

## Interview with Lt. Col. Thomas E. Bearden (ret.)

The following interview with Tom Bearden appeared in a magazine called "Megabrain Report". It is dated 4-Feb-1991.

The interviewers were Terry Patten and Michael Hutchison.

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[preamble to interview text]

"Lt. Col. Thomas E. Bearden is a nuclear engineer, war games and weapons analyst, and military tactician. He has an MS in nuclear engineering from Georgia Tech and is a graduate of the US Army Command and General Staff College and several US Army artillery and guided missile schools. He has over 30 years experience in air defense systems, technical intelligence, Soviet electromagnetic weaponry, artificial intelligence, computerized war games, and antiradiation missile countermeasures. He is a senior scientist with a large aerospace company [Colsa Corp.]

Col. Bearden personally developed and published the basis for a drastic revision of electromagnetic theory and engineering, based on the work of Whittaker and Maxwell. His work is primarily responsible for the widespread interest and research into scalar electromagnetic phenomena in this country over the past decade. He is the author of several books on this subject, including \*Towards a New Electromagnetics\*, Parts I-IV (Tesla Book Company)."

[end of preamble]

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**Question** Can you offer the layman an extremely simplified summary of what scalars are, how they relate to Maxwell's equations, unified field theory, and the limitations of currently accepted quantum physics, relativity theory, and electromagnetics?

**A:** Whew! You've asked for a complete explanation of how to unify the three major disciplines of physics, specify what's wrong with the three present versions of those disciplines that has prevented their unification, and how this was in Maxwell's original quaternion equations (some 200 of which are actually his theory, not the pale four vector equations written by Heaviside and Gibbs). You also asked for an explanation of scalars versus vectors, and how the present vector analysis (of Heaviside and Gibbs) misses the boat with respect to structured scalars. And you've asked me to do it simply, in layman's terms. To say that that's a tall order is the understatement of the decade!

Okay, we'll have a go at it anyway. We'll start with scalars and vectors.

Basically we visualize things in the universe as two sorts those that move (have motion) and those that don't. In physics we know already that this is in error; there isn't anything in the universe,

anywhere, that is motionless. At least it is moving through time, which is still a special kind of motion. Also, we know that everything seems to be made up of much finer things, and these finer things are always in motion - often very violent motion. So what we observe as a passive thing - sitting still spatially, so to speak - is made up of subthings in violent motion spatially. And the whole system that is not moving spatially is still moving in time. However, we don't see "time" but just space; therefore we see the thing as "motionless." However, the "motionless" thing we look at is rather like a fixed whirlpool in a swiftly flowing river the whirlpool seems to us to stay "fixed" and motionless, but internally its parts (the flowing water) are in constant motion.

Another example is a container of gas under pressure - such as the air tank at the service station. The tank and "the air as a whole spatial volume" isn't going anywhere, and we see them as "motionless." But inside the gas its molecules are in violent motion, undergoing collisions, etc. Indeed, inside the walls of the tank, the molecules and atoms are in vibrational back-and-forth motion in a spatial lattice.

The point is, physically "motion" and "motionless" only apply to the external characteristics of the object to which we pin the label. So it represents only an overall characteristic of the object, and does not completely describe it. In a sense "motionless" is filled with motion, and all is motion.

In vector analysis, a scalar quantity is considered to be a quantity that has magnitude or size, but no motion. An example is pressure; the pressure of a gas has a certain value of so many pounds per square inch, and we can measure it, but the notion of pressure does not involve the notion of movement of the gas through space. Therefore pressure is a scalar quantity, and it's a gross, external quantity since it's a scalar. Note, however, the dramatic difference here between the physics of the situation and mathematics of the situation. In mathematics, when you say something is a scalar, you're just speaking of a number, without having a direction attached to it. And mathematically, that's all there is to it; the number doesn't have an internal structure, it doesn't have internal motion, etc. It just has magnitude - and, of course, location, which may be attachment to an object.

However, physically, when we say something has pressure or a scalar value, that is not all there is to it. That particular aspect of the object or system may be scalar, but internally the thing it's labeling can still be decomposed into subsystems or particles or small things in violent motion. That is, in physics the scalar quantity can mathematically be further decomposed into an ensemble of vector quantities. Since these parts are rushing around in all directions but the whole is not translating through space, then obviously the sum of all those fractional motions must be zero. Scalar pressure, for example, can be decomposed into a myriad of opposing force vectors per unit area.

Mathematically, a vector is an entity that not only may have magnitude or size, but is translating through space. In physics, we apply the vector concept to something that is moving, and/or to position. However, when we think further, that "something" is made of smaller things, which also are in violent motion, and these smaller things may be swarming all over the place with differing velocities - or even flowing at high speed in and out of the moving "system- thing" represented by the vector. So even here, the vector thing is a special case of an ensemble of smaller things.

In the physical world, in anything - even inside a single point - there are always infolded vector things in violent motion. We may say that these interior critters are "hyperspatial" or "infolded" or

"virtual" or "hidden". But they're real and they're inside the point, as seen by the external observer.

The point is this Everything seen externally is a plenum internally. In the real physical world, both a thing that's externally motionless (a scalar) and a thing (a vector) that's externally translating through space, are special cases of a system whose internal parts are always in motion. If the sum of the internal motions is zero, the external object seems to be sitting still and motionless to us (though it's still moving through time with - usually - uniform motion). We describe that internal characteristic of the system as a vector zero resultant system. Externally we may also characterize it as a scalar, because it still possesses attributes that have magnitude. On the other hand, if the sum of the internal motions is not zero, but is a motion in a certain spatial direction, then to us the external object seems to be moving along in space. That is, it is translating spatially. Externally it has both magnitude and direction, so we view it as a vector. To label a thing as only a vector is to look only at its external attributes. To label a thing as only a scalar is to look only at its external attributes. To look at its internal attributes, it must be recognized as a scalar and a vector at the same time. That is, the scalar attributes must be recognized to be composed on internal vectors.

Summing that up, physically a scalar thing is a thing that (1) is a vector in time, which is hidden from direct observation, (2) externally is just a magnitude spatially, and (3) has an internal spatial vector structure, and therefore a hyperspatial or virtual-state vector structure. A vector is a thing in motion in a dimension (through a frame), whether in space, hyperspace, or time. Rigorously it is not possible to exclusively separate the notions of vector and scalar, because any scalar, to persist, is automatically a vector in time.

These concepts of vector and scalar are normally not nearly so well clarified in standard physics and mathematics texts, unfortunately. Usually discussions of this type are reserved to obscure papers in foundations of mathematics. It may surprise the casual student, for example, that the notions of line, point, space, zero, length, dimension, frame, time, and observer have no truly acceptable definitions. Neither do the notions of force, mass, field, potential, etc. In fact, mathematics no longer attempts to explain how a line can be made of points. Instead, in foundations, it is simply stated as three postulations thusly "There is a class of entities called points. There is another class of entities called lines. Lines are composed of points."

From a physics viewpoint, one of the big problems with the present vector mathematics - which is well-known not to be a complete system of mathematics in the first place - is that the presence of a bunch of vectors that sum to zero is just treated as a zero or absence of any vectors at all. That is, the absence of any internal vectors at all is made synonymous to the presence of a bunch of internal vectors that are fighting each other to a draw. What this does is throw away the internal energy and internal ordered structuring of the medium - specifically, the energy of all the vector fighters that is continually going on inside the local medium - inside spacetime itself. Physically that's quite wrong, and one is throwing away exactly half the energy of the situation. There is a very real physical difference between a system of real vectors that fight to a draw and so do not translate en masse, and the absence of any vectors and vector-fighting at all. The difference is composed of stress and its internal vector patterns - the internal energetic engines in local spacetime and local rest mass - in short, the energy trapped in the local medium.

