The Journal of Borderland Research

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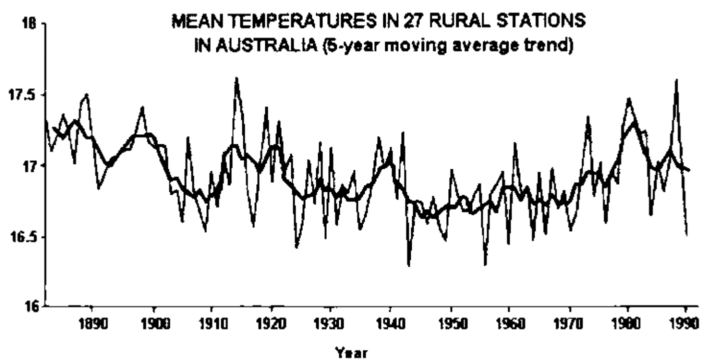
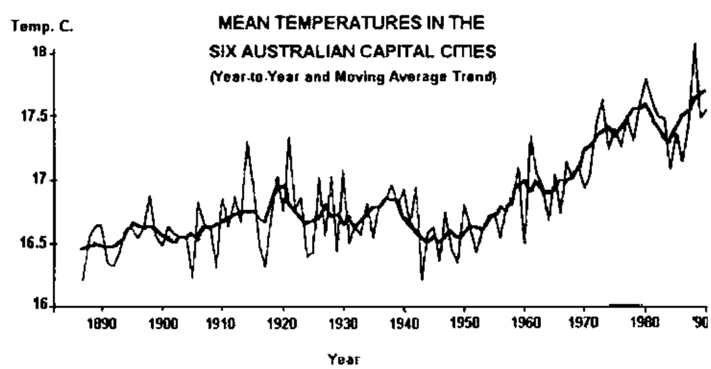


From, Hughes, W.S. "The Australian Record on 'Global Warming",(1991), Tasman Institute



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Global Warming or Urban Heating?

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The Journal of
Borderland Research

The Journal of Borderland Research is the quarterly research publication of Borderland Sciences Research Foundation.

The Journal of Borderland Research originated as Meade Layne's *Round Robin* in 1945 for the purpose of investigating into realms normally beyond the range of basic human perception and physical measurement. Changed to *The Journal of Borderland Research* in 1959, the Journal exists as an information nexus for scholars and researchers on the frontiers of science and awareness.

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THE JOURNAL OF BORDERLAND RESEARCH

Editorial

MORE changes and challenges at Borderland Sciences. It has been some time since an issue of our Journal has been printed, and we apologize to all of our readers for the delays. You will note more changes with this issue, which we hope will now become the standard by which we publish this Journal. So, what happened to us? Well, we had some serious personnel problems which we have taken care of, more problems with printers, and some financial difficulty. The publishing of this Journal relies solely on the funds we raise from sales of our research materials — we rarely receive donations. So, with this issue and format change, we hope to be back on schedule this year and provide the same quality you are all used to.

Many publishers in the alternative science community are going through rough times lately, and we recently saw the demise of the International Tesla Society. This is a sad thing, and we wish all those who invested their time and effort into ITS well.

If you are a listener to talk radio, you will have heard Borderland Sciences in the spotlight many times over the last few months. I was a guest on the Laura Lee Show many times, discussing all things BSRF - from Weather Engineering to Plant Consciousness, and we even did the ultimate HAARP debate, with myself and authors Nick Begich and Jerry Smith. Our stand on the HAARP project differs widely from many in the field, and you may see one reason why when you read our review of George Trinkaus' new book on page 44. There are, of course, many other reasons, and if you missed the radio show, or can't receive it well in your area, the shows are available on cassette tape from Borderlands. See the back of this Journal for a list of interviews with prices.

I was also a guest on the Art Bell show recently. We covered many of the topics you will see in this issue. Art's radio show favors 'doom & gloom' and it seems we at BSRF are a little more optimistic than the regular cache of guests Art interviews. One topic in particular is Y2k. We discussed this at length and I must say, we disagreed on most issues concerning Y2k. I put forth a challenge to the listeners to come up with a single catastrophic failure of any device due to a date-sensitive 'embedded system' (a chip that has a date function hardcoded into it) failure, and shortly after appearing on Art's radio program I issued the "Borderlands Y2k Challenge" on our website. We feel this is an important issue as it is the one area of Y2k where there seems to be so many unknowns involved. Because of this 'unknown' character, many rumors are spread, and we've even seen a few hoaxes — stories that this system or that failed when the date was changed. We have as yet NOT been able to verify a single failure related to a Y2k embedded system issue, and it is quite important due to the fact that the Y2k gloomers use the embedded system failure scenario to bolster their claims that everything from the power grid to our water supply will be in danger of total failure. Based on our research, we do not think these are valid scenarios. If you haven't seen all of our Y2k information, it can be accessed via the internet on our website at: http://www.borderlands.com/journal/millenni.htm. If you don't have a computer, we have recently compiled all of the free information from our website into a small booklet entitled, *Y2k - An Industry of Hysteria: An Investigation into the Reality Behind the Y2k Computer Problem and a Hopeful Outlook Toward the New Millennium* which can be purchased through BSRF for $4.95 (to cover the printing costs). See the ad on page 22 for details.

You may have noticed Borderlands' recent focus on several things that seem outside of the qualitative science arena. We have placed more emphasis on current issues which we think demand our attentions, and intimately involve our society and the way it functions. Our main purpose still holds — that of publishing the finest in the alternative sciences — and we see much of what we are investigating today as an integral part of the many changes coming our way. We will be publishing continuous updates throughout the year on these several topics — current events and trends which help shape our evolving consciousness and pertain to the evolution of humanity as a whole. For us it begins with the alternative technologies we present — those that will be the real future of the way we think, live, and communicate with one another — and while it may not happen in the near future, we feel as Sir William Crookes did when he said, "the greatest scientific problems of the future will find their solution in this Borderland, and even beyond; here, it seems to me, lie Ultimate Realities, subtle, far-reaching, wonderful."

Michael Theroux
Editor

Clips, Quotes, & Comments

MILLENNIUM BUG HYSTERIA

I have worked as a programmer, engineer, and manufacturer of embedded systems, and never had any that cared one whit about the century. Certainly never seen or heard of any that would fail for having the wrong date. If anyone had tried to make any part of the system fail because of something so transitory as the day/time/year his or her work would have been rejected outright.

All dates that matter must have a manual date input. We never trusted anyone to the point of making the date relevant for control operation. Some of these applications were real-time and we didn't have clock cycles to waste on checking on the date.

I have worked on avionics electronics for the military. We routinely shut down everything, and re-started. There was nothing on any of the equipment that I worked on that was the least bit century caring, much less century sensitive to failure.

Good web site! I'm sending it to my boss, and others. Thanks!

— *Kevin Bentch, Sr. Project Manager (Y2K PM) American Bar Association / MaximGroup*

We very much appreciate your sane viewpoint on the "embedded chip" madness. As a real Silicon Valley embedded system engineer, I am squarely in position to evaluate embedded Y2K bugs.

We have a WebSite forum designed to connect problems to solutions at:

http://home.inreach.com/ithaqua

No problems - yet. No surprise either! In nearly 20 years of firmware system engineering - I never implemented a year-dependent system. Neither have any of my associates. But, if there are any problems - let's see 'em.

— *ithaqua@inreach.com*

Read your Y2K article. Spot on. I actually work with software and test for Visual Basic / SQL Server applications and there has been a lot of hype about the year 2K problem. I am sure some people think their toaster is going to pack up!!

— S.C., *United Kingdom*

Mr. Theroux,

Thank you for publishing what I've been saying for years. I've been designing embedded systems and writing software since before there even were microprocessors. Back then we had to design our own out of discrete components. In any case I agree with you that this so called "problem" is simply a marketing scheme although I do feel sorry for all the young programmers who are getting sucked in to fixing it. In about 13 months they will all be out of work.

— *bvandyck@endosonics.com*

Panic is so much more fun than serious work that my website has not recieved the attention it should. I believe it will become more popular as Y2K grows nearer and reality sets in.

Y2K boosters have a lot in common with "Earth First!"ers, politicians, reporters, and lawyers. They are mostly liberal arts majors who live in the spin cycle. They are disinterested in scientific truth, are hostile to technology, and are suspicious of freedom and free market solutions to problems. Hysteria is not a new industry at all.

— *name withheld by request*

Interesting article, Michael! For me it begs the question, why are people so easily convinced of scenarios of catastrophe? Do you think it is possibly because most people know deep down that our way of life is so out of balance that it cannot be sustained in the long run, and if it's not alien brain-suckers or the Y2k bug *something* is bound to take us down in the end? I think there is a weird psychology at work where many people *believe* we've got it coming, and the irony of the Y2k bug combined with the fact that it coincides with the "end-times" of many traditions makes it perversely appealing.

—Y. S., *Forrestville, CA*

Too bad Mr. Theroux doesn't know squat about the Y2k problem. His article is terribly flawed. Sure, you can "fix" the y2k problem by turning back your computer's clock (be it a PC, minicomputer, or mainframe), but that does NOTHING to fix the programs that are date-dependent, like mortgage calculators, interest calculators, etc. Come on, Mike, read up and do your homework! The y2k problem is real and is far more complex than your feeble attempt to downplay it. And to suggest that the link to Dan Steinburg's article is a "good article on why the y2k problem is no problem" is asinine. If you took the time to read it, you can see it is not a serious article, but "tongue-in-cheek", and only valuable as humor.

Yes, some are taking advantage of the y2k problem and profiting from it, but we really won't know the full extent of this problem until it happens...on 1/1/2000 (some problems are manifesting in 1998!).

Why don't you set your PC to Feb.29, 2000, and see what happens? If you are running WindowsNT, it will crash. Also NT server v5.0 is known to have y2k problems--MicroSoft has admitted so.

— *ROD.BRUNDAGE@mail.sprint.com*

First of all, WindowsNT *WILL NOT crash. Second, the minor problems associated with NT have been fixed. Too bad you didn't bother to check Microsoft's NT Service Pack 4 Update at: http://www.microsoft.com/ntserver/nts/exec/overview/NT4SP4whatnew.asp.*

My boss at work had to go to a Y2K conference. He showed me a legal document (very hush hush, he was using it to prop up some cd's) that our holding company hired some law firm to do on the the Y2K problem.

Evidently, the lawyers (who have no technical background — obvious from the wording of their brief) are insisting that this company act in a very hysterical manner. You can almost smell their greed — think of all the hundreds of thousands of lawsuits that will be pending on January 1, 2000.

— *name withheld by request*

I found your Y2k article quite interesting. A few comments: I completely agree that the hysteria around Y2K is problematic and (one hopes) disproportionate to the real nature of the problem. In any case, hysteria will not help anyone. However, your article seems to suggest that there is little to be concerned about, and on this point I disagree.

You say,

"A whole host of real problems may be created by something that wouldn't havebeen much of a

problem if it weren't for our increasing reliance on the technology itself." True. But here we are, depdendant on it. You also say,

"How did we ever survive before the advent of computers!" Well, the reality is, it's not actually all that difficult to survive without computers. As a former wilderness guide, I feel I have some authority on the matter, having lived in the backcountry for weeks at a time. But I argue that, simple as it is, most of us in our modern world are completely unprepared for such a possibility. And the possibility, from my reading of the issue, looms large.

Yes, credit card companies have updated their computers. However, congressional reports and the reports of airlines themselves point to the very real possibility that air traffic control devices will not be universally tested and securely functioning by January 1, 2000. Closer to home (at least in most people's lives) are the allegations, again supported by congressional findings, that many of the largest utilities are well behind in their Y2K remediation efforts.

What is important to understand, I believe, is not how far behind various sectors are in responding to the problem, but rather how connected we are to a tangled web of technology upon which we have grown dependant. We rely on computer systems as intermediaries that provide warmth, food, light, critical information, waste disposal, and many other services we daily take for granted. Within each of these systems there are numerous "choke points," where a single vulnerability puts the whole system at risk. As if that weren't enough, these systems are so interconnected with one another that a failed choke point in one can affect numerous others.

So what to do? I don't believe panic is an appropriate response, but nor do I believe it is wise to pretend the problem away. Catastrope is not a sure bet, but a smooth ride is even less so.

I am not a programmer and I have nothing to gain from creating a frenzy. But I do see a significant need to raise awareness. With greater awareness of Y2K and its potential implications, an opportunity to jointly support neighbors and friends through the millenial shift becomes available. Without it, I will stand alone and "unarmed" against a transition that could range from a series of minor inconveniences to a serious threat. My hope is that by spreading the word among my own network I can rouse sufficient interest in cooperative preparation to stem off any possible ill effects. It can't hurt, (whereas I believe a hoarding, survivalist approach can) and maybe it will help.

In the meantime, I would urge you not to imply that there is no cause for concern and people should avoid preparation. That is a disservice to your readers. Debunking the perceived need for hysteria, however, is a big help. Thank you.

— *Amanda Blake*

I'll address a few of your points:

First of all, I never said people should avoid preparation. You should have read the references I listed. Many of these were all about preparation, and dealing with the problem in an easy to implement way. I don't consider giving away information like that a "disservice" to our readers. As for raising awareness — it requires a responsibility most are not willing to take. What happens if you yell "fire" in a packed auditorium? There had better be a fire. The responsibility rests with those yelling fire, and they had better be sure of it. Most people who consider themselves Y2k activists don't understand technology and are willing participants rising to any cause that sounds interesting. Most argue their points with "what ifs", i.e. "what if there is an embedded chip that malfunctions," or "What if the power goes out." Take that same logic back to the auditorium and say "What if there was a fire?" The logical person would assume that there is a possibility of such an occurence, but would still enter the auditorium (probably due to their faith in the abilities of others to deal with such a situation). People who assume the responsiblity of yelling "fire" should be held accountable for their actions. It seems no one on the internet does this anymore.

Our dependancy is still on people — we don't ask the computers to solve our problems — we ask people. Who answers the phone at a business when their automated answering system fails? Usually, a real person if that business still wants to do business. Also, anyone who has been through a natural disaster has encountered such things. I personally have been through several — major earthquakes and floods. In 1991, our area was hit by 3 large earthquakes (all over 6.5M) in a 24 hour period. Some had no power for weeks (lines had physical damage), no telephones in some cases, roads blocked, etc. We survived and PEOPLE worked to restore everything. Last year, a storm and subsequent flood in my local area deprived us of electricity for 6 days. Garbage trucks still came, PG&E repaired the downed power lines, neighbors helped each other out...again, people resolved the issue.

You are only "unarmed" in the sense that you haven't all the facts. To better arm oneself, a thorough study of the situation to gain a truer understanding, and not jumping on a misguided bandwagon, is essential. Reminds me of a local

Ed Stein/Rocky Mountain News

situation where several environmental activists marched into a residential area demanding that trees not be cut down. The trees happened to be on the private properties of several homeowners who were in danger of losing their homes to the leaning giants. The activists actually told the homeowners that they should move away if they feared being crushed by the trees!

Finally, congressional reports are NOT something I would use for a serious reference. And, who is making the allegations about utilities? It certainly isn't people who understand the utility structure. Many utility professionals laugh when someone mentions Y2k and for good reason. They understand the utility structure — the doomsayers have no clue. I have interviewed many persons intimately involved with major utilities — utility troubleshooters mostly as they are the ones who understand the system better than anyone else. And, I'm not asking for their assurance that they are so-called "compliant". I'm asking which specific systems could bring down the utility's ability to deliver power? What kind of backup system is available to restore power? Which systems or persons are responsible for handling these problems should they arise? I'm quite confident, after investigating the issue thoroughly that they have it covered. — MT

Not Our Fountain

Dear Borderland Research,

I am writing to complain about my experience with the "Five Rites." I purchased the book called "The Fountain of Youth" from your catalog with the past three years; I think. It claims to be a means to maintain your youth. I am currently thirty-two years old and had been fairly youthfull looking.

So, certainly, I was interested in maintaining my health and vigor. When I got the book, I tried it for a week, then stopped. It has bothered my elbows and wrists. I didn't try it again until last year around the fall as I was looking for a way to release stress. I was up to eight to twelve repititions when the worst thing that ever happened to me physically happened.

I had the following happen: fluid burst into my skull; I assume from my spinal fluid. My brain pushed forward into the front of my skull and my endocrine glands became stretched out and hyperactive. I reached this assessment after checking some anatomy books, as well as, my physical observations and feelings. Also, my rib cage pulled open around the sternum. All this has caused unnatural growth of the body, and made my face look older or more mature, and my jaw grew. I have spent the past year trying to deal with this.

I didn't go to a doctor right away as I knew they probably wouldn't believe me. And I lacked the money to deal with it. I used some herbal remedies and aloe vera to bring my ribs back together, but it hasn't been successfull completely. Rather than a fountain of youth, it has become a fountain of injury. By the way, eating eggs doesn't help, it made my ribs pull apart agian.

I am writing in the hope that you will stop selling this book; or that you will change the book and tell people what it really does. So if someone wants to ruin themselves, it will be by choice and not deceit. I have observed that you still sell the book under another title. It makes me wonder if you are trying to decieve people on purpose. I have always believed in a free market of ideas and the freedom of the press. I have always been open-minded to new ideas. But I have found that you can get hurt when your open-minded. My experience with this and some recent experiences have caused my perspective to change. Perhaps I was to naive in believing in the claims of this book. I have become more narrow-minded because of this, and will probably avoid such claims of youth and health from other sources.

I am interested in your response to my letter. Have you had other complaints? What have other people done to deal with the injuries? Consider this; if the injuries I describe: the ribs, glands, and brain pushing around had occurred to me because I was attacked by someone, that person could be charged by assault and suffer criminal penalties. Would it be too much to ask you to stop selling that book! Thank You.
— *Carl E. Lebron Jr., Amherst, NY*

You did not purchase this book from us. You are referring to the book, Ancient Secret of the Fountain of Youth, *by Bernie Siegel. Apparently, this book contains the text of the original* Eye of Revelation *by Peter Kelder which we sell in its original unedited form. In the nearly 30 years we have been selling the* Eye of Revelation, *we have not once to my knowledge ever received a negative report on the "Five Rites". No, we won't stop selling the book, but after receiving a letter like this, we will probably put a disclaimer in the front of the book, as we wouldn't want anyone to hurt themselves doing the simple exercises.*

Fishermen Dismiss Talk of Microbe

By ESTES THOMPSON
Associated Press Writer

LOWLAND, N.C. (AP)—Down here, at the end of the road on Goose Creek just off the Pamlico River, worries about the fish-eating microbe Pfiesteria seem nonexistent even as evidence mounts that it may harm humans.

Fisherman Terry Hannah tied up his 45-foot trawler "Lady Lexy" to unload crabs at a packing shed dock, and a black Lab bounded to the rail to lick a visitor's hand.

Hannah was asked if he worried about Pfiesteria. The answer came slowly as he sat on a fish box, crossed his scarred fisherman's boots and tugged at the sleeve of his T-shirt, emblazoned with crabs. He said he's been going into the water for 10 years and "it ain't never bothered me."

On the shady dock, Odell Sawyer sat in an old metal office chair as a sailing yacht motored past on the Atlantic Intracoastal Waterway.

"There have always been these fish kills, two or three times a summer," said Sawyer, tugging a cigarette out of his shirt pocket with rough fisherman's fingers. "That was back in the '50s and '60s."

But it was fish kills in 1995, 1996 and 1997 that raised concerns about Pfiesteria in eastern North Carolina's rivers and in Maryland and Virginia. In 1995, about 14 million fish were believed killed by the microbe in North Carolina alone, mainly on the Neuse River.

A chemical test was developed to detect the microbe's toxin, but the first sign of Pfiesteria is a sore corroding the fish flesh.

Fishermen, however, don't seem alarmed, even in the face of growing evidence that Pfiesteria might harm humans.

In an Environmental Protection Agency study released this year, a sample of North Carolina fishermen exposed to Pfiesteria experienced a 30 percent reduction in their sensitivity to visual patterns. Previous studies suggested that Pfiesteria can cause temporary learning or short-term memory loss, confusion and other cognitive impairment.

Dr. Bill Roper, dean of the University of North Carolina's School of Public Health and chairman of the N.C. Task Force on Fish Kill Waters, said the group continues to recommend that the public avoid fish-kill waters.

The fact that Pfiesteria took a break this year has reinforced fishermen's contention that Pfiesteria is little more than a bogeyman. The organism this year accounted for just a half million fish deaths in North Carolina. It barely surfaced at all in Virginia and Maryland, where it caused panic in the seafood industry a year ago.

Borderlands CQC

"The water will take care of itself," said a crusty Pamlico County fisherman who squinted into the sun as he built a cabin for his small crab boat. He worked alone just down the harbor's bank from the packing shed.

"I'll eat a fish from anywhere Joann Burkholder drags it out of the water and says it's Pfiesteria," said the man, who identified himself only as George and said he was 69.

Yet he acknowledged the water has changed over the 50 years he's worked the rivers and sounds.

"It's dirtier," he said. "It's got more pollution being dumped in it. That won't ever be stopped because there's too much money involved."

Joann Burkholder, the North Carolina State University scientist who identified Pfiesteria piscicida and has led research efforts, understands the fishermen's attitude. News about Pfiesteria affects how people eat seafood and that affects their livelihood.

Pollution is the reason Pfiesteria thrives, said Burkholder, who discovered the Pfiesteria dinoflagellate in 1991.

Pfiesteria can take a hiatus and go into the bottom mud when conditions aren't right for it to emerge, Burkholder said. Even when it's not active "it's there and it has been causing outbreaks." Nutrients that wind up in river water because of animal and human waste can pull the trigger.

This year, storms stirred waters and dispersed Pfiesteria concentrations, Burkholder said.

Fishermen say the problem of Pfiesteria has been blown out of proportion by media reports and researchers hungry for government grants to fund their labs. At least $9.5 million was doled out by federal and state governments for Pfiesteria research in 1998 alone.

