

# FiziKorner<sup>+</sup>

with Peter Lindemann

Well, after a two year sabbatical, I'm back. Unfortunately, I can't say "by popular demand". Yes, some of you miss me, I know, but there has not been a ubiquitous pleading from the masses for my return. I quit writing this column because I just didn't have the time. Well, I still don't. But as an excuse, it just doesn't work anymore. This time, however, I may indulge, not only in the "facts" as I see them, but also in some commentary. My peculiar biases have evolved considerably since 1989, and I feel they are no longer fully confinable. With that warning, I will proceed.

For those of you who are new to the Journal, this column is for people who aren't afraid to get their hands dirty. Its for those people who don't always believe what they are told, because they already know better. And we know better because we see for ourselves. We take other people's pretty little beliefs and take them apart on the laboratory work bench. Yes, we are science's "bad boys on the block". There are no mean science teachers here to tell us "it can't be done". Even if there were, we'd do it anyway! So, let's get started, let's take something apart.

Today's topic is LIGHT. For over 15 years I have been deeply interested in light and have done a fair amount of research on the subject. It is from this platform that I now offer my insights. I was first introduced to the idea that light could be used to heal the body back in the mid-70's. My initial response to this preposterous concept was to rightly dismiss it without a second thought. After all, colors are pretty, but that's about it. Little did I know at the time, but I had fallen in with a group of people who had studied a simplified Dinshah color healing system. Within a year of this self-righteous dismissal, I had the misfortune of actually lying down and shining some colored light on my body. The effect was dramatic! It almost immediately cured me of my sophomoric world view. Unfortunately, the cure was not permanent and I have had many relapses into a state of imagining that I know more than I actually do. In spite of this, God still loves me and I have become an avid experimentalist.

Most of the popular myths about light can be attributed to the work of John Ott. He has published a number of books on his research

and is also the developer of the VITA-LIGHT and the new OTT Light systems. He has been one of the primary popularizers of the "full spectrum" myths that are almost common knowledge now. Ott's experimental data looks impressive to the untrained eye. What he has repeatedly tried to prove is that plants grown under artificial light grow better when the spectrum of light emitted by the artificial source (light bulb) is similar to that of sunlight. Now, for anyone schooled in our brand of science, the idea, that plants that have evolved for millions of years in an environment that includes sunlight might have adapted to it and now may even prefer it to "man-made" light, is no great scientific leap of faith. Most of us would say "so what else is new?" But Mr. Ott is a mechanist. He has not incorporated the works of Steiner, Reich, Dinshah or Sheldrake and he knows nothing of the nature of light but its colors. Mr. Ott's idea of "full spectrum" light is that it is supposed to be like sunlight. I agree with him on this point. But let's see how far this goes.

The new Ott Light systems are marketed by a company in Santa Barbara, California, where I used to live. On a number of occasions I visited the office and was shown all of the inside scoop on this "amazing technical breakthrough." A one foot by two foot lighting fixture costs about \$300. It consists of two, 2 foot long fluorescent tubes and a smaller tube in the center. The larger tubes provide the visible spectrum and the smaller tube provides UV (ultra-violet). The ends of the fluorescent tubes are shielded with lead foil to block the soft x-ray emissions that Mr. Ott found was killing his plants. And, the front panel has a grounded screen across it to block EM (electro-magnetic) emissions. All in all, it is the best and the safest fluorescent lighting fixture I have seen. But I still don't want one.

Many amazing and wonderful claims are made for this lighting system and I don't doubt any of them. After all, Mr. Ott's experimental research is impeccable. Is this system better than all previous fluorescent light systems? To my knowledge, yes, it is much better. A number of important improvements, listed above, are incorporated. Is this light fixture emitting light that even remotely resembles sunlight? The answer is NO.