Where electrical students meet this hidden problem, of course, is in the fact that the four vector Heaviside equations of EM are not closed. One always has to assume that one or more of the "remaining potentials" is zero - that is, absent. So right there all the texts and professors reduce even Heaviside's equations to a special case of the absence of any "left-over and hanging around" scalar potentials. As an example, that little assumption gets rid of any possibility of the Aharonov-Bohm effect, where potentials alone can interfere, even in the absence of EM force fields, and produce real force effects in charged particle systems. That is, the sole agent of the interference of scalar potentials can induce EM changes, according to the experimentally proven Aharonov-Bohm effect, even in the total absence of EM force fields.

Since 1959, it has been known in quantum mechanics that the EM force fields are not primary agents at all. We know that classical EM theory is completely wrong on this. QM shows that it's the potentials that are primary, not the force fields. In fact, it can be shown that the [E-field](#) and [B-field](#) do not exist as such in vacuum; only the potential for the E-field and the B-field exist in vacuum. Feynman pointed that out, but nearly all of his modern cohorts seem not to have recognized that fact. Indeed, vacuum is just a conglomerate of potentials, nothing more, nothing less. And if you just look carefully at the definitions of force and E-field, you see immediately that (1) force (nonrelativistic case) consists of mass times acceleration. Therefore a force consists of an accelerated mass. An electric force consists of an accelerated charged mass, normalized for a unit. But it really isn't treated that way in the EM theory, where it continues to erroneously considered to exist as a force field in the vacuum.

At least you've got to use the adjectives "virtual" and "observable" to differentiate vacuum things from material things. One can correctly state that a virtual electric force field exists in vacuum, comprised of accelerating virtual masses, but not an observable force field. The observable electric force field requires, and consists of, accelerated observable charged particles. And the only place observable particles exist are in a physical medium, of a collection of one or more observable particles in space.

So it doesn't take any special powers of thought to directly show that there are some very serious, fundamental things wrong with the present foundations of EM theory. There are lots of other flaws in EM, such as the fall of the Lorentz force law in modern railgun experiments. The law has always been false, but is a sufficient approximation if the energy regime is not too high. Peter Graneau's work is fundamental in this respect.

To sum this up another way The present vector analysis (as applied to electromagnetics) discards the internal, trapped EM energy of local spacetime. Now if the internal trapped energy of spacetime varies from place to place, that is called a curved spacetime, relativistically speaking. And when a spacetime is curved, there is communication of energy between the internal, infolded, virtual EM energy state and the external, translating, observable EM energy state. Curved one way, the local spacetime is a sink, with external energy pouring into it continually, and disappearing from observation of the external state. Curved the other way, the local spacetime is a source, with energy pouring out of it continually, and appearing in observation in the external state.

What the present vector system of EM does, therefore, is throw out the ability to use the very strong

EM force as an agent to curve local spacetime. The very mathematics itself, a priori, assumes and guarantees a locally flat spacetime. And in an uncurved region of spacetime, for example, you are never going to make an over-unity machine - a so-called "free energy" machine that will give you more energy out than you put in - because the application of the vector theory a priori guarantees the elimination of any hidden sources from the local spacetime (ST) medium. If you're going to tap the trapped vacuum energy, and make a so-called "free energy" device, you're going to have to curve the local spacetime. That is the only way to produce a local energy source in the vacuum, from which a current issues. Notice that, when we put a paddlewheel in a river, we produce a free energy device because we tap some of the energy in the flow. But we tap a current, we do not just tap a potential per se. The entire secret of tapping vacuum energy, to build a free energy device, is to produce a current in the local vacuum potential that is self-sustained, and then tap that current.

So the present EM theory throws away exactly half of the energetics of the situation involved. From time to time yet another physicist discovers that astonishing fact, and publishes a paper on it to point it out. Nobody does anything about it, however, because no one has the foggiest notion of what to do. So everybody just lets it pass and nothing is changed.

**Question** Can you give us a more concrete example of the missing half of the energy?

**A:** Yes. Suppose, for example, you connect a voltmeter across a wall circuit to measure the voltage. The meter needle moves against a spring with a force, as a result of the detection made by the voltmeter. The actual detection is an interaction inside the meter's probe which induces conduction electrons to move. We read the needle movement that resulted from those conduction electrons, and we infer so much voltage. The important point is this The voltmeter is measuring the energetics of its own internal change; it is not at all measuring anything external. All instruments measure only their own internal change. We infer the external thing that interacted with the instrument to cause the internal change. We do not measure the external entity directly, but only the results of its interaction inside the probe and meter. And even then, we measure only the external, spatial-translation energy of the instrumental interaction; we do not measure or account for the internal energy of that interaction. To state it more precisely The needle moved because conduction electrons accelerated away from the instrument's interaction area. This current flowed into a coil and produced a force on the needle movement, rotating the needle against a spring. At the same time, another current - a time-reversed, phase-conjugate current - was induced in the atomic nuclei of the atoms in the interaction area. This "inner current" flowed Whittaker-wise through the atomic nuclei of the instrument, producing an equal and opposite force. [This is the mechanism that produces Newton's third law in the first place, as suspected by Feynman.] So the entire body mass of the meter recoiled slightly from an equal and opposite force, which we just loosely refer to - and recognize as - Newton's reaction force. It's there, it's real, but we completely neglect it in our electrical measurements Usually we don't think it had anything to do with the external entity that interacted with the voltmeter. But it was a product of the same interaction of that external "something" within the meter. It's equal and opposite to what generated our electrical measurement. So exactly as much energy was produced in the "reaction force" energetics as was produced in the "external meter needle force" part of the interaction. We only measured and accounted for half the true energy of the interaction, or else you've got to discard Newton's third law.

It follows that what actually entered into the interaction was a system of oppositely paired forces - a

stress field, which is a scalar potential. This, of course, is consistent with our observation that vacuum itself is pure potential. As such, it consists of partial potentials of various kinds - it's highly charged, and the ambient vacuum scalar potential has very high magnitude. Remember that this ambient vacuum stress (potential) can be decomposed into sets of bidirectional forces. In our EM interaction, one-half of the stress pair - the half that is the normal photon-generated EM force was utilized to move the conduction electrons, involving primarily the electron shells of the atoms imbedded in the vacuum potential. The other half of the stress-pair interacted with, and moved, the atomic nucleus, causing it to recoil. The recoil of the nucleus was slight, because it is very, very much heavier than the accelerated outer electron.

To sum it up All detection is actually binary, it's not singular at all. When we detect photons or EM waves, we normally account for only the externalized translation part of the energetics of the interaction. We miss or neglect the internalized translation part, and we miss or neglect precisely as much internal energy as we account for externally. Again, I'm not the first one to point this out by any means.

**Question** Can you give us a precise summary statement of all this?

**A:** At the interaction area, a part of the instrument and the external causal agent are coupled together as a compound system. In that area, the mass of the instrument exists as atoms, each of which has an inner part (the nucleus) and an outer part (the electron shells). In the coordinate system centered on that compound system, conservation laws apply. The compressive stress of the interaction reacts internally - i.e., against the atoms with their inner and outer parts. Reaction from the nucleus induces a tensile stress. This tensile stress, in the simplest case, can be decomposed into equal and opposite forces, since stress is merely a set of such equal and opposite forces. One of the bidirectional interaction forces moves externally out of the atom via the electrons, electromagnetically producing a conduction electron current through the instrument and giving a needle reading. The second bidirectional interaction force moves ever inward, since it is a phase conjugate and reconcentrates inward ("crawfishes") rather than scattering outward. This forms a hidden Whittaker current through the atomic nuclei, producing a recoil on all of them. Precisely as much EM energy went into the inner system as went into the outer system. But we normally only measure and account for the external energy, and ignore the energy in the internal channel.

