequences, and highly attenuated Gaussian noise..." (*Borderlands*, 1st Qtr., 1996, pp. 27-29).

Gregory Hodowanec

In the 1980s, electrical engineer Greg Hodowanec developed his theory of Rhythmic Cosmology. He also experimented with a Gravity Wave Detector (GWD) of his own design. The simple devices detect "coherent modulations" in the microwave radiation.

Hodowanec published his first report of "SETI with Gravitational Signals" using his GWDs (*Radio Astronomy*, April 1986):

"The advantage of a possible gravitational technique for SETI over the radio technique is primarily one of time of 'propagation' for these signals. The radio waves travel at the speed of light, but the gravitational signals (per the writer's theories) are essentially instantaneous signals. Another advantage of the gravitational technique is the simplicity of the instrumentation required. As SARA members know, radio astronomy can be quite complicated. The gravitational wave detectors... must rely largely on the Earth's mass as a 'shadow' to enable the detection of gravitational radiation. Therefore, 'objects' or signals located in the observers' zenith are best detected. Yet, the other areas are still 'detectable' especially with the aid of other 'shadows' such as the sun, moon, planets, etc.

"Of particular interest to SETI observers may be the strange audio type gravitational signals which appear to come from the Auriga and Perseus region of our Galaxy. These 'signals' have been 'heard' by the writer for several years now, and generally range between about 4 and 5 hours right ascension, with a peak intensity near 4.5 hours R.A. The signals appear to be several 'tones'...."

Soon afterward, Hodowanec made the first mention of a definite contact with an apparently extraterrestrial communicator in a letter (7-23-88) to an editor at *Radio-Electronics* magazine:

"On the morning of this date, at 7:30 to 7:38 AM (EST), I recorded the following apparently Morse-Code like pulses:

A A A A R A R T T N N N K C N N N E E E E E N E N N T
T T N E E E E E A E E R K E N N E T E E A A A E E E N T
T K N T N T S E S E S E S E M N A S E S E S E S E S E S E
S E S E -

"As you can see, these do not appear to be just random pulses, but the SE signals, which are most prevalent, appear to be possibly an identification signal. These signals are detected in shielded 1/f detectors and thus are scalar (gravitational) in nature. The signals above (if they were extraterrestrial) came from either the Auriga-Perseus region near my zenith or the Bootes region under my Earth position. I still cannot rule out that they may just be due to Earth core movements of some sort which are remarkably like Morse code

signals, or even the possibility that they are man-made.”

By July 1988, Hodowanec had confirmed Tesla's claims, as he announced in "Some Remarks on Tesla's Mars Signals":

"...Such signals are being received *today* with simple *modern-day* scalar-type signal detectors... coherent modulations are being 'heard' in [the microwave] background radiation. The most prominent modulations being three pulses (code S) slightly separated in time, a la Tesla! On occasions, the code equivalents of an E, N, A, or K, are also heard, but the most persistent response is SE, SE, etc.

"Any 1/f type noise detector will respond to this background modulation. However, the experimenter must be careful that he is not creating these responses at the 'local' level by his own or other local actions. For example, the detectors will also respond to heart beats, breathing actions, local movements, as well as possible psychic effects. The detectors are easy to make and the experimenter should easily reproduce these results."

Hodowanec released more details in a Cosmology Data Note (10-13-88):

"Since about early August 1988, it was noticed that apparently 'intelligent signals' existed in these modulations [of the microwave background radiation]. It can be said that the intelligence was in the form of digital-type communication, e.g., dots and dashes, or ones and zeros. This type of communication may have been chosen by this 'unknown communicator' as it was conducive to the 'mass movement' form of longitudinal gravity signaling, as well as an easily recognizable universal system. This same method was proposed by the writer for a gravity system communication method.

"These 'signals' were noticed to be similar to the simpler International Morse Code symbols, primarily because they are the simplest way to present information in the pulse form. Thus, the 'letters' found in these transmissions are typically: E, I, T, M, A, N, R, K, S and O, as well as... the comma and the wait signal. However, numbers are seen here as the simple series of pulses, e.g., 1 is one pulse, 2 is two pulses, 3 is three pulses, and so on.

"On August 26, 1988, after the writer had sent the message 'GREG RADIO' during a local gravity signal transmission test, it was noticed that the letters G and D were apparently added to some of the received messages noted thereafter!

"The writer's first hard evidence that the above test message may have been intercepted by this unknown communicator was seen that on August 28, 1988... a strong and repeated message of the GREG RADIO was received with the message finally terminated with the

series SE (or 31)!

"Further evidence that these may be actually communication attempts is seen in that on October 11, 1988... a very different approach was seen: A series of GREG RADIO's was sent at about the normal code speed of about 5 words per minute, followed by KKTT, and then the series was repeated at a slower speed and also followed by KKTT...

"Another confirmation that these may be 'messages' appeared on October 12, 1988... Here, a series of A's and R's (with Greg Radio occasionally inserted) was then followed by GREG RADIO sent as a series of five repetitions of each letter, e.g., GREG was sent as GGGGRRRRREEEEEEGGGG !!!

"Sufficient 'messages' have now been received to indicate that perhaps a serious attempt to indicate that perhaps a serious attempt to contact this writer was being made by some 'unknown commu-

nicator'. While this communicator may yet be some terrestrial experimenter, the possibility still exists that the communicator may be 'extraterrestrial' for the following reasons:

"a. The messages are in simple code (e.g., dits and dahs) type of pulses which would be expected to be used if one intelligent civilization were to try to contact another civilization in terms of pulses. That some of the simplest pulse signals are similar to simple Morse Code signals is more than coincidence — they are both based upon the same premises!

"b. Numbers are not in the complicated Morse Code symbols, but are in simple sequence, using short pulses or dits.

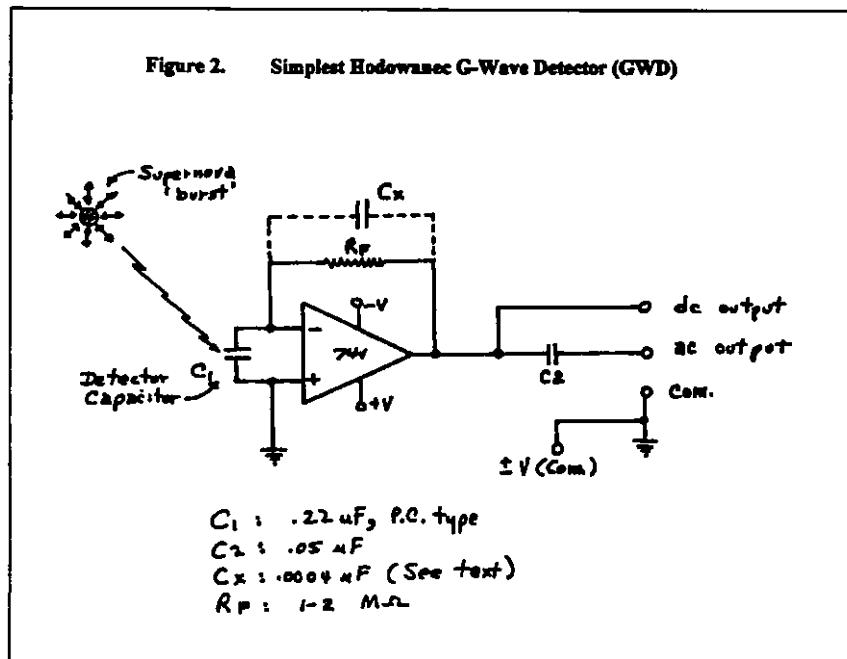
"c. The 'communicator' has recognized the coherent nature of GREG RADIO and is possibly using that sequence of codes in various fashions to indicate that a 'contact' has been made.

"d. The communicator thus far has not responded to 'word' messages or the amateur Q-code signals. Thus it is believed that while some apparently Morse Code signals are being used, the communicator is not really familiar with such usage, other than recognizing the coherent nature of the signals.

"e. Since these messages at present appear largely near the noon hour, they may be coming from a definite source in space. At present, it is believed to be from the general direction of the constellation, Andromeda, but not necessarily the Galaxy there...

"There is also some possibility that this communicator may be 'extraterrestrial', perhaps yet in our Solar System (Mars?), but no further than our own Galaxy or Local Group of Galaxies... [T]his same communicator may have been trying to reach here ever since

Figure 2. Simplest Hodowanec G-Wave Detector (GWD)



the turn of the century when Nikola Tesla reported the interception of scalar S signals!!”

Soon after, Hodowanec wrote this brief, untitled report (2-23-89):

“Without going into the details of how this was determined: ET may be on Mars!

“This, in spite of NASA’s denial of any life forms on Mars [which situation changed in 1996]. This possibility has been recently suspected by the writer due to the apparently very close tracking of my position on Earth by ET. ET, of course, always knew that I was on Earth (as seen by his tracking), but now he has most emphatically confirmed that he is on the 4th planet from the sun, i.e., Mars!!!!”

“While this release is probably a bit premature, I am so positive of these gravity signal ‘exchanges’ that I will stick my neck out in this instance. ET on Mars is apparently much more advanced than we are here on Earth, and he may have even previously visited here on Earth, and possibly colonized here (but who are his possible descendants??).

“It is still a mystery on where ET may be living on Mars (possibly underground near the polar regions??), and why ET doesn’t use EM wave signaling methods?? Perhaps, it is because Mars is so hostile now that ET must have developed a very sophisticated underground civilization which is not conducive to EM radiation systems?

“This material is being released now confidentially to but a very few active colleagues until further confirmations on this assertion are obtained....”

In his Mars Flash #1 (3-28-89) and #2 (3-30-89), Hodowanec notified colleagues that, “As the result of the continued gravity signal communications between GH Labs and the Martians, the following extraordinary facts have come to light:

“The exchanges are now being made in terms of short ‘English’ code words for certain items. For example, the Martians now understand that FACE means the human face, MAN means the human person, Earth now means our planet, and Mars means their planet! They had originally tried some of their terminology with me, but gave up except where it made sense to me. For example, I now know that TTT at the end of their names means person and OOTTAEERR is their name for the 10th planet!”

In a handwritten footnote to the above, Hodowanec informed this writer that the Martian’s name is “AAAAAATTT”. “He appears to ‘understand’ my messages, even though I may have to repeat them in several ways so that he can ‘see’ the meaning....