Most fishermen say simply that they have been swimming in the water and eating fish from it for years without ill effect.

"Ninety-nine percent of my diet is seafood," said George. "I'm in the water. I dive under this boat and get things out of my propeller. I've never been sick a day in my life."

Maybe he wasn't in the water when a Pfiesteria outbreak was occurring, say others who contend the organism has made them ill.

Craven County businessman Bill Harper, a frequent candidate for elected office, said all the scientific information in the world won't help until fishermen begin to speak out.

"The fisherman can't say the river's sick," Harper said. "He's got his house up as collateral for his boat. If he says anything that hurts fishing, he loses everything to the bank."

Rick Dove, the riverkeeper for the Neuse River Foundation, said while most fishermen won't talk about the problem, many worry privately and express their concerns to him. Dove patrols the river for the foundation and reports pollution to regulators and fish kills to the state's rapid response teams that look for diseased fish.

One fisherman who did talk early in the Pfiesteria crisis has lost nearly everything.

David Jones spends his days in his small house and his now-closed seafood market on Neuse Drive in New Bern, in sight of the Neuse River. Once, trucks crowded the narrow, pine needle-littered street to pick up seafood. But all that stopped one day when Jones found sores on fish and hung up a sign warning customers to consume at their own risk.

The 53-year-old Jones developed sores of his own, as well as a shaky gait and memory lapses that his family and physicians say must have been caused by Pfiesteria exposure that began to manifest itself in 1988.

For weeks, he itched and his skin burned and sores broke erupted. He stopped fishing. Now he lives on what his wife Margaret makes at a greeting card shop and the generosity of friends — even his doctor once paid his utility bill.

"This toxin in his body is destroying him," Mrs. Jones said. "It's destroyed our life." ❐

Keep those letters, photos, and clippings coming! Please write to **The Journal of Borderland Research**, Clips, Quotes, and Comments, P.O. Box 220, Bayside, California, 95524 USA. Letters may be edited for length and clarity.

"Truth is stranger than Fiction, but it is because Fiction is obliged to stick to possibilities; Truth isn't."

— Mark Twain

Condensing Atmospheric Humidity

by Robert A. Nelson

HUMANS must drink about one gallon of water daily to remain alive. If groundwater is not available, the atmosphere humidity can be condensed instead to provide our minimum requirements.

In 1993, Reginald E. Newell (M.I.T.) reported the discovery of 10 huge "atmospheric rivers" (5 each in the North and South hemispheres) with typical flow rates of 165 million kilograms of water per second. These rivers of vapor are bands up to 480 miles wide and up to 4800 miles long, about 1.9 miles above the earth. They are the main means of transporting water from the equator. These rivers, and the atmospheric seas, can be drawn upon to provide potable water. (1)

Dew Ponds

The practice of collecting atmospheric humidity is an ancient skill which has been largely ignored in modern times. During the excavation of Theodosia (a Byzantine city dating to about 500 BC) in 1903, archaeologists found numerous pipes, about 3 inches in diameter, which led to wells and fountains in the city. The pipes were traced back to a nearby hill, where they were found to originate from 13 large piles of limestone, each about 40 feet tall and 100 feet square. This air well system produced as much as 14,000 gallons of water daily.

The related technology of dew ponds has existed since prehistoric times, but nowadays it is nearly forgotten. A few unfailing dew ponds can still be found on the highest ridges of England's bleak Sussex Downs, and on the Marlborough and Wiltshire Hills. Though far from any marshes, springs or streams, they cool and condense aerial moisture at night, and always contain some water in the morning.

Arthur J. Hubbard described a dew pond thus in his book, *Neolithic Dew-Ponds and Cattleways* (1907):

"... There is [in England] at least one wandering gang of men... who will construct for the modern farmer a pond which, in any suitable dituation in a sufficiently dry soil, will always contains water. The water is not derived from springs or rainfall, and is speedily lost if even the smallest rivulet is allowed to flow into the pond.

"The gang of dew-pond makers commence operations by hollowing out the earth for a space far in excess of the apparent requirements of the proposed pond. They then thickly cover the whole of the hollow with a coating of dry straw. The straw in turn is covered by a layer of well-chosen, finely puddled clay, and the upper surface of the clay is then closely strewn with stones. Care has to be taken that the margin of the straw is effectively protected by clay. The pond will eventually become filled with water, the more rapidly the larger it is, even though no rain may fall. If such a structure is situated on the summit of a down, during the warmth of a summer day the earth will have stored a considerable amount of heat, while the pond, protected from this heat by the non-conductivity of the straw, is at the same time chilled by the process of evaporation from the puddled clay. The consequence is that during the night the warm air is condensed on the surface of the cold clay. As the condensation during the night is in excess of the evaporation during the day, the pond becomes, night by night, gradually filled. Theoretically, we may observe that during the day, the air being comparatively charged with moisture, evaporation is necessarily less than the precipitation during the night. In practice it is found that the pond will constantly yield a supply of the purest water.

"The dew pond will cease to attract the dew if the layer of straw should get wet, as it then becomes of the same temperature as the surrounding earth, and ceases to be a non-conductor of heat. This practically always occurs if a spring is allowed to flow into the pond, or if the layer of clay (technically called the 'crust') is pierced."

Additional construction details were explained in *Scientific American* (May 1934): "An essential feature of the dew-pond is its impervious bottom, enabling it to retain all the water it gathers, except what is lost by evaporation, drunk by cattle, or withdrawn by man. The mode of construction varies in some details. The bottom commonly consists of a layer of puddled chalk or clay, over which is strewn a layer of rubble to prevent perforation by the hoofs of animals. A layer of straw is often added, above or below the chalk or clay. The ponds may measure from 30 to 70 feet across, and the depth does not exceed three or four feet." (2) (Figure 1)

Another form of dew pond was invented by S.B. Russell in the 1920s. It was described in *Popular Science* (September 1922), as "a dew reservoir 30 feet square will collect 24,000 gallons of water in a year, or an average of 120 gallons daily during the hot summer months and 50 gallons daily for the remainder of the year...

"The Russell reservoir consists of a concrete cistern about 5 feet deep, with sloping concrete roof, above which is a protective fence of corrugated iron which aids in collecting and condensing vapor on the roof and prevents evaporation by the

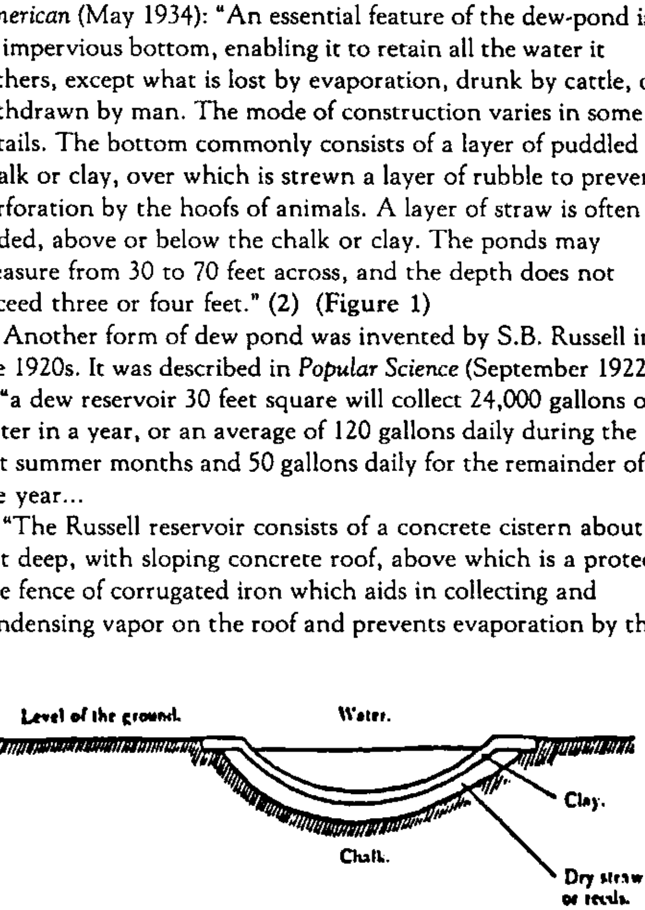


Figure 1

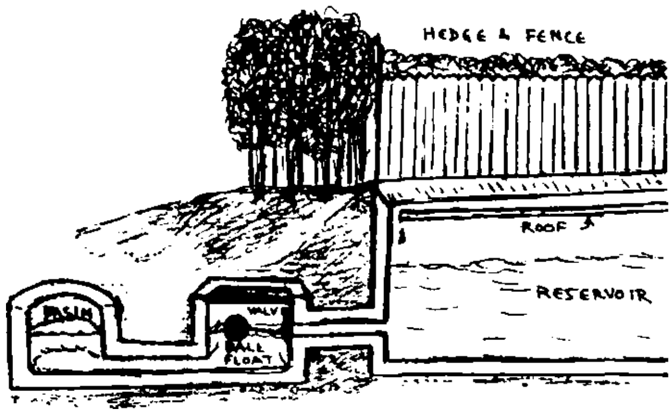


Figure 2

wind. The floor of the cistern is flush with the ground, while sloping banks of earth around the sides lead up to the roof. **(Figure 2)**

"Moisture draining into the reservoir from the low side of the roof maintains the roof at a lower temperature than the atmosphere, thus assuring continuous condensation.

"At one side of the reservoir is a concrete basin set in the ground. By means of a ball valve, this basin is automatically kept full of water drawn from the reservoir." (3)

The "air well" built by Achille Knapen in 1932 at Trans-en-Provence (France) was located on a 600-feet high hilltop. As described in *Popular Mechanics Magazine*, "The tower... is about 45 feet tall. The walls are from 8 to 10 feet thick and are of concrete, while the dome is 13 feet thick to prevent the heat radiation from the ground from influencing the inside temperature. It is estimated that the aerial well will yield 7,500 gallons of water per 900 square feet of condensation surface." (4) **(Figure 3)**

An article in *Popular Science Magazine* (March 1933) noted that Knapen's air well had "a mushroom-like inner core of concrete, pierced with numerous ducts for the circulation of air; and a central pipe with its upper opening above the top of the outer dome.

"At night, cold air pours down the central pipe and circulates through the core... By morning the whole inner mass is so thoroughly chilled that it will maintain its reduced temperature for a good part of the day. The well is now ready to function.

"Warm, moist outdoor air enters the central chamber, as the daytime temperature rises, through the upper ducts in the outer wall. It immediately strikes the chilled core, which is studded with rows of slates to increase the cooling surface. The air, chilled by the contact, gives up its moisture upon the slates. As it cools, it gets heavier and descends, finally leaving the chamber by way of the lower ducts. Meanwhile the moisture trickles from the slates and falls into a collecting basin at the bottom of the well." (5, 6)

The French inventor L. Chaptal built a small air well extends about 11 feet above ground. The air restrictor is about 6 inches in diameter. The pipe sections are joined by reducing sections. The entrance, heat exchange, and exit pipes are volume-matched.

In one model, "an air passage rate of 2,000 cubic feet per hour has been achieved" at 45° F. with as little as 5 mph wind. This translates to about 48,000 cu. ft./day (over 3,000 lb. of air daily). The original Courneya Airwell used a turbine fan to pull air through the pipes. Later designs employed an electric fan for greater airflow. At 90° F. and 80% Relative Humidity (RH), the Airwell yields about 60 lb. water daily. At 20% RH, the yield is only about 3 lb./day. The yield is even lower at lower temperatures.

It is difficult to calculate the amount of water that can be collected. The yield depends on the amount of air and its relative and specific humidity, and the soil temperature, thermal conductivity, and moisture. Acoustic resonance within the pipes might enhance condensation. The more recent invention of acoustic refridgeration could be used to advantage, as well as the Hilsch-Ranque vortex tube.

If the air intake is indoors, the system can recover water even during the winter, when air is colder than the soil. A clothes dryer will yield about one liter per load.

The water collected by the Courneya Airwell is relatively pure, equivalent to single-distilled water. Analysis of water collected by an Airwell near a busy street found no sulfur or lead (measured in ppm).

Daily Courneya Airwell Production (Quarts)

Relative Humidity	Inlet Air Temperature		
	90° F	80° F	70° F
90%	36	22	12
80%	30	17	9
70%	24	14	6
60%	19	10	3 qt

(Ground Temperature: 50° F)

In the 1950s, the French inventor Henri Coanda designed an elegant method to produce pure water from saline. He designed an enormous silo with reflective walls, which was mounted several inches over a tidal pool. The silo was angled so as to catch and multiply the sunlight, thus superheating the air in the chimney. The rising hot air drew in cold air from the bottom, and became super-saturated with moisture by the time it reached the top. There it was drawn by fans into a condensor from which flowed pure water. The residual brine also is of great value to chemical industry and in the construction of solar ponds. Coanda described a horizontal embodiment of his "Apparatus for Purification of Undrinkable Water" as follows in the abstract of his *U.S.P.* 2,803,591:

"Apparatus for the purification of non-potable water comprising, in combination, an installation for heating a circulating mass of air, said installation comprising at least one tubular element through which said air circulates and at least one trough-like mirror of parabolic section having the focal axis thereof horizontally disposed, with said tubular element disposed along said focal axis of said mirror, said mirror with its associated tubular element being mounted in the plane of symmetry of said mirror, and also being mounted to rotate about a vertical axis..." (9, 10)

Coanda also received U.S. Patent #2,761,292 (Cl. 62-140) for his "Device for Obtaining Drinkable Water". He offered the following facts for example and explanation:

"It is known that the air contains water and according to my invention the energy for precipitating this water can be taken from the air itself in motion. It is known that for a given temperature a given volume of air may not contain more than a certain quantity of water vapor. When it contains this quantity it is said to have reached its saturation point. moreover, this point varies with the temperature, and the cooler the air, the less water vapor it may contain for a given volume.

"Consequently, when a relatively warm volume of moist air is cooled to a sufficiently low temperature, it yields the water it contained in excess over the quantity permitted by the saturation point at the temperature to which it has been cooled.

"In a continuous process of producing fresh water, it is necessary to absorb the heat derived from the warm moist air at a speed corresponding to the rate of cooling..."

Coanda recommended burying the condensor so the earth

Figure 3

could absorb the heat:

"For example, one cubic meter of air from a wind whose temperature is about 40° C can contain up to about 50 grams of water vapor; if the wind is forced to enter a certain space by passing along... a radiator in which a fluid circulates at the temperature existing 7 or 8 meters below the round level, that is of about 11° C, this wind will immediately precipitate on the radiator walls the portion of the water ontent which is in excess of that permitted by its saturation point at the cooler temperature, that is, about 40 grams per cubic meter of air, as the saturation point of air at 11° C is 10 grams per cubic meter. The heat given off, which must be carried away by the fluid in the radiator, represents approximatly 32 calories for said one cubic meter of air... It is advisable to pass the fluid through a second radiator of larger dimension disposed in the ground at a certain depth.

"If the humidity of the warm air is definitely below 50 grams of water per cubic meter, that is, if the air is far from its saturation limit, and if the device for obtaining fresh water is disposed near the sea, it is possible to use [windmills] for spraying sea water into the warm air in fine droplets, thereby increasing the amount of water contained in the warm air through the partial evaporation of the sea water thereinto.." **(Figures 5, 6)**

Other humidity condensors have been built in recent years.

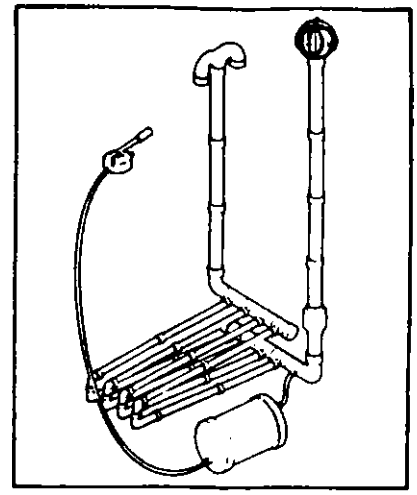


Figure 4

For example, Soviet cosmonauts aboard space station Mir used a system that recovered water from the air.

The Aqua-Cycle, invented by William Madison, was introduced in 1992. It resembles and functions as a drinking fountain, but it is not connected to any plumbing. It contains a refridgerated dehumidifier and a triple-purification system (carbon, deionization, and UV light) that produces water as pure as triple-distilled. Under optimal operating conditions (80°/60% humidity), the unit can produce up to 5 gallons daily.

Fog Fences

In 1945, South Africa's chief meteorologist, Theodore Schumann, proposed the construction of a unique cloud-condensor atop 3,000 ft. Table Mountain on the south side of Capetown. According to Schumann, two large parallel fences of wire netting, one insulated and one grounded, would be charged with a potential difference of 50-100 KV. The wire screens were to be about 150 feet high, 9,000 feet long, and 1 foot apart. Schumann estimated that the electrified fence would condense as much as 30,000,000 gallons a day from "The Cloth", a perpetual cloud that crowns Table Mountain. The fence was never built. **(Figure 7)**

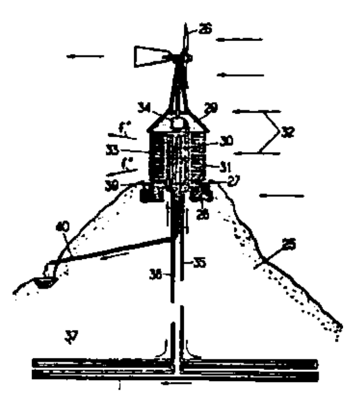


Figure 5

Conversely, Alvin Marks invented the "Power Fence" to generate electricity from the wind by means of an charged aerosol which was dispersed from microscopic holes in the tubing of the fence. Marks calculated that if the wind averaged 25 mph, a mile of fence would generate about 40 megawatts. The towers would be 500 feet high, strung with a grid of steel bars in a rectangular array. Each is subdivided into a lattice of 4-inch squares, and these are further divided by a mesh of perforated tubules through which the water flows. Marks donated the rights to his patent to the nonprofit World Energy Foundation. This technology is perfectly suited for cogeneration with the Schumann fence. (11, 12)

The EGD Fog Dispersal System invented by Meredith Gourdine has been used at Los Angeles and Ontario International Airports and by the Air Force since 1986. The system uses an electrically charged mist that is sprayed into the fog over runways, thus clearing them for landing.

As described in U.S. Patent #4,671,805, Gourdine's method

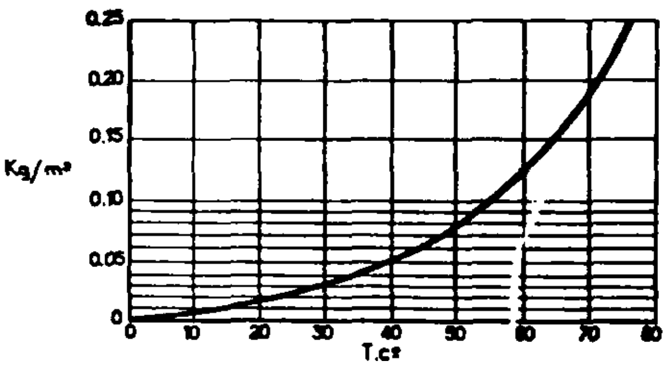


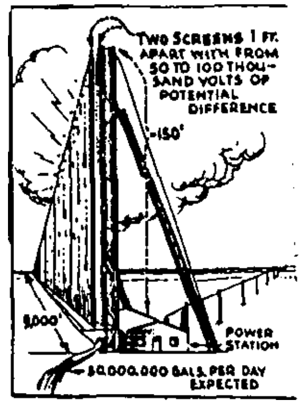
Figure 6

provides "an array of charged submicron water droplet nozzles" and select "characteristics of a cloud of charged droplets... including a field strength... a charge concentration, a time constant," etc., "whereby clearing of the airborne particles occurs... by attachment of the emitted submicron droplets to the airborne particles to the ground." (13, 14)

Chilean scientists have developed a revolutionary "fog-trap" at Chungungo, Chile. A group of 50 fog-traps made of plastic mesh stand atop a 2,600 ft. mountain and collect up to 2,000 gallons daily. The villagers call it "harvesting the clouds".

Waldo Canto, regional director of Chile's national Forest Corporation, said, "We're not only giving Chungongo all the water it needs, but we have enough water to start forests around the area that within 5 or 6 years will be totally self-sustaining."

Another 21 sites (1,000 acres total) on the Pacific coast of Latin America also have fog trap. Some of the locations have become self-sufficient because the trees have become large enough to collect fog for themselves, just as the ecosystem did before settlers disrupted it. Fog-forest ecosystems survive precariously on droplets of water collected by their leaves. Some such forests, surrounded by deserts, have been sustained by fog for millenia. Very little cutting is necessary to initiate gradual but complete destruction.



Vapor would condense on the screens and the water be collected below.

Figure 7

The ideal location for fog traps are arid or semi-arid coastal regions with cold offshore currents and a mountain range within 15 miles of the coast, rising 1,500 to 3,000 feet above sea level.

Mesh occupying 70% of the space is most effective for trapping fog droplets. Two layers of mesh, erected so as to rub together, optimizes the collection of water in PVC pipes attached to the bottom of the nets. Collection varies with the topography and the density of the fog. The fog trap at Chungongo is 40 x 13 feet and produces 45 gallons/day. The fog becomes denser and more frequent in the summertime, and water production then doubles.

The development of air wells, dew ponds and fog fences offer hope for thirsty humanity. The quantity of water thus produced is not likely to meet the needs of large-scale agriculture, but certainly countless lives can be improved by implementing artificial condensation of atmospheric humidity. The technology is simple, elegant, and desparately needed, yesterday, today and tomorrow.