**Question** Can you give us a reference related to this, for example?

**A:** I'll give you several of them that bear directly on this. See R. Chen, "Cancellation of internal forces," American Journal of Physics, Vol. 49, No. 4, Apr. 1981, p. 372. Chen gives a discussion of these summation vectors and internal vectors. He points out that the internal forces occur in equal and opposite pairs; in other words, as internal stresses. That's certainly pointing out the internal, bidirectional force structure of a scalar stress - a scalar potential, if we're talking EM stress and EM forces. Note that this internal pattern is exactly what Maxwell's quaternion theory captured and retained, and that the Heaviside and Gibbs vector theory discards. Further, the quaternions captured the internal order of this internal force vector structure as well. Second, in a beautiful article Kidd bluntly states that all our measurement/detection is really binocular. See Richard Kidd et al, "Evolution of the modern photon," American Journal of Physics, Vol. 57, No. 1, Jan. 1989, p. 27-35.

E.T. Whittaker, of course, wrote the definitive engineering methodology of how to do all this with EM waves - how to infold the EM waves into a bidirectional wave structure that produces a standing wave of externally force-field-free scalar potential. The two Whittaker papers are (1) "On the partial differential equations of mathematical physics," *Mathematische Annalen*, Vol. 57, 1903, p. 333-355; and (2) "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," *Proc. Lond. Math. Soc., Series 2*, Vol. 1, 1904, p. 367-372.

Now these hidden internal wave structures exist in all scalar potentials, whether they are electromagnetic or not. For example, Ziolkowski has pointed out what is actually Whittaker's 1903 infolded bidirectional planar waves inside the acoustic scalar wave, in work on acoustic missiles. Acoustic missiles are slugs of very strong sound energy that stay together in a slug as they travel, and strike a target a terrible blow, just as if it were a "missile made of sound energy." [See Richard Ziolkowski, "Localized transmission of wave energy," *Proc. SPIE Vol. 1061, Microwave and Particle Beam Sources and Directed Energy Concepts*, Jan. 1989, p. 396-397. Ed.] A Soviet scientist, Ignatovich, has pointed out the same remarkable bidirectional wave structure inside the scalar potential associated with the Schroedinger wave equation itself. [See V.K. Ignatovich, "The remarkable capabilities of recursive relations," *American Journal of Physics*, Vol. 57, No. 10, Oct. 1989, p. 873-878. Ed.] And I've pointed out a mechanism by means of which you can make a quantum potential, so that separate things - even widely separated - can interact as if they were all pieces of the same system, and all located together at the same location. Further, I've pointed out that you can deliberately structure that quantum potential with a Whittaker bidirectional wave structure.

**Question** Can you make that last part a little simpler?

**A:** What that means is that in QM, there's a special kind of potential you can make, that can connect spatially separated things and translate energy between them, in hidden fashion and essentially instantaneously. This "connection at a distance" directly results in action-at-a-distance. I've advanced the mechanism for making one of these quantum potentials, so it is subject to laboratory test. Further, in that artificial quantum potential you make, you can put in a hidden EM wave Whittaker structure - hidden "pipes inside spacetime" itself, so to speak. Then you have established hidden EM-wave-energy channels through spacetime, connecting widely separated entities together. You can then put energy and specific energy patterns - vacuum engines, if you will - directly through those hidden channels. You can have the hidden energy emerge at a distant point and interact in and on a distant physical system there. This distantly-emerging interaction energy can be positive (disordering, or scattering) or negative (reordering). Transmitting scattering energy, you get distant heating - the production of heat energy at a distance. Transmitting reordering energy, you can extract energy from the distant object or system through those hidden channels, accomplishing distant electrostatic cooling.

The other thing to note is that EM energy transmission through the hidden channel is not limited to the speed of light. The speed of light refers to energy transmission through 3-space, and the internal channel refers to energy transmission around 3-space, or in other words, through hyperspace. And it's testable on the laboratory bench.

**Question** Are you saying that real energy can be transmitted faster than the speed of light?

**A:** Yes. But hyperspatially. Not through 3-space, but "around" it.

Again, this means that it's possible to produce energetic changes in a distant system at a distant place, without transmitting energy "through space" in the normal sense. You transmit "around" space, so to speak, and directly in time or through a higher dimension, depending on the model you're using to understand this. Further, the speed of the internal EM energy transmission is not limited to the speed of light. Whittaker already specifically pointed this out. Quantum mechanics also predicts instantaneous action-at-a- distance and has essentially proven it experimentally. Finally, you can specifically Whittaker-engineer this "hyperspatial" transmission, if you will, to do essentially whatever you wish to do in that distant system. It all depends on how far you develop the technology; the basis is there. Hypothetically, you can eventually even develop a kind of teleportation. Whittaker transmission through the internal channel is already "teleportation" of energy, so to speak.

**Question** Does this have anything to do with Sheldrake's morphogenetic field?

**A:** Yes indeed. Sheldrake's morphogenetic field is pure-and- simply a species quantum potential, created amongst the members of a species. As experiences are met by the individual members, they steadily input infolded EM structures into the "inner" EM channels of that quantum potential. Since any infolded EM wave has its phase conjugate - or time-reversed replica - produced and infolded automatically, a sort of "negative feedback" corrective EM signal pattern for all inputs of the bad external EM stuff exists inside the quantum potential. One can show that, for detrimental changes to the species' members, time reversal provides infolded signals that represent an exact counter to the "overstress of the species," so to speak. These "corrective antidotes" for the overstressed species, however, are in the virtual state. But as more of the same detrimental changes are experienced over generations, the countering signal structures residing in the species quantum potential will be increased over the same period of time. Gradually the hidden EM structure - which is like jillions of little "vacuum engines" - is changing and internally structuring the Schroedinger potential for that species.

Then one day the internal corrective charge is sufficient to breach the quantum threshold. One could also say that the spacetime potential occupied by the species members is now sufficiently curved and structured to serve as a specific- signal-pattern energetic source for genetic change. Breaching this threshold causes specific new genetic changes to occur in the entire species in a single jump. At that point, the actual genetics of egg fertilization (conception) is altered, and shortly thereafter members of the species start being born with the new change, specifically designed to counter or partially counter the former detrimental aspects in the species overstress. In a dramatic example, that's how a reptilian species can "suddenly" develop light, air-filled bones; feathers; and wings, for example, and change from a reptile to a bird in one single jump. Sheldrake's morphogenetic field is a species quantum potential and the charged-up Whittaker structure is the inducing agent.

**Question** You're saying, then, that living systems use this inner, hidden EM energy channel in addition to the external energy channel that we know in ordinary external electromagnetics?

**A:** Absolutely. In fact, the distinction between a living system and a nonliving system is precisely the fact that the living system deterministically utilizes the inner EM energy channels inside

Whittaker-structured scalar potentials. And those scalar EM potentials are centered on the atomic nuclei of atoms comprising the living system's molecules, cells, tissues, and mass.

**Question** How does that relate to present brain-wave research, and measurements of brain-waves electromagnetically?

**A:** It says that present research is devoted almost entirely to measuring and pondering the surface waves in the ocean, so to speak. The mind, thoughts, emotions, and real living functioning systems are deeply hidden, underwater waves in that ocean. Science will have to instrument for detection and recording of the hidden interior energetics region, or they will never solve the mind/brain/body problem. And without the interior energetics, they will never understand life, memory, personality, thought, and primary biological control, or human intent.

**Question** You are saying, then, that this hidden internal electromagnetic energy channel is intimately connected with the mind, life, and personality?

**A:** Absolutely. The mind consists of stabilized Whittaker structures inside the living system's bio-potential. Thoughts are a special class of changes/waves in that overall Whittaker-structure ensemble. The personal unconscious is a single small, localized sample of yet a greater collection that represents even deeper unconsciousness.

The conscious mind is a serial processor - one thing at a time. The unconscious mind is totally conscious, but it is a parallel processor - jillions of things at one and the same time. The serial conscious mind can only make sense of a "single slide in the slide projector" at a time. When it looks at the unconscious mind, it sees a multitude of slides in the slide projector simultaneously - hence it just sees blackness, or nothing recognizable at all.