So, what is the problem? To find out, I spent some time with my good friend, Roger Modjeski. Roger is an electrical engineer and an audio circuit designer. We borrowed an Ott Light from the company and went to work at his Santa Barbara facility, RAM Labs. We also had two other fluorescent light systems to test. One was a standard unit and the other was a "high efficiency" unit with a solid-state ballast and power supply. Roger also rigged up a bench model of a power supply to drive the fluorescent tubes with direct current. We had a wide variety of probes to look at current, voltage, wave forms, light emission and EM radiation, all on an oscilloscope. Whatever was happening, we were going to find out.

So, here are some of the highlights of what we found. All of the systems that ran on power from the wall (117 VAC) suffered from the same problems. The most significant of which is the light intensity variation. This test is easy to duplicate. We simply connected a silicon "solar cell" to the oscilloscope and viewed the wave form. In sunlight, this test set-up produced a flat line on the screen indicating two things: the voltage produced and the continuous nature of the light. When exposed to the light from any of the fluorescent fixtures, it produced a wavy line that varied from zero to maximum, 120 times per second (40,000 times per second for the solid state unit). We were seeing a 100% light intensity variation. It means that a room lit only by fluorescent lights is actually completely dark 120 times per second! Needless to say, the sun is not going on and off 120 times per second, but a fluorescent light is. The eye may not "see" this, but it all registers in the nervous system. This effect is responsible for one of the major irritations associated with fluorescent lighting, and the Ott Light system was no different than an ordinary one, in this respect.

So, why is this happening? Essentially, the problem begins with the AC power. Alternating current, by its very nature, is constantly changing. The voltage rises to +117 volts, then drops to zero, then drops further to -117 volts and then rises again to zero. This is called one cycle. Since the power coming out of the wall is 60 cycles per second, and the voltage moves through two points each cycle when the voltage is zero, the voltage is zero 120 times per second. When the voltage is zero, the fluorescent light goes out.

So why not power the fluorescent bulbs with DC? Here's what we found out when we did. A typical 40 watt fluorescent tube (4 foot long tube) runs on about 100 volts. But it will not start on 100 volts. The bulb will only start glowing after it is shocked with a quick burst of about 350 volts, and this only when the little

heater coils at each end are warmed with some current at 3 volts. Once glowing, the plasma between the ends of the tube behaves like a negative resistance. The 40 watt bulb ran on about .4 amps at 100 volts (.4a x 100v = 40w). When we gave the bulb .5 amps it got brighter, but only drew 95 volts! This unusual situation requires the tube to be powered by a current-limiting power supply to prevent the bulb from blowing up due to current run-away. The other problem we saw when running the tube on DC was that the end of the tube being supplied by the negative was brighter than the end connected to the positive. With all of these problems, don't hold your breath waiting for a DC powered fluorescent fixture to be for sale anytime soon.

So we are back to AC. Believe it or not, the AC power supplies (the ballast) effectively deliver to the tube all of these requirements. At the beginning of each cycle, it jolts the tube with 350 volts and then holds the voltage around 100 volts for a while before turning the tube off at the half-cycle. Interestingly, the inductance of the ballast and the negative resistance of the fluorescent tube plasma work against each other to create a parasitic oscillation in the supply voltage at about 2500 cycles per second. This parasitic oscillation can also be seen in the supply current and in the magnetic field of the ballast transformer. It is the primary source of the hum that fluorescent light fixtures make. It is also the reason for the high levels of ELF

magnetic pollution associated with fluorescent lights. All of the systems we tested behaved this way, even the Ott Light. Roger and I concluded that since the Ott Light did not address the light intensity variation problem or the magnetic pollution problem, it was not worth the extra money. We gave the test unit back.

So, you may ask, how do you get real "artificial" sunlight? How do you get "full spectrum" light you can live with? We next went back and looked at some ordinary incandescent bulbs. Powered on AC, a regular light bulb also exhibits a light intensity variation. This fluctuation is between 100% intensity and 60% intensity, a 40% variation, at the same rate as the fluorescent fixtures of 120 times per second. Again, this variation is in step with the AC power.