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Batman's Medical H-Bomb

An Old Borderlander Welcomes a New Order in Medicine

by Trevor James Constable

Dr. Feyredoon Batmanghelidj's discovery of the medicinal and functional value of sufficient daily water intake, will one day rank as one of the most significant advances in world history. An honest world would accord, right now, the highest honors to such a physician. "Dr. Batman" has brought blessings beyond description to countless millions of people, and to hundreds of millions as yet unborn, all at no cost. To everyone living, the benefits are immediate. That this gifted physician must now struggle for recognition and dissemination of his discoveries, shows the dark side of man, and the anticivilization that is the objective consequence of man's perverse drives.

Dr. Batmanghelidj's revolutionary discoveries regarding the importance of adequate daily water intake to health, are contained in his book "Your Body's Many Cries for Water." This writer reviewed the book in Borderlands several issues ago. Dr. Batmanghelidj has unmasked chronic dehydration as the basic, unsuspected cause of America's hideous avalanche of degenerative diseases. Every person with the capacity and will to think independently, should read this book many times, grasp its revolutionary power for human benefit, and help disseminate these wonderful findings.

Nothing encountered by me in a 40-year study of alternative medicine, compares with Dr. Batmanghelidj's work for basic simplicity, core truth, immediate availability, and practical value to every human being — all this at no cost! DR. BATMANGHELIDJ HAS UNCAGED A MEDICAL H-BOMB!

There are haunting parallels here to the work of Dr. Royal Rife. The latter's noble life and deeds were elegantly outlined for us not long ago in Borderlands, by Gerry Vassilatos, and again in his currently available book "Lost Science." A reading or a re-reading of this material is strongly recommended.

While it is true that Rife invented a complex DEVICE, and Batmanghelidj discovered a new medical paradigm, each found that highly intelligent physicians of repute readily grasped the significance, value and merit of the breakthrough. Prestigious medical institutions were enthralled by Rife's achievements. Doctors using the Rife microscope saw things never previously seen by mortal men.

Rife found the cancer microorganism with his revolutionary microscope, hiding far below the reach of even the best electron microscopes. He further discovered how to disintegrate this organism via vibratory resonance, making the entire process numerically-based and replicable. He filmed these startling discoveries, with virtuoso skill. Learned papers were written. Doctors became enthusiastic, and used the Rife microscope themselves. The way was open to liberate mankind from its most implacable disease enemies.

In similar fashion, qualified doctors implementing Dr. Batmanghelidj's discoveries to cure a raft of misery-generating diseases, have recognized the magnitude of what Dr. Batmanghelidj has done. Their embarrassment is considerable at finding that crucial knowledge was ignored in their medical schools, and that these omissions limited their own professional capabilities.

Word of Dr. Rife's spectacular discoveries eventually seeped into the power circles that benefit financially from pharmaceuticals. These men are among the unelected rulers of our anticivilization. The clear portent of Rife's work there, was that it would severely and progressively impact pharmaceutical sales. Profits from the cancer merry-go-round in particular, would likely evaporate. Alarums pealed in the suites of the unelected rulers.

Anticivilization turned savagely on Dr. Rife, a gentle genius. Within a short time, most of the doctors and institutions who had lauded his work and seen its future, were reached and "turned." Terroristic Big Medicine was in action. All references to Rife's work were retroactively expunged from AMA professional journals. Anticivilization proceeded to wreck the life and work and break the heart and spirit of Dr. Rife, a master pathologist and one of humanity's greatest benefactors. The world was made safe for business as usual. Safe for cancer. Safe for the sickness and death industry.

Dr. Batmanghelidj has discovered the wide spectrum of punishing consequences to human health of chronic dehydration. He has demonstrated clinically and scientifically, how such seemingly unrelated diseases as high blood pressure, high cholesterol, asthma, depression and rheumatoid arthritis, as well as numerous other classical diseases of unknown etiology, are caused by chronic dehydration. This is revolutionary. Dr. Batmanghelidj describes lucidly how the human organism operates ingeniously to maintain its water volume, and how these manipulations translate into classical disease symptoms. Through these symptoms, the body "cries" out for water.

Study of Dr. Batmanghelidj's book, and his video and audio tapes, leaves the student convinced that such diseases are actually INEVITABLE in the absence of adequate water intake, and adequate daily common salt. The dehydrated body cannot possibly be healthy. Dehydration has now been identified as a prolific fount of dysfunction and derangement, but this is not understood or yet comprehended by classical medicine. The various sets of symptoms by which classical diseases are identified and diagnosed, are actually bodily cries for water. These complex and insistent "cries" for water are unheard by doctors. They are busy "treating" these cries for water with pharmaceuticals!

Usually these medicines have only palliative, symptom-suppressing effects. Fresh symptoms often arise to replace those suppressed. Some prescribed medicines force even more water out of an already dehydrated body. These ineffective measures keep the afflicted person forever visiting the doctor's office, and perpetually ingesting synthetic chemicals — living an iatrogenic nightmare.

Most readers of Borderlands, as well as students of esoteric knowledge, are aware that the physical body is animated and replicated by its etheric double, a force matrix which interpenetrates the physical body in all its parts. As all radionic physicians are aware, synthetic drugs drive the human etheric body out of proper alignment with the physical structure. A gross example is the deadening effect of novocaine. Such forcible chemical extrusion of life force from any affected organs deadens these structures and causes dysfunction. Change the drug, and through molecular resonance effects, different organs or processes are affected. Different symptoms appear in response.

Until Dr. Batmanghelidj elucidated the universal influence of water, never was it suspected by those practising this kind of "pin the tail on the donkey" medicine, that anyone who is chronically dehydrated is going to develop degenerative disease with the certainty of sunrise. This is what Dr. Batmanghelidj has brought into sharp focus for the human race. He has done this not via any esoteric or mystical pathway, but strictly through needle-sharp clinical observation, and decades of dedicated clinical research.

An intelligent reader of Dr. Batmanghelidj's book is compelled to ask some embarrassing questions of medical academe. How is it possible for medical "science" to have remained so ignorant for so long, of such a comprehensive fundamental as WATER at the bedrock of human health? Learned medical professor-doctors, for generations have unwittingly MISINFORMED THEIR STUDENTS. By insisting on the primacy of the solutes in the human body, and virtually ignoring the role of water, medical education has stripped medical students of the capacity to understand how common, ineradicable diseases like asthma come into existence via dehydration.

The central paradigm of medical education is incorrect, as Dr. Batmanghelidj has demonstrated through his devoted original labor. The solvent is supreme, the solutes secondary. Water is paramount, and regulates bodily health. Water is not just incidental, as classically taught. The student must nevertheless accept this diametric error as one of the granite plinths of his qualification as a physician.

Present medical education thus diverts attention from the wide spectrum of etiological influences exerted by dehydration. Doctors therefore have been passive victims of classical disease descriptions that end with the term, "etiology unknown." Case closed. No hope of getting at the problem prophylactically. Therapeutically, there are only palliatives. Medical students reproduce and perpetuate the ignorance of their professors. As the price of obtaining a medical degree, their passport to financial munificence, the students must repeat back to their professors what they have been told. If it's wrong, they repeat that error.

Dr. Rudolf Steiner gave medical lectures to Europe's most eminent physicians, over 80 years ago, that put his audiences to their limits to follow his genius indications. Yet did he state a signal medical fact: "Man is a column of fluid." Few physicians have practised with that wise observation uppermost. Until destiny introduced Dr. Batmanghelidj to his task, no attention and no research resources were applied to understanding the central significance of water in human health. What was being done instead?

Multi-million dollar research foundations are set up in huge buildings and hospitals with large professional staffs, to study and research disease. Sometimes, such facilities are dedicated to investigating a single disease. These are perpetual investigations, seldom if ever completed by the discovery of definitive cures.

Countless thousands of medical professionals spend their lives striving to find cures for arthritis, hypertension, asthma, stress, obesity, etc. All that emerges from this expensive, endless pulling and hauling are palliatives, not cures. Learned doctors employed by such foundations often appear in TV interviews, to shake their white heads and assure the American people how difficult it all is, or how some new finding is hopeful, but the main outcome is always the same: no cure yet. Why is there "no cure" and why do all these eminent specialists chase their own tails for decades? They do NOT lack intelligence!

There is something FUNDAMENTALLY WRONG with conventional medical knowledge, so that downstream from this core error, effective cures for disease remain eternally elusive. Brilliant physicians are flummoxed by common diseases. The fundamental error becomes integumented in the orthodox medical approach. Medical education exhaustively explores the human organism, but concentrates on the body's many and diverse solutes — the solids — without assigning any significant role to water. This is the educational blind spot in mechanistic medical teaching. The consequences have been disastrous: an avalanche of degenerative diseases for an entire nation. Countless millions of people live in this disgraceful medical half-world, while medical costs for ineffective therapies balloon obscenely.

The BASIC PARADIGM has to be shifted from an irrational obsession with the solutes, to a new paradigm that assigns pride of place to the water metabolism of the human body. Elucidating this is Dr. Batmanghelidj's supernal gift to mankind. Facing such a revision and renunciation is a challenge to teachers, some of whom will only be able to react with fear and rage. The behavioral pioneering of Dr. Wilhelm Reich provides adequate understanding of neurotic resistance, especially when a discovery has the power to release, in any individual, that which has become bound and static in their structure and in the emotional security of their world view. Dr. Batmanghelidj has provided just such a release — big time.

Anyone looking for the Hand of God in earth life, need look no further than the central happening that triggered Dr. Batmanghelidj's discoveries: HE WAS FORCIBLY EXCOMMUNICATED FROM PHARMACEUTICALS when arrested and jailed by the Khomeini fanatics in Iran. Had this excommunication from medicines not occurred, he would have remained as blind to the role of water in human health as any other conventionally-trained physician. Dr. Batmanghelidj admits openly and honestly to this.

He was trained by the late Sir Alexander Fleming, the discoverer of penicillin, at London University — an august, conservative and solid medical education. Dr. Batmanghelidj confesses his sheer embarrassment, in prison in Teheran, as clinical experience compelled him to recognize HIS OWN IGNORANCE OF WATER'S DYNAMIC IMPORTANCE. Imprisonment and absence of pharmaceuticals, literally resulted in his discovering unsuspected yet crucial functions of water in the human body. Such principles were never broached in his prestigious medical school at St. Mary's Hospital in London. If all this is not the Hand of God, then never does this writer ever expect to see that Hand.

Aberrant medical education in this century, minus knowledge of water's fundamental role in human health, has led to supine reliance on medication in dealing with disease. Visit a conventional physician with any complaint, and the chances are high that you will emerge from that doctor's office with one or two pharmaceuticals or prescriptions for them. Scores of millions of sick persons accept this as routine. They also accept as routine a round of subsequent visits. A vacuous mass faith has been created in medication with synthetic chemicals alien to the human body. This in turn has made pharmaceuticals Big Business, dealing in billions, a monstrous, perpetual money-mill pouring out profits. The pharmaceutical industry furthermore, corrupts doctors with financial "incentives" that are de facto bribes.

Beyond calculation is the tonnage of pharmaceuticals thrust down the national gullet or squirted into the national bloodstream in the past century, in response to the body's many cries for water — as identified by Dr. Batmanghelidj. Despite occasional shaky triumphs over various diseases, the signal truth at this century's end is that the American people were never sicker than they are today. The brightest brains in Congress, and at its consultative call, are at their wits' end to cope with the absurd, amoral and perpetually-spiralling cost of medical care. If disease doesn't ruin a sick people, medical costs certainly will.

Burdened with diseases for which there is no cure, the American public wants to be able to run to the doctor, without being wiped out financially by what is likely to result. A gargantuan SICKNESS industry, undergirded by government interventions, has resulted. Big medicine in America is Big Money, forever getting bigger — exponentially. Enter Dr. Batmanghelidj, with his brilliant discovery of the bedrock medical value of adequate daily water intake. Effective body blows can finally be dealt to disease, at no cost and right now. There's the rub.

Water as medicine costs nothing. There is no hazard to drinking adequate water, "under a physician's supervision" if the patient is really chicken-hearted. Most asthmatics, arthritics, obese people and hypertensives have ingested in the course of "treating" their afflictions, a wide range of pharmaceutical products. They have the holes in their bankrolls to prove it. Even a five-watt mentality can understand what will happen to pharmaceutical sales if Dr. Batmanghelidj's paradigm shift is absorbed into medical education. What is going to happen if young doctors begin emerging from medical schools without the present "blind spot" where water is concerned?

The situation is starkly similar to that prevailing when the unelected rulers became afraid of the financial consequences of the Rife microscope. As long as he was an inventor struggling with an often derided device in a remote lab, Rife melted into the medical background of his times. He was of no consequence. When his invention developed the potential to impact one of the major financial rackets of our era, all necessary force was brutally rallied for his destruction.

The true character of our anticivilization is not widely recognized. We do NOT have a civilization on this planet yet, but its opposite, masquerading as what it is not. This anticivilization is run by its unelected rulers, and not by the people who front as its rulers on C-Span. Unelected people run this world, not the victors in elections. Politicians can be replaced like flashlight batteries.

Depicted as honest, Earth life actually rests upon corrupt foundations, and is upside down and backwards. That is why the person who dedicates his life to advancing, liberating or healing mankind, commits a CRIME in the eyes of the unelected rulers, when his work impacts either their wealth or their illegitimate control of people, politicians and events.

Ostensibly intended to serve "justice for all", adequate legal machinery exists in the anticivilization to crush true benefactors. Impeccably qualified and prestigious assassins with doctorates are available. These sinful men will do anything for money and "the top seats at feasts." Courts are corrupted to lend legitimacy to what is done. The anticivilization must always appear as what it is NOT, and so all appearances of legitimacy are emphasized and promoted. We have seen in our own time some genius benefactors of mankind torpedoed by the anticivilization, and their names and work buried. Along with Dr. Royal Rife, we saw the eminent Dr. Albert Abrams dropped into a Black Hole. Dr. Ruth B. Drown was persecuted unto death as she wrought the synthesis of esoteric qabalism with modern radionics, creating a fully numerical diagnostic system, ready and waiting for the computer age that has now arrived. John Logie Baird, the inventor of television, died penniless and wasted by malnutrition in South Africa, his name forever obliterated from any connection with or benefit from TV — the greatest manipulative tool of the unelected rulers. Tesla, Koch, Farnsworth, Edwin Armstrong, Wilhelm Reich, the list is long, the factual history unrelievedly horrible. They were all undermined and shafted.

Workers and researchers who pursue knowledge lines that either benefit the unelected rulers, or are harmless to their wealth and power, are left alone. These toilers serve to maintain the anticivilization's most delusionary appearances that mankind's interests are being served by those on high. These malignant and avaricious hidden powers are going to want Dr. Batmanghelidj right off the earth. A highly-principled and noble gentleman, he has dedicated his work "To our Creator, with awe, humility, dedication, and love." His is a truly Cosmic Deed of incalculable value to all mankind. That makes of him a target.

One dominating circumstance favors the survival of his work. There is a decisive difference between Batmanghelidj's breakthrough, and that of other pioneers who were destroyed: there is no waiting for some beatific eternity for Dr. Batmanghelidj's work to fructify. There is no endless delay as it filters down the chain of medical censorship and professional ambush, and on through the labyrinths of knowledge control. There are none of those greasy promises of someday benefit such as emanate from the great medical foundations, as they cadge and bludge further finance. Water is here, now, ready and able to benefit every person reading this. The elixir of life is waiting in your kitchen faucet. The medical trusts have never confronted anything like this in their baleful history. DR. BATMANGHELIDJ HAS TRIGGERED A MEDICAL H-BOMB.

In this writer's pantheon, the highest god is RESULTS. Adequate water intake gets results, as I have found out personally in applying Dr. Batmanghelidj's work to my own life. There's something poetic about having brought down billions of tons of water on the earth, as a weather engineer, and in my dotage finally getting to drink as much of it as I should, thanks to Dr. Batmanghelidj. There is a considerable confluence involved in all this, that Borderlanders will readily comprehend. The first rays of a new day are appearing, that encourage me to think that "Batman" as he is already lovingly known, will be protected and preserved by The Powers who guide mankind.

Already there have been qualified physicians who have approached Dr. Batmanghelidj and asked him to teach them what he has learned through his unique experience. Like him, they are embarrassed to confront the magnitude of their own ignorance of water's power and purpose. They are embarrassed by what they should have been able to do for their patients. They are aware of the gaping void in their educations at the best medical schools. They want to know more, as he did, in his own most terrible hours.

Dr. Batmanghelidj was a physician to the damned, deprived of all medicines, and with thousands of patients who all awaited the firing squad. Out of this desperate extremity came the greatest single medical discovery in the history of man. Water. Water as medicine. Water as the master key to health. Adequate daily water intake and sufficient common salt, as the bedrock of human well-being, and the cure for an astounding range of diseases that have baffled generations of medical researchers. These revolutionary discoveries were verified, developed and extended over almost two decades.

Patterns of national self-abuse have also now been thrown into bold relief, in a cultural H-bomb to match the H-Bomb in medicine. The U.S. consumption of caffeinated soft drinks is a vivid example. Every day in America, scores of millions of caffeinated soft drinks are sent cascading down the national gullet. Each such "drink" has within it the dehydrating toxic power of caffeine, actually forcing water out of the body whose thirst the soft drink is intended to quench. Nor is this all. Americans consume countless millions of gallons of coffee each day, a toxic torrent that reinforces the dehydration from caffeinated soft drinks.

Add to all this the fierce dehydrating power of alcohol, and you begin to understand the reason for America's appalling vista of degenerative disease. Crisis looms amid this insanity, yet hope shines through the ruin. The national health damage inflicted by dehydration can be countered at its source, AT NO COST. If public education of the hazards of dehydration is not undertaken, official medicine will wind up bankrupting America, even as its ignorance destroys America's health.

Those who pray for America, should be expecting an emissary in these terrible times. Dr. Batmanghelidj comes to us as a fully qualified physician who has opened the way to mastery of the greatest health crisis in American history. He is right on time. In all of medicine he is unique with his great Deed. Those of us who have received this blessing already, develop a zeal to bless others. There is nothing like the shining gratitude that comes from a fellow human being, when water has stripped him of some chronic medical curse.

Dissemination and consolidation of Dr. Batmanghelidj's gifts depends on YOU, not Big Medicine. You can do this. You can be effective in pulling humanity out of a dire crisis. Tell others of water's wonders. Share the legacy of a dedicated physician.

The Pundit Curmudgeon

Magnetic Levitation Using Permanent Magnetic Repulsion & The Definition Of Work

THERE is good reason for anyone investigating permanent magnet type perpetual motion machines to start her or his investigation with a consideration of various different devices in which the interactive repulsion between opposed, like poles on permanent magnets is used to obtain levitation of one of the magnets. Such structures are closely related to but different from structures in which guides or a similar mechanism supports two opposed magnets in a horizontal plane and in which some mechanical or pneumatic equivalent of gravity is employed to urge the magnets toward one another. These devices are also not to be confused with more closely related, but dissimilar structures in which the attraction of unlike magnetic poles is used to cause magnetic levitation of one of the magnets in such a machine.

Both attraction and repulsion type magnetic levitation structures can be regarded as the ancestors of many types of proposed, usually considered to be frivolous, perpetual motion motors utilizing magnets as a power source. And they also raise interesting thoughts about the accuracy of the dogmatic equations of classical physics as taught in the usual elementary physics courses.

In its simplest form one of these repulsion type devices theoretically can include only a first permanent magnet supported in any convenient manner so that it turn uses the "action" of one its poles to interact with an opposed, like pole on another vertically spaced but otherwise unsupported permanent magnet to hold the other magnet in a position in which it is spaced from the first. It has long been considered that such a device is unstable because one or occasionally both of the magnets used tend to move so that the like poles of the magnets are attracted to one another . Current advertisements for a commercial levitating top indicate that the inoperative character of such a structure employing opposed like poles so as to levitate one magnet above another was first formally recognized in "Earnshaw's Theorem of 1848". No effort has been made to verify the accuracy of this particular citation in the preparation of this column.

In spite of this theorem it is possible to achieve stable levitation in a device as described by using two permanent magnets and very judicious design. This is contrary to common belief that such structures can be made to "operate" only when the opposing magnets are constructed so that at least one of the magnets will be restrained against flipping over by the use of at least one force other than gravity so as to overcome the apparently or perceived inherent instability of the flux pattern between the opposed poles of the magnets used. No one seems to be able to adequately explain - or to care about explaining - why an unrestrained magnet will, under normal circumstances, flip over when one of its poles is brought into proximity with the like pole of a similar magnet so as to place the magnets in a stable relationship determined by the attraction between dissimilar poles.

Probably these simple devices do not operate because the flux patterns associated with their poles have not been shaped so as to "fit" together while accommodating the pull of gravity on the uppermost magnet. Other items such as the constant minor variations in the ambient earth's flux pattern and the effect of this on flux from the magnets and the action of gravity probably all play a critical role in the instability of simple superimposed opposing pole devices. The difficulty of achieving stabilized levitation with only permanent magnets is so great that as a practical matter most individuals consider Earnshaw's Theorem to be true.

It has been recognized for many years that in order to effectively use the repulsion between like poles of two common magnets that it is necessary to prevent one magnet from moving other than linearly from a desired or intended position relative to the other magnet by employing a restraining "means" which is independent of the action caused by the repulsion of the like poles of the two magnets. Although the "action" of such a retaining means can be derived from one or more permanent magnets or by the judicious use of gravity such restraining means are never or almost never of either of these types. Nearly all of such retaining means are of a simplistic mechanical character.

Any operative "device" as discussed of either a magnetic repulsion or attraction character using a retainer or its equivalent must be classified as a perpetual motion contrivance because the magnetic energies present will operate for a prolonged, indefinite period until terminated by the application of some other energy or as a result of deterioration of the magnets. The logic behind this conclusion is discussed in earlier columns of this series entitled "Defining Perpetual Motion" and "Perpetual Motion = Perpetual Work" appearing on page 13 of the third quarter 1993 and on page 54 of the second quarter 1997 issues of Borderlands. As perpetual motion devices they (and those persons concerned with them) are automatically open to a degree of completely unwarranted rejection.