Jung's collective unconscious, for example, consists of archetypal infolded EM structures acting in common in an overall bio-quantum-potential for the entire species. Gaia, the living earth/biosphere, really does scientifically exist as a common bio-quantum-potential with infolded living EM structures for the entire earth biosphere. The bio-potential in a single body is an overall quantum potential that links and joins all the atoms and cells of the body. The "spirit" of the biosystem, if you will, is its "living biopotential" - its living quantum potential. We already know that a potential is everywhere nonzero all the way out to infinity. So the spirit of the living system is - in the virtual state - everywhere in the universe - and everywhen as well. It's all a giant hologram, not only in space, but in spacetime.

The entire universe is everywhere alive, with everything. Note that if you simply examine the "ghost forms" requirement of quantum mechanics, this conclusion is inescapable. All life is eternal. Nothing is ever lost.

A thought or thoughtform is just a specific, dynamic Whittaker structure in the hidden EM channels of the biopotential. Thoughts and thoughtforms are real. They are virtual spatially, but they occupy one "real" spacetime dimension, time. Physics and metaphysics share one common, nonobservable dimension time. So long as physics continues to have to have time, which is nonobservable a priori,

then it also must contain everything that is a structure or action in time. Skeptics of parapsychology, who believe that humans are robots and the mind is just a meat computer, just have little or no foundations knowledge. And if you get carried away by the "observable, objective science" bit, remember that the choice of fundamental physical units in physics is arbitrary. You can - and it's actually been done - build all of physics from time as the single fundamental unit. That means that you can build the whole observable, detectable physics model out of the totally unobservable and nondetectable. Quantum mechanics long ago destroyed materialism for all time, but it just hasn't percolated through the prevailing scientific dogma yet.

With Whittaker EM engineering, you can conceivably "make" thoughtforms to order, and input them directly into the mind and longterm memory. If we view the conscious mind as a special serial computer, we have now found where the software is - for mind, longterm memory, and personality. As scalar EM technology develops, we will have direct access to the software, so to speak, for the very first time. And we will be able to engineer it at will.

**Question** But is this good or bad?

**A:** Actually it's either, or both. We are describing a set of hidden internal EM energy structures, the fundamental mechanism for internal EM structuring, and a tool. A tool is amoral; it has no morality, and is inherently neither good or bad. The intent of the user of the tool, however, may be either good or bad. So the tool can always be used either way, for beneficial purposes or for evil purposes. It's the hand that wields the knife that is moral or immoral; it is not the knife. The same cutting tool can be used by the surgeon to heal, or the murderer to kill. Human intent differentiates amorality into morality and immorality.

**Question** What is the biological impact of the forthcoming new technology that directly accesses and engineers the internal energy regime?

**A:** It will be both a tremendous blessing and a terrible curse. It's the most powerful tool ever conceived. By engineering the Schroedinger equation, for example, one can theoretically engineer physical change itself. One can actually engineer physical reality, change the laws of nature, and determine if a thing shall even emerge into physical quantum change at all, or if it shall change its physical form. Mind-wise, eventually one will be able to directly input material into the mind - whatever is desired. Education, for example, will simply be achieved by "loading the proper software." Everyone will be enormously educated, by today's standards. That should for the first time allow the complete alleviation of unemployment due to lack of employable skills, for example. It should be possible to virtually eliminate unemployment and poverty. Any sort of disease whatsoever - physical or mental - will be rapidly curable, simply and cheaply. It will be possible to reverse aging and rejuvenate the person. It will be possible to regrow limbs and straighten misshapen spines - and directly remove the causes of mental diseases and cure them as well. Lifespan will be staggeringly increased, without "old age's debilitation." AIDS, cancer, leukemia, and genetic diseases will be completely conquered. The potential for a true golden era is upon us, for all humanity.

On the other hand, it will also be possible to simply pull out a personality-structure from a person, without his or her consent, and insert another. Or to alter a given personality structure by just altering

and re-recording the software. This technological possibility, of course, will certainly be noticed by would-be egomaniacs and dictators, for it can yield the ultimate mind control. It will also be possible to provide direct input inside the mind, surreptitiously, from a distance and without the knowledge and consent of the individual affected. This can be beneficial if it's just "instantaneous telepathy" - instantaneous communications, so to speak, and if it's desired by the recipient. It can be highly detrimental if it is undesirable material, or if it's a forced internal change, or enslavement, or used to overwhelm and destroy the mind, or used to jam the body's immune system, induce virulent diseases en masse, etc. Unless the present inhumanity of one human for another is overcome, future wars are likely to take on aspects that stagger the imagination. In 1975 Brezhnev called these new mass destruction weapons of the future "...more frightful than the mind of man has ever imagined." He should know. When he made the statement, the Soviets had already been inducing diseases in persons in the U.S. Embassy in Moscow for nearly 30 years.

**Question** Can you explain that part about direct, forced input to the mind, just a bit more?

**A:** Yes. It involves a characteristic of the mind and brain that has been experimentally shown. For example, if anything (thought, feeling, emotion, image) arises internally in one of the cerebral hemispheres, that hemispheric personality thinks that it did it. That is, it thinks that it not only thought the thought, but that it also created the thought. So if you have a hidden channel to pipe in inputs, you can take over or implant the thoughts, behavior, and actions of a person. Or of a very large group of persons. That alone allows a mind-numbing direct control of behavior externally and from a distance.

**Question** Can you really control behavior electromagnetically? Can you give us an example?

**A:** Yes, you can control it readily and deeply, if you develop and utilize the internalized EM energy channel technology. As to proof, Delgado certainly has demonstrated profound control over animal behavior experimentally, for all the world to see, using implanted probes and precise injection of EM signals. The Soviet LIDA machine, using a 40 MHz carrier and complex waveforms - and actually the hidden Whittaker-infolded EM structuring, unknown to Western technologists - has demonstrated the ability to place a mammal - either a human or a cat - in a cataleptic state. That state can be induced in a few minutes exposure and then persists for some minutes after the stimulus signal is removed. That proves that you can profoundly alter the mental state, electromagnetically.

Perhaps the very best example is provided by the two cerebral hemispheres in your own head, or those in a rat, or those in a cockroach. As we know from split-brain research, each hemisphere has a separate personality. That's a separate being, if you will, to put it bluntly. Yet even though you are two beings in one body, so to speak, you are only conscious of one being. How is that, you might ask, since both brain halves are operating? How do you integrate two beings consciously into one functioning being? Such as is already done in your own head?

The answer is this. Suppose your left brain sends a signal to your right thumb to move. While the signal is on the way to the right thumb, the left brain also sends a replica of the signal over the connecting corpus callosum, into the right brain half, where it emerges inside. [When the signal emerges inside a brain half/mind/personality, it thinks that it itself originated it. That's because it

perceives no time delay between appearance of the signal in its "transmission" section, e.g., and the appearance of the signal in its "receiver" section.] The ultimate definition of identity, after all, is the absence of all distinction. The absence of functional distinction in time constitutes the creation of identity in time. The whole arises when and only when distinction between the parts is lost.]

The right thumb is continually communicating back to the left brain half, telling its progress. Replicas of those return signals from the thumb are continually being sent by the left brain across the corpus callosum into the right brain. The right brain thinks that it originated the thumb- move-order, and that the right thumb is reporting its progress. The right brain thinks it did the whole thing itself. A similar process occurs, of course, from left brain to right brain. Each inputs to the other, at least insofar as awareness of the order and the event is concerned. Each thinks that it did it. In that way, there is a loss of distinction between the parts of the functionality. Accordingly, there is only one sense of being in the bi-system, even though there are two separate beings.

It has also been shown that, when the corpus callosum is severed, the two brain halves now function much more independently. In that case, two separate personalities really do emerge and function in one body. That also has been shown in the laboratory.

**Question** But aren't you actually saying that the mind and thought, then, are not really just electrical wiggles in the brain after all? That they are actually separate from the physical brain, and the brain is just a special sort of tuner or "workstation"?