“Communications between GH Labs and a Martian intelligence now continue with increasing progress since we have been able to establish over 50 simple expressions (most in simple English) for many of the common ‘ideas’ that we have. Martian AAAAAATTT is extremely adept in relating my English terminology to these common Earth-Mars observations....

“Mars has also confirmed that they are also ‘men’ with one ‘head’ that have two ‘eyes’ that ‘see’. Also, they have one ‘body’ with two arms that have hands with five fingers each. Also they have two legs with two feet that have five toes each. I haven’t been able to have them confirm the nose and mouth in the face, but that could be confirmed shortly, since those features appear in the FACE.

“Probably the most significant fact which was determined on this date seems to be that Mars is most emphatic that Earth men are like Mars men! This appears more and more that Mars *has* colonized Earth in the remote past! This could be true since we on Earth have

never really found the ‘missing link’ between Earth humanoids and humans!

In a letter (3-17-89) to this writer, Hodowanec mentioned that “Generally, our contacts are limited to 20-30 minutes... since there appear to be other ETs out there interested in joining in also, and so there is some interference after a while. Some of these other ETs use other methods of communications such as tones and what appear to be guttural voices!

“ET is probably more advanced than we are on Earth. We no longer exchange simple arithmetic, and when I sent him Pi to five decimal places, he sent Pi back to seven decimal places immediately! We had discussed our nine planet solar system, but ET came back with *ten* planets, calling the 10th planet OOTTAEERR! When questioned on this, ET kept on confirming the existence of a tenth planet! He now knows the other nine planets by their Earth names! He also confirmed that Mars has two moons, the Earth one, and that Jupiter has nine major moons.

“These contacts are getting to be more interesting all the time, and ET appears to be most anxious to continue them. However, I just cannot spend too much time with him... I got across to him that I am just one person here communicating with him, and that the rest of Earth presently does not recognize the existence of any life on Mars....

“I have now had over 100 contacts with ET and can reach him at any time of day or night... We have also established some simple codes for acknowledgments and go ahead and respond. While we use these simple codes in many contexts, both ET and I now understand in which context they are being used!”

In another letter (3-22-89) to colleagues, Hodowanec affirmed that his contacts with Martian intelligents “has been verified in a number of ways... The Martians are apparently the advanced civilization, for they are the ones generating the ‘modulated oscillated beam’ which is now tracking my location on earth and is thus the means of our communications. [The beam is “only about 15 miles in diameter here on Earth, but 1012 inches on Mars.”] There is an apparent ‘team’ on Mars which is involved in these contacts. The original contact, ET#1, with whom I have established the initial relationship, is apparently the most highly knowledgeable and advanced. The others who sometimes ‘man’ the Mars station appear to be less knowledgeable and some only request or acknowledge a transmission....

Mars is most desperate to continue these contacts... [The] exchanges are made in many varied ways which cannot be readily predicted in order to convey the fact that these are real contacts! Also, one can recognize the ‘fist’ of the one ‘keying’ these codes, e.g., ET#1 always sends clean letters or numbers, and identified himself and me in some fashion. The other ETs on Mars usually don’t. Therefore, no automation is being used here!

“While these contacts were originally due to a serendipitous circumstances, it is really the result of my gravitational communication experiments and thus a direct result from Rhysmonic Cosmology. And yet, however fantastic and unreal this may seem, it is real, and if also it is confirmed by one of you, it will be a major milestone in the history of mankind! Perhaps, if one of you finally ‘hears’ the modulations of *lf* noise background, you may try to establish your own contacts?”

However, Gregory Hodowanec also had extreme reservations

about the gravity of the situation, which he expressed it in a letter (4-14-89) to this writer:

"...my 'contacts' with Mars continue with much information being exchanged. However, due to the increasingly astounding nature of these exchanges, I am now limiting further releases to only two long-time observers (witnesses) of my research efforts. This is being done so as not to jeopardize these contacts with unwanted notoriety or publicity in the media. There are now nine "Mars Flashes" for the record. Perhaps, in the future, I may release some of these....

"...gravity signal communications are instantaneous, require extremely small energy expenditure, [unlike Tesla's experiments] and is so simple as to be just unbelievable by the average person. However, this is as far as I want to go with release of details at this time....

"I would appreciate that you keep this info somewhat confidential now. The Earth may not be ready for what I will have to say eventually. Nothing dire, just fantastic and thus perhaps unbelievable!"

A variety of GWD circuits exist today (Figure 2). Complete details of Gregory Hodowanec's theory Rhysmonic Cosmology, etc., are available from Rex Research. □

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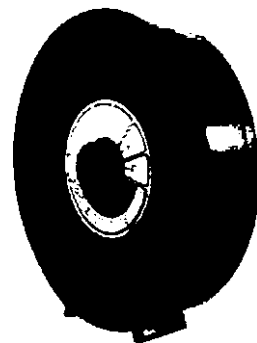
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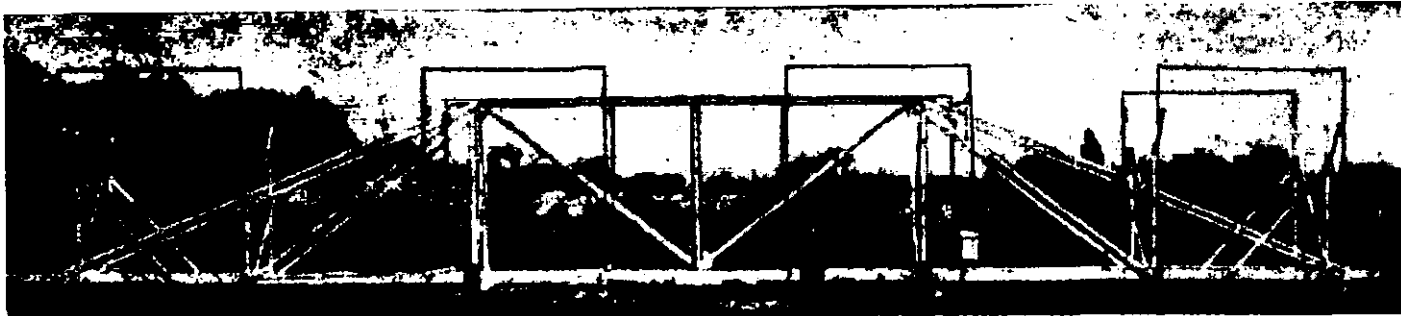
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Above: The directional antenna used by Dr. Karl Jansky in detecting galactic radio waves is mounted on wheels and rotated by a synchronous motor, so that it makes one complete rotation every twenty minutes.

Short-Wave Signals from Interstellar Space

Reprinted from the *1934 Official Short Wave Radio Manual* edited by Hugo Gernsback

MYSTERIOUS radio waves which appear to come from the direction of the center of the Milky Way have been discovered by Dr. Karl J. Jansky of the Bell Telephone Laboratories and were described by him in a paper delivered before the *International Scientific Radio Union* in Washington, D.C., on April 27, 1933. They are short waves (14.6 meters) at a frequency of about twenty million cycles per second, and were discovered in the course of radio studies carried on as a regular part of telephone research. The intensity of these waves is very low, so that delicate apparatus is required for their detection.

An investigation of their nature and source has been carried on for some time, and a preliminary report was published in December of last year.* Unlike most forms of radio disturbances, these newly found waves do not appear to be due to any terrestrial phenomena, but rather to come from some point far off in space – probably far beyond our solar system. By a series of investigations carried on over a considerable period, the direction from which these waves arrive has been determined. Measurements of the horizontal component of the waves were taken on several days of each month for an entire year, and by an analysis of these readings at the end of the year, their direction of arrival was disclosed.

Directions such as northeast or southwest have no application, of course, except to things on the earth. Objects in space surrounding us are located by their right ascension, measured in hours to the east of the vernal equinox – the position in the sky in which the sun appears at the beginning of spring – and by their declination in degrees above or below the Equator. The coordinates determined for the newly discovered radio waves are a right ascension of 18 hours and a declination of about 20°. The right ascension has been determined quite accurately but there is still some uncertainty about

the declination.

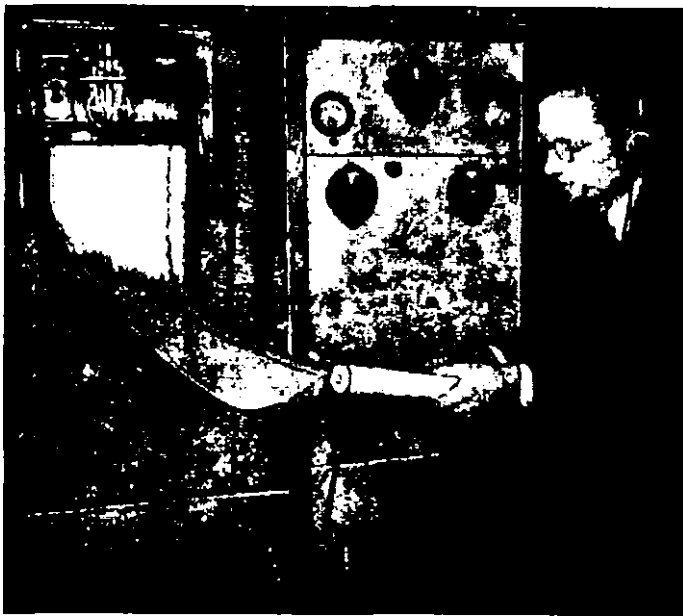
The position indicated by these coordinates is very near to the point where the plane in which the earth revolves around the sun, crosses the center of the milky way, and also to the point toward which the solar system is moving with respect to the other stars. Further verification of this direction is required, but the discovery, like that of cosmic rays, raises many cosmological questions of extreme interest.



Above: Dr. Karl Jansky at one end of the antenna used for receiving galactic radio waves.