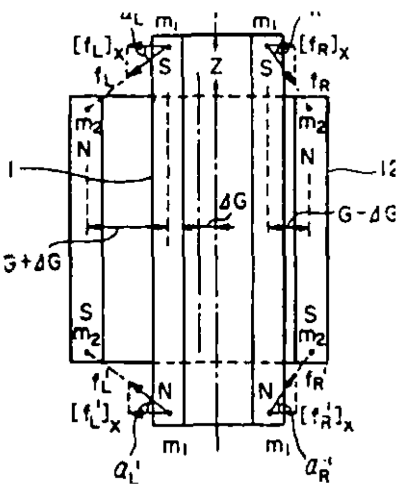
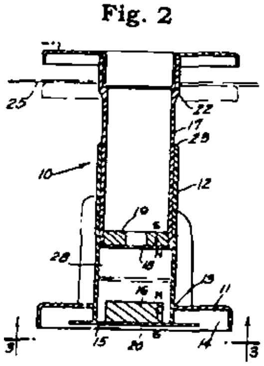


Fig. 1

Perhaps this is an overstatement, particularly as it is applied to attraction type devices in which only permanent magnets are used to obtain magnetic levitation. These are sufficiently rare that they are relatively unknown. The sole construction of this type which was easy to locate in connection with the preparation of this column is shown in the Oshima US patent 5,043,615. As will be easily seen from Fig.1 reproducing the drawing on the cover page of the patent this device consists of concentric permanent magnet cylinders in which the inner cylinder is held in place by the magnetic attraction at one of the ends of the device being counterbalanced by the magnetic attraction at the other end.

Fig. 2



Examples of repulsion devices in which permanent magnets are used with retainers or various styles to obtain magnetic levitation are so common that it is considered that most individuals have on occasion encountered one or more structures of this type. Kids frequently create this type of structure when experimenting with two or more washer like magnets in which the surfaces of the magnets are their poles by merely passing a pencil serving as a retainer through the magnets. Variants of this type of "structure" are shown in Figs. 2 to 6. Fig.2 is taken from the Thompson US patent 3,105,663; Fig.3 from the Goodell US patent 3,029,824; Fig.4 from the Dinsmore US patent 3,308,899; Fig.5 from the Puttick US patent 3,550,936; and Fig.6 from the Wuerfel US patent 4,427,960.

These are merely exemples of a number of many references in which one permanent magnet pushes another permanent upwardly while gravity tends to pull the second magnet toward the first and a retainer holds the magnets so that their fields repel them. The principles utilized in these particular devices have been modified in many different manners. For example, the center guide member or post in structures as shown in Figs. 2 to 6 can be replaced by an external tube as shown by Fig.7 taken from the InoueUS patent 4,233,777. It is relatively common to replace such a centrally located guide means or post with a cord or the like serving as a tether as shown in Fig.8 taken from the Littlefield US patent 3,196,566, and Fig.9 copied from the Lodrick US patent 4,690,657.

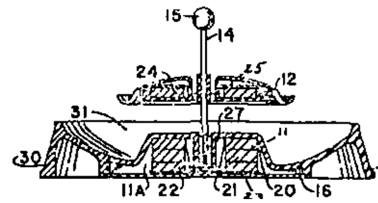


Fig. 3

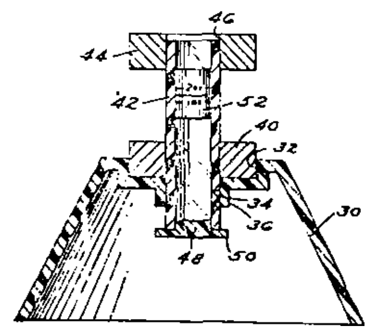


Fig. 4

Fig. 5

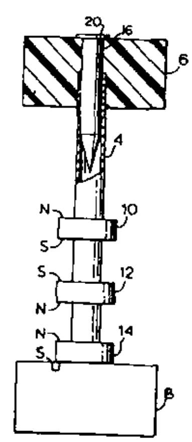


Fig.10 from the Neal US patent 2,323,837 is interesting as indicating that a tether or its functional equivalent is normally required when a series of permanent magnets are assembled on each of two separate members so as to hold them apart. It should be considered in conjunction with Figs.11 and 12 which correspond to Figs. 1 and 10, respectively, of the Peer US patent 2,377,175 pertaining to a device having the same type of external appearance as the Neal structure. The Peer structure differs from the Neal structure by using electrical power to

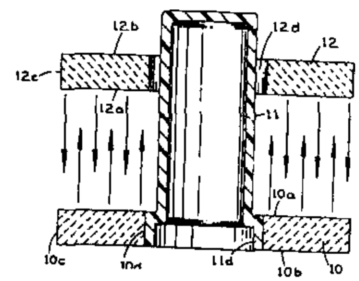


Fig. 6

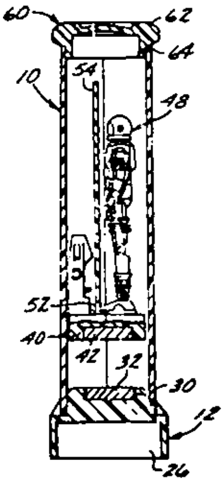


Fig. 7

levitate in such as manner as to avoid the need for a separate restraint or tether as used in all of the structures previously discussed. In effect the manner in which a current is employed by Peer can be regarded as the equivalent of a traditional mechanical restraining means. It is understood that a rather famous yachting trophy - the "Jules Verne" trophy - is constructed in a manner corresponding to the Neal construction.

The need for such a restraint can be satisfied in many ways. Frequently something containing a permanent magnet is merely placed against a support and is magnetically biased in a somewhat elevated position through the interaction of several magnets. A structure of this type is illustrated by Fig.13: it is a reproduction of a figure from the Spatz US

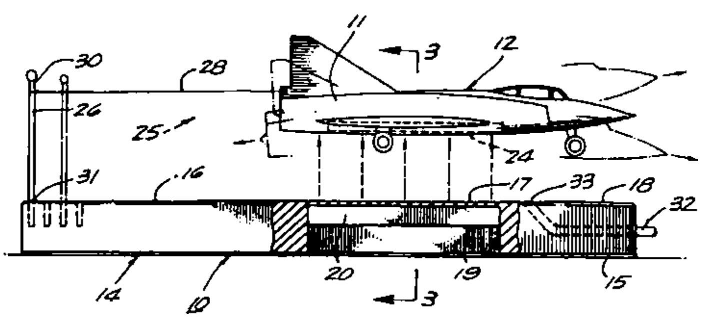


Fig. 8

patent 2,693,788. Currently a commercial "toy" is being sold which uses a gyroscopic action as a restraining influence. Fig.14 taken from the cover of the Harrington US patent 4,382,245 pertains to a device of this type.

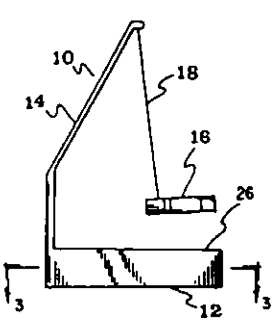
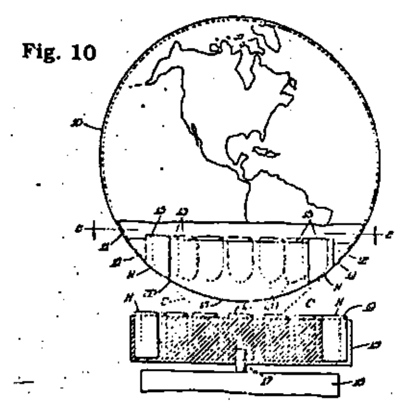


Fig. 9

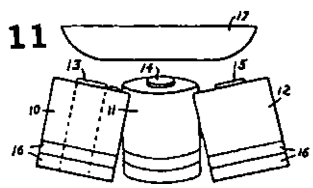
On occasion the same magnetic forces from the permanent magnets which are used to bias magnets within a device apart have been used as a substitute for a mechanical restraint in a device in which such magnets are used to obtain magnetic levitation. A magnetic repulsion structure of this type is illustrated in Fig 15 which is closely related to the Oshima attraction type of structure shown in Fig.1. The latter reproduces the drawing on the cover of the Forester et al US patent 4,340,260. An even more interesting device of this type is disclosed in the Wyatt US patent 4,471,331. From Fig.16 it will be apparent that this patentee uses a clever combination of opposed circular magnets to levitate an inner member and, in addition to restrain or limit the movement of the central member so as to maintain its alignment.

Fig. 10



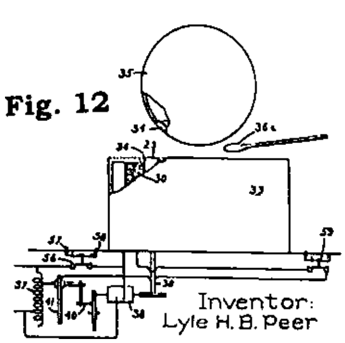
All of the devices shown in the preceding Figs.1 to 16 are merely examples of a large collection of different perpetual motion type devices in which permanent magnets are used to obtain magnetic levitation. Two things seem significant relative to these devices. The first concerns the semantics issue as to what they are. This involves the question as to what is and what is not a "motor". The second, related issue concerns what constitutes "work" as this word is used and defined in conventional physics.

Fig. 11



Surprisingly there seems to be no word in common English which adequately identifies permanent magnet levitation devices as discussed in the preceding. Since the word "motor" is most commonly used in a mechanical sense to designate a unit which supplies power or motion they cannot be legitimately be referred to as "motors" in the absence of accompanying lexicographic doubletalk. Under normal quiescent conditions these devices simply sit where they are located and do not supply either motion or power to anything. In technical fields this word "power" designates either an actual or a potential force or energy necessary to do "work". From a common sense standpoint they have neither.

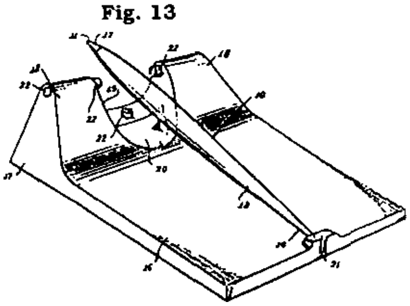
Fig. 12



The mere mention of "work" in association with permanent magnet levitation devices constitutes an invitation to enter into an undesirable lexicographic maze. Only that minor part of this intangible maze pertaining to the meaning assigned to "work" in elementary physics needs to be considered in this discussion. "Work" has other overlapping, somewhat indefinite meanings illustrating how the delightful flexibility of English can lead to misunderstanding, confusion and debate. This is especially the case when a word has somewhat different meanings in different connotations.

With dogmatic rigidity "work" is defined in elementary physics by the classic equation $E=Fs$ in which E represents work, F is a moving force and s the distance through which the force acts. From a technical standpoint this definition indicates that applying a force against an immovable object does not constitute "work" because no motion results form the application of the energy. Experience indicates otherwise. One can expend all sorts of energy without accomplishing anything such as causing an object to move as, for example, in holding something so that gravity does not move it toward the earth. In view of this to make sense out of this equation it would be desirable to modify it so as to indicate that work is only accomplished when energy is used in a manner which in at least some circumstances could cause a detectable change in what ever receives the energy or something operatively associated with whatever receives the energy.

Fig. 13



Even by liberalizing the meaning of "work" as in the preceding sentence it is improper to refer to opposed pole permanent magnet levitation structures as discussed as motors because they do not apply or supply energy or power to anything. They are quiescent while their bottom magnets quietly supplement any restraining means used to "hold" the magnets above them until some external energy is applied which may cause at least some relative motion between the upper and lower magnets. Some can be expected to argue against this on the ground that in these structures the lower magnet or magnets supply power to elevate the magnet or magnets located above them. The fact that this is true does not mean that a permanent magnet levitation device in its entirety or as a whole causes any motion or supplies any form of power to anything external to the device.

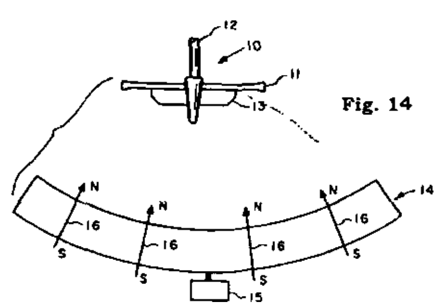
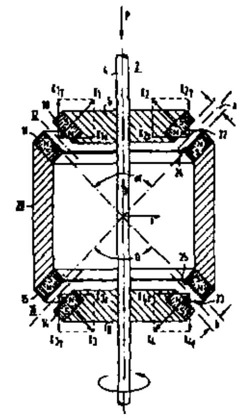


Fig. 14

If permanent magnet levitation structures as referred to in the preceding cannot properly be classified as motors the question as to what to call these structures seems to be unanswerable unless a new term to designate these devices is invented. Regardless of whether or not this happens the paragons who teach elementary physics should revise their lessons so that they obviously appear to reflect all of the aspects of reality applicable to them. Perhaps the latter is too much to ask of academia.

Fig. 15



The process of selecting a name for permanent magnet levitation structures as discussed and revising traditional elementary physics to adequately cover these devices is more difficult than one might expect because of the relationships between them and other magnetic devices. All of these levitation devices coming within the scope of the preceding discussion can be regarded as precursors for and closely related to many - but not all - motors using only the forces of permanent magnets and gravity to obtain what can be referred to as "perpetual motion". As a practical matter they can be regarded as a subgeneric collection of species within the broad, generic subject of motors operating only through energy obtained from permanent magnets.

To mollify those who are apt to deny the existence of any operative structures falling within either this generic or this subgeneric classification one can reference any one of a number of devices disclosed in the US patent literature. The mere issuance of these patents indicates the examiners of the US Patent and Trademarks Office who acted on the applications which became these patents were satisfied as to the operative characters of the devices claimed in them. While this is not absolute evidence of their operative nature it is reasonable evidence such as we frequently use in making decisions of their operative nature, especially when it seems reasonably apparent that will in fact "work".

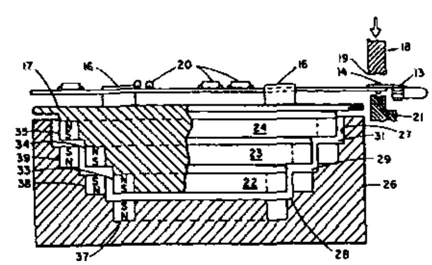
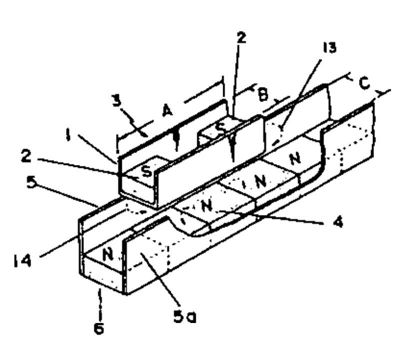


Fig. 16

One apparently perpetual motion type US patent which is directly related to even the simplest of the magnetic levitation devices discussed in this column is the Lee US patent 4,486,729. Surprisingly it seems to have been significantly neglected in the appropriate literature. It is included in this discussion because it shows a transition between static levitation devices and motors which is relatively easy to understand and to discuss. Figs 17 and 18 are copies of Figs.1 and 2 of this patent. The generalized nature of the Lee structure shown in these figures will be apparent from the following statements in the initial two paragraphs of the Lee patent:

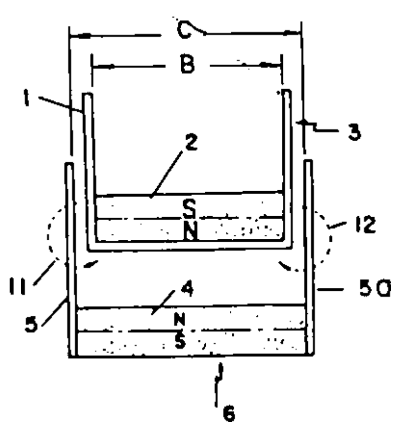
Fig. 17



"The invention relates to enabling certain objects to float at a constant height without the supply of floating power by making use of the magnetic repulsive force acting between the same poles of permanent magnets....."

"The major aspect of the invention is to provide a device showing the phenomenon that a certain object (such as a toy) floats at a constant height as in a gravity free state, to provide a device which makes the said object move here and there under the floating state, and to disseminate the scientific knowledge that any objects can be floated forever without a source of power."

Fig. 18

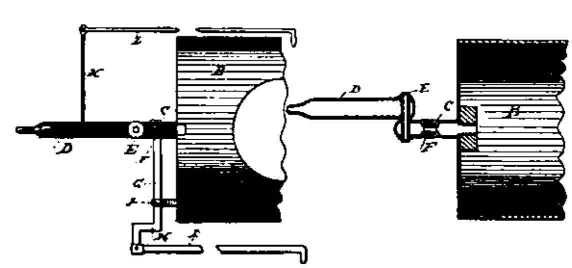


Even though the English in these statements seems to be infiltrated with a Korean manner of expression it clearly indicates that the Lee patent discloses at least one device which includes a first permanent magnet supported in any convenient manner so that they in turn use the "action" of their poles to interact with an opposed, like poles on other permanent magnets to hold the latter magnets in a position in which they are spaced from the others. Lee does not seek to avoid the consequences of "Earnshaw's Theorem of 1848" but appears to use this theorem so as to achieve a constantly "unbalanced" or "dynamic" state within what he refers to as a "magnetic road" 6 and between this "road" and a "basic unit" 3 which seems to be disclosed - but which may not be disclosed - as adequate to a move unit within and probably along the road 6.

Several items appear to contribute to this result. As shown in Figs. 17 and 18 the magnets are disposed by Lee within retaining walls. These walls are non magnetic and the magnets are dimensioned so as to preclude the unit 3 from tipping sidewise so as to flip over in accordance with Earnshaw's theorem. In a sense the length of the unit 3 makes it a part of a composite retaining means which includes the retaining walls used. The unit 3 is precluded from flipping over lengthwise by its length being sufficiently long and the magnets being located is such a manner that it is impossible to develop a sufficient force to turn the unit 3 over lengthwise.

It seems that for the Lee structure to be operative that the same forces usually causing a multi permanent magnet levitation device to become inoperative in accordance with Earnshaw's Theorem must have the effect of precluding the existence of a "balanced" condition between the unit 3 and the road 6 and in addition tending to set up complex vibrational and magnetic flux patterns as a result of the unit 3 hitting against the retaining walls, bouncing between these walls and probably road 6. Probably these cause the unit 3 to move in one direction or another along the road 6. Particularly if the unit 3 is "unbalanced" in the sense that the magnet in one end of it is closer to the road than the other magnet in this unit.

If, as the writer believes, the Lee device does operate in the manner described it seems obvious that as presently constructed it will not be able to provide enough power or to do enough work so as to be useful at the present time as other than as a form of an amusement device or perhaps as a novelty timing device or the like. This is no reason for ignoring or ill considering purely magnetic levitation devices as proposed by Lee and others. Big oaks have often grown from small acorns. The Lee and various related devices such as probably will be discussed in subsequent columns have the potential of motivating the development of magnetic motors capable of significant utility. ❐



Global Warming or Urban Heating?

The World has NOT Been Warming the Way the Doomsayers Have Predicted

by Michael Theroux

THERE was another big march on Washington, D.C. It was called the March for Peaceful Energy and it commenced on October 24, 1998. Guessing from the numerous and quite disorganised emails received, its main themes appear to be "global warming", "free energy", and "hemp":

"To effect implementation of the 1998 Comprehensive National Energy Strategy (CNES) that President Clinton has submitted to Congress proposed for $6.3 billion funding to ameliorate global warming pursuant to last December's Kyoto Protocol, with the additional public input constituted by [the] Citizen's Peaceful Energy Plan (CPEP)...

"Employing a global internet campaign supporting CPEP, grassroots organizers including University of Maryland students are determined to help President Clinton pass legislation to implement his 'Million Solar Roofs Initiative' and 'New-Energy' technologies to replace nuclear & fossil fuel power and to actually neutralize radioactive wastes. Hemp activists will join 'The March' to champion a National Hemp Reform Act for cheap non-polluting biofuels and to heal the atmosphere by reducing carbon dioxide to reverse the greenhouse effect and increase oxygen to repair the ozone layer. All are concerned about the lethal threat posed to the oceanic phytoplankton by ozone layer depletion and about the oppression of indigenous peoples by energy industry policies."

While all of this seems to be a grand and noble undertaking, some serious questions arise from the more fact oriented free-thinkers. First of all, I don't think President Clinton has Global Warming on his mind nor will he in the coming months. Secondly, while there is no question as to the efficacy of hemp as a potential replacement for depleted and wasted resources, the "reform of hemp" movement is tainted by the selfishness and the lack of credibility of far too many marijuana substance abusers. But, what is of greater interest here (and seems to be the focus) is the whole issue of Global Warming. What are the facts concerning so-called "Global Warming," and how are they arrived at? Why has the idea of global warming been thrust into the public limelight? Who is benefiting from the idea of Global Warming?

The Measuring of Global Temperature

Many aren't aware that there are two methods used to measure global temperature. The first, and the method used in defence of the idea of Global Warming, is to average out temperatures around the world as measured in white louvered boxes called Stevenson Screens, usually mounted one metre above ground. This antiquated way of data collection consists of the combined average of tens of thousands of thermometers world-wide. The boxes are usually placed where there may be appropriately trained people to read them, (as a teenager, I did this for the University of North Dakota - and was trained by another teenager!) such as at post offices, airports, pilot stations, radio/TV stations, etc. By far the majority are located mostly in cities, and on land.