Only an incandescent bulb powered by DC gave light at a continuously even rate. Only an incandescent bulb powered by DC gave light free of x-rays, high frequency EM and ELF magnetic pollution. So, what about its spectral balance? Is it "full spectrum"? According to all of the information I have, an incandescent light bulb produces what is referred to as "continuous spectrum". This means that it produces all of the colors in the visible spectrum. It also produces a fair amount of infrared (heat). For years I have used a 100 watt incandescent spot light as the light source for my Dinshah color healing system and I assure you, it can and does

produce all of the colors, right down to the deep violets. But what about the UV Mr. Ott says is so important? Its simple. The hotter the bulb, the more UV it produces.

But what about the spectral balance? Ordinary fluorescent lights emit light that is predominantly blue, while incandescent bulbs emit light that is heavy on the red end of the spectrum. The "full spectrum" Vita-Light fluorescent tubes you can buy start out OK, but the materials inside the tube responsible for emitting the UV end of the spectrum burn out in about 100 hours, leaving you with an ordinary light at extra cost (this is why Mr. Ott abandoned this system to develop his new one). GE and some other European light bulb manufacturers make a "full spectrum" incandescent bulb with enhanced blue and UV output. All of this research points me in this direction. If you run these "full spectrum" incandescent bulbs on pure DC, you will be very close to the "artificial sunlight" that this whole quest is about.

If any of you are interested, we have plans for a 120 VAC to 120 VDC converter that can deliver about 200 watts. Send us a self-addressed, stamped envelope and \$1.00, and we'll send you the plans. We aren't publishing them here because 120 VDC is potentially lethal and we only want serious experimenters working with it.

Next time, we look at "free energy" systems based on heat pumps. 'Til then, this is your favorite myth-grinder, signing off.

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#### NOTICE: INVESTORS WANTED

BSRF is interested in re-establishing its "free energy" research laboratory in the near future. After reviewing the technology in this field for a number of years and realizing that NO ONE has or will be allowed to bring a true self-running engine to the commercial market anytime soon, we propose a commercial venture using the following technology.

A very interesting process has come to our attention that allows for the production of HEAT using permanent magnets. Since most of the energy consumption in our current economic structure is based on heat production, we feel that this process could sell very well if embodied in the following products.

The first product we propose the development of is an electric portable space heater that could produce three times more heat per watt of electricity than the currently available space heater. The unit would be similar in size to other portable heaters but could produce 5000 BTU's of heat using only about 500 watts instead of the usual 1500 watts. This would

make electric heat about as cheap as heat produced by burning gas or wood. The commercial value of such a product should be obvious. Once the basic magnetic heater module is developed, it could be put into larger furnaces and water heaters as well. Each of the envisioned products offers a substantial improvement over its currently available counterpart, but does not inherently defy the power structure. Because of this, we believe that these products will be accepted in the general market and be able to capture a sizable market share.

We are looking for an investor who, for a sizable percentage of the deal, is willing to fund the project from first prototypes to market. A number of patents are possible, so proprietary ownership is also part of the package. Initially, we believe that a 6 month prototyping period could be funded for about \$50,000. A complete investment prospectus is being prepared and will be available upon request.

A second project that could also be quite lucrative is the development of a bicycle light

generator that provides a bright headlight, but does not make the bicycle harder to peddle. This style of generator is not scaleable to very large sizes and therefore cannot be developed into a useful, home power plant. It can, however, solve a serious problem in the bicycle industry. There is every reason to believe that such a generator could capture a sizable percentage of the world market for bicycle light generators. Patents would also be available here.

Both of these projects are based on technological effects that are known to exist and have been tested by us. What we need to do is prototype these effects into useful embodiments and test their efficiencies. These devices could be very competitive with what already exists on the market.

Anyone interested in forming a joint-venture, please contact: Peter A. Lindemann, BSRF Research Director, at (503) 895-3724. Serious inquiries only. No technical data will be transferred without signing "non-disclosure" agreements.