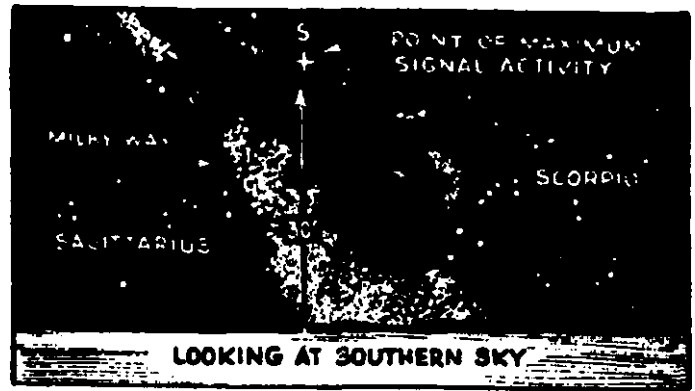
Took 40,000 Light-Years to Reach Earth

Electrical energy in the form of radio waves, which scientists believe come from a point so remote in space that it requires between 30,000 and 40,000 light-years for the waves to reach the earth, was heard by radio listeners throughout the United States in a recent broadcast. It was the first such experiment ever carried out. The sound, generated by the waves arriving at a supersensitive receiving set operated by Dr. Karl G. Jansky, research engineer of the Bell Telephone Laboratories' experimental station at Holmdel,

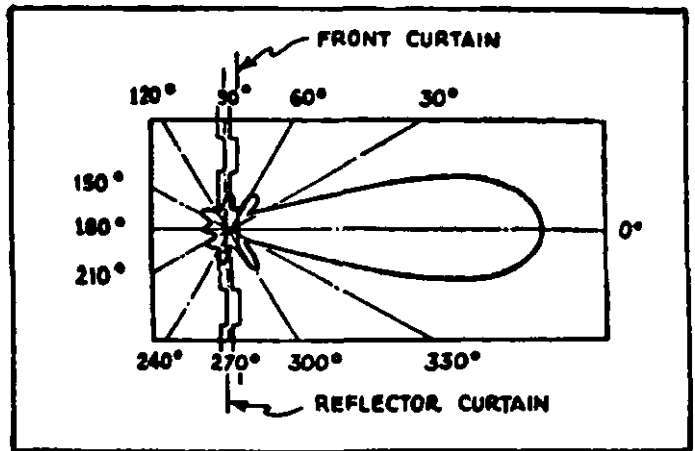


Above: The automatic recorder which made a continuous ink record on a moving paper strip, like that shown on next page, of the galactic short-wave signals received by Dr. Jansky's special revolving antenna and ultra-sensitive S.W. receiver.

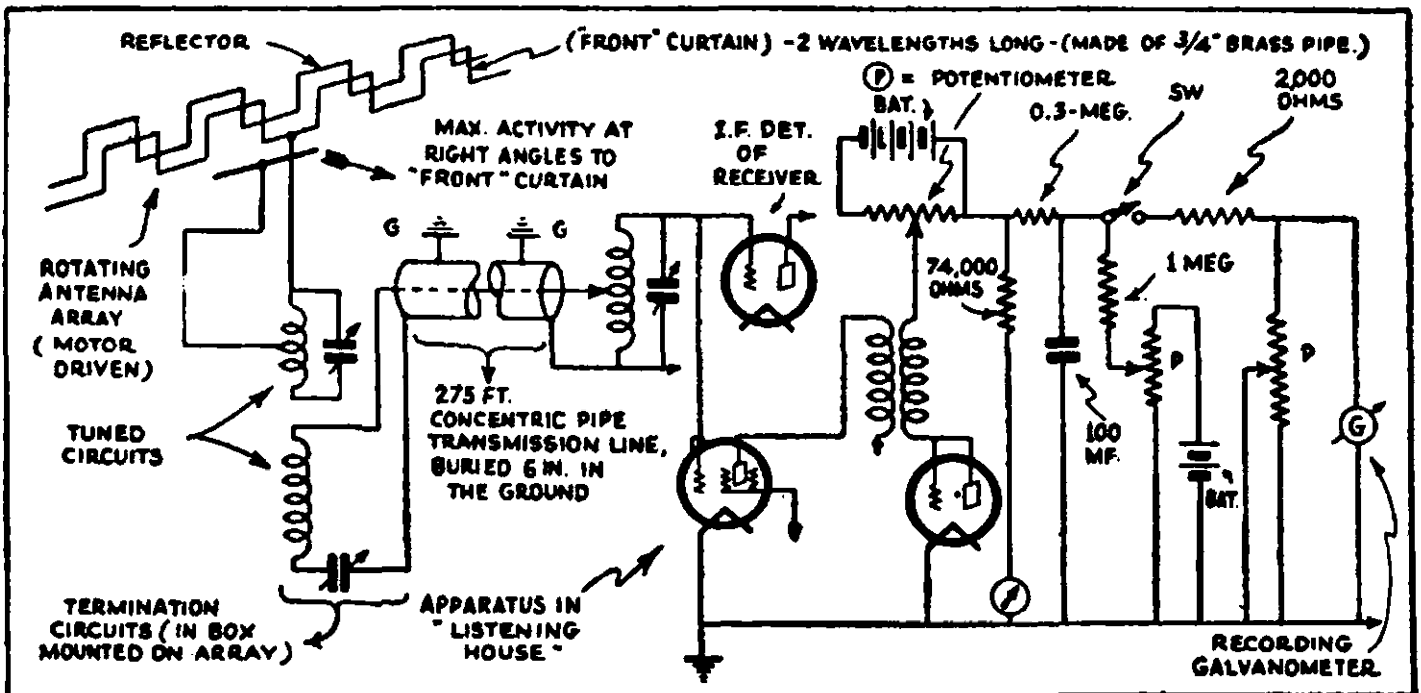
Below: How the rotating antenna array is connected through tuned termination circuits, the short-wave signal currents then being led through a shielded cable buried in the ground to the recording amplifiers and the ink recorder itself.

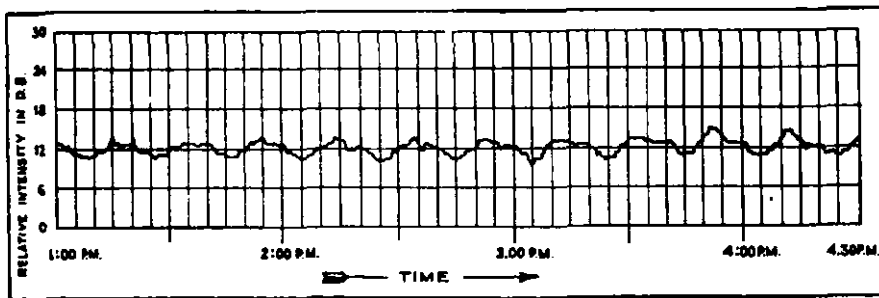


Simplified map of the Southern sky for July 21 (10 P. M.) showing point from which interstellar short-wave signals may be expected.



Above: Chart shows direction of maximum reception with respect to plane of antenna array used by Dr. Jansky.





The mute evidence of the reception of short-wave signals from space is presented above, this chart showing just a small section of one of the long records made during Dr. Jansky's tests.

N.J., sounded like steam escaping from a radiator. Wires carried the sound from the New Jersey receiving station to the WJZ coast-to-coast network. Dr. Jansky, speaking of his work carried on secretly for more than a year, said an immense amount of electrical power would be necessary to transmit waves over such distances. Some of the stars, however, have been found to radiate as much as 500 sextillion horsepower, he added.

Signals Emanate from Region of Sagittarius

Dr. Jansky was introduced by O.H. Caldwell, former Federal Radio Commissioner, who explained how the research engineer, using an antenna rotated by motors, determined the point in the sky from which the waves apparently arrive through space. The rotation of the earth on its axis causes the waves to strike the earth at different angles, depending upon the time of day and season of the year. By carefully checking the gathered data it was discovered that the waves were arriving from the region of the constellation of Sagittarius (The

Archer).

Mr. Caldwell, in introducing, Dr. Jansky, said:

"These radio impulses from the stars were discovered by Karl G. Jansky of the Bell Telephone Laboratories while he was studying the faint static hiss that can be heard on a sensitive radio set when its amplification is turned up so as to get the faintest possible signal. At Holmdel, N.J., where the Bell Laboratories have a 400-acre tract in the woods, Mr. Jansky has a tremendously sensitive receiving set, with a long antenna system mounted on wheels so it can be turned in any direction.

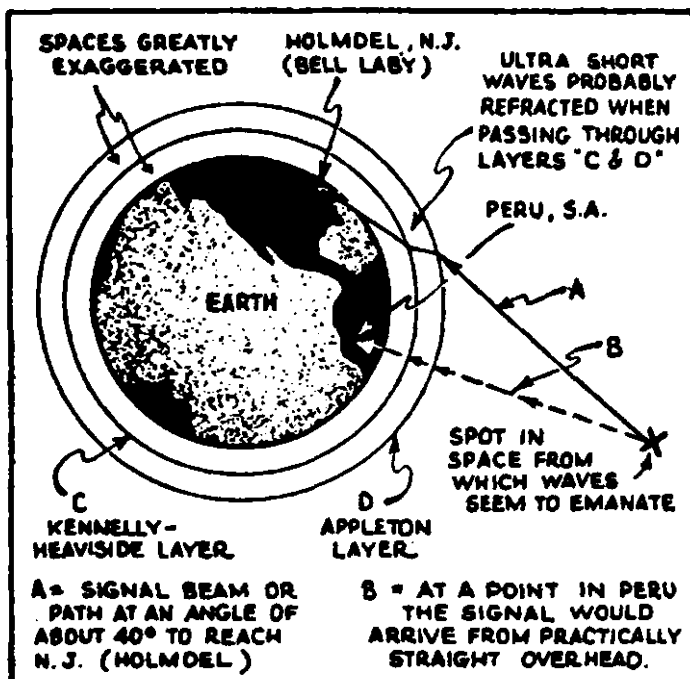
"Using this elaborate, sensitive equipment to listen to the faint static hiss that is always present in such a sensitive receiver even on the best days or nights, Mr. Jansky noticed that the hiss was always a little stronger coming from one direction than from other directions, and also that this directional maximum was continually rotating around the horizon, approximately once every day.

Accurate Records Pile Up Evidence

"At first he thought naturally that this maximum of his had something to do with the sun's position and with the earth's daily rotation. But when he began to keep accurate records of the shifting of position of this stronger hiss, which is recorded by automatic measuring instruments, Mr. Jansky noticed that each day its position was just a little bit ahead of the position at the same hour the day before. That is, in a week there would be a difference of half an hour in the position of maximum hiss. In a month after a difference of two hours. So apparently this strongest hiss was not following the sun's position at all, but was following something which gained on the sun about 4 minutes a day, or two hours a month, or a whole rotation of the heavens in a year. Mr. Jansky said nothing in public but continued to keep his records carefully over a whole year, and at the end of that time, the maximum hiss was back again, once more coming from exactly the same direction as it did on the same date 12 months before.