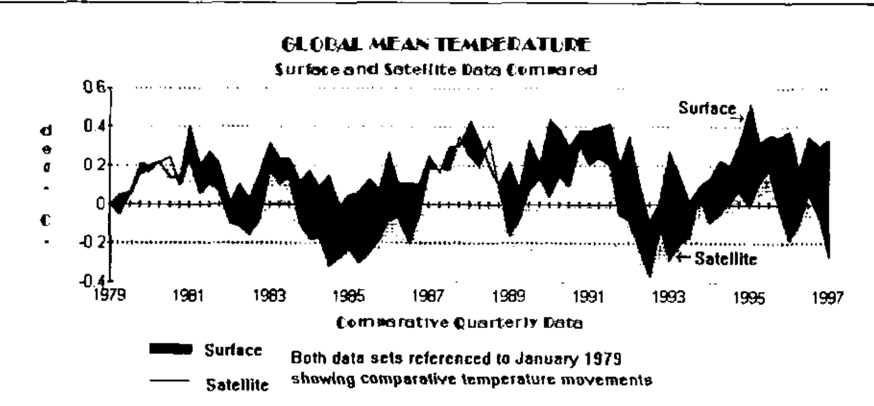
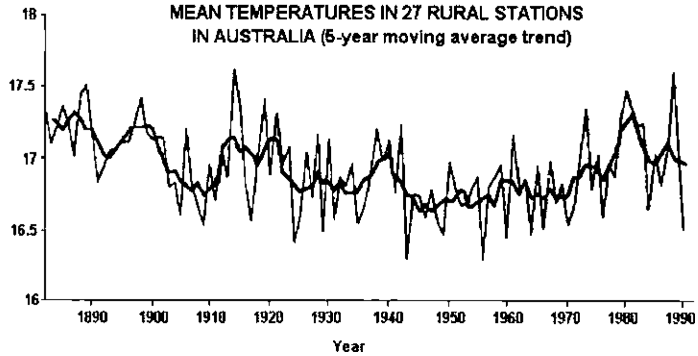
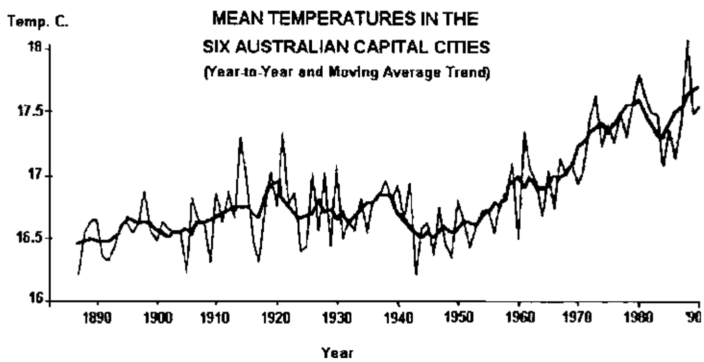


Fig. 1: The two methods of measuring temperature are compared above, referenced to a common start point in January 1979, (when satellite monitoring began). The urban-based surface network shows a clear long-term warming, but the satellites do not. So, the frequent claims that the earth has been warming is quite misleading. From the satellite perspective, 1997 was a very ordinary year indeed, the 8th coldest in the 19-year record. (from http://www.vision.net.au/~daly/)



From, Hughes, W.S. "The Australian Record on 'Global Warming",(1991), Tasman Institute



(From Hughes, W.S. (1991) "The Australian Record on 'Global Warming", Tasman Inst.)

Fig. 2

The major problem with this method of data acquisition is that most cities and towns will show long-term warmings caused by what is called *Urban Heat Island Effect* — caused by the tendency of man-made structures to heat up to high temperatures in the daytime and slowly release that heat during the night, resulting in a higher daytime and even higher nighttime temperature than would exist in a nearby rural area. The effect, of course, increases as towns grow over time, so that warming effects in the towns will increase too (see fig. 2). Also, the system only measures temperature on land. Land occupies 25% of the earth's surface, while 75% of the planet is covered by water and ice. Many areas on land are not even covered such as deserts, tundra, mountains, and forests, but several urban areas are overpopulated with the temperature measuring stations. All of these problems with land measuring stations will definitely add up to false impressions of long-term global warming.

The second, and newer method used to measure global temperature, is to use NOAA satellites to measure the temperature of the lower atmosphere, giving the Earth a uniform global sweep, with bodies of water equally included. This method has been in use since January 1979, is said to be accurate to within one hundredth of a degree.

The chart in fig. 1 represents over 19 years of data, and indicates the world has NOT been warming the way the doomsayers predicted during the very period when the most extravagant claims about warming were being made. Based on satellite measurement, 1997 was a cooler year than average, and certainly not the "warmest" as widely claimed by the greenhouse industry. The media has pretended the satellite data did not even exist, boosting the erroneous surface data instead (which shows global warming). The "greenhouse industry" scientists strongly oppose the satellite method. Some "leading pro-warming scientists" have directly attacked the satellite method by pompously demanding quality standards from the satellites that they fail to apply to their own data. Several scientists active in the greenhouse scare are themselves veterans of previous, — and discredited — scares. Some other scientists have been swept along by the hype and simply failed to maintain scientific standards in their work. This is once again reminiscent of the HIV=AIDS scandal where job security and funding come first and foremost — above real science.

The major reference for this article comes from the website, "Still Waiting For Greenhouse" at http://www.vision.net.au/~daly/ — entirely self funded and created by John L. Daly, author of several articles and papers on the greenhouse scandal and the author of, *The Greenhouse Trap*, (Bantam Books, 1989). I would urge you to check out his website (there is also a link to it on the Borderlands website) as there is far more to the controversy than could be detailed here, and Mr. Daly has done an extraordinary job of researching and compiling documents to back up what he is saying. His website "aims to highlight what many climate scientists know to be exaggerated claims and political propaganda about 'Global Warming', based on unscientific (mostly computer model) evidence. The observed evidence indicates that LITTLE or NO global warming is happening and LITTLE should be expected." The observed evidence indicates that LITTLE or NO global warming is happening and little should be expected." He demonstrates among other things, how the 11-year solar cycle is responsible for cyclic fluctuations in global mean temperature, and the site is loaded with graphs and charts of real data displaying the truth in his statements. Other topics covered include: The latest info onEl-Niño/La-Niña Southern Oscillation, How the Sun, not the Greenhouse Effect has warmed up the Earth during the last few centuries, How Cosmic rays, not man-made emissions of CO2, control the concentration of CO2 in the Earth's atmosphere, and "Scientism in the American Meteorological Society," at http://www.vision.net.au/~daly/scientism.htm.

The Global Emergency Alert Response (GEAR)

The email we received that sparked the initiative to compile this article came from the The Global Emergency Alert Response (GEAR). This organisation claims its goal is to "sound the alert and compel a response from everyone to address the need for 'Global Peace Now!' so human and natural resources may be more productively applied towards remedial actions addressing our global social and environmental emergency only partially characterized by the increasingly lethal climate changes from global warming and ozone layer depletion. "Stop Global Warming and Save the Phytoplankton from Ozone Layer Depletion with New-Energy Science and Hemp for Victory!", is the GEAR formula for how to save the atmosphere in time, if there still is time enough left to fix it before it is too late. Please join in the human internet chain reaction to spread this information on the solutions and actions at hand."

All of my dictionaries state that the word "compel" means to "force," "command," or "require," someone to do something. This brand of environmental nazism is not only typical of the politically correct elite, but is completely subject to the faulty science they have no business promoting. We have seen time and again the activist jumping upon a cause backed by poorly researched themes, only to use the power of hysteria to "educate" the public into frightened submission. There is no denying that our presence and practises may have an effect on our environment, and we certainly do not condone unconscious corporate atrocities. But, before we jump to conclusions, devise "how-to" formulas, and "compel" others to do our will, there had better be a lot of sound, serious research involved — and not baseless parroting for the cause. ❐

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Recent Studies on Climate Change

A Critical Review

by John L. Daly

ABSTRACT

The present debate regarding the existence and magnitude of an anthropogenic impact on climate change is founded on numerous scientific studies over the last few decades. The scientific reliability or otherwise of many of these studies has clear implications for public debate on greenhouse gas abatement. Presented here are several examples of avoidable problems evident in various highly publicised studies, which were influential in shaping public perceptions about global warming. It is vital that policymakers and the public have confidence in the science of climate change as a basis for formulating sound policy for the future. Therefore, some of the problems raised in this paper need be addressed by the climatological community.

INTRODUCTION

Predictions of global warming by the Intergovernmental Panel on Climate Change (IPCC, 1995) have been accepted not only by scientists, but by governments, the media and many in the general community. However, there exists a persistent core of scientific and community opinion which maintains these predictions to be at odds with reality, where evidence is at best inconclusive and at worst highly flawed, and that global warming predictions appear to be compromised by politics and ideology. This monograph aims to explain the basis for the counter-opinion and to outline aspects of the present scientific evidence which many 'dissenters' find troubling or unacceptable.

1) Selective attribution of causes

Greenhouse gases are often identified as being the primary cause of any observed environmental changes despite the existence of several other credible causes which might wholly or partly account for the effects being observed.

For example, Cook et al (1991), conducted a dendrochronological study of Tasmanian Huon Pine trees, where accelerated tree-ring growth since the mid-1960s, was correlated with measured temperatures elsewhere in Tasmania. They concluded, *"This growth increase correlates well with recent anomalous warming in Tasmania on the basis of instrumental records and supports claims that a climatic change, perhaps influenced by greenhouse gases, is in progress."*

But was such a conclusion supportable? The tree ring growth since 1965 could well be explained by factors apart from global warming such as CO2 fertiliser effects, local rainfall changes, local temperature variability, nearby ocean current variability, or unaccounted-for natural growth characteristics of this very unique ancient tree species. Personal communication with some of the authors (T. Bird, 20-1-93, M. Peterson and B. Buckley 24-1-93) confirmed that CO2 fertilisation had not been incorporated in the analysis, despite evidence in the contemporary literature that vegetation responds to elevated CO2 levels (e.g.. Idso, 1991).

Claims by Cook et al (1991) of "recent anomalous warming" in Tasmania were based on only three instrumental records (Launceston, Hobart and Low Head), all of them in a quite different climatic regime to the trees being tested, and at a much lower elevation. Hobart has a documented heat island (Nunez, 1979), while the Bureau of Meteorology (Torok & Nicholls, 1996) has recently corrected local warming anomalies in the Low Head and Launceston records, which included an apparent sharp rise in daytime temperatures at Low Head not reflected 30 km away in Launceston, a problem which was readily evident from the uncorrected data.

Their conclusion that global warming was responsible for accelerated Huon Pine tree ring growth was therefore highly vulnerable to errors in even one of these stations, let alone all three. Records existed from four stations much closer to the tree site, but were not used.

In a second example, Myeni et al (1997) used satellite imagery from 1981 to 1991 to measure changes in the earth's albedo at high latitudes, using spectral discrimination to establish a proxy for vegetation changes. They concluded the Arctic was now experiencing "early springs" due to vegetation blooming slightly earlier in the year, a possible sign of greenhouse warming.

Aside from instrumentation and calibration issues, the fact that only ten years was covered in the study (1981-91) renders it susceptible to transient climatic movements, while the albedo analysis was not correlated with any ground-based vegetation measurements. Point Barrow, Alaska, was cited as a general point of reference at ground level, yet it shows no obvious long-term trend in its maximum, minimum or mean annual temperature (fig.1).

With CO2 rising in the atmosphere by 1.5 ppm per year, the increased concentration of 15 ppm during the period of study must again raise the question of CO2 fertilisation being a contributing factor to the observed results.

In a third example, a climate impacts study of Australian wheat yields (Nicholls 1997) found that a residual increase in wheat yields of 30-50% since 1952 was attributable to a +0.8oC warming of the Australian continent (Torok & Nicholls, 1996). Statistical techniques were used to filter out the effect of other probable factors which could cause increased wheat yields, such as land use improvements, irrigation, pest control and improved seed types, leaving a residual increased yield which was attributed to climate warming.

The average Australian warming estimated by Torok & Nicholls (1996), was itself susceptible to error due to central Australia (about 30% of the continent) being based solely on the instrumental record from Alice Springs. Since about two-thirds of the Australian wheat crop is grown in the southwest of Western Australia and in the wheatlands of New South Wales, an Australian average of temperature is an inappropriate basis for correlation with regional wheat yields because New South Wales, the largest wheat-growing area, was one region of Australia which, according to Torok & Nicholls (1996), actually *cooled* during the period in question. Had the wheat yields been correlated against *regional* temperature records from the wheat-growing regions themselves, the study may have produced a quite different result.

2) Selection of start/end points in a data series

The choice of start and end points in a data series may profoundly influence the overall trend; indeed the conclusion may itself be an artefact of the dates chosen. Warming and/or cooling trends can readily appear in the same dataset depending on the start and end dates used.

In a seminal paper, Santer et al (1996) compared model-predicted temperatures for the upper troposphere with observed data from sonde balloons (1963-1987). The model predicted increasing temperatures with increased CO2 in this region of the atmosphere and formed the basis for the much publicised claim by the IPCC (1995) that there was "*a discernible human influence on global climate.*"

However sonde balloon data extends from 1953 to 1995 (Michaels & Knappenberger, 1996), and indicates a neutral trend over that longer time frame (fig. 2), and so the warming trends reported by Santer et al were entirely a product of the time frame chosen. Indeed, the start year (1963) coincided with the cooling effect of the Mt Agung eruption while the end year (1987) coincided with an El Nino.

In the case of global, regional, hemispheric or seasonal temperature data, the start and end dates need to be noted, particularly when such dates coincide with known maxima or minima in longer-term trends. Maxima are evident around the mid 19th century, around 1940 and the years around 1990, while minima are evident in the late 19th century, and the post-war period up to the mid 1970s (Jones 1994).

For example, Easterling et al (1997), uses 1950 (part of the post-war minimum) as the starting point for their study, and thus amplifies any warming trend. The IPCC (1995) claims a warming this century of up to +0.6 deg.C, which implies an anthropogenic effect, but this trend is predominantly achieved by 1940 well before the post-war increase in greenhouse gases.

3) Attributing cause and effect to correlations

This problem arises in climatology papers when variables which clearly correlate are then assigned implied or explicit roles of cause and effect despite the data not supporting such attribution. For example Stephen Schneider stated (Lawson, 1990) "*We know that when the Earth was colder 20,000 years ago in the last ice age, there was 25% less carbon dioxide than during the present warm period, before the industrial revolution, that is. We also know there was 50% less methane. So, we know cold times tend to be associated with less greenhouse gases, warm times with more.*"

The above claimed correlation carried a clear implication of cause and effect, while Chappellaz et al (1990) made a somewhat similar claim in their analysis of methane and CO2 trapped in the Vostok ice core - "*These results ... show that methane has probably contributed, like carbon dioxide, to glacial-interglacial temperature changes.*" However, examination of the data from the Chapellaz et al (1990) study suggests a temperature-to-CO2 causal relationship, not the reverse, an outcome supported by observational evidence. (Kuo et al, 1990).

4) Using models to discredit empirical observations

While the warming scenario is primarily model-based, the 'dissenter' view mainly points to empirical data. Recent attempts to discredit empirical data by using models which are themselves subject to question, is a seeming reversal of the usual roles for models and observations in scientific method. It is axiomatic that models must ultimately conform to observations, not the other way around.

For example, Hugh Ellsaesser (1991) stated that the dryness of air in regions of tropical subsidence from enhanced 'deep tropical convection' amounted to a negative feedback on any greenhouse warming due to the lack of

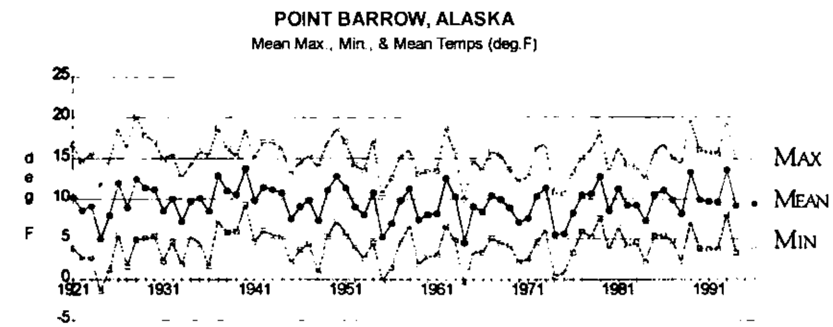

Fig. 1 (Alaska Climate Research Centre, 1997)

water vapour in the large atmospheric subsidence zones, a hypothesis based on observational data from El Nino episodes and tropical convection. Del Genio et al (1991) tested this hypothesis in a general circulation model (GCM), the output from which did not support Ellsaesser's claims. What was surprising was that Del Genio et al then proceeded to judge the issue in favour of the model, not the observations.

In a second example, the Microwave Sounding Unit (MSU) (Christy, 1997) provides the only truly global temperature series we have, and measures lower troposphere temperature from satellites (in addition to other layers of the atmosphere). It has operated for almost 19 years since January 1979 and shows a very slight cooling trend through that period.

However, this data appears to contradict the long-term surface temperature trends, to the point where they appear to be mutually exclusive. In response to this, it is the satellite data which has been subject to the most searching reviews (Hurrell & Trenberth, 1997, IPCC 1995) rather than the surface data which it challenges.

In an attempt to explain the data conflict, the IPCC (1995) modelled the effect of removing two volcanic eruptions and El Nino events from the satellite data, claiming the MSU data was then in closer accord with the surface data (i.e. with both warming). Since a volcanic eruption of climatic significance occurs about once per decade, with El Nino events being even more frequent, this removal of natural background variables is hardly a satisfactory procedure for comparing underlying climatic trends, given that the volcanoes and El Nino events are not only integral to those trends, but should affect both data sources equally.

Hurrell & Trenberth, (1997) also used a model to match model forcings of sea surface temperature (SST) with the MSU data, revealing two anomalous downward 'jumps' in the satellite temperatures, due to a claimed satellite instrumentation error. This resulted in the MSU actually showing a small warming, and thus again more consistent with the surface data. These claims were subsequently refuted by Christy et al (1997), who also cited radio sonde data as supportive of the satellite record. What made these particular debates about the accuracy of the satellite temperatures significant was that Hurrell & Trenberth (1997) and the IPCC (1995) employed modelling in an unsuccessful attempt to discredit empirical observations, an apparent reversal of normal scientific practice.

In another context, Trenberth (1997) said, *"The burden of proof that a model result is not valid should be on the critic, not the modeller."* This proposition is quite unacceptable in a policy context as it gives primacy to the models over empirical evidence at a time when the climatic predictions of the models are open to question. For example, model predictions of high latitude warming contrasted against the observed lack of such warming (Michaels et al, 1995), and their failure to correctly predict the outcome of the Kuwait fires (Small, 1991), are strong arguments for placing the burden of proof squarely on the modellers.

5) Inappropriate statistical techniques

'Granger Causality' is a statistical technique originating with econometric models. Kaufmann & Stern (1997), applied this technique in a climate context to compare hemispheric temperature data (Jones 1994) to determine statistical relationships between the northern (NH) and southern (SH) hemispheres (1865 to 1994). They concluded that *"Temperature in the northern hemisphere .... is in a*

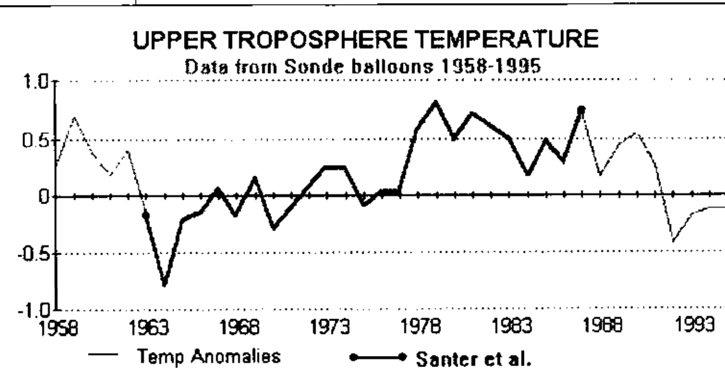

Fig.2 (Michaels & Knappenberger, 1996)

statistical — but not physical — sense, dependent on temperature in the southern hemisphere," with greenhouse gases being the primary reason for this dependence. While externalities (volcanoes, El-Nino and sulfate aerosols) were integrated in this study, the adequacy of the input data was not questioned at all.

While the NH has adequate coverage since 1865, comprehensive data for the SH prior to the 1950s is fragmentary, with large ocean areas not covered (Jones, 1994). Oceans cover some 83% of the SH, and ice a further 5% and the only reasonable source of pre-1950s data comes from Australasia, South Africa, and southern South America, mainly after the introduction of Stevenson screens around 1910. Prior to 1910, much of the station data becomes inconsistent and erratic, much of it with a warming bias (Nicholls et al, 1996), and virtually impossible to correct accurately.

Therefore, the SH data, is generally unsuitable for complex statistical treatment as temperature errors or bias factors present in the data would contaminate all subsequent analysis. Kaufmann and Stern (1997) claimed the greatest statistical significance between NH and SH was after 1979, and despite the availability of more globally comprehensive satellite data in this period, these records were not employed.

Easterling et al (1997), a study of hemispheric diurnal temperature range (DTR) trends, is an example of where a statistical analysis is compromised simply by the initial definitions used. Diurnal range was acknowledged to be affected by urbanisation, so the study presented trends for non-urban stations also. However, their definition of non-urban was cities of under 50,000 population, which would still allow the incursion of significant urban effects. The impact this had on their results was to make the hemispheric DTR trends for 'non-urban' stations indistinguishable from the rest of the data set, a confusing result derived from their initial definition of what constituted 'urban' and 'non-urban'. (As yet, there appears to be no agreed definition as to what is, or is not, 'urban' in temperature trend studies, placing an added degree of uncertainty on the trend accuracy of most available station data).

In a third example, Southern Ocean whaling records held by the Bureau of International Whaling Statistics, Oslo, were analysed by de la Mare (1997) to statistically determine the latitudinal position of sea ice fringes during the summer whaling seasons (1934 to 1992). Whaling occurred in three distinct phases from 1931-1940, 1945-1958 and 1972-1992, and the paper concluded that Antarctic sea-ice had receded by 2.8 degrees latitude (168 nautical miles) between 1958 and 1972 at a time when there were no fleets in the area, or satellites, to record the event. This conclusion was arrived at by statistically analysing the positions of the fleets in the pre-1958 phases of whaling with those recorded post-1972. It was assumed that hunting for certain whale species always occurred adjacent to the ice fringe, which then becomes a proxy for sea ice positioning.