**A:** Exactly. The real functioning of mind, thought, memory, and personality occurs in the infolded Whittaker bidirectional EM wave structures of the overall body's scalar potential - its bio-potential. And one of the great neural scientists has already pointed out that mind and memory are not precise functions of physical location in the brain.

**Question** Is there any real proof of the internal energy channel operation of the mind, or is it just all still a theory or hypothesis?

**A:** The basis can be shown, and it is directly subject to laboratory test, with a decent laboratory and a little effort. Let me give you a very strong datum point.

There exists a rare, completely bafflingly medical phenomenon - which has until recently been concealed - called hydrancephaly. To the normal materialistic Western biologist, this condition is astonishing, to say the least. In hydrancephaly, a person's cranial cavity is filled almost totally with fluid, not with brain matter. There may be only 5% or so of the brain in there; typically just the small portion on the tip of the spine. The other 95% of the brain case is filled with fluid. Yet the individual may be as normal as you or I. Except, of course, that x-rays of his head will astonish all the doctors. A few years ago, for example, such a hydrancephalic individual graduated from a university in Great Britain, with a degree in mathematics. British news actually made a video documentary on this subject, and particularly on that individual.

Now obviously hydrancephaly proves rather conclusively that it isn't really the brain matter or the electrical wiggles in the two hemispheres that constitute the mind. Those wiggles normally are

correlated with, and communicate back and forth with, the internal Whittaker dynamics of the bio-potential. The brain is a special communications and processing station, interfacing sensors and processed stuff from the external world to the Whittaker-sets, and outputs from the Whittaker-sets to the body and cells. If just a small functioning part of this "way station" remains fully functional, the interfacing still exists.

**Question** Can you shed any light on the functioning of the fluid that fills 95% of the brain cavity of a hydrancephalic?

**A:** Perhaps a little bit. There's an interesting thing about fluid - about water. The hydrogen bonding structure of water is enormously complex and richly varying. Bond- structuring of water constitutes a special kind of "neo- Whittaker" substructure inside a special kind of potential for that particular body of water. A glass of water, for example, has an overall neo-potential comprised of its hydrogen bond structuring. That water will change its internal bonding structure if you enter the room, or if you blink your eye while observing it. It continually adjusts to everything in its surroundings. The reason is, everything in its environment has charges, and clumps or orderings or structures of potential. And the internal Whittaker structures of all those potentials overlap because the potentials overlap. Therefore the internal bidirectional Whittaker EM waves intercommute. The internal dynamics of the water receives inputs from the surroundings this way, and the water's bonding structure changes accordingly. We've only known the complexity and richness of this water structuring for less than two decades, and so far as I know, no one else seems to be considering the Whittaker infolded EM wave structure aspects of it.

The point is this In the fluid inside the head of a functional hydrancephalic, the water structuring is quite sufficient to provide the rest of the needed "way-station two-way tuner, processor, and transmitter-receiver." The reason is quite simple The potential of the fluid constitutes a partial potential in the overall bio-potential of the body. It's like the pressure of a mixture of gases the overall pressure consists of the partial pressures of the component gases. The Whittaker structures ensure intermingling and intercommunication through the internal energy channels of the total bio-potential to all its constituents. Therefore the water structuring of the fluid in the head of the hydrancephalic serves - bridgewise - as a substitute brain.

Other supporting evidence, of course, is that quantum mechanics experiments have essentially established action- at-a-distance and quantum correlation. The quantum potential, therefore, is something real and functional after all.

And even more evidence is provided by the nature of a linear material versus the nature of a nonlinear material. However, that would take a book, and is just too much to cover in this interview. Suffice it to say that a strong argument can be made from the nonlinear characteristics and phenomena themselves, such as production of time-reversed waves, amplification of time-reversed waves, negentropy (re-ordering of scattering energy), etc.

The bottom line is that there's certainly enough evidence to substantially support these hypotheses, and move them from the realm of idle speculation to the realm of "worthy for further experimentation and development." The ultimate proof, of course, will be when one demonstrates the actual

production, recording, and functioning of a living mind. With the internal energy approach, that is hypothetically quite possible, and will eventually be lab-demonstrated.

**Question** How is this related to the neurons, synapses, and dendrite firings in the normal human brain?

**A:** The same "internal electrical structure" thing is true of the brain and its dendrite firings, EM waves, and tiny but extremely numerous currents and fields. Take an instantaneous snapshot of all the dendrite firings - billions of them - frozen for an instant. The actual pattern or structure represents the internal state of the brain's bio-potential at that instant. Take another snapshot a moment later. The change of the internal structuring represents the brain's internal structuring at a new moment. Interfering (subtracting) the two snapshots provides a delta that represents the exact and total change that occurred in the brain-state during that tiny interval between snapshot one and snapshot two. But since thought itself is a change in internal brain-state, then the thought patterns during that interval must be contained in those changes. And of course a myriad of other brain control actions are in there as well. Commands to beat the heart, direct biochemistry of cells, etc. To detect the internal state precisely, one now needs to decompose that delta pattern into its Whittaker-structure components and sort them all out.

**Question** How would one go about detecting the internal state, to get at the actual thoughts themselves?

**A:** Well, one has rather much got involved with the standard chaos problem. You've got hidden order (the thoughts) buried up in a lot of extraneous material. In other words, you're looking at something statistical, and it's got several kinds of hidden order hidden in there in what to you appears to be a whole lot of noise. So you do something very similar to what we described in the snapshot analogy, but apply Whittaker-channel detection at the same time. Actually, a first step in this direction has been beautifully done by Dr. Hunt. She divided the external brain-wave region into several frequency bands. (Actually, harmonic intervals are best, per Whittaker theory.) She set up individual detectors for all the frequency channels simultaneously. Then she divided each of these channels in two branches one branch straight through without a time delay, and the other delayed by a bit, say, 6 milliseconds or so. Then she mixed all the delay channels onto all the nondelay channels, and recorded the superposition. And lo and behold, she got beautiful traces of hidden chaos in brain wave activity. The traces exhibited the standard chaos attractors. Her magnificent work is very strong evidence that the real activity of the mind occurs in hidden variables, in hidden channels inside the normal "envelope/external electromagnetics" represented by normal brain wave measurements. Hunt has shown that there is a hidden, deterministic, dynamic order "inside" the normal statistical EM brain activity.

Over two decades ago, a Russian scientist, Lisitsyn, obliquely spoke of Russian breakthroughs in this area. Lisitsyn stated that the Soviets had "broken the human brain code." He further stated that some [23 channels were involved](#), reaching all the way up to optical frequencies. However, only 11 of these frequency channels were independent. He also mentioned that the brain coding did not number over 44 "digits".

Now I interpret his remarks as indicative of direct application of Whittaker theory. [Lisitsyn](#) of course did not give the details; that's highly classified in the Soviet Union, as witnessed by the Petukov/Toth incident in Moscow. However, I interpret Lisitsyn as having obliquely referred to 11 independent Whittaker frequencies - the fundamental frequency and 10 harmonics - that are used by the brain workstation to intercommunicate between the mind and the external electrical/physical functioning of the organism. I interpret the remark about 44 digits to probably mean that there are some 44 different independent Whittaker spectrum sets, where each spectrum consists of the fundamental and 10 harmonics. And in each frequency channel of a set, there are two bidirectional EM waves - actually, an EM wave and its time-reversed antiwave (phase conjugate replica).

**Question** Can you tell us something more about detection of standing scalar EM potential waves?

**A:** For fundamental detection of the scalar wave, you must realize that several kinds of detectors can be utilized. One kind is a spatially-oriented detector, and detects spatial aspects and changes of the scalar wave and its internal substructure. The other kind detects variations in the local rate of flow of time, and then the "finer time wave structure" of that variation. With either type, the problem has two parts. Let's look first at the spatially- oriented detector.