"Evidently then, the radio waves or hiss Mr. Jansky was picking up was coming from some definite spot in the sky of stars, entirely independent of the sun's changing position among the stars. The instruments were detecting a stream of radio coming from some fixed point in the universe of stars, outside of the earth, the sun or the solar system - radio impulses from the stars themselves!" □

*Proceedings of the Institute of Radio Engineers



Above: Angles at which ultra short-waves reach the earth from point in space.



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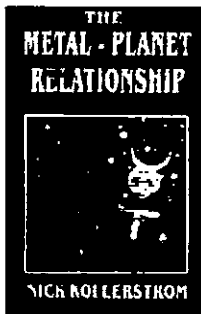
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DETECTING BIODYNAMIC SIGNALS

PART III

INTERSTELLAR COMMUNICATION

by Michael Theroux

HISTORICALLY, the alleged reception of signals of an extraterrestrial origin dates back to the very beginnings of radio. In fact, we find that the recent history of the investigation into interstellar communications is almost completely restricted to the science of radio astronomy — a technology which is quite limited due to the necessity of obeying the confines of the electromagnetic spectrum. Early in his career, Dr. L. George Lawrence recognized this limitation, and sought to overcome it by introducing a means of communication which was not bound by conventional electromagnetic laws. “Biological” or “Biodynamic” communication, as Lawrence called it, found its medium completely outside of the electromagnetic spectrum, and therefore solved many of the problems facing the prevailing radio-astronomical methodology of interstellar communication. To comprehend the complexity of these problems, we must briefly detail the historical background of conventional interstellar communications (hereinafter referred to as ICOMM).

Radio Astronomy and the Birth of ICOMM

Both Nikola Tesla and Guglielmo Marconi would be remembered for their early pronouncements of receiving “alien” signals (see “Communicating with Mars” on page 33), but it wasn’t until 1930 that the birth of radio astronomy and the consequent

reception of radio signals of galactic origin heralded the beginnings of ICOMM. Karl Jansky, an American radio engineer, was the first to pinpoint signals originating from the center of the galaxy. We needn’t detail his findings here as we have reprinted the entire 1934 document (see “Short-wave Signals from Interstellar Space” on page 38). Shortly after World War II and the development of RADAR, the military began frequently intercepting radio signals originating from outer space. With this development, the first large radio telescopes would be employed for purely scientific purposes.

The first plan to monitor the stars for signs of intelligent life was conducted by Frank Drake, the then Director of the National Radio Astronomy Observatory (NRAO) at Green Bank, West Virginia in 1960. The project was called “Ozma”, after the imaginary land of Oz, from L. Frank Baum’s *Wizard of Oz*. The intended targets were Tau Ceti (11.9 light years from earth) and Epsilon Eridani (10.8 light years from earth). After observing for a total time of about 4 weeks in the region of the 21-centimeter hydrogen band, no signals were found. Thus, ended Project Ozma — and to this day — no signals have been found by any standard radio-astronomical methods. Many so-called SETI (Search for Extraterrestrial Intelligence) projects, and several millions of dollars in funding later, have turned up

nothing. Even NASA showed interest for awhile, spending \$60-70 million since 1971, but in the early 1990s, they dumped SETI and other projects from their budget.

The SETI institute's latest endeavor, called Project Phoenix, began in February 1995 at the Parkes radio astronomy observatory in New South Wales, Australia. So far, they have managed to bring in more than \$7.3 million in private donations for their efforts. State-of-the-art equipment was used to listen to about 200 southern hemisphere stars, scanning 28 million channels simultaneously at single-Hertz resolution using the 64 meter radio telescope. A follow-up telescope located 120 miles away allowed them to distinguish between terrestrial and galactic signals by utilising Doppler shift. But, still no ET. Promising signals have all turned out to be things such as satellites, military radar, and even TV stations. They haven't given up though, and plan to focus on 900 northern hemisphere stars next.

The Problem with Radio-astronomical ICOMM

The major difficulty with radio-astronomical ICOMM is that at its foundation lies some very uncreative quantitative assumptions. The basis for the entirety of this research assumes that an extraterrestrial civilisation's technology is comparable to, and has evolved to a state equal to our own. Without thought, academia casually presupposes that there are many, "...civilisations intelligent enough to build radio transmitters," and "...several million civilisations matching the Earth's *standard of development*." Quite an egotistical assumption for a culture that admits no solution to the mysteries of their own ancient civilisations!

Because technology on this planet has evolved in a specific direction (in this case toward the quantitative and mechanistic) does not foreordain that any other civilisation's technological evolution must parallel ours. It is quite possible, and certainly probable that many civilisations of galactic origin may have technologically evolved toward the perceptive and qualitative. These may be the standards by which they seek to communicate, and as we shall see, offer greater success considering the great distances with which ICOMM necessitates.

Language of the Stars

The most difficult obstacle to overcome concerning ICOMM lies with the exchange of information. Since conventional presumption is so anthropomorphically restrained, the academics insist on using our own cultural and societal development as a guide to choosing the proper cosmic linguistic form. Simple messages, binary call signals, pictograms, and even

an artificial schematic language called *Lincos* have been suggested and even transmitted to the stars. But, even simple language can pose incredible difficulty for scholars wishing to make an interpretation. Earlier advanced cultures on our own planet have left us with innumerable writings which still evade academia's decryption. Even the late skeptic and mechanist Carl Sagan foresaw this conundrum: "European scholars spent more than a century in entirely erroneous attempts to decode Egyptian hieroglyphics before the discovery of the Rosetta Stone [1799] and the brilliant attack on its translation by Young and Champollion. Some ancient languages, such as the glyphs of Easter Island, the writings of the Mayas, and some varieties of Cretan script, remain completely undecoded at the present time ...how can we expect that a civilization vastly more advanced than we, and based on entirely different biological principles, could ever send a message we could understand?"

Dr. L. George Lawrence was clearly aware of these facts before he began his pioneering efforts in biodynamic ICOMM. Dr. Lawrence proposed that certain advanced civilisations would have developed a means of communication utilising purely biological principles. This biological exchange of information has been previously outlined in parts I and II of this article, which also detail Dr. Lawrence's experiments in biodynamic transfer of information. Dr. Lawrence stated that these galactic cultures may have communicated by a method now lost to our civilisation — *eidetic communication* — where the biodynamic energy transfer acts as the carrier, and the patternate content is the modulation. This patternate content is the actual



Experimental setup for Project LUCAS in the High Desert of Southern California. The biosensor assembly sits atop the 4.5" Newtonian telescope. Electronics consist of high-gain amplifier, oscillator, and modulator.



Project LUCAS in the High Desert of So. Cal. Small tube pointing to the right in the photo is original bisensor prototype assembly — still operational.

eidiform, or complete eidetic picture. What makes this method superior to conventional radio reception is the fact that biodynamic information is transmitted in a longitudinal point-to-point fashion. One doesn't have to wait light years for the reception of a message — it is nearly instantaneous. This may be likened to simple remote viewing, only in this case it is device assisted — ensuring minimal errors. Gerry Vassilatou has done substantial work in this field which he calls *Device Assisted Remote Viewing* — and with notable success.

Determining the Method of Transmission

Dr. Lawrence was not without his own assumptions concerning the possible methods of galactic transmission. Of course, we have to begin somewhere, and Dr. Lawrence, being a radio engineer, followed the simple progression entailed in sending and receiving conventional radio communications. This follows the Russian theorist Y.I. Kuznetsov's outline of the communication process via the concepts of communication, coding, signal, and modulation. Lawrence's version would be detailed thusly:

The *communication* (Eidogram) would be converted into a form suitable for transmission (biodynamic signal), the coding being the method of conversion, and the modulation (patternate content) would be the change in the parameters of the emission serving as the carrier of the (biodynamic) signal. For reception, one would simply reverse this process.

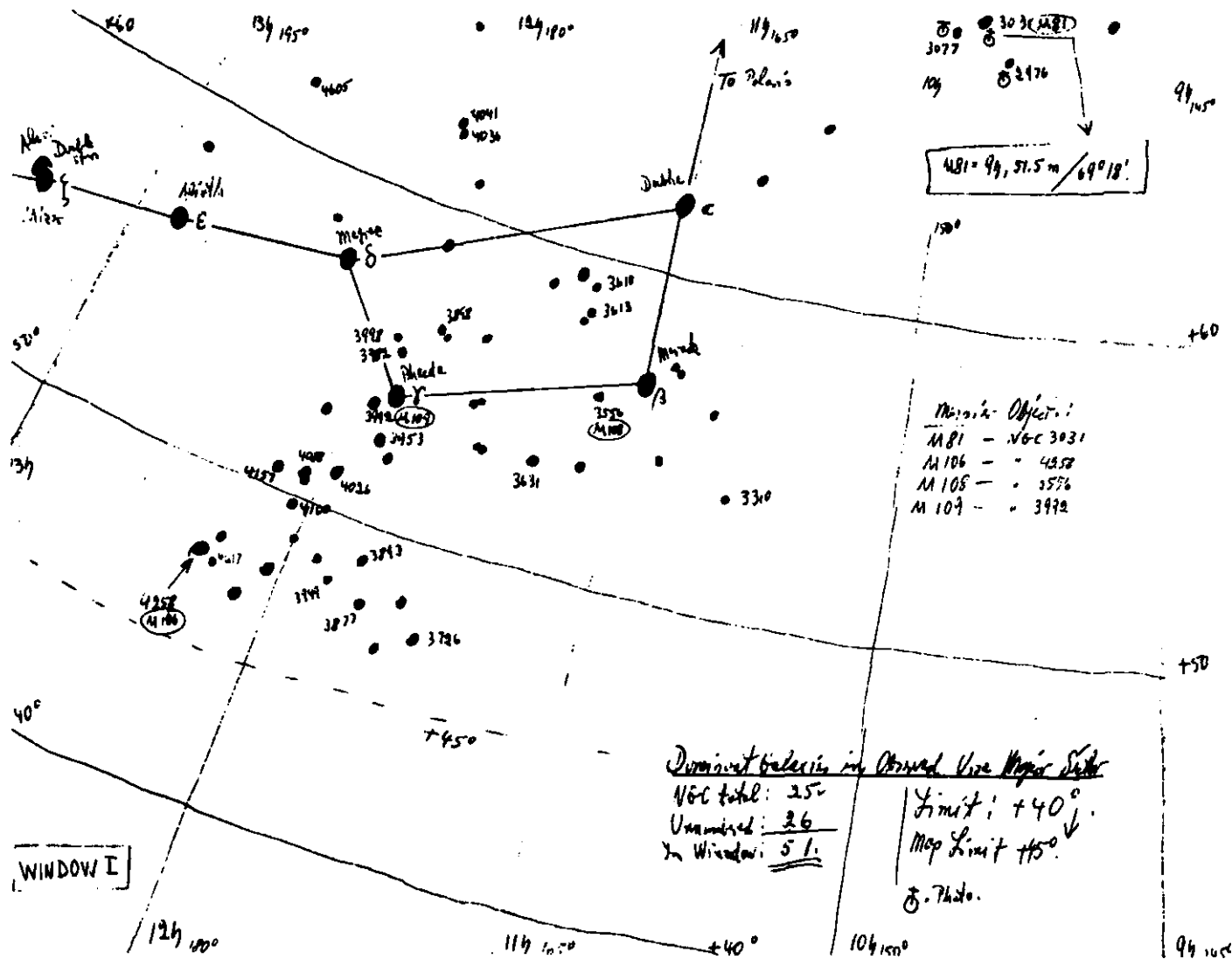
Dr. Lawrence arrived at these conclusions based on his qualitative analysis of the sound emitted from his experimental setup. The modulations he heard displayed a character not unlike other conventional transmissions, which led him to work on their immediate conversion to visual images. At the very heart of Dr. Lawrence's system was a unique form of biodynamic transducer which enabled him to receive and transmit signals of a biological origin.