De la Mare analysed a database (Australian Antarctic Division, 1997) containing 42,258 records of whales caught, with associated dates, fleet positions, and whale species. However a random sample inspection of the records in the database reveals several problems with the shrinkage hypothesis not apparent in the statistical analysis.

Firstly, during the late 1940's to early 1950s, hunting was common right inside the Ross Sea to latitude 77S at a time when the ice fringe was claimed to be 2.8 deg. lat. further north than today. A significant difference between 1931-58 and 1972-92 records was the accuracy of the vessel's noon positions. The latter were accurate to 0.01 deg. latitude and longitude (employing satellite navigators), while the 1931-58 records were only entered to the nearest degree of latitude and longitude (celestial positioning or dead reckoning). Anomalies are evident during the earlier phase as some ships indicated journeys which were in excess of their normal speed of 12 knots. In one case, a ship recorded itself as travelling about 670 nautical miles in only 24 hours (database ID 81-82), while another was positioned on the Antarctic continent itself (ID 709).

In addition, de la Mare assumed all whale species (except sei) were hunted near the ice fringe and while this is certainly true of the 1972-92 phase of minke whaling, it is not always true of the 1931-58 phases. In this period of whaling a range of species was hunted, many in open water and a considerable distance from the ice (Bastesen, 1997). The database also suggest this practice as many vessels were recorded as hunting a single area for many days or weeks, only to suddenly sail up to 350 nautical miles due south or north in only one or two days to another hunting ground (e.g. database IDs 81-82, 89-90, 94-95, 207-208, 222-223, 11569-11572). Rapid southerly shifts in hunting grounds is not possible if the initial position is at the ice edge, particularly as there was no satellite navigation, satellite imagery of the ice, spotter helicopters or other technologies available to the pre-1972 whalers to allow them to sail into ice openings (polnyas) with safety. Even radar (available from the 1950s) is inefficient near ice due to severe sub-refraction of the signal, and the poor radar reflectivity of low-lying ice (personal observation).

Positions recorded by 1931-58 whalers would have been compromised by the presence of overcast cloud common in summer at very high latitudes (Henderson-Sellers, 1984), forcing the ships to rely for many days on dead reckoning, concealing quite large errors over time due to high wind and drift. Even when celestial navigation was possible, the phenomenon of enhanced optical refraction of light, common in high latitudes during atmospheric layer inversions (Umland 1997) can introduce uncorrectable sextant errors to give a slightly lower latitude reading than the real latitude of the observer.

During the 1958-72 period when there was no whaling at the ice fringe, Japanese fleets still hunted whales in the open southern oceans at high latitudes and recorded sea surface temperatures (SST). According to Mierzejewska et al (1997), these records indicate no significant changes in SST for the period 1946-84. Had the sea ice really shrunk by such a massive amount as suggested by de la Mare, this would have certainly made an impact on SSTs.

Conclusion

As the papers reviewed in this monograph represent only a small proportion of climate literature, merely pointing out such problems does not in itself deny the validity of other research, but does suggest that at least some of the Greenhouse science currently published in journals is not of a standard to inspire public confidence in other Greenhouse-based research. Abatement of greenhouse gases, if undertaken, will involve costs of billions, perhaps trillions, of dollars globally (ABARE 1997, Industry Commission 1991), and makes it all the more essential that the science underpinning such an undertaking should be of the highest standard possible. Scientific certainty cannot reasonably be expected, but policy-makers and the public have the right to expect that the science of greenhouse be as rigorous and exacting as humanly possible. ❐

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Y2k, Satellites, and Solar Activity

by Michael Theroux

THERE has been recent talk that solar activity from the current solar cycle (the approximately 11-year quasi-periodic variation in frequency of solar active events) will reach proportions to the effect that the resultant geomagnetic storms (disturbance of the earth's magnetic field caused by solar activity) will destroy satellites, wipe out telephone lines and television signals, cripple aircraft navigation systems, and leave cities without power supplies. Is this reality, or more alarmist, doom and gloom? Those who have kept and keep track of the Sun on a regular basis do not believe this is a reality.

Actually, many reports have recently emerged that the Sun is going to wreak havoc with our daily lives at the peak of Solar Cycle 23 (in the year 2000). Why has this solar cycle caused so much concern? The obvious answer is that it is because of the peak occurring in the year 2000 — Y2K! So, Y2K rears its ugly head again — if the computers don't destroy us, the Sun most certainly will! Many of the erroneous reports come from persons who are only concerned with what they think is happening now. If they had only studied the history of solar activity, they would certainly see a different picture. An excellent article by Dr Theodor Landscheidt on solar history can be found at http://www.microtech.com.au/daly/solar/solar.htm. Also, New sunspot data from the current cycle (source IPS, Nov 98) seem to support Landscheidt's prediction and indicates the sun may now be entering a longer-term cooler phase, leading to a global cooling in the early 21st century.

Global Warming is also back in the news now. On October 16, 1998 a monster iceberg tens of miles long broke free from an Antarctic ice shelf. Is that unusual? Apparently not. On page 748 of the 1996 edition of The American Navigator, (the standard Naval text updated continuously since 1799), it reads:

"In 1854 and 1855, several ships in the South Atlantic reported a crescent shaped iceberg with one horn 40 miles long, the other 60 miles long, and with an embayment 40 miles wide between the tips. In 1927 a berg 100 miles long, 100 miles wide, and 130 feet high above the water was reported. The largest iceberg ever reported was sighted in 1956 by the USS Glacier, a U.S. Navy icebreaker, about 150 miles west of Scott Island. This berg was 60 miles wide and 208 miles long, more than twice the size of Connecticut. Icebergs ten miles or more in length have been seen on many occasions in the Antarctic."

So the Oct 16, 1998 iceberg was not particularly unusual or unprecedented, but it did provide an excuse to wind up the global warming hype. For an excellent source on what is really happening with global warming see: http://www.vision.net.au/~daly/ (where much of this info comes from). More info on the history of the Sun and its activity beginning with the year 1600 can be found here: http://www.vision.net.au/~daly/solar.htm. This is one of the most comprehensive articles I have ever seen on solar history.

Let's take a look at a comparison of the last three solar cycles from Jan Alvestad's Solar Terrestrial Activity Report:

A graphical comparison of solar cycles 21, 22 and 23 is seen in Fig. 1 (on following page). *Solar cycle 23 was originally predicted to reach the same magnitude as cycle 21. A peak somewhere between 115 and 145 seems more likely based on the development of cycle 23. Cycle 22 is not a good comparison due to the unusually short time it took to reach its maximum. The X axis in the chart is the number of months since the cycle started, while the Y axis is the sunspot number.*

Cycle 21 started in June 1976 and lasted 10 years and 3 months. Cycle 22 started in September 1986 and lasted 9 years and 8 months. Cycle 23 started in May 1996.

Please note that the start dates for each cycle is calculated using the 13-month smoothed monthly mean sunspot number. One advantage of using this statistical (numerical) approach is that the start month of a solar cycle is the same as the month of the solar minimum. It is possible to use other criteria to separate solar minimum and the start of a solar sunspot cycle, however, which criteria to use and how much importance each is given, unfortunately leaves room for individual opinion.

It can easily be seen that the current solar cycle HAS NOT been nearly as active as the two previous cycles. Why, then, are certain reporters making extraordinary claims that this cycle's peak will cause such damage? Where is the evidence that the more active solar cycle 22 or 21 caused the same kind of damage? Here is an example of the latest in gloom and doom:

Source: *Observer* | London - November 8 1998
"Solar Max May KO GPS in Y2K"

Scientists have warned of a new millennium disaster - from outer space. They say electromagnetic space storms will wipe out telephone lines and television signals, cripple aircraft navigation systems and leave cities without power supplies.

Researchers say storms - which will reach a peak early in 2000 - will also disable many of the 500 satellites that orbit the Earth.

"We now have hundreds of billions of dollars of equipment orbiting over our heads, and they will all be at risk in the first few weeks of the millennium," said Nick Flowers, of Britain's Mullard Space Laboratory.

This warning was backed last week by the US National Oceanic and Atmospheric Administration (NOAA). Its forecasters said that the sun is heading into the most violent part of its 11-year cycle of activity - known as the solar maximum. This will peak in about 18 months' time. In 1989, during the last solar maximum, the sun blasted out huge bursts of high-energy particles - coronal mass ejections. These solar storms battered Earth's protective radiation belts.

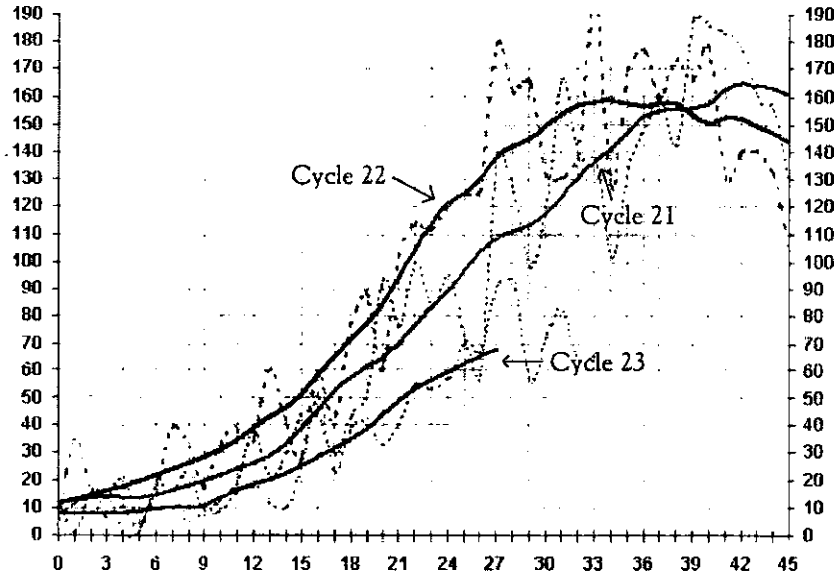

Figure 1

The effects were particularly strong in high latitudes and triggered powerful electric currents in telephone and electrical equipment. In space, the storms fused equipment in satellites.

There are 250 communications satellites in special high orbit over Earth. Hovering 23,000 miles above the ground, they are particularly vulnerable to solar storms.

However, the greatest danger is likely to be posed by a breakdown in the US Global Positioning System. This fleet of satellites provides navigation and guidance for aircraft across the world.

"A failure of this system could have very serious consequences, even if it was only a temporary breakdown," said Flowers. "It won't cause aircraft to crash, but it could bring havoc to traffic control."

However, of more immediate concern is the Leonid meteor shower, which will hit Earth on 17 November. Meteors pose no risk to humans but could cause serious damage in space, where satellites face a one-in-500 chance of being destroyed by a meteor.

Here, we pick apart this article step by step (Our comments in parenthesis and italics):

"Solar Max May KO GPS in Y2K"

Scientists (*what scientists?*) have warned of a new millennium disaster - from outer space. They say electromagnetic space storms will wipe out telephone lines and television signals, cripple aircraft navigation systems and leave cities without power supplies.

Researchers (*what researchers?*) say storms (*what kind of storms?*)- which will reach a peak early in 2000 - will also disable many of the 500 satellites that orbit the Earth (*only 500? There are at least some 800 in orbit that we know of and probably many more, and U.S. News and World Report estimates that another 1,800 satellites will be in orbit by the end of the next decade*).

"We now have hundreds of billions of dollars of equipment orbiting over our heads, and they will all be at risk in the first few weeks of the millennium," (*doesn't really know when cycle 23 will peak*) said Nick Flowers, of Britain's Mullard Space Laboratory.

This warning was backed last week by the US National Oceanic and Atmospheric Administration (NOAA). Its forecasters said that the sun is heading into the most violent part of its 11-year cycle of activity - known as the solar maximum. This will peak in about 18 months' time. In 1989, during the last solar maximum, the sun blasted out huge bursts of high-energy particles -coronal mass ejections (*yes, that is what the Sun does*). These solar storms battered Earth's protective radiation belts. (*This statement does NOT confirm that the NOAA is backing the theory - author is using this material to support his opinion*)

The effects were particularly strong in high latitudes and triggered powerful electric currents in telephone and electrical equipment. In space, the storms fused equipment in satellites.(*which ones? And, was it conclusively proven that solar activity was responsible?*)

There are 250 communications satellites in special high orbit over Earth (*they have a problem with real figures*). Hovering 23,000 miles above the ground (*satellites hover?*), they are particularly vulnerable to solar storms.

However, the greatest danger is likely to be posed by a breakdown in the US Global Positioning System. This fleet of satellites provides navigation and guidance for aircraft across the world.

"A failure of this system could have very serious consequences, even if it was only a temporary breakdown," said Flowers. "It won't cause aircraft to crash, but it could bring havoc to traffic control."

However, of more immediate concern is the Leonid meteor shower, which will hit Earth on 17 November. Meteors pose no risk to humans (*unless one should happen to fall on you*) but could cause serious damage in space, where satellites face a one-in-500 chance of being destroyed by a meteor (*a statistic based on the erroneous number of orbiting satellites? By the way, there was NO damage that occurred to satellites from the recent Leonids*).

End of article and comment.

Summary

This article has NO credibility because it is riddled with technical inaccuracies, misstatements, crude suggestions with no foundation in fact, and is just plain WRONG. It is certainly not something to base your future on. ❐

The Ship that Died of Shame?

by Roy Bainton

IN the early 60's as a Merchant Seaman I spent three happy years criss-crossing the Pacific Ocean between Australia, New Zealand and Japan. Back then the crews of the old British tramps I sailed in were a mixed bunch - many of them hard-bitten old salts with frightening histories - torpedoed in wars, shipwrecked, stranded - some of the older guys had even shipped under sail in the last of the windjammers before World War II.

Stories were told beneath the stars out on the poop deck on the long haul between Panama and Melbourne, stories of sexual conquest, brutal brawls and all the general tittle-tattle of the sea.

But the creepy ones were the best. Many of these I have managed to verify — like the case of the Lighthouse keepers who vanished from their posts on the Eilean Mor light off the coast of Scotland in 1900, the eerie epic of the ill-fated *Marlborough* which was found drifting, crewed by skeletons off the coast of Chile in 1913 – 23 years after she had left Lyttleton in New Zealand.

Ships locked in icebergs for 12 years, like the whaler *Octavius*, found in 1774 with all her crew still intact - frozen solid for over a decade. (Forget the *Mary Celeste* — there *was* no mystery there...)

But of all the enigmas of the sea, the following is the most puzzling.

Trying to trace the Dutch freighter *Ourang Medan*, to discover what she was carrying and why the details of her bizarre fate are so hidden has led me on an often futile search across the world, from the archives of Lloyd's Shipping Register to the Admiralty's Wrecks records, the library at the British National Maritime Museum, the Maritime Register in Singapore and most recently to Amsterdam's Maritime Museum. I first heard this weird story during my days at sea in the 1960's. It sounded too odd to be true. But then it appeared in print in 1965, 1975, and has surfaced again in 1998.

In February 1948 (or June 1947, depending on which source) a series of distress calls were sent out by the *Ourang Medan* in the Straits of Malacca between Sumatra and Indonesia.

'All officers including captain dead, lying in chartroom and on bridge, probably whole crew dead...' This chilling message, accompanied by a spate of desperate SOS calls, was followed by indecipherable Morse code then a final message - just two stark words; *'I die...'*

Ships from Malaya and Sumatra raced to her help. Boarding parties found the dead radio operator, his hand on the Morse key, eyes wide open. The entire crew — even the ship's dog — were discovered in the same terrified posture, all dead.

According to a frequently-mentioned document (which I have been unable to unearth) called *The Proceedings of the Merchant Marine Council*, the crew were found 'teeth bared, with their upturned faces to the sun, staring, as if in fear...'

Following this grim discovery, a fire broke out in the ship's hold. The boarding parties were forced to abandon her, and shortly after, the *Ourang Medan's* boilers exploded, and she sank.

So, there you have it. It's a great yarn — but is it just that — an old seadog's tale? If I could dig this one up, there may even be a book in it. Why did these men die in such a bizarre fashion? What killed them? If they were 'scared to death', what had they seen?

I started with Lloyd's Shipping registers. There was no mention of the case. Then that standby of all maritime researchers, *The Dictionary of Disasters at Sea*, 1824-1962. Everything else was in there — even the *Mary Celeste*. But no *Ourang Medan*.

So I went back to the printed versions of the story, the latest one being in a book issued in 1998 by Robinson Publishing in London, entitled *The Big Book of The Unexplained*. I faxed the editor of the book, Damon Wilson, to ask if he knew the source of the story. I phoned. I faxed again. No reply. So, it was back to the 1960's, to an American author called Vincent Gaddis, who had told the parable in his 1965 work, *Invisible Horizons*.

Vincent Gaddis died in 1997, and his book has been out of print for many years. (I have since discovered that Gaddis knew less than I do about the tale...)

But his publishers, Borderland Sciences Research Foundation, offered two more exciting clues.

Did I know that the case of the *Ourang Medan* was the subject of an article by Robert V. Hulse in the June, 1953 issue of *Fate* magazine? 1953! This was only five years after the 'event' — perhaps I was on to something — and further to this, did I also know that this was discussed in M.K. Jessup's book *The Case for The UFO?*

I checked Jessup — but all he had was what I had — the bare bones, plus a lot of 'was it a UFO' twaddle. Terry O'Neill, U.S. Editor of *Fate*, kindly dug out the '53 piece, photocopied it and mailed it to me. But yet again... there was nothing new; just two pages with exactly what I already know. I contacted Britain's best magazine for old sailors, *Sea Breezes*, and discussed the case with their editor, Captain Andrew Douglas, a retired skipper with decades of service on the oceans of the world — he was fascinated, but knew nothing — although he did place a plea for information in the next issue.

It was time to get 'official'. I wrote to the Admiralty, the Registrar of Shipping and Seamen, the National Maritime Museum in Greenwich. They all told me one thing — if she was Dutch, then you have to go to Amsterdam.

Searching the Dutch Shipping records in Amsterdam seemed to only deepen the mystery.

Only one freighter might qualify as being the *Ourang Medan*, originally from Hamburg, but simply called the *Medan*.

We know that she traded in the Malacca Straits, and used the harbour at Belawan Deli, where the Dutch trading companies Koninklije Paketvaarte Maats and Stoomvaart Maats traded in tobacco and rubber There is a strong possibility that *Ourang* (Dutch for 'Man') was added to her name to distinguish her from many small sloops and tugs in the area associated with the Sumatran city of Medan.

Lloyd's Register shows as many as five name changes for some vessels in the period as they changed nationalities. After 1948 there is no mention of her in the Registers, and the British Admiralty have no record of her wreck. My enquiries to the Maritime Authority in Singapore drew a blank. Her log book, like her crew, went down with the ship.

By this time I was facing the distinct possibility that this was simply a hoary old fo'c'sle yarn — until Professor Siersdorfer of Essen in Germany entered the frame. He had read the ad in *Sea Breezes* and I suddenly discovered that I was not alone. Siersdorfer has been on the case for 40 years. The ensuing parcel of information from Germany opened up new avenues — the most exciting of which is, at long last, the identity of the two vessels which received the *Ourang Medan's* SOS calls. One was the *City of Baltimore*. The second ship was the *Silver Star*, owned by Grace Lines of New York, whose crew actually boarded the stricken Dutchman.

But the enigma deepens. Most of the details of the *Silver Star's* voyage are contained in a strange, 32-page German booklet, written in 1954 by one Otto Mielke, (now deceased) entitled *Das Totenschiff in der Südsee (Death Ship in the South Sea)*. Mielke seems to know a lot about the *Ourang Medan's* possible route and cargo — but fails to give further detailed sources — a strange omission because his details, right down to the tonnage, engine power and Captain's name, of the *Silver Star*, are thoroughly referenced. Professor Siersdorfer also mentions another marine detective, Alvar Mastin, (also departed) a German living in Hull, England, in the 1950's, who repeatedly attempted to get details from Grace Lines in New York of the *Silver Star's* crew list and log book — yet was met with a stony silence. Thus the possible fact remains — if the *Silver Star's* crew really did board the *Ourang Medan* in (as Mielke has it) June, 1947, this was the route via which the story entered nautical legend — and if, as I hope to ascertain, there are still members of that crew alive, then we may at long last have a direct verbal recollection of the *facts* (if they exist) in this grim yarn.

But there is a tantalising possible explanation as to her crew's demise and her disappearance from the records. Mielke mentions a mixed, lethal cargo on the Dutchman — Zyankali - (potassium cyanide) and nitro-glycerine.

The Geneva Protocol of 1925, ratified by 33 nations, outlawed all chemical weapons. The Nazis, as history has shown, made horrific use of the extermination gas Zyklon-B. But, according to Albert Speer, in his book *Inside the Third Reich*, they also had stockpiled a secret gas called Tabun — and as late as 1944 were manufacturing 1,000 tons of this deadly substance each month. According to Speer, *'it could penetrate the filters of all known gas masks and contact with even small lingering quantities had fatal effects...'*.

Apart from the Nazis, only one other nation — Japan — used gas, in China during World War II.

In 1935, the brilliant Japanese bacteriologist Shiro Ishi set up Japanese Army Unit 731 in a remote village in occupied Manchuria. By the time World War II was raging, Unit 731, with it's brief to find a chemical, gas or biological weapon to win the war, had developed satellite branches throughout the Japanese occupied zone — and one of the largest was in Singapore.

These units carried out hideous, inhumane experiments on helpless Australian, American, Russian, Chinese and British P.O.W.s — some of the worst war crimes ever committed.