First, one must detect the absolute potential at the point of intersection. Second, in this detected potential, one must detect its internal, infolded EM bidirectional wave structure - in short, its Whittaker structure. An additional requirement, of course, is that the instrument must be shielded against the effects of spurious EM signals in the area. In short, it must be in a Faraday cage. Even more than that, one must be able to vary the grounding potential on the shielding cage. One must be able to let it float, have it at ambient, or move it to some specific value.

A Geiger tube, for example, will usually detect a strong absolute potential. That is, the potential increases the charge on the atoms or molecules of the gas it contains, and at the ionization point, the gas starts to ionize. The counter, of course, then counts the ion discharges, whose rate is correlated to the level of ionization, and hence to the strength of the ionizing agent. Note that Geiger tubes do not necessarily detect nuclear radiation; they detect ionizing radiation, regardless of the type. While nuclear radiation is certainly ionizing radiation, so is strong scalar radiation. Even though the scalar wave is a standing wave, its increased level of potential can ionize the gas in the tube. Of course, if the standing scalar potential wave is a sine wave function of the radial distance from the source, and the Geiger counter is at the node, it will not read because there is no difference there from normal ambient vacuum potential.

Note also that the so-called "microwave radiation" of the U.S. Embassy in Moscow was detected originally with a nuclear radiation detector - probably a Geiger counter. Pure microwaves are non-ionizing, and would not have activated the counter. Shortly I will have a new book out, [Gravitobiology A New Biophysics](#), which will explain precisely how the health changes in the Moscow radiation were induced in U.S. Embassy personnel. In the book we will also explain Kaznacheyev's "death photons" and the EM induction of disease at a distance. We'll also explain the mechanism for producing an EM antidote signal for any disease, known or unknown.

The problem with the Geiger counter as detector is that it only accomplishes half the job, even when

it works. It doesn't break out and measure the Whittaker bidirectional EM wave structure of the ionizing potential at all.

Here is a possible scheme for a better detecting system. Use two detecting probes, some small distance apart, inside the shield. At each probe point, use a high input resistance, very low voltage detector - microvolts or picovolts range, normally. The signals should then be mixed and another difference frequency detector of similar kind utilized. Under proper circumstances, this produces a normal EM beat frequency (via the Aharonov-Bohm effect). The second stage of the detector can then come into play. The beat frequency is input into a standard spectrum analyzer, which should detect the components of the Whittaker spectrum as modulations on the detected Aharonov-Bohm effect beat frequency.

The disadvantages of this detector are two-fold. One, the actual ground potential at which the shield is biased, affects whether or not you get a detection. Second, it's basically a very short wavelength detector for, say, millimeter waves to waves in the one meter band. That should be good enough for scalar communications research, however, and the Soviets have reported highly significant biological effects of the Lisitsyn kind at about 2.1 millimeter wavelengths.

For longer wavelengths, one has to either have rather widely separated instruments operating in a bistatic reception mode, for the scalar interferometry, or else use delay- materials and schemes in probes. Another way that can be worked out is to use a characteristic of nonlinear materials. If a sine wave is input to a nonlinear material, harmonics are produced. By tailoring and choosing the materials, one should get appreciable frequency shifting up the scale via harmonic production.

Another way is to realize that a standing scalar potential wave can also be considered as a standing wave in the rate of passage of time. So the presence of a scalar potential alters the local rate of time passage. But since it alters time flow, it affects everything else that locally exists in time - and that's everything. More exactly, there is a stress effect on the rate of flow of time. And there are certain detectable functions that occur in detectors and solid state components, for example, that occur because of the time stream stress changes. I cannot be more specific, because the effects I know about here were discovered by John Schnurer and are proprietary to him. But John can build a detector based on this effect, at least for the overall potential. It remains to develop detection of the EM substructure and its spectrum, and he will have a very good scalar EM system detector.

Other things very useful in developing detectors have been reported by Hunt, Bedini, Beck, Howonadec, Golden, and others. Golden particularly has a very good scalar communications detector, and several good scalar communications transmitters. One of his typical detector systems, for example, will perform between 20 and 30 dB better for a given power transmitted than will a normal communication system with high gain antennas. And, since the detection of scalar involves unfolding the inner energy spectrum of the Whittaker structure, a direction finder cannot get a direction fix on the signal transmitted via the scalar system.

Beck has certainly demonstrated an extremely sensitive coil of ultrafine wire, that can often outperform the finest superconductive quantum interference detector (SQUID). The use of extremely fine wire - and lots of overlaying coils - drastically reduces or blocks the radial movement of

electrons in any one point in the wire in the coil. Since that's the way electron current actually moves - the movement down the wire is due to drift velocity, and certainly is not the signal - Beck's coil effectively prevents most of the "external electron bleedoff" from the stabilized scalar potential. Thus he's able to block most of the external electromagnetics, and thereby retain the inner part as well. Precisely, his coil is now using gravitons, not photons, to a significant degree. So the coil as the interaction area of an instrument is able to hold and pass some of the internalized EM energy that normally escapes into and through the nucleus only. At the output of the coil, Beck gets EM from this internal component that the SQUID doesn't see because it doesn't do the escape-blocking in its interaction area.

There are other detector schemes, of course, such as holographic interferometry, but this should give you an idea of some of the things that have to be done to perform good laboratory measurement of scalar electromagnetics.

**Question** Could you return to your discussion of what's wrong with present electromagnetics, quantum mechanics, and general relativity? Perhaps you could address them in order.

**A:** Okay. I've already stated the case for electromagnetics. Half of it - the really interesting part, the internal energetics - was discarded by Heaviside and Gibbs. By discarding the scalar component of the quaternion, they threw out the internalized EM energy of local spacetime and its communication with distant spatial points. Since the localized energy density of spacetime is essentially synonymous with gravitational potential, they threw out the ability to turn EM force field energy into gravitational potential energy. They threw out the interaction and entanglement of EM and gravitation, and wrote the special subset of Maxwell's theory that is restricted to the case where gravity and electromagnetics do not interact. As a subset, their work is perfectly okay. However, a priori you will never use their approach - nor the applied technology that follows its principles - to produce electrogravitation, over-unity machines, tapping of vacuum energy sources, etc. You will never electrically change the inertia of a body at rest, structure the electric and magnetic flux itself, or achieve and utilize action at a distance. And your instruments developed in accord with the Heaviside/Gibbs EM principles will never detect or measure the mind, thought, and emotion - for those instruments a priori discard and ignore the internal energy arena where mind, thought, and emotion reside and function. And since the externalized EM energy is scattering energy, energy once scattered will produce entropy - increased disorder, and only the positive flow of time. And that science and technology will never be able to translate EM energy into G- energy and vice versa. Every system built under its principles will be at extreme best a "break-even" system. It will never produce more energy out than is input in. It is at best a diode engineering technology.

**Question** What about present quantum mechanics?

**A:** Quantum mechanics has a severe foundations problem the missing chaos, or in other words, the problem of the missing hidden order. Let me explain how that came about. When physicists were constructing quantum mechanics, it was of necessity a statistical theory. They simply lifted the Gibbs thermodynamics statistics, and utilized it as the quantum statistics. Furthermore, Gibbs statistics was based on the theory of the random variable; that is, the variables were considered random. So, because random variable statistics were utilized, the QM postulate that "quantum change is

statistical" was over-restricted to the special case of "quantum change not only is statistical, but also is random." The second case, "quantum change is statistical, but can contain hidden order and be nonrandom," was thus excluded a priori, simply because of the statistics utilized. Now the random change hypothesis is easily falsified, as follows: If you collect large numbers of random change, the resulting collection is still random. The next collection will not necessarily produce the same collection at all. (In fact, if it does, then this is *prima facie* evidence that the variables are not all random.)