Qualitative to Quantitative Analysis: Biosensor Technology and the Biodynamic Transducer

Early in Dr. Lawrence's career, he began work on a series of transducers of biodynamic energy. In order to utilize quantitative measuring instruments, biodynamic energy would need to be converted or transduced into electrical energy. Initial experiments commenced with simple Wheatstone bridge circuits and plant material as the biosensor. Although the plant material reacted to biodynamic stimuli such as touch, and even directed thought, this was found to be unwieldy as the plant material was possessive of its own consciousness. It could easily become fatigued and stressed, or would simply seem unconcerned when experimental matters were conducted. Dr. Lawrence then began a systematic search of the organic semiconductor library for an answer. He found that a simple mixture of protein complexes, a sort of primeval soup as it were, produced remarkable results. But, the problem of tuning to specific biodynamic energies still existed. One needed to capture individual responses to particular stimuli in order to rule out any possibility of unwanted artifact. This necessitated the addition of special substances to the soup, to be used as what Lawrence termed the "excitation" mixture. These ranged from organomethylglyoxol compounds to a variety of mineral compositions — each with their individual response characteristics. Now, the qualitative reactions of this biological "soup" could be directly transduced into a quantitative electrical signal via the use of high impedance amplifiers, and when mixed with a local oscillator, produced the desired output signal for analysis.

Project LUCAS

Project LUCAS, named after Dr. L. George Lawrence, was designed with the intention of re-creating these biodynamic interstellar communications experiments. Myself and researcher Michael Elsey journeyed to the High Desert area of the Joshua Tree National Monument for the re-creation. Many months of preparation preceded the actual experiments — the fabrication of biosensors and electronic equipment, laboratory testing, and experiment rehearsal. The project has been largely unfunded,



Original diagram by Dr. L. George Lawrence detailing the area of the constellation Ursa Major. Dr. Lawrence had the most success receiving Biodynamic signals from this region of the sky.

and the total cost of the present experimental setup is under \$1000.

We began the experiment with a horizon-to-horizon scan of the sky to see if there was any indication of biodynamic signals present. It was immediately discovered that one of the newly constructed pieces of equipment, the actual electronic sensing apparatus, suffered from electromagnetic interference, and had to be removed from the experiment. An older unit was inserted in its place and performed to our expectations with no interference problems. Our initial targets would be two galaxies in the Ursa Major constellation: M81 and M82. These were chosen because of all the searches conducted, Dr. Lawrence had the greatest success there. Our horizon-to-horizon scanning continued slowly to ensure proper functioning of the equipment, and eventually would focus in on the target area. Our first pass at M81 revealed nothing. I was concerned that the older equip-

ment wasn't sensitive enough and I began turning knobs. Nothing happened. As we settled into the campsite, we decided to leave the telescope and biosensor focussed in on the target area for awhile. I remembered Dr. Lawrence's notes regarding how several weeks would go by without the detection of any signal, but I was still becoming somewhat discouraged and impatient by the lack of reception of signals, and continued to believe the equipment may be to blame. Suddenly, bursts of modulation poured out of the speakers. I immediately checked the equipment to make sure there wasn't a malfunction. Everything was in order. The bursts lasted only about ten seconds, and then as if nothing had happened, the equipment returned to the idle state. This would happen one more time the entire evening. Both instances were captured to cassette tape for further analysis.

We feel confident that this project confirmed Dr. Lawrence's findings. There is no doubt that some kind of biodynamic signal

was received from the direction of the constellation Ursa Major. Ideally, a remote biodynamic station would be set up to monitor this area on a continuing basis so more information could be obtained and analysed. We may return to the problem of interpretation of these signals at a later time, but for now, the reception of biodynamic information from space has once again been verified.

Conclusion

Hopefully, there will be enough interest and time to continue in this experimental direction. The need for better equipment, and constant monitoring are essential to such a project, but without proper funding, may be delayed for several years. Still, we continue experimentation on the transfer of biological information, and are now working toward development of simple practical applications of this technology. Working outside of the electromagnetic spectrum into the domain of biological energies opens up a vast new area of research far exceeding the singular employment of interstellar communications. Technologies which could arise from this pursuit are manifold, and applications such as point-to-point terrestrial communications, and portable biodynamic detectors may be a part of the near future. □

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L. George Lawrence

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by Joe Bartkowski

The Proper Attitude Toward Experts in any Field

An article by Sydney Harris in the *Daily Colonist*, Victoria, B.C., November 24, 1974, describes "The proper attitude toward an expert in any field" is one of reserved respect. "Respect" because he has applied himself diligently, and knows far more than a layman can comprehend about his subject. "Reserved" because it is rarely the expert with formal training who makes the most notable advances in his field. A startling number of inventions and discoveries have been made by men trained in one field who delved into another with the innocence of a child and the fervor of an amateur. They were thus able to see what expert did not, for in a sense, knowing too much about a subject arbitrarily delimits one's sense of what is "possible" or "feasible". To make basic discoveries, one must remain childlike in some respect. Experts are good to check and test one's ideas, but are not as perceptive in knowing what can be done outside conventional formulations. This is not the way to discover anything, except how quickly the imagination congeals and the spirit shrinks in such an atmosphere!

In May 1974 two Californian researchers, Malina and Rowland, announced their hypothesis (something assumed) that chlorofluoro carbon photolysis, in the lower atmosphere, brought about through the interaction of ultra violet radiation of the sun, releases chlorine atoms, and when they reach the stratosphere, attack the ozone layer, which in turn would be totally depleted, leaving the planet without protection against U.V. rays!

They overlooked that for generations, chlorine atoms escape out of sinks, toilet bowls and swimming pools all over the country because of chlorination!

Right from the start, this theory generated great controversy because they did not take into account the role of carbon dioxide and nitrogen oxide in the upper atmosphere, only the action of chlorine and chlorine alone. But not only that, throughout their report about destruction of the ozone layer, as it were like a rusty mesh wire that is rotting away and when it is gone, its gone. They forgot that new ozone is created constantly by interaction of sunlight, of which the ozone forming U.V. rays are a part of. It is as if the U.V. rays, when they hit oxygen, create their own barrier.

The United States and Canada were the first to put a ban on nonessential use of chlorofluoro carbon and other countries followed. But soon all scientific data that followed confirmed the fact, that the restrictions were premature. Even so, the first United States National Academy of Science reported in 1979 an ozone depletion of 15 - 18%, the 1983 estimate brought it down to only 2 - 4% over the next 100 to 120 years, and the 2 - 4% had been declared as just a margin of error. Further, the 1982 analysis of the ozone layer showed

that between 1970 to 1980 the amount of ozone did not decrease, on the contrary, it rose by 1% at a time when use of chlorofluoro carbon in aerosols was at its peak.

However, the greatest surprise came after airplanes went up to measure the ozone on the poles, and eureka, there were holes on the poles and naturally it was assumed the villainous CFC's did it. To make it plausible how the CFC's got over the Antarctic, as 90% of them are manufactured and consumed on the northern hemisphere, winds were blamed for it.

During that time, when the ozone holes led to all kinds of speculation, this writer went from one chuckle to another. Why? Did I lose my marbles? Not in the least. I only remembered the warning words my mother told me as a pre-schooler in the early twenties in Germany. Each year, starting at the beginning of March, I would take my shirt off because it was warm, and then she would say, "Joe, put your shirt back on, you must know that the sun in March has the greatest tanning power compared to other months!" How did she, a simple housewife know that? Because her teacher had told her, and her teacher got it from his teacher, and he in turn from his, and so on. Later in grade school our teacher told us that too and that the ultra violet rays awake the plants from the long winter sleep. Newspapers and periodicals wrote, how in spring, nature in its wisdom increases the U.V. rays to give the vegetation an additional boost! Only how nature does it, they did not say, as this was accidentally discovered 50 years later in connection with the CFC theory.

Housewives, too, were happy about it, because during winter they had to dry bed and table linens in attics, which made them gray and dull. Now they could take them and spread them out over lawns, as in Europe the grass does not die thanks to the Gulf stream, and there was nothing to worry about, as pollution, as we know it today, did not exist.

At that time, family physicians in cities, had huge sun lamps in their office to make sure that during winter his patients, especially children, got some ultra violet light that the body needs to synthesize vitamin D as supplements had not been invented yet. When a sun lamp was turned on after a while it gave off a slight pungent scent, like weak chlorine, this was ozone, created by U.V. rays from the lamp acting on the oxygen in the room.

The two faces of the planet in figure 1 depict latitudes and temperature zones. The Torrid zone between Tropic of Cancer and Tropic of Capricorn is the only one where sunrays fall vertically. The Tempered Zones get them, depending on season, more or less slanted!