Was there a Nuremberg-type trial for these doctors of death? Far from it. They pulled off a mysterious secret deal with their erstwhile enemies — General Douglas McArthur's forces.

The criminals went free and prospered. Did the Singapore unit stay in business?

To try and explain the obstinate absence of the ill-fated *Ourang Medan* from official records we must look at the political turmoil which existed throughout Indonesia in the immediate post-war years. Before the war, Java and Sumatra were part of the Dutch empire. In 1945 the Dutch returned, expecting to carry on their rule as before, but found the newly-established Republics of South East Asia had gained wide support. A bitter, dirty war for control broke out, and in 1947-8 the Dutch carried out major 'police actions' in the area. After World War II, there was a brisk trade in nerve gas and biological agents with repressive governments everywhere.

It was OK to make and sell the stuff — as long as you didn't use it. But somebody did, that's for sure. Death has always had its currency.

From 1942 to 1945 Japan held the Straits of Malacca. Was all the gas stockpiled in Germany and Japan - or Singapore - used up by 1945? Hardly.

These evil substances were ostensibly used for 'riot control' — and probably something more. This is a sensitive, mostly embargoed subject — researcher beware.

So; how was this deadly cargo moved around the South China Sea and through the Straits of Malacca during this troubled period? Not by air. The prospect of a cargo plane crashing with several tons of deadly gas on board was too horrendous to consider.

No. You hired an insignificant old tramp steamer, preferably with a low-paid foreign crew, stowed the cargo in disguised oil drums and, like all serious smugglers, hoped for the best, and a blind eye from authority.

I first heard the *Ourang Medan* story in 1961 — within 15 years of its origin. If we accept, due to the nature of her crew's deaths, that she was carrying deadly gas or chemicals, and if indeed she *was* a Dutch vessel, had this news broken it would have been a major embarrassment for any government involved - especially in the light of the Geneva Conventions. Hence the dead-ends faced by any researcher. The story exists because, like the gases, it *escaped*.

The crew if the *Silver Star* would have told the tale from that day on in every mess room on every ship they sailed in. Eventually, in a mess room on the British tramp steamer *Port Halifax*, it reached me. Aficionados of the 'X' *Files* have had a field day with this tragedy - UFO's, sea monsters... but the possible reality is no less sinister.

The sea may guard her mysteries, but I firmly believe that the truth really is still 'out there' .

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Librarians in Amsterdam; Mr. Wildemaan and Mrs. I. Goedkoop.

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Peter Williams & David Wallace; *Unit 731*, Hodder & Stoughton, London/Sydney 1989.

The Following bodies or individuals have also been approached re. the mystery of the *Ourang Medan*;
Michael Theroux, Borderland Sciences Research Foundation.
Librarian, National Maritime Museum, Greenwich.
Anne Cowne, Lloyd's Register of Shipping, London.
The Guildhall Library, London. NUMAST, (Merchant Navy Officer's Union)
Fortean Times. *Nexus Magazine*, (Australia), *FATE Magazine*, (USA)
Peter Gange, Admiralty Wrecks Office, UK Hydrographic Office, Taunton.
Maritime and Port Authority of Singapore.
Mr. Staples, Registry of Shipping, Cardiff.
Captain Andrew Douglas, Editor, *Sea Breezes Magazine*, Braddan, I.O.M.

INTERNET SITES;
Leading Edge Research, Amazon Book Search, Borderland Sciences, Yahoo/AOL.

The Wireless of Nathan B. Stubblefield

by Aldrich Daimler

MANY would argue that Nathan B. Stubblefield's invention in 1885 of wireless telephony was the real advent of radio, and rightfully so. Academicians of the radio elite would offer that there is a significant difference between that of "underground telephony" and "underground radio". The signals used in underground telephony are said to travel thru the earth, while in underground radio, a portion of the signal reaches the surface of the earth and is propagated in a more Hertzian fashion. While this may be partly true, the method of propagation is essentially the same — the difference lies with the frequency used. Underground telephony utilizes audio signals — frequencies which are considered to be in the VLF (Very Low Frequency) range. Radio telephony utilizes RF (Radio Frequency) frequencies which are categorized as considerably higher than that of acoustic signals. So, Nathan Stubblefield did invent radio — VLF radio.

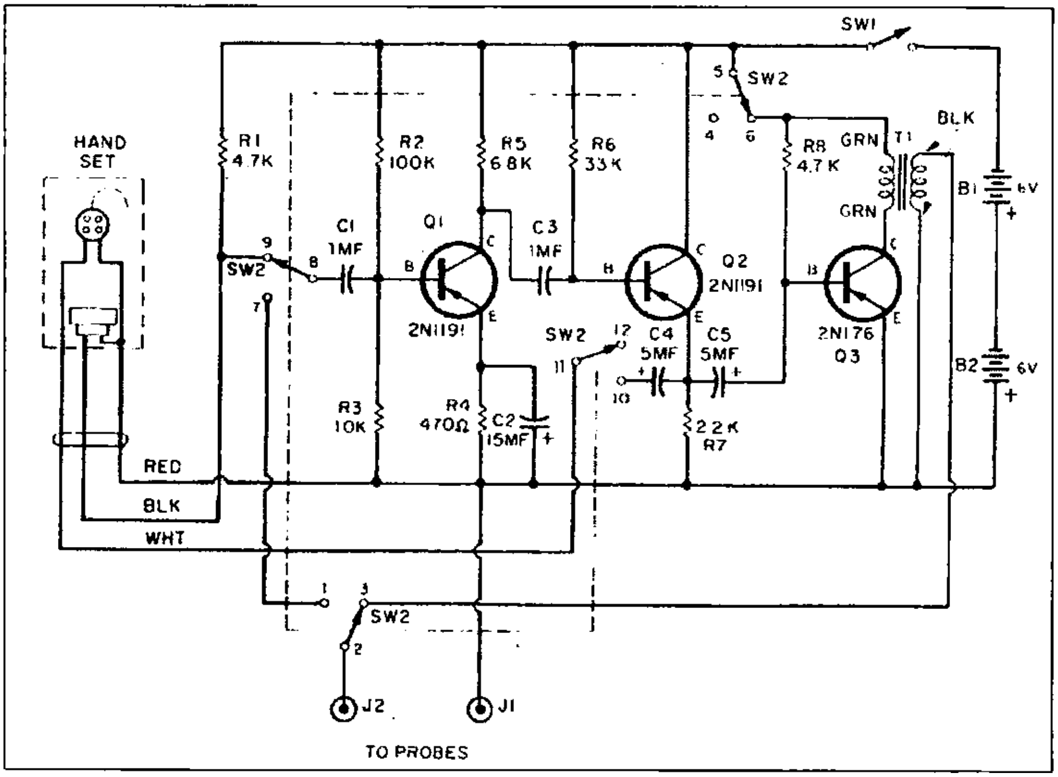
Stubblefield's underground telephony VLF system was very simple. Two metal rods were used for each "telephone set", and were inserted into the ground several feet apart. Each set was outfitted with a large horn to act as a loudspeaker. A small carbon button microphone transmitted the voice messages thru the earth to the other receiving set. The most interesting thing about the device is that it was powered only by the natural currents of the earth, derived solely from his patented "earth battery."

There is considerable evidence that Nathan Stubblefield demonstrated his VLF radio system several times, and there are many accounts of public demonstrations. The first documented public demonstration was held in his hometown of Murray, Kentucky in January of 1902. Later that year (March 1902) Stubblefield sent wireless messages from a steamship to stations on the shores of Georgetown. Stubblefield was then to demonstrate the apparatus in Manhattan's Central Park. Unfortunately, Stubblefield could not find suitable ground conducive to the experiment, and quickly abandoned the demonstration. In all of these demonstrations, Stubblefield never achieved any greater sending distance than one mile. While this may be considered a poor performance for a wireless communications system, one must remember that Stubblefield utilized only the natural power of the earth for these transmissions — his earth battery being the operative power source. Stubblefield later suggested that he was developing a more powerful apparatus using automatic relays in which "distance would be unlimited." For reasons unknown, Stubblefield would later abandon "earth telephony" in favor of experiments with wireless radio thru the air. Either Stubblefield became disenchanted with the performance of his ground VLF system, or he simply left the idea to the many patent infringers to figure out. It is probable that the latter reason combined with the Central Park failure caused Stubblefield to abandon any further explorations with his underground telephony system.

While we may pick up these experiments where Stubblefield left off, several considerations must be addressed. Most important, of course, being the fact that we do not have all of the information concerning his mysterious earth battery source. Many have tried to recreate Stubblefield's earth battery from the patent specifications only to be completely disappointed with the output. While it is well known that only proper placement of the earth battery will procure desirable results, no one to date has achieved the power suggested by Stubblefield. But, if we are to conduct our experiments chiefly to observe the characteristics of VLF propagation thru the earth, we may continue.

An obvious choice for power source/transceiver is a pair of matching public address systems. Here, one possesses the ability to greatly vary the input/output of the system. The volume control on most any amplifier suffices. Simply connect the output leads for the speaker connection to the ground rods of one unit, and connect the grounds of the second unit to the microphone input. The units must be DC or battery powered though, as a typical alternating current supply will sufficiently destroy the signal by its introduction of 60 cycle noise and ground feedback loops. Small portable amplifying units such as the PA system can be easily obtained or built for the purpose. One must take care not to perform the experiment with any proximity to conventional power sources as these will interfere with the signals. Special filtering circuits can be designed to rid the units of most noise.

Now, specific attention may be focussed on the placement of the ground rods for the experiment. While geomantic considerations (such as a dowser might use) should be implemented, one must not forget conventional rules of propagation thru a restrictive medium such as the earth. The range of transmission will be determined by many variables, including the homogeneity of the land in terms of direction, moisture content, time of year, terrain, etc. Since the earth becomes a giant sheet resistance, one must adjust the distance between the ground rods accordingly. Generally, the farther apart the rods are, the more distance the signal will travel (conventionally, about 30 to 50 times the rod spacing), so that a distance between the rods of 10 feet will yield a range of 500 feet, and a distance between the rods of 50 feet will yield a range of 2500 feet. Unconventional manifestations of range have been achieved on the order of several miles with proper placement of the rods, and sufficient power outputs.



Transistor amplifier schematic modified for ground transmission and reception, 1963.

One of the main drawbacks of this system which Stubblefield encountered was that there could be no privacy in such transmissions, as anyone with a similar receiver could easily eavesdrop on the conversation. Specific encoded modulations could be introduced into the signal to be demodulated and decoded at the receiving end, but this would warrant extensive modification to the present experiment. The significance of the experiment then lies solely on the investigation of the propagation of these VLF currents thru the earth, and to determine whether or not great distances can be achieved at fairly low output levels with the proper placement of the earth terminals. ❐

Parts List

***Resistors**: ½ watt*

R1, R8 - 4.7k ohms	*R4 - 470 ohms*
R2 - 100k ohms	*R5 - 6.8k ohms*
R3 - 10k ohms	*R6 - 33k ohms*

***Capacitors**: 15 volt or higher*
C1, C3 - 1 mf
C2 - 15 mf, electrolytic
C4, C5 - 5 mf electrolytic

T1 - 6.3 volt filament transformer (used as output transformer)
SW1 - SPST toggle switch
SW2 - 4 pole, 2 position spring lever return switch
B1, B2 - 6V lantern batteries, 8 D size batteries
J1, J2 - bannana plugs
Q1, Q2 - 2N1191 or 2N650
Q3 - 2N176 or 2N669

The Borderland Experimenter

Experiment: The Orgone Scope — A Way to See Unknown Energies

By Vicente José Ramos Orenga

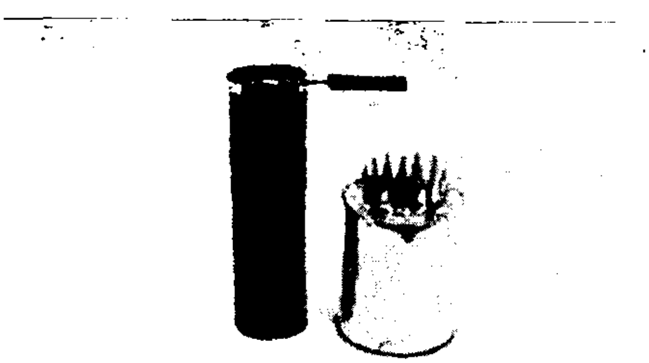
INTRODUCTION

This device uses a basic orgone accumulator (cellulose enclosed between two metal surfaces), and a lens from a hand-magnifier. You must use this device in the night, pointing to the sky. You'll can see a little blue sparks, along the cellulose surface. Keep the two metal grids shorted to prevent electrostatic charges. Good luck.

CONSTRUCTION DETAILS

1. All you'll need: A tin can, two metallic grid sheets, cellulose, a lens and a PVC pipe.

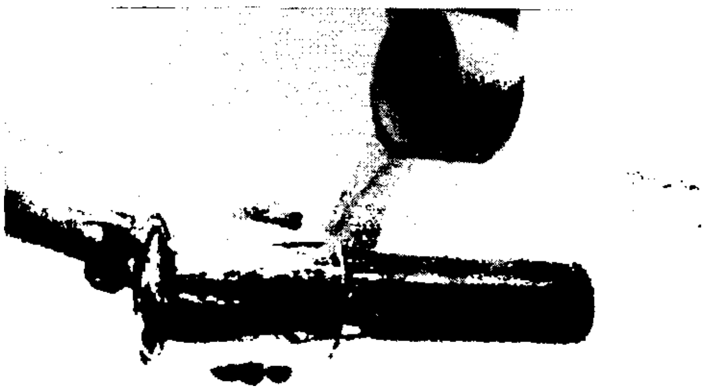
2. Remove the cover of the tin can, and cut the bottom like the picture:

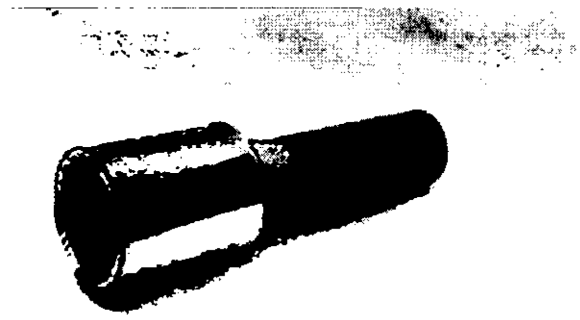


3. Cut two metallic grids and a cellulose sheet to fit them in the can:

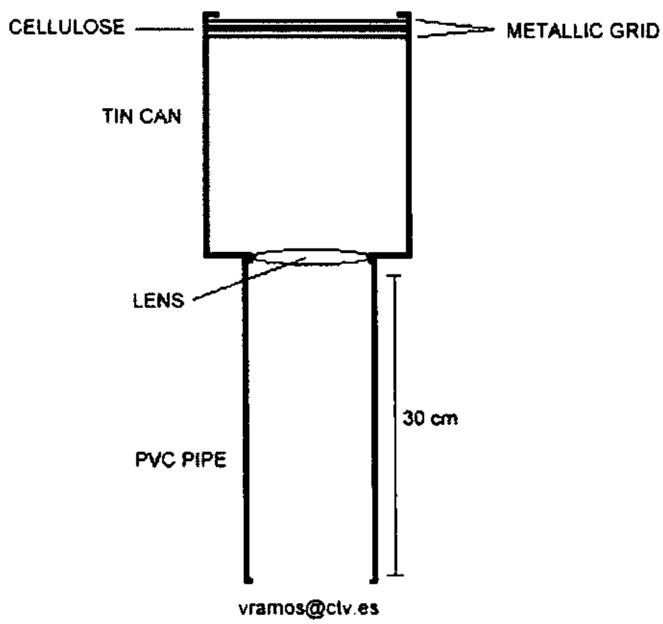
4. Fit them inside the tin can like the picture (remember short the metallic grids to prevent electrostatic formations).

5. Use adhesive tape to fix the junction (with lens between pipe and tin can).





6. Diagram of the Orgone - Scope.



NOTES: You will achieve better results without the moon (new moon). You must use this device outdoors, in a dark place.

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Transmutations of Mercury to Gold

by Robert A. Nelson

In March 1924, Prof. Hantaro Nagaoka, *et al.*(Tokyo Imperial University), described their studies "on the isotopes of mercury and bismuth revealed in the satellites of their spectral lines" — gold in particular. In May 1925, they reported some of the technical details: Nagaoka and his co-workers discharged about 15 x 10^4 volts/cm for 4 hours between tungsten and mercury terminal under a dielectric layer of paraffin oil. They used the Purple of Cassius test to detect Au in the viscous residue of C, Hg, etc. The black mass was purified *in vacuo*, then by combustion with oxygen and extraction with HCl to yield Au, either in aqua regia solution or as ruby-red spots in the glassware. Microscopic films of Au were found on occasion. (19, 22)

Nagaoka stated that when a discharge was passed through drops of Hg falling between iron electrodes, the formation of silver and other elements was observed. Another run of a Hg lamp for more than 200 hours at 226 volts produced a milligram of gold, plus some platinum. It was noted that, "In order to be sure of transmutation, repeated purification of Hg by distilling in vacuum at temperatures below 200° C. is essential." Considerations of the satellites of the spectral lines of Hg led Nagaoka to the conclusion that a proton is "slightly detached" from the nucleus of Hg, and it can be removed. It was surmised that "if the above assumption as to the Hg nucleus is valid, we can perhaps realize the dream of alchemists by striking out a hydrogen-proton from the nucleus by a-rays, or by some other powerful methods of disruption" to produce Au from Hg. (21, 26)

At about the same time, Professor Adolf Miethe of the Photochemical Department at the Berlin Technical High School found that the mercury vapor lamps used as a source for ultra-violet rays ceased to work after a time because of a sooty deposit which formed in the quartz tubes. Miethe tested these deposits and detected gold. Subsequently, Dr. Miethe and Dr. Hans Stammreich were issued German Patent Specification #233,715 (8 May 1924) for "Improvements in or Relating to the Extraction of Precious Metals". (12)

According to the specification, "an electric arc is formed between mercury poles, in the same way as is done in mercury quartz lamps. With sufficient difference in potential, gold is then produced in the mercury. It is advisable to condense again the evaporated mercury. The quantity of gold produced depends, all other conditions being equal, on the quantity of current and also, among others, on the vapor pressure of the mercury or on the difference of potential in the arc. The difference of potential in the arc must therefore be sufficiently great. If it drops to excessively small amounts, the efficiency will be greatly reduced. If the difference of potential is increased, the quantity of gold formed will be considerably increased, beginning with a certain difference of potential."

In July of 1924, Dr. Miethe announced that he and Dr. Stammreich had changed mercury into gold in a high-tension mercury vapor lamp. The experiment produced $1 of gold at a cost of $60,000, equivalent to over $2 million (gold then sold for $330/lb).

Miethe used a potential of 170 volts applied for 20-200 hours. The lamp consumed 400-2,000 watts. A minimum potential difference is necessary. The yield of gold was minute: 0.1-0.01 mg. The mercury and the electrodes were analyzed and determined to be free of gold before the experiments. Miethe was not able to attempt to prove the production of a or b rays, hydrogen or helium. (22)

O. Honigschmid and E. Zintl determined the atomic weight of Miethe's mercuric Au, using potentiometric titration of auric salt with $TiCl_2$. It was found to be 197.26 ($\pm$ 0.2), which is heavier than ordinary Au (197.2). They emphasized the need for a mass spectral analysis. (10)

Frederick Soddy responded to the announcement of Miethe's claims with the suggestion that such a change might be effected by attaching an electron to the mercury nucleus: "Consider the collision of high-speed electrons with mercury atoms. A small proportion of these electrons must be directed upon the nucleus. If they possess sufficient energy to penetrate the external levels of electrons in the mercury atom, they must reach the positively charged nucleus and be captured by it. Since the loss of an electron (as a b-ray) by the nucleus of an element results in the atomic number of the element in question being increased by one, the gain of an electron by an atomic nucleus must result in the diminution of the atomic number by one. This is quite general. In the case of an isotope of mercury of atomic number 80, the product will be an isotope of gold of atomic number 79. Upon existing knowledge it is simply a question of (1) the potential sufficient to drive the electron through the outer levels of electrons surrounding the mercury nucleus until it comes within the sphere of attraction of the powerfully charged nucleus; (2) whether the exceedingly small fraction of direct collisions with the nucleus that is to be anticipated will be sufficient to enable the gold produced to be detected.

"As regards the first, it may be expected that the repulsion of the external shell of mercury electrons will diminish rather than prevent altogether the chance of the radiant electron reaching the nucleus; for once the shell is penetrated, the resultant force on the radiant electron must be on the average an attraction... The chemical detection of the gold produced would probably be the more formidable experimental difficulty. (30)

In the opinion of AS Russell, "The experiments on the transformation of Hg into Au suggest the possibility of the transformation of a nucleus into that of the element next below it by the absorption of one electron when both nuclei are stable. This occurs most obviously as an isobare. The possibility of the existence of two isobares of odd mass-number, Tl 205 and Au 199, among non-radioactive elements may be inferred from experimental work... Aston has shown the existence of the Hg isotope 199... This type of transformation may occur in the two pairs of elements Pb and Tl, Hg and Au... The masses of the Tl and Au produced are 205 and 199 respectively."