What this means is that, if quantum change is random, then collections of these random tiny changes could never integrate to provide us the ordered macroscopic universe we live in and observe. You couldn't have a flower, or a tree, or anything, for that matter - just total randomness. Obviously that is not true, or else you and I do not exist and this macroworld does not exist.

For integration of the statistical quantum changes to yield an ordered macroscopic universe, quantum change must contain hidden order. That is, the variables must be chaotic, not random. If the changes are chaotic, then integration of them will see large scale forms emerge and stabilize - which is what we actually observe in physical reality.

So ironically, the biggest foundations problem in quantum mechanics today is the problem of the missing chaos! Try as they will, quantum physicists cannot find the missing hidden order, because they continue to use the Gibbs statistics that already excludes it. So they now know that somehow QM is wrong, and many of them fear that this most successful of physics theories will have to be completely redone.

David Bohm, of course, long ago pointed out that hidden variables could contain the hidden order. Actually all of experimental physics is consistent with his hidden variable theory (HVT). Mainline QM theoreticians, however, shun hidden variables (and therefore hidden order). They avoid hidden variable theory by applying a kind of Occam's razor: They say that Bohm's HVT seemingly predicts no new phenomena, so why adopt it at all, or even seriously investigate it? And since Bohm did not know how to actually engineer his hidden variables, nothing could be found experimentally with it that could not also be explained by the present QM.

Now this is where Whittaker's work - and Maxwell's original quaternion theory of EM - saves the day and decisively decides the issue. Whittaker's hidden variable theory is directly engineerable on the lab bench. It's testable, and when applied to quantum mechanics, it predicts hordes of new phenomena and effects, so it certainly gets by the old "Occam's razor" saw. When you apply Whittaker's approach to QM, again you provide testable internal EM bidirectional wave structures to the scalar potential, including the Schrodinger potential. Whittaker's work allows direct engineering of quantum change itself, and constitutes testable hidden order inside the "Gibbs statistics." In other words, application of the Whittaker work to QM produces a superset of QM, where the missing chaos is restored.

The postulate that "quantum change is statistical" now has three special cases, theoretically (1) the case where no internal order is present, and quantum change is random; (2) the case where some internal order, but not total, is present, and quantum change is already chaotic; and (3) the case where

quantum change is perfectly engineered and hence perfectly ordered and deterministic.

Notice that, by adding the hidden order and the internalized EM energy, we've now extended both QM and EM, and unified the two on a common subset each's Whittaker-applied subset, which is the same subset shared by the two.

**Question** So how about general relativity? How does it fit in?

**A:** A similar thing also happened to general relativity, believe it or not! Einstein unwittingly restricted general relativity to a subset of the theory he intended to write. This over-restriction was again an indirect result of the fundamental Heaviside/Gibbs error in electromagnetics.

Unfortunately, Einstein's view of electromagnetics approximated the classical view. In classical EM theory, EM and gravitation were mutually exclusive. That is, the strong EM force was not usable as an agent to curve spacetime.

Therefore, as a curvature agent, Einstein only considered the weak gravitational force due to the attraction of mass. Now the G-force is far, far weaker than the E-force. For two electrons, for example, the attractive G-force between them is on the order of only  $10 \times 10^{-42}$  times as strong as the electrical repulsion. The G-force is very, very weak! If only the weak G-force is considered for curving spacetime, then there will never be an observable spacetime curvature, except in the immediate vicinity of a very large mass - such as on the surface of the sun or a star.

Einstein reasoned that the laboratory, and the observer/scientist and instrument, would never be on the surface of the sun or of a star. Therefore, he reasoned, the local spacetime -- where the lab, the observer, and the instruments are -- would never be curved. The local spacetime would always be flat.

Unfortunately, Einstein then made a fundamental error. He overgeneralized his thought examination. He stated one of his fundamental postulates of general relativity as "The local spacetime is always flat." This is overly restrictive, and did not follow from his thought process. His postulate can be more accurately stated as follows "The local spacetime is always flat, whenever only the weak gravitational force is used for the agent of curvature and the local region of interest is not near a large collection of mass."

Notice the difference in the two statements of the postulate. Einstein's overstatement does not allow the far stronger EM force to be used for curvature. In effect, his own overstatement excluded electromagnetics from curvature unity with gravitation, in his own general relativity theory. Ironically Einstein then tried for the rest of his life to fit electromagnetics back in there - never realizing that his own too-strenuous statement of the flat local spacetime postulate doomed all his efforts to failure.

On the other hand, the corrected statement of his postulate admits the following corollary "When a very strong force such as the electromagnetic force is used for the agent of curvature, the local spacetime may be curved, even though the local region of interest is not near a large collection of mass."

As can be seen, Einstein unwittingly wrote only a subset of his intended theory. Correct restatement of his overstated postulate of uncurved spacetime dramatically extends general relativity, and unites it with electromagnetics in a unified field theory.

Einstein's error also excluded the present general relativity from ever being a laboratory experimental science. If no detectable spacetime curvature is available locally, it obviously can't be measured in the lab. The vanishingly small local curvature waves following from mass-attraction gravitation are still predicted to be several orders of magnitude below the ability of the finest available detector. And that detector is a huge, monstrous, very costly thing. A priori, if the observer's local spacetime is always flat, there is no local experiment or local apparatus that involves or yields a curved local spacetime!

Unfortunately, Einstein's modern followers have raised Einsteinian general relativity to a dogma. They ruthlessly uphold the overstatement of the flat local spacetime postulate. Physicists who would dispute it - and quite a few would do so - are essentially barred from obtaining funding. If they persist with their heresy, their scientific stature is lost, and they are ostracized and cut off economically. Simply read Santilli's book, if you wish a clear inside picture. Contrary to the scientific propaganda, orthodox science is ruthless in defending its doctrine against all would-be heretics. Much of science has been converted to a religion, instead of a science. Any person knowledgeable of scientific history can cite numerous examples of scientific suppression, character assassination, and essentially banishment. Gauss's nonlinear geometry, Wegener's continental drift, Mayer's discovery of the conservation of energy, Ovshinsky's amorphous semiconductors, physical therapy, the EKG, and the clinical use of hypnosis come readily to mind. Scientists form a distribution, just like any other group. Some of them are saints. Some of them are devils. The broad majority is neither, but is made up of just ordinary people like you and me, doing a specialized job. Every scientific model is known to be falsifiable and imperfect in the first place, if you believe Godel's theorem. Scientific method does not yield total truth anyway, by its own assertion; at best it yields a partial truth. By the Heisenberg uncertainty principle, every measurement distorts the entity with which the instrument interacts, changing what actually appears to be measured. Real scientists know that scientific models are progressive. For any model, sooner or later a better one, an improvement, will be found.

At any rate, when one looks at Maxwell's quaternion theory, the scalar component captured the ability to enfold and utilize the strong electromagnetic force to make a trapped potential filled with a structure of dynamic EM vector energy. However, if the translation components of the quaternion were zeroed, the system of trapped spatiotemporal energy did not translate spatially, but only temporally. That, of course, is a scalar EM potential without an external force-field gradient. Since it is really trapped energy that gravitationally attracts other trapped energy, then all potentials are gravitational - as is well-known.

In fact, in 1968 Sakharov pointed out that gravitational field is not actually a primary field of nature. Instead, it's always a conglomerate produced from other fields. If his hypothesis is true, then to the first order gravity should be composed of electromagnetics, since it's the strongest force we normally will be able to meet or utilize.

Maxwell's quaternions and Whittaker's profound two papers directly show that. They also show how to engineer all this on the laboratory bench. So the Whittaker scalar EM approach is testable, which

meets the major criterion for the difference between a hypothesis and a theory. Any decent university physics and/or electromagnetics staff who put their minds to it can test the approach.