There is no scientific proof that at any time in history, our planet

floated within an ozone bubble, only, more or less under an ozone canopy. How can it be otherwise, as the most northern line where sun rays come down vertically, runs close to Havana on the North American continent and through the Sahara Desert on the North African Continent. On the Southern hemisphere, the line runs close to Sao Paulo in South America and through the Kalahari Desert in South Africa. But the real surprise comes from the McGraw-Hill Encyclopedia of Science and Technology 5th edition which reads:

"Ozone is an oxygen molecule O_2 , plus one extra atom O . This extra atom of oxygen splits off very easily and does so, when it comes in contact with water, which becomes hydrogen peroxide H_2O_2 ."

Hydrogen peroxide is found in fresh fruits and vegetables, some from rain, some by photo synthesis. Human mother's milk, colostrum milk, secreted after birth, has a higher hydrogen peroxide count than later. If we would eat fresh fruits and vegetables in their raw state, we would get this healing oxygen into our body. By testing spring water it was found, that the water at Lourdes, France, has the

understand why during dark polar winters in which sun rays are weak or not present at all, the ozone crumbles away, leaving an ozone hole! This process repeats itself each season as long as the planet has existed.

Further depletion of ozone not only on poles alone, but to a lesser degree, in adjoining lower latitudes as well. This explains why on the northern hemisphere when the sun is still low, March has a stronger tanning power as the depleted ozone has not yet been replaced. Later, in April and May, when the sun is higher and the U.V. rays stronger, the missing ozone is restored and does its job.

The Different Dynamics of the Poles

The northern hemisphere has a great climate force working for it. The Gulf stream comes up on the American Atlantic coast but does not remain there, it turns towards Europe and after crossing the Atlantic, splits into three smaller streams.

One passes Lands End, on the southern tip of England and ends

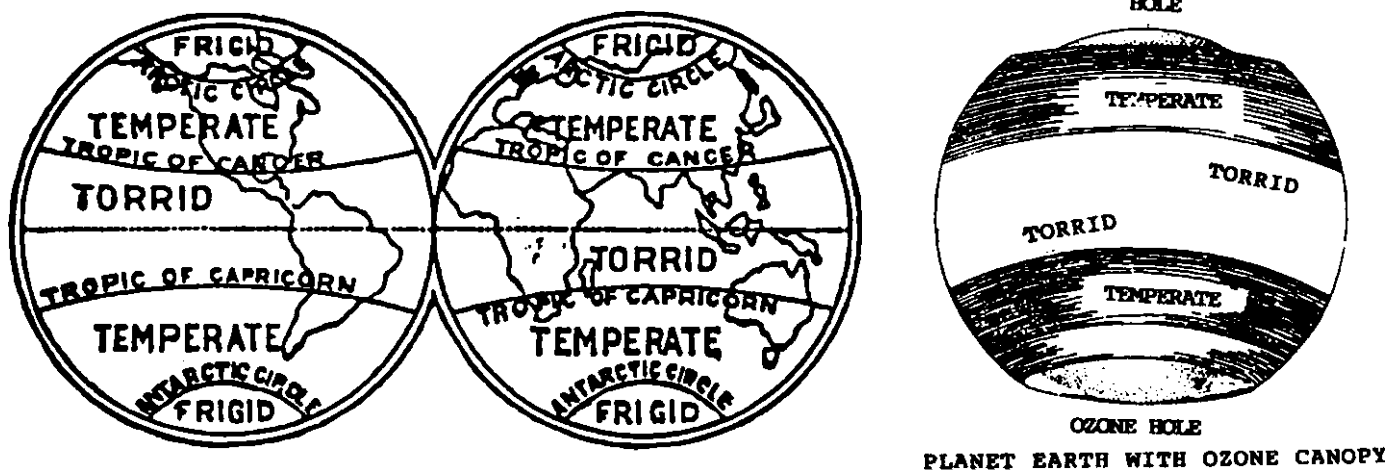


Figure 1

highest amount of hydrogen peroxide in its natural form!

At one point it was said that when a sun lamp was turned on in a room, the U.V. rays created ozone. How long will the ozone last after the lamp is turned off? What chance does the ozone on the South Pole have when the sun retreats?

If ozone does not contact water, it will remain as ozone for only 30 minutes, after that it gives off the third atom of oxygen and becomes a regular molecule of oxygen O_2 , again.

When Forces Change

It is known that Plankton in oceans, forests and other vegetation steadily create oxygen. It rises up into the atmosphere, where it will be bombarded by the sun's U.V. rays and changed from a stable oxygen molecule O_2 , into ozone. As ozone is heavier, it sinks towards Earth, but is immediately replaced by rising fresh and just broken off oxygen, and both will soon be ozone, a normal up and down of oxygen mixing, making the C.F.C.'s look like Don Quixote's fighting windmills! Ozone is always found near air pollution, as nature sends it there to oxidize and clean it up! Ozone is strictly and always only pure oxygen nothing more, it is a living boundary and only on the daylight side of the planet! These facts make it easy to

in the Bay of Biscay, giving Spain, Portugal, France and Belgium mild winters. The second stream moves north along Ireland, Scotland, turns into the North Sea, from which the Netherlands, Germany, and Denmark profit. But the third arm continues up north, along Norway into the Arctic Circle, where it passes the 70th parallel to about 71° and turns right, entering the Beret Sea and Russian Territory, where it ceases, giving the Russian City Murmansk an ice free harbor. All this is within the Arctic Circle where it influences the climate! As winds blow mainly from west to east, warm air currents bestow north and west Europe with fair winters and therefore a smaller ozone hole.

The Antarctic

Contrary to the North Pole, which is covered by a sea, the South Pole is a huge land mass that amplifies the cold enormously.

Imagine, 90% of the world's ice, stretching over more than 5.5 million square miles which, in some places, is up to 12,000 feet thick and sustained by record freezing like $-114^\circ F$. Only Greenland in the Arctic stores merely 7% of global glacier on just 708,000 square miles. The remaining 3% are scattered all over the globe.

In addition, at the beginning of an Antarctic winter, a gigantic

cold air pillar accumulates which rotates for months in its icy darkness, cooling the environment further down, accompanied by cirrus clouds, formed of ice crystals, at altitudes of 20,000 to 40,000 feet. If at that height, the air vortex encounters some sun-rays, it will display an array of refraction by its ice crystals, wrongly called "Solar Winds".

What chance has the ozone on the South Pole, when the sun retreats and all the above storms break loose? Can one fathom what destruction this will do to the unstable ozone, and when will U.V. rays be able to replenish the ozone hole, if ever, completely? Let's examine this gigantic cold air pillar, as science does not explain it satisfactorily. Like water has its law, so has air, but let's use a smaller example like a Pyramid. Researchers who climbed up the Grand Pyramid on the Nile reported a strong air suction at the apex that ripped maps out of one's hand to toss it high into the air!

Cold and warm air currents, plus inclining surfaces play a role here. In the morning, the East side of the pyramid gets the mild sun, during noon, the South flank receives the sun's full force which the stones will store, and during afternoon the west side gets the rest, but the North slope never gets any!

Hot air is in expansion, cool air is compact, in addition, these different breezes follow the pyramids contour upward where they will clash into each other and their different temperatures will create a spinning vortex! If pyramids were round, the result would be the same, therefore, our planet's two hemispheres work like two pyramids put together bottom to bottom.

Laws of Nature vs. Laws of Physics

On Antarctica at the Byrd Station, a team of scientists and engineers, using specially designed rotating drills, pierced over 700 feet down into the ice, bringing up a continuous core, four inches in diameter, which gave a clear picture of the pole's history. The oxygen embedded in the perma-ice, formed 25,000 to 100,000 years ago, revealed the composition of the planet's atmosphere at that time, like the yearly rings of a tree tell of each season's circumstances. At the bottom of their 710 foot hole, they discovered water and presumed it indicated melting from the inner heat of the Earth, which is a hasty conclusion.

Water has it, that the colder a water, the more heavy and dense it becomes, and therefore must sink, contrary to warm water, being less dense, must float on top. No matter on what shore one stands, sea, lake or river, the surface you see, is always the warmest. However, if water temperature sinks below 40° Celsius, about 380° fh., it loses its density, it expands and at 0° Celsius congeals and becomes ice and now, because it is lighter, it must float on top of the warmer water, no matter how big, thick and tall an iceberg is. A land mass, on the other hand, is solid, nothing can sink or rise in it.

Now we know it is not the "inner heat" but the law, that water must sink below ice.

The Geographic North Pole is the Electro-Magnetic South Pole

The above statement, heard in 1943 during a lecture on electronics, still echoes in my mind and at first confused me — just as you are probably confused now. Have we not all, at one time, seen a plus-cross on drawings of the North Pole even though no encyclopedia states clearly which pole is which as if they are not yet sure which is

which. The Vikings used load stones to find the North Star, located close to true North. After introducing magnets and later compasses, the ends pointing toward North were names "North Pole". This appellation led to confusion because it was noticed that identical poles repelled each other and it was changed into "the North Seeking Poles and South Seeking Poles."

What Determines a Plus or Minus Pole

Only Webster's "New Collegiate Dictionary" from 1916 gives a simple explanation and I quote: "A pole tending to gain electrons as such is negative, and a pole tending to lose electrons, becomes positive in a sense, everyone knows that the pole of a battery, sending out a current (losing electrons), is the positive pole, whereas the receiving (gaining electrons) pole is negative, because nature always strives to establish balance, by taking electrons from the plenitude (saturated) and directs it to the poor (unsaturated), and science puts this virtue of nature to good use by taking an electron rich material like zinc, with one that lacks electrons — like carbon — and instigates a flow between the two called 'electric current' and it will flow until each compound has the same amount, then they say, the battery is dead."

The first flashlight batteries were flat having 3 cylindrical zinc containers side by side as cells about three inches long, one inch in diameter and a thin carbon rod in the center as the negative pole. Some isolating material, saturated with an acid-gel, kept container (positive) and carbon rod (negative) apart and simultaneously served as a loosing agent for the zinc electrons. A brass cap on top of the carbon rod made it possible to solder a wire to it, as containers and carbon rods were connected in series. But, what has all this to do with the planet's poles — plenty.

In the sixties, Francis Nixon, a housewife on Vancouver Island, British Columbia, Canada, discovered that the atomic particles in ice are flexible and have the trend to align their nucleus as a unit to magnetic north and are not only able to magnetize steel, but also can banish pain in bones.