Aston advanced strong arguments against the probability of the alleged Hg-Au transmutation. Conceivably it could be effected by the addition of an electron to the nucleus of Hg, or by removing a proton from it, but the chance of an electron hitting a nucleus is extremely remote, and its weight would not make a significant contribution. Theoretically, a Hg isotope of atomic weight 197 could absorb an electron and produce common Au, but none of the six Hg isotopes (198, 199, 201, 202, 204, 209) identified by Aston have that weight. According to Aston, the removal of a proton from the nucleus by Miethe's method is untenable; "The forces employed are ludicruously inadequate." (1, 22)

The process can be shown as:

Hg - a - q = Au
At. wt. 201 - 4 = 197
80 - 2 + 1 = 79 , or:
Hg - 4H - 3q = Au
At. wt. 201 - 4 = 197
80 - 4 + 3 = 79

In December 1924, the journal *Scientific American* announced that it would arrange for a comprehensive and exact test of the Miethe experiment. It was conducted by the Department of Physics at New York University by Prof. H.H. Sheldon and Roger Estey. They used a quartz lamp which contained no gold, and pure tungsten wires were sealed into the quartz to provide electrical contacts. The mercury was tested for purity. Three runs were made lasting from 30-50 hours each, at about 170 volts/13 amperes. The mercury was removed and tested:

"In no instance was any trace of gold detected... According to Prof. Miethe's reports, taken in connection with the theoretical interpretation of Prof. Soddy, this experiment should have produced a substantial quantity of gold; at least ten times as much as could easily have been detected by the analytical methods used. The negative result of the three experiments established, therefore, a strong probability that the transmutation announced by Prof. Miethe could not be confirmed." (27)

The researchers procured from the manufacturers in Germany an replica of the lamp used by Miethe, and repeated the exact technique described by him. The final run lasted 172 hours, at 165-174 volts/12 amps, depending upon the temperature of the lamp:

"After the run the most careful analytical tests failed to show any trace whatsoever of the precious metal.

"It is necessary to conclude, therefore, that the experiment described by Prof. Miethe does not always result in the transmutation of mercury atoms into gold atoms. The experiments recorded by Prof. Miethe and our on experiments, conducted as far as humanly possible in exactly the method described by Prof. Miethe, are entirely discordant with each other.

"It would be improper to assert on the basis of these results alone, that Prof. Miethe's experiments have been proved to be definitely wrong. All that is proper to say is that a careful, competent, and long continued effort to confirm the German results has resulted in an entire failure to do so."

The Scientific Americans politely suggested that "one very vital possibility of mistake in experiments of this character lies in the accidental presence of a small impurity of gold in the mercury employed... It is at least possible that such was the case... Perhaps it will be discovered that some minor and unnoticed detail in the arrangements or in the conduct of the experiment was really responsible for a successful transmutation in Prof. Miethe's case... We must confess, however, that we do not believe that this will prove to be the case. On the basis of all the evidence now available, including the experiments of Dr. Sheldon and Mr. Estey... it is our belief that a transmutation of mercury atoms into gold atoms does not occur and will not occur under the conditions which have been described by Prof. Miethe.

"It is to be freely admitted, of course, that a transmutation of mercury atoms into gold atoms is a theoretical possibility. The internal structures of the two atoms are similar. The removal of one unit of positive electric charge from the nucleus of a mercury atom, or the insertion of one additional electron into this atomic nucleus would result, it is believed, in the conversion of the mercury atom into an atom indistinguishable from the ordinary atoms of gold.

Quite aside from the failure to confirm the results of Prof. Miethe, it remains entirely possible that one of these changes of atomic structure can be accomplished by some physical or chemical method yet to be discovered." They concluded with sardonic solemnity that "Gold can be extracted from mercury, but mercury cannot be transmuted into gold."

Sheldon and Estey reported elsewhere that "The suggested explanation of a change of the number of electrons in the nucleus changing mercury to gold seems good in theory, but incredible in fact, for the potential drop per mean free path of a Hg molecule is only about 0.1 volt in these arcs." (28)

Scientific American published another report of "More Mercuric Gold from Germany" in April 1926, announcing that a 10,000-fold increase in yield had been obtained in the production of mercuric-gold process. In his first experiments, Miethe found 1 part Au per 100 million parts Hg. The Siemens Works in Berlin bombarded Hg with electrons in extremely high vacuum, and obtained 100 mg Au from 1 kg of Hg. (27)

Siemens & Halske Akt.-Ges. registered their German Patent Specification (#243,670) in June 1925 for "Treating Mercury" with spark discharges, cathode rays, and canal rays. The difference of potential could be between 100-150,000 volts; capacitance was adjustable. Paraffin, ether, or carbon tetrachloride were used as dielectrics. (29)

Other researchers were not so optimistic. Erich Tiede, *et al.*, reported "The transmutation of Hg into Au is considered theoretically possible but all experiments carried out under strict control of the original Hg proved to be failures. When the Hg, which was purified according to Miethe and Stammreich, was distilled in an all-glass apparatus similar to the one used by Bronsted and von Hevesey to separate the isotopes of Hg, it showed still up to 10^{-9}% Au. Optical detection is not sufficiently accurate, so they considered it necessary to melt the Au granule, which still held Hg, and weigh it on a microbalance. (32)

Milan Garrett (Clarendon Lab, Oxford) published completely negative results of his repeated attempts to reproduce the Hg-Au transmutation experiment by several methods. Garrett also attempted to prepare indium from tin, and scandium from titanium by X-ray bombardment, also without success. (5)

Erich Tiede, *et al.*, reported that "Hg distilled according to Miethe still had 0.3 mg Au per kg Hg. After two high-vacuum distillations, no more Au could be detected. With this preparation the experiments of Miethe were repeated in several forms; no resultant Au formation was observed in any case." E. Duhme and A. Lotz confirmed this finding. (3, 31)

Duhme and Lotz also conducted numerous experiments with the initial cooperation of Miethe and Stammreich. They used very large arcs: 1.6 m. long carrying 10 kw at 40 kv/800 amps per sq. cm. through Hg vapor. Gold was found in some instances, such as when a sufficiently powerful current was passed between electrodes dipped in mercury, but those experiments were rejected because there had been too much contact with foreign metals. They found that Au will escape detection if certain impurities are present, producing an inhomogenous distribution of Au which becomes detectable only after the arc treatment has coagulated it. (4)

Prof. Fritz Haber, *et al.*, made careful attempts to repeat the work of Nagaoka and Miethe. Mercury in which no Au could be detected was subjected to six different treatments, but no Au was formed. In some cases, Au was found, but only in amounts smaller than what could have come from the materials, or from contamination. Nor could the yield be increased at will. The applied treatments were made with liquid and solid dielectrics with high-tension discharges, arcs in low, normal and high pressures, and high-vacuum electron bombardments.

The extraordinary sensitivity of their detection methods was exemplified by the instance of a co-worker who suddenly found traces of gold in some material he was analyzing. No one else could detect Au in the other samples. It was found that the chemist habitually removed his gold frame eyeglasses before making an observation; on this occasion, he had removed the glasses and then picked up a strip of ultra-pure lead to perform an analysis. Another incident occurred when a lab worker was melting some Au; soon afterwards, another worker in the next room found Au in material which previously had none in it.

The authors described their results as "proving merely that no method has yet been published whereby analytically detectable amounts of Au can be formed in Hg." (8)

Scientific American (April 1926) otherwise reported that at a recent meeting of the German Chemical Society, "Prof. Haber, who previously cherished the greatest doubt as to the accuracy of the experiments, congratulated Prof. Miethe and related... that he himself could confirm the results by repetition of the experiment." Haber made the comment apparently before he had completed his analyses of the electrodes, etc., and determined them to be the source of the Au.

Most of the criticism of Miethe, Stammreich, and Nagaoka's experimental work focused on the questionable purity of the mercury they used. Their Hg had been purified by distillation and by dissolving it in nitric acid (1:4) and fusing the residue with borax (0.1 gr). The resulting bead of Au, if any, was examined under the microscope. Usually they distilled the Hg twice, but in some cases as many as 15 times. Other researchers showed that no matter how carefully or often Hg was distilled, Au could be detected.

Miethe and Stammreich showed that the formation of

Au from Hg depends on the application of intermittent electrical discharges. No gold forms when Hg is exposed to direct current. They also described a Hg-turbine which allowed 2,000 breaks/minute with a potential of 110 volts; the current varied from 1-12 amps. The experiments showed a linear proportionality between the yield of Au and the product of wattage and time. The average yield of gold was 0.0004 mg /amp hour. The production of Au was facilitated by high-pressure. When the discharge was passed between Hg poles in a paraffin dielectric, the gold was found dispersed along the line of discharge, but not in the Hg poles. (15)

A. Gaschler attempted to reverse the Miethe-Nagaoka experiment by treating gold with high-speed hydrogen nuclei. He assumed that one of them might penetrate deeply into the electron shells of Au, be held by the innermost shells as a "paranucleus", and form a "Tiefenverbindung". After 30 hours bombardment, the spectrum of the tube began to show Hg lines which steadily increased in intensity. Gaschler postulated that Hg is a gold hydrogen compound, similar to Manley's "Hg-Helide". (6, 7, 13)

The scientific community gave a fair and thorough review of the claims of Miethe, Stammreich and Nagaoka, who also skillfully managed the criticism. However, the entire issue was never definitively resolved. Therefore, these experiments ought to be repeated with modern equipment and analytical techniques.

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Reviews

by Michael Theroux

Equipment

CC Radio

C. Crane Co.
Fortuna, California
$159.95

Here's a radio that was specifically designed for talk radio, news, sports and weather. According to the C. Crane Co., "Twenty years of dreaming, planning, engineering and prototypes went into the development of this radio." The audio has been specifically tailored for the sound of the human voice. You can tune to AM, FM, NOAA weather, and TV audio. Operation of the radio is relatively easy, with few confusing buttons. Full digital controls and a microprocessor give accurate tuning to 1 KHz. Five stations can be stored into memory on each band. The radio has a special Weather Alert feature which sounds an alarm to notify you of weather emergency updates. This alarm will even sound at night and wake you up if there is an alert. Additional features include: adjustable bass and treble controls, lighted display with an on and off button, one touch memory recall , 5 inch diameter speaker, auto scan and stop, built-in headphone jack, and external AM antenna screws (on this radio it almost seems unnecessary).

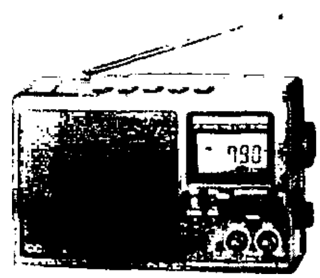
Bob Crane at the C. Crane Co. was kind enough to supply us with a CC Radio for testing, and we must say, overall, this is a truly outstanding radio. We compared the CC Radio to several other radios; the Sangean ATS 818, the GE Super III, two 1950s era tube driven Zenith Transoceanics, a tube driven Farnsworth from 1949, and several tube type Philcos from the 40s — all from our large collection of new and old radios.

Since the CC Radio is advertised with the slogan, "Hear How It Was Meant To Be" we started our comparison with the old tube driven radios. Many of these older radios have larger AM loop antennas and generally have better reception than the newest of radios. But, one of the reasons the CC Radio is such an outstanding performer is because it has an internal 8 inch-long ferrite AM antenna which gives it the ability to really pick out distant stations. The CC Radio outperformed all of our "old sets" in reception save the Zenith Transoceanic T600 from 1957 — probably due to the tube receiver's giant "Wavemagnet" AM antenna. But, we have to remember that the CC Radio is half the size of the old Zenith and weighs nearly 5 times less (3.8 lbs. to the Zenith's 18 pounds).

Concerning audio quality, we found that the CC Radio was indeed good for talk radio, but it seemed to lack any sense of response when it came to music — definitely not a music radio — but then it was designed for talk radio. It did not possess the richness of tubes, but again that is to be expected. The Alnico magnet speakers of the older radios possess a quality that no speaker can really match today, but the CC Radio's speaker performs really well for talk. As a matter of fact, we found it to reproduce the human voice with better clarity than all of the radios we compared it to — but only at a distance. If you are in another room, or outside working in the garden, the CC Radio will project more clearly than other radios. If your in the same room however, the audio seems muffled, and just does not possess the richness of the golden era radios — for talk or music.

Our comparison to the two newer radios was interesting as well. Overall, the CC Radio seemed the most versatile. This is mainly due to the fact that tuning is much easier than the GE Super III, reception was better than the Sangean 818, and the CC has weather band. We don't use the TV feature at all (we wished it had shortwave instead) and since FM is mostly music and not talk, we rarely used that band either. We were also disappointed with the almost non-existent handle on the CC Radio, but I'm told the C. Crane Co. is working on a nice carrying case with handle for the radio.

There is no question that the GE Super III sounded far



The CC Radio from the C. Crane Co. AM, FM, Weather, and TV bands, excellent reception, great for talk radio. Drawbacks are muddy sound for music, weird carrying handle—really not that many. An excellent radio by any standard. Price: $159.95

The GE Super III Radio. AM, FM bands (no TV or Weather), excellent reception, 2-way speaker system - great for talk radio and music where it really shines. Drawbacks are manual tuning, no lighted dial, no memory functions, no weather. An excellent radio for the price: $49.95

better than the CC due to its two-way speaker system, and it really receives equally as well as it too has an 8 inch ferrite antenna — but it lacks the fine tuning capability of the CC as it uses a conventional analog needle and dial (which I happen to prefer). The GE also has an AM Wide/Narrow switch which we found great for local AM listening. If you aren't interested in weather band, TV audio, digital tuning, light, clock, or a timer, the GE Super III is a fantastic radio at a third of the price of the CC. If you need shortwave, it's hard to beat the Sangean 818 for quality and price. I guess that's why we have so many radios as we have yet to find one that "has it all". Still, the CC Radio is a great radio — the one I would grab in an emergency — but I don't know if it really is "how it was meant to be".

White LED Flashlight

C. Crane Co.
Fortuna, California
$34.95

This is the most brilliant and practical piece of technology we've seen in many years! It is one of the brightest flashlights of its size in the world. It is made with ultra bright, white LEDs (light emitting diodes), and the light lasts at a super bright level for a continuous 50 hours (and countless hours at a reduced level). Waterproof with a bulb life rated at 100,000 hours. It even includes batteries!

We ran some tests on this one and were extremely impressed. We don't recommend some of these tests, but here's what we did: We left it turned on while submerged underwater for hours, we dropped it on concrete repeatedly while turned on, we turned it on and off while holding it in a stream of running water — and it performed flawlessly. We tested the light in very dark situations and were able follow paths through the woods, illuminate somewhat distant objects, and read by it. What else can we say — it should be standard issue! (Available from Borderlands)

Books

Below is a list of items that we have received, but not yet reviewed. Our appreciation and thanks go out to the authors, publishers, and agents responsible for sending these to us.

Radio Aerial Concepts

by J.L. Richardson
P.O. Box 37, Clarksville, AR 72830
Experimental antenna designs - many for VLF.

Libraries in the Age of Mediocrity

by Earl Lee
McFarland & Co., Inc.
Box 611, Jefferson, NC 28640
The future of libraries in this technological age. Grim at best.

The Secret Behind Secret Societies

by John Rappaport
Truth Seeker Co., Inc.
P.O. Box 28550, Sandiego, CA 92198
A 30-year investigation into secret societies by one of today's great journalists. A must read.

Interface - Astronomical Essays for Astrologers

by Nick Kollerstrom PhD.
Ascella Publications
3 Avondale Bungalows, Sherwood Hall Rd., Mansfield, Notts NG18 2NJ
A seriously needed book for all astrologers — to bring the unity once held between astronomy and astrology back together. (Available from Borderlands)

If you are interested in any of the books or equipment reviewed here they may be purchased through their respective publishers/companies listed. Some are available from Borderlands where stated.

Tesla's True Wireless and HAARP:

Everything You Know is Wrong

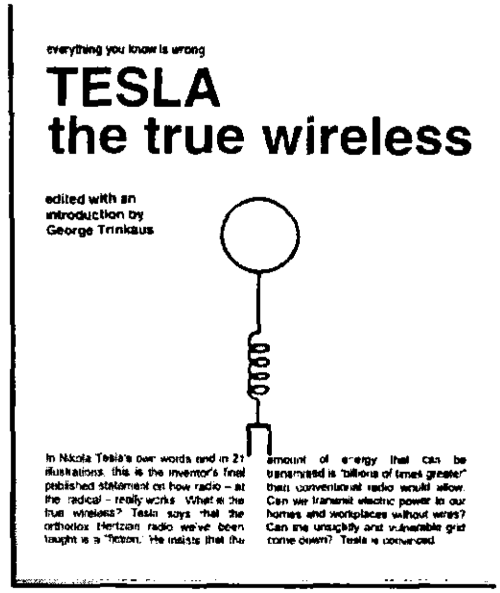
by Michael Theroux

WE recently received a new booklet edited by George Trinkaus entitled, *Tesla — The True Wireless* which is a reprint of Nikola Tesla's June, 1919 article in the *Electrical Experimenter*. The article is an extension of Tesla's previous work of that year entitled "Famous Scientific Illusions" (reprinted in *Borderlands*, Vol. 44, No. 1, January-February 1988) in which Tesla outlines the differences between his wireless technology and that of academic convention. We would in most cases have simply listed this booklet with the rest of the reviews but we felt it necessary to highlight the work for several reasons. "The True Wireless" is one of the most important of Tesla's articles in that he explains in great detail HIS system of wireless. Also, this document, *in his own words*, smashes currently held beliefs about so-called "Tesla Technology".

Written some years after his Wardencliff Project, Tesla explains the inefficiency and limitations of the Hertzian method of electromagnetic propagation (through the air) with great clarity — and that his system of wireless which was vastly more effective, utilised the ground itself for propagation. Tesla states, "Properly constructed, my system [of wireless] is safe against static and other interference, and the amount of energy which may be transmitted *is billions of times greater* than with the Hertzian which has none of these virtues..." He explains in particular, with several analogs in diagrammatic representation, his single-wire-without-return system — the heart of Tesla's radio and wireless power systems.

While this article is probably the most compendious of all of Tesla's attempts to publicly describe his wireless system, it also contains statements which radically challenge the orthodoxy of radio — a system of radio that has gone unchallenged as such to the present day. These particular statements made by Tesla virtually destroy many currently held beliefs — that certain new technologies (usually purported to be sinister in nature) were developed from Tesla technology itself. Let us quote one of the more significant statements made by Tesla in this article:

"In Fig. 13 a transmitter is shown radiating space waves of considerable frequency. It is generally believed that these waves pass along the earth's surface and thus affect the receivers. I can hardly think of anything more improbable than this "gliding wave" theory and the conception of the

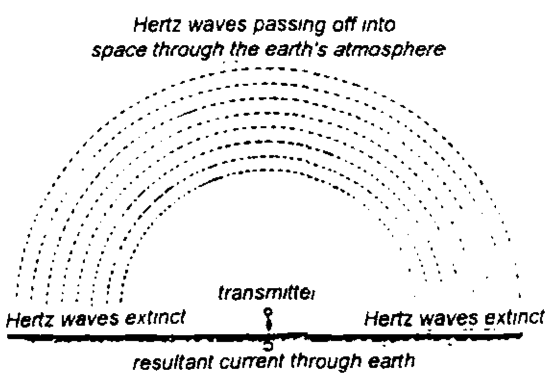


"guided wireless" which are contrary to all laws of action and reaction. Why should these disturbances cling to a conductor where they are counteracted by induced currents, when they can propagate in all other directions unimpeded?

The fact is that the radiations of the transmitter passing along the earth's surface are soon extinguished, the height of the inactive zone indicated in the diagram, being some function of the wavelength, the bulk of the waves traversing freely in the atmosphere. Terrestrial phenomena which I have noted conclusively show that there is no Heaviside layer, or, if it exists, it is of no effect."

He then goes on to demonstrate the electrical inefficiency of the antenna through simple formulæ, and details several experiments between Hertzian oscillators and his grounded transmitting circuit. The key here with respect to the current belief that many new technologies are Tesla derived, is that he says, "...there is no Heaviside layer, or, if it exists, it is of no effect." We know the Heaviside layer, later called the ionosphere, is the radio-reflective layer assumed to exist within the upper atmosphere, and is presumed responsible for radio propagation over great distances, i.e. "skip".

Enter HAARP. The assumed notion that the project known as HAARP (High-Frequency Active Auroral Re-



13. transmitter propagates in all directions

search Project) is descended from Tesla's work, is something of an absurdity with reference to Tesla's previous affirmation. Since the HAARP Project's exclusive purpose relies on the existence and function of the ionosphere, and has nothing to do with the grounded circuits of Tesla — it is clearly NOT Tesla technology. This really should have been quite obvious to any researcher or author if they had simply read any of Tesla's work concerning his wireless — even without the bold statements of this 1919 article, but, alas, due the popularity of Tesla, and the recently published books and videos about HAARP, this bogus association between Tesla and HAARP has become "matter of fact" to the misled and uninformed.

Why would these authors writing about the HAARP Project make such gross mistakes — mistakes which destroy the credibility of any other statements they have made concerning the technology? One might suggest that because these people are journalists and movie makers, and not radio technicians or electrical engineers, that we are supposed to forgive their glaring errors. But a good journalist is expected to present the truth as clearly and as disinterested as is possible. And, a good (ethical) journalist would not overlook the facts, in favor of a sensational presentation. Most of the associations today concerning Tesla and sinister military technologies come from later statements made by Tesla — long after his direct involvement in experiment with wireless. Speculations and predictions by Tesla such as microwaves, TV, beam ray technologies (the "Tesla Death Ray"), cosmic-ray motors, interplanetary communications, and wave-interference devices (the "Tesla Howitzer" and the "Tesla Shield") have been given authority over the actual physical experiments by Tesla. Most of these conjectures were revealed by Tesla in his aging years at "birthday press conferences" as he was shut out by the daily media sometime after 1920. But, these are the statements that so capture the attentions of readers and viewers, and are the ones which the so-called "underground media" gleefully disseminate. Gloom and Doom is the status quo here, and while the truth may be stranger than fiction, it is apparently quite boring.

Many thanks to George Trinkaus for bringing Tesla's article back in print. I might add that the introduction by Mr. Trinkaus is quite good with references and diagrams of his own experiments which prove the Teslian wireless system. I don't know if Mr. Trinkaus was aware that the aforementioned statements by Tesla would with no uncertainty disassemble many fabrications about Tesla technology, but then again he did preface the title of the new booklet with the astute phrase, "Everything You Know is Wrong". ❐

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