**Question** Are there other physicists or scientists to whom we should also give credit for these things?

**A:** Yes. I'd like to mention that Nikola Tesla experimentally discovered the standing scalar EM potential wave on the night of July 3-4, 1899, in his Colorado Springs laboratory. He found it being radiated from a traveling thunderstorm. He recognized it as an "electromagnetic sound wave". This was four years before, unknown to the world, Whittaker wrote and published the precise theory for that same electrogravitational wave. Tesla always stated that, in the remarkable systems he later referred to, he was not using Hertzian waves. Rather, he pointed out, he was using EM sound waves - which must be modeled longitudinally. Today we know Tesla was correct - and all his detractors were wrong.

I'd also like to point out the patents and work of Hooper. Hooper seems to be the only physicist who ever methodically investigated EM stresses, structuring of those stresses, and the gravitational implications of those stresses in the laboratory.

I'd like to also point out Sakharov, and honor him for his clear statement that gravitation is not primary, but is a conglomerated field made from other fields. One should also point out the explosive progress made in stochastic electrodynamics as a result of Sakharov's suggestion, by Hal Puthoff and others. And one should definitely honor scientists such as Peter Graneau, who have struggled to point out the foundations problems of electromagnetics and experimentally back up their findings.

And finally I'd like to mention that I've been privileged to work with some extraordinary inventors. In deference to their requests, I will not give a straightforward list of them at this time. But a great deal of any insight I may have gained is in large part due to painstaking, maddening, persistent experiments they have done in the thousands. We will have more to say - and powerfully - about their actual contributions at a later date, hopefully later this year. Lots of other brilliant inventors - Moray and Sweet come readily to mind - have also struggled in this field and produced astonishing and unrewarded results.

**Question** Can you spell out again what effect excluding the internal EM energy had on physics, as simply as possible, and how that is related to vectors?

**A:** The thing that casting out the internal order and internal structure of the local ST does, is to remove any consideration of hidden, deterministic variables that could be manipulated to create and control quantum change itself.

As can be seen, then, in the physical world scalar quantities are very often really zero vector systems, where the "scalar" or motionless system is actually filled with hosts of smaller "vector" things in violent motion. We have to be very careful, therefore, when we apply mathematics (which does not decompose fundamental scalars into vectors, or identify them as vector zeros) to a physical situation. To use an extreme example, two elephants pushing strongly head-on against each other may produce a "two-elephant" system of opposing forces (vectors), where the system is stationary. The system is

thus a zero resultant vector system, whose motion is represented by a vector zero. The same would be true for two fleas pushing against each other and not moving as a system; the system would be a zero resultant vector system, whose motion is represented by a vector zero.

And here's where the mathematics betrays us, if accepted unquestioningly. In vector analysis, all vector zeros are identical. Here we are saying that the translatory motions of the flea system and the elephant system are the same. That's true, but there's a whale of a lot of difference in the two systems that must be accounted for physically! If you don't believe that, put yourself in between the two pushing elephants, and see if that's the same as being between the two pushing fleas! You'll certainly notice a lot more stress on you from the elephants than from the fleas.

That illustrates a fundamental problem with vector analysis. In the concepts of the math itself, one conceives a "vector space" as a sort of "place where one can put vectors." Further, no matter how many vectors we put in there, or how they interact, the vector space itself is never under any stress. In other words, in that space, elephant-pushing and flea-pushing are identically the same. And that's the problem. When vector analysis is applied to physical situations, imbedded inside the mathematics of vector analysis itself is the absolute discarding of the stress of local space or spacetime, resulting from the interaction of vectors representing interacting motional physical quantities.

Now in quaternions, that is not the case. Quaternions that interact capture this "local stress of spacetime" and "locally trapped energy of spacetime" in the scalar component, inside it. When the motional parts of interacting quaternions produce a motionless or translationless state for the interacting parts as a system, the stress, energy, and exact geometric patterning of the interactants that are now locally trapped in spacetime is gathered in and accounted for. The motional aspect may go to zero, but the scalar aspect will capture not only magnitude but internal motion and the exact dynamic structure of that internal motion.

Quaternions already incorporate a beautiful hidden variable theory, analogous to Bohm's beautiful work. They incorporate two channels the external energy channel (which is addressed, for example, by classical Heaviside/Gibbs EM theory), and also a hidden internal energy channel (which is not addressed by Heaviside/Gibbs). Quaternions also incorporate hyperspatial aspects, since they are an extension to complex number theory. Notice that Heaviside had to stick back in complex numbers, to get his spatial vectors to unite magnetism and electricity. So he essentially added one extra dimension, typified by the first hypernumber, the square root of minus one. Quaternions already had that in there, and a lot more that Heaviside threw out.

**Question** Would you sum up how general relativity, electromagnetics, and quantum mechanics are unified by the Whittaker approach?

**A:** Yes. Applying Whittaker's work to each of the three, a superset of it is produced. The new superset has two subsets the present discipline and the extension containing internal EM energy and hidden variable theory. Since all three extensions are actually the same thing, then all three supersets superpose on the common extension set. Each of the present three disciplines is revealed to be a special case, which unfortunately omitted the unifying extension set. It's like a topless cardboard box that you've cut the bottom out and unfolded the sides separately. To be joined, those separate sides

need the bottom of the box. Whittaker provides the bottom. And it's testable.

**Question** Are there any other fundamental things from all this that you'd like to point out, that you haven't mentioned, that follow from the eventual development of this new physics?

**A:** Several. Please notice that Whittaker's work and the characteristics of Maxwell's scalar component of the quaternion allow the direct electromagnetic engineering of the vacuum. In fact, they allow the actually structuring and variation of massless electric charge flux itself. Now, in the new approach, one electron can be quite different from another, because its electric charge flux can be varied and patterned. Not only can its overall electrical charge be varied, but its charge can be dynamically structured. Now the charge of an electron or other fundamental particle can vary, and the charge flux of a single particle (or a group) can be spatially structured - or activated.

The activation concept, for example, allows an immediate and testable explanation of the mechanism by means of which homeopathy works. Recall what I said about water structuring and hydrancephaly. A chemical compound has a deterministic infolded EM Whittaker structure. If you make a solution of the compound, you change this hidden internal energy structure of the fluid. If you then get rid of the physical carrier - the mass of the original compound - and just leave the inner energy structure for that compound, you have homeopathy. Chemistry is totally due to charge and charge distribution. In homeopathy you're retaining the charge template in the potential, and that affects charges in the treated body just like the actual medication. In fact better, because you now do not have the "physical residue" to worry with, but do things directly. These new concepts are profound and controversial changes to the present foundations assumptions of physics and biology.

In the new approach, you can't just automatically apply random variable statistics. You have to apply chaos. In structuring the vacuum's virtual photon exchange with the mass of a charged particle, we have moved to a completely new and much more fundamental level of engineering. Now the massless virtual particle charge flux can be activated with a particular dynamic structure - a vacuum engine, if you will - to perform a special job. Or we can activate a local spacetime itself, curving it and internally structuring that curvature to our will. That locally curved spacetime then becomes a continuing, inexhaustible source of a specialized vacuum engine or engines. We can tailor the local vacuum so as to be able to violate any and all of the present conservation laws, not just two out of three as the present CPT theorem permits. Literally we can use the vacuum's incredibly powerful flux to produce localized vacuum engines. We can reach directly into the atomic nuclei with magic, gentle, accurately controlled fingers.

We can for the first time begin to do actual tailoring and engineering of the nucleus itself. We can further directly collect and integrate virtual state energy forms, which in QM are called "ghost forms." Literally, eventually anything at all can be materialized and brought into physical reality, or dematerialized so as to disappear from physical reality. And we shall be able to engineer and change the local laws of nature, since we can directly engineer and control the Schroedinger equation, the quantum potentials, and the entire local vacuum potential in all its partial potential parts.

Whether we're ready or not, God has now seen fit to hand to humankind the ability to engineer its own physical reality and its own destiny. We can make of the new engineered reality a heaven or a

hell. Whichever we do, we will reap the benefits or face the consequences. It would indeed be wonderful if, for the first time, we could develop this powerful new tool to save humankind rather than destroy it.