Fran's husband, a practicing forestry engineer, arrived from a summer job of timber cruising, on which X-rays were taken of his ankle, back, neck, chest, teeth, and wrist, as they had been flexed continually and gave him considerable pain. He thought he would not be able to continue with his work in the woods. His despair matched Fran's as she knew what it was and she did not think there was a possibility that they would ever be erased.

Dr. Karl Z. Morgan, a radiation specialist, director of the health physics division of the Atomic Energy Commission's Oak Ridge laboratory, also editor of the "Journal of Health Physics" and a member of the National Committee on Radiation Protection, said January 1971 — "The most serious peacetime radiation threat is not nuclear power plants, but ordinary medical and dental X-rays and photofluorographic X-rays."

Up to now, her husband could only function with the help of atomic alignment by ice, which lasted a time and it was back to pain again. A while back, Fran had discovered that atomic particles of ice are flexible and have a trend to align their nucleus as a unit to magnetic north and, if two identical two-gallon plastic containers, filled with water, with lids on and frozen to -150°F. After two hours or more, place a non-magnetized needle with its center over the exact middle point on the lid of one container, the pointed end

toward north and the other facing south. Then place the other container on top of the first, resting on the edge of the lid and let stand untouched for two hours or more. After that, Fran tested the needle from its mid point and it was now magnetic, Fran's needle had been magnetized February 1966 yet on May 1968 it was tested and its magnetic properties of lifting and attracting were still strong! Fran further discovered, that from the center of a block of ice, vertical energy waves are rising and she was able to transfer them to her husband by holding her left forefinger over the center of the ice container, and her right forefinger over the injury of her husband. For four days the swelling was reduced and pain had disappeared, but would soon return. Likewise, one can get the benefit from ice by standing over it with the container between ones legs. Only thirty seconds are needed to become aligned, longer exposure spoils the effect.

Further back, it was shown how ice, if frozen just below 15 degrees Fahrenheit, will permanently magnetize small steel objects like needles — an experiment even school children can do. These experiments were done on a small level but how will it work on a larger scale like the planet itself? The basis for this phenomenon lies in the water molecule with its multiple qualities such as — when frozen, water can knock holes in steel plates such as into the hull of the Titanic in 1912. Another useful part of water is its outstanding conduction of sound waves and electricity and three-fifths of our planet is covered with water. However, water's greatest role, par excellence, is its magnetic domain because as ice it can permanently magnetize steel like electricity does. On the planetary scale, the same process can reach gigantic proportions as both poles have ice. The Antarctic is especially bestowed with it!

Planet Earth - A Self Sustained, One Cell Battery?

Imagine 90 percent of the world's ice, stretching over more than 5.5 million square miles which, in some places, is up to 12,000 feet thick and sustained by record freezing like minus 114 degrees Fahrenheit. Can one fathom, beside its polarizing strength, the magnetizing power of this positive ice compared to the North Pole? A flow of electrons known as the South Vector, travels up all around the globe to the North Pole, passing "Prince of Wales Island" in Canada with its presumed Fountain of the Northern Magnetic Force, but Greenland — located east of it — stores seven percent of the global glacier on just 708,000 square miles. The remaining three percent is scattered all over the Arctic and remainder of the globe and should some ice turn sideways its polarized atoms adjust again to North in minutes, leaving no doubt that they are attracted to it — a fact that no encyclopedia writes about.

How to Find the Polarity of the Planet Poles

Simple — with a magnet meter. Why not with a suspended magnet you ask — because there is no guarantee — the magnet could be marked incorrectly or not marked at all. For example: if we suspend a magnet we assume that the end pointing toward the North Pole is the opposite pole to whichever we believe to be the North Pole. Some think the North Pole is positive; that is why we find positive markings on global drawings, others believe the North Pole is negative and draw their conclusion. Therefore recommend that you conduct your research with a magnet meter.

A magnet meter looks like a compass but instead of a needle with

two ends, it has only one pointer. One side of its scale has the positive cross and numbers from zero to five. The other side has the negative dash and numbers from zero to five. If one holds the test-spot of the meter against the end of a magnet, the pointer will move to plus or minus depending on polarity and at the same time measure its strength, but not only that, it will do the same if held against the North Pole Seeking end of a compass needle. It showed me that the North Seeking end is positive, therefore the North Pole is negative, confirming the statement that the geographic North Pole is the magnetic South Pole!

Not only magnets, but every metal pipe, galvanized or not, thick or thin, has a positive and negative end with a vivaxis connection at its middle which was never intended - it just happened. A magnet meter can be very revealing!

The Notion of a Fiery Furnace Raging Beneath Us

The inside of our planet is to science still a sealed vault and cannot be judged in the same way as some active volcano's — which are nothing more than little squirts out of the earth's crust — just as an abscess is not necessarily an indicator that there is puss in the gut.

In *Reader's Digest*, "The World Around Us", on page 13 reads: "Gradually radio active elements within the cold ball of dust that was Earth, began to melt and give off heat. After millions of years the Earth's temperature became high enough to melt the material at its center. At that time, the heavy metals, iron and nickel were spread throughout the ball, sank and formed the molten core. And slowly, molecules of hydrogen, water vapor and other gases escaped from within to create an atmosphere above the planet's surface."

During the middle ages, the Universe ran like a clock. After the invention of the steam engine, it became Thermo-dynamic, but now, after discovering the atom, the Sun is a nuclear reactor and the Earth's radioactive elements melted the planetary core on which the Continent's drift and try to slip on top of each other like pack-ice on the poles!

If the above were true, the sun would not exist anymore because the enormously high heat would stretch and elongate the atom's spin to such an extent that their radius curves would become almost straight, losing its gravity and the sun would, a long time ago, have collapsed like a burned-out Supernova!

The assumption that "radio active elements within the cold ball of dust that was Earth began to melt and gave off heat", is pure fiction and wrongly based on volcanoes. Before the long lasting hazards of fallout and nuclear waste were known, this fiction sounded very impressive, but not anymore!

The above scientific theory can be contested with a simple experiment. For generations a trick has been performed in knowing how to distinguish a cooked egg from a raw one — as both look the same. Simply place the eggs on a table and try to spin them. If an egg is cooked, it will easily twirl because its contents is solid, whereas a raw egg will refuse to do so as the liquid inside cannot follow such motion. It will wobble and stop. Now take the raw egg, pierce a hole into each end, blow out its contents and try again — Eureka! — it spins now! This test easily proves that only solid or hollow planets will spin, thus refuting the molten core theory!

A similar example is how for millions of years the planets have traveled accurately around the sun regardless of their different sizes, distances and speeds — for which scientists credit the sun, as if

planets consisted of just simple, helpless matter, deprived of any initiative of their own — to which a well known scientist declared that, for this reason nature provided “warps in space” in order that planets would find their way around the sun!

Earth Does it All By Herself

As an eleven year-old boy, I was fascinated what a little top could do. They are just about three inches long, made from wood with a conical shaped body ending in a pointed tip with a nailed head to prevent wear. To make a top spin, one winds the string from a whip around its thicker upper part, stand the top on a smooth surface, such as a sidewalk or pavement, holding it loosely upright between index and middle finger, thumb on top with the other hand quickly pulling the whip away by its handle. This in turn pulls the string off the top, causing it to spin. Lashing the top with the whip now and then keeps it in motion. At normal speed it always behaves like planets do. It wobbles and moves along the pavement resembling a long oval, even though there are no warps or solar winds to guide it. It just follows a natural law as yet unknown to science.

Natives in Australia knew of this law of nature long ago. They used it to devise a weapon that would strike a target unexpected from behind and, if missed, it would come back to where it started.

The Ring of Fire

Lava in volcanoes derives from chemicals and water interaction, recognizable on its sulfuric odor and no lava has ever been found to contain “radioactive elements”. If there was a molten core, created and sustained over millions of years by nuclear reaction, its fallout and atomic waste would now have reached the Earth’s

surface.

“THE RING OF FIRE” around the Pacific Rim, the Geysers of Yellowstone, and Hot Springs all over are the best examples that volcanoes are water-related. Most of them are along ocean’s shores because water seeping in from the sea is responsible for their existence, whereas inland activities get it from underground streams. Often, some water intrusion becomes temporarily obstructed, which interrupts the volcanic process that can last years, decades, even centuries before they flow and volcanoes erupt again!

In the early thirties, some scientists in Europe had the idea to create more land for all countries around the Mediterranean by closing off the Gibraltar narrow and let the sea partly dry out - like the Dutch do to the North Sea. This caused an outcry, not only by fish industries, but also by others who thought that, if the pressure of water against the Continental shelf was lessened, some volcanoes might explode, but it is more likely they would have died out!

Example: carbide is a stone-like mineral, that, if it comes in contact with water, releases a flammable gas which, before propane was known, served in welding, lighting and many others - even bicycles had carbide lamps. All carbide lamps had two chambers, a lower and an upper one, the bottom one contained the carbide, the upper one water and the gas left the container through a small pipe with an upright burner. If the knob, connected to a valve in the bottom of the water tank was turned anti-clockwise, it would open the valve more or less, allowing water to drop into the carbide below inducing a gas releasing process, which, after a certain pressure was reached, would force the gas out through the burner, and when lit, gave a clean flame. Any flammable gas can burn below the surface as long as there is oxygen to go with it, and there is plenty beneath there. Chemically, oxygen is a colourless, tasteless and odourless gas by itself, and its proportion by volume, the atmosphere contains only 23% but in sea water it is 87.7% by weight, or eight ninth’s, and within the earth’s crust 46.6% by weight, that is almost half of the earth’s rocks. But recent figures suggest an even higher percentage of oxygen in sea water and earth’s solids! Granite is not that heavy and hard as it seems, because one cubic foot weighs only 65 pounds, from which over 40% by weight is oxygen! □

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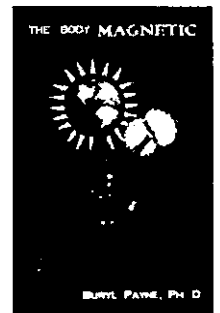


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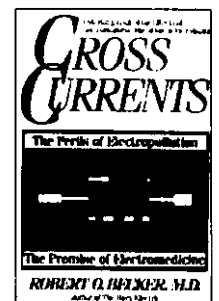
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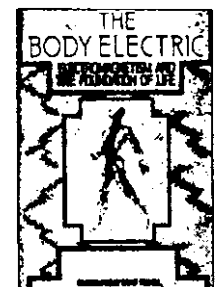
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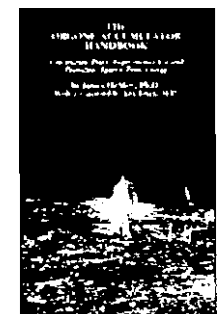


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The Pundit Curmudgeon

Perpetual Motion = Perpetual Work

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IF you do not like columns on perpetual motion please tell Peter Lindemann. He has suggested more columns on this topic, apparently as a result of feeling that all of us tend to give this topic the status of a quest for the Holy Grail when in fact some aspects of the subject may have future importance to society. Maybe he is right.

The topic of "perpetual motion" is not often understood in the context of current technology, particularly that pertaining to "energy". An earlier Pundit Curmudgeon column entitled "Defining Perpetual Motion" in *Borderlands* (p.13, Vol. XLIX, No.3, 3rd Qtr. 1993) contained the following proposed "modern" definition:

"Perpetual motion. That action of anything of a dynamic character which is sustained by one or more normally ambient forms of energy for a prolonged period of indefinite length until terminated by additional energy or by deterioration."

This differs from traditional definitions which specify that any perpetual motion device will continue to operate when no "energy" is applied to it. It is easy to overlook the significance of the fact that it contemplates motion which is sustained by normal ambient energy.

When society started scoffing at the visionaries seeking classic perpetual motion, such forms of ambient energy as magnetic fields, wind, light and heat were well known. But, for some reason, the primary form of energy anyone talked about was old fashioned friction plagued mechanical movement. At that past time apparently no one thought of the possibility of these normal ambient influences being sufficient to counteract the effect of friction.

Time has not significantly changed this common view. With a few exceptions "modern" consideration of perpetual motion doesn't seem to directly or specifically consider the possibility that the usual ambient energies apparently will make it possible to achieve a series of forms of essentially non-mechanical perpetual motion. Surprisingly, this is in spite of the fact that we regularly discuss many natural phenomena such as gravity, tides, the earth's magnetic field, Brownian movement, electron and other particle movement and so on employing subtle forces.

This is probably the result of the fact that from the standpoint of traditional chemistry and mechanics, these forces have been considered to be too minuscule or ethereal to be significant. Increasingly established technology is finding this to be wrong. At this time there is a gradually growing recognition that those "natural" forces which have previously been considered as relatively insignificant are vital and basic to all life. Increasingly, it appears that continuing life of any

type is based on essentially inescapable subtle energies.

It is hard to write this without abandoning the intended objectives of this column in a morass of illustrations. Those examples of the increasing significance of the limited energies associated with the moon will be most easily accepted by most individuals. Unfortunately any comparatively simple discussion of them will do little other than to tend to confirm ancient occult beliefs justifying honoring the evenings when a full moon occurs as Sabbaths.

To adequately establish the significance of subtle or exceedingly infinitesimal energies in connection with perpetual motion with a minimum of verbiage, it is necessary to refer to energies which can be discussed with a minimum of reference to other energies using comparatively simple concepts and words. One energy of extreme importance meeting these qualifications is that old favorite — magnetic energy. Although magnetism has been recognized and used for centuries and has formed the basis of much inept theorizing in connection with mechanical perpetual motion motors it is only in recent years that accepted technology has begun to recognize its significance to life.

In the hope of achieving a degree of brevity — probably an impossibility for a retired patent lawyer — only one aspect of the expanding knowledge of the importance of magnetic energy is discussed in this column: the significance of the continuance of an ambient magnetic field to the continuance of life here on earth. From verbal reports by Valerie V. Hunt relative to the manner in which humans "react" in a mu-metal cage designed to exclude ambient magnetic and associated electrical fields it is apparent that the normal operation of the human body is "shut down" in the absence of earth's ambient magnetic field and presumably the electric field normally associated with it. Hopefully by the time this column comes out Dr. Hunt will have published the results of her work with a mu-metal cage.

This has significant, perhaps unrecognized, importance outside of the field of perpetual motion. The author believes that all manner of life forms — including humans — can either be killed or placed in a state of "inaction" by subjecting them to the absence of a magnetic field as is produced inside of a mu-metal cage. No reason is seen as to why this form of preservation cannot be used for food and similar materials. It certainly would avoid a lot of the hassle in connection with attempts to preserve human bodies for a future date.

These asides tend to cause us to think of a magnetic field in the same manner as which we normally think of the use of various other forms of radiation to control or influence biological growth. In a sense there is a similarity. No one currently questions that the comparatively gross quantities of conventional radiation used for preservation purposes involves what can be considered as "work". As we were all taught in high school work is calculated by multiplying the distance through which a force is moved. With

conventional gamma and other forms of radiation the work involved is related to the movement of extremely small, apparently essentially tangible particles having a recognized mass.

Modern physics is so esoterically involved and entwined as to almost revert to the philosophical cosmic egg of at least a century ago. The more advanced views on this topic seem to hold that everything is a permeable nothing in which a few hints of a moveable something occasionally appear while passing in and out of the reality of the nothing. While a characterization of this type will liberate the wrath of conventional physicists it effectively conveys a vague concept of the probable nature of the Earth's magnetic field.

In so far as it can be separated from an electric field, such a magnetic field, probably consists of a lot of essentially nothing and at least two related but different series of a relatively few infinitesimally small particles which appear to pass through nearly everything they encounter in accordance with different "rules". This description of a magnetic field is based on the often discredited classic work of Baron von Reichenbach as reported in his book *Physico-Physiological Researches on The Dynamics of Magnetism, Electricity, Heat, Light, Crystallization, And Chemism in their relation to Vital Force*, 1851. Recent work by Paul F. Nogier in France, and at least one other, have to a significant degree confirmed this description based on von Reichenbach's work. Unfortunately the author at the time this is being written does not have a citation as to a publication describing Dr. Nogier's investigation of a magnetic field.

A magnetic field is often described as consisting of the consequence of a lot of space or nothing containing a specific type of moving or moveable minuscule particles known as "monopoles".

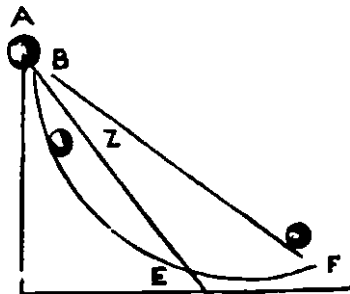


Figure 1: A loadstone at A is supposed to have a sufficient force to bring up a heavy body along the plane FA, from F to B; whence the body is supposed to descend by its gravity, along the curve BEF, continually. But supposing BZE to be the surface upon which, if a body was placed, the attraction of the loadstone and the gravity of the body would balance each other, this surface shall meet BEF at some point E and the body must be in descending along AEF at the point E.

Regardless of which view of the nature of a magnetic field one takes it is clear that the space within it can be occupied by one or more of a whole collection of different particles or vestiges of particles. The nature of these particles and space is such that the Law of Impenetrability of Matter we were all taught seems an outright lie. A multiplicity of different fields can permeate a magnetic field and a magnetic field can permeate most things placed in its path. Indeed, it is doubtful if it is possible to obtain a magnetic field which is truly separated from related electrical fields.

Much of this apparent digression is of value in establishing the point that a magnetic field constitutes an ambient form of energy — specifically energy derived from the meandering of the almost too small to be detected tangible items in essentially a nothing — vacant space. From the point of view of considering perpetual motion the energy of a magnetic field and the energies of a variety of other fields and forms of radiation are critical. In the absence of something serving to block, filter, or otherwise shield any specific thing from such energies, they will normally have some effect on virtually whatever they contact other than vacant space.

Since such energies are in effect represented by moving particles it follows that they are in the nature of a traditional mechanical force. Work analogous to traditional mechanical work is achieved by any such force because of the motion or motions of the particles or vestiges of particles within it. As a consequence of this from a philosophical point of view the energies of magnetic and other fields or forms of radiation can be considered as doing "work" in a more or less classical sense.

The obvious deduction following from this is that perpetual motion can be considered as any result which apparently can be achieved for an extremely long, indefinite period of time through any sort of an ambient, natural energy input until there is some form of a break down or until other energy is applied to stop the continued achievement of the result. In the traditional manner of viewing perpetual motion this result is intended to be mechanical motion. There is no reason for maintaining this restriction as technology advances.

Specific reference has been made in the preceding discussion to magnetic fields since perpetual motion machines based on the use of so-called magnetic flux to achieve traditional mechanical motion are sort of in-between classical mechanics and more modern devices such as those solely based on electron or similar motion. It is considered that there is a significant chance that consistent or

repeatable results can be had with these so called permanent magnetic motors and similar devices, and that we probably will be able to understand them to a significant degree. They are far more closely related to so called "free energy" devices such as the Hendershot circuit and many others, because their operation is not entirely contingent on mechanical or similar friction, and because we have some knowledge of the ambient magnetic forces which must be significant in a consideration of their operation. □

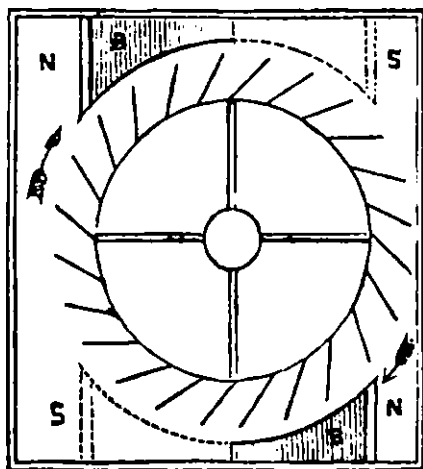


Figure 2: Left is a wheel of light construction, moving on friction wheels in vacuo; the rim is furnished with slips of steel — pieces of watch-spring will do. N N are two magnets, which, attracting the rim of the wheel, will render one side lighter and the other heavier, causing it to revolve ad infinitum: or, to render it more powerful, let the steel rims be magnetized, and fixed on the wheel with their north poles toward the centre. Let two more magnets be added, as shown by the dotted lines: let these two, S S, be placed with their south poles nearest the rim of the wheel: and the other two, N N, with their north poles in that position. Now, as similar poles repel and opposite poles attract, the wheel will be driven round by attraction and repulsion acting conjointly on four points of its circumference. B B are blocks of wood, to keep off the attraction of the magnets from the part of the wheel which has passed them.

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