

BREAKING THROUGH EDITORIAL



The Limits of Discovery

Bill Zebuhr

A century ago the pace of discovery of new science and technology was intense. Quantum mechanics and relativity were being formulated, new discoveries about the nature of matter were frequent and many practical engineering discoveries were being made from radio, telephone, electric power, light bulbs and cars to airplanes and medicine. Then computers were starting to be developed in the 1940s, the transistor was invented in 1948 and we sent men to the moon in 1969. From then to now progress has been mostly a surface phenomenon involving the refinement of basic discoveries, mostly in electronics that have been very valuable and had great impact on the general population but have not changed much fundamentally. We still live in the same basic houses, fly in the same basic planes, drive the same basic cars powered by the same basic engines and ride in the same kind of trains that we did then. We no longer have the capability to send people to the moon, still haven't cured the common cold or cancer and still often put up with poor water quality and air quality. We also have the same sources of energy, continue to pollute the environment and are using up valuable resources at an increasing and alarmingly unsustainable rate.

Technology has made great progress compared to other areas of human action, such as economics, government and basic philosophy. These have, if anything, regressed in the last several decades. Wars are being fought with refinements of technology but with less and less clear purpose and less and less clarity of resolution. The lessons of history are ignored even as information technology should make them clearer. Much of the world is near bankruptcy, with the prospect of economic matters holding progress back for decades in the future. Technology and science lead and governments follow. Ease of communication between people has helped overthrow some bankrupt leaders in primitive countries, but in developed countries it is a tool to help keep people in line and, if anything, suppress activity. The net result of much of this is stagnation in fundamental and difficult technical and social progress.

This started me thinking about limits of capabilities and, since we are in the business of promoting new science and technology, what might be causing the stall that we seem to be in despite all the glamour on the surface. The quality of life of the average person in the developed world has hardly changed in decades and there is a greatly expanding class that is dependent on government welfare. I have also been concerned that most of the progress in the serious and diffi-

cult work of new science and energy is being done by people that are often well beyond the conventional age of retirement. Why is not the younger generation making more of these basic discoveries and inventions?

I have been an advocate of concentrating on the fundamental understandings of science behind technology where possible, rather than trying to understand specific technologies that are not able to be understood at a fundamental level because the scientific mechanisms are not understood. Trying to apply that principle to the very broad field of discovery, as opposed to a more specific problem like condensed matter nuclear science, for example, means trying to utilize the most fundamental advances in thinking regarding the nature of matter and energy.

Don Hotson has proposed fundamental theories about matter and energy that seem to answer many of the questions left open by the standard model (see *IE* #44, 43 and 86). I have been an advocate of these ideas. Ken Shoulders, the discoverer of exotic vacuum objects (EVOs), has presented numerous articles on the nature and creation of these particles (including in *IE* #61, 70 and 75). These are fundamental objects that conventional science has not explained. Since Don was working on theory and Ken has done numerous experiments and analysis, I introduced them to each other hoping that there could be some synergy. That was several years ago, but there was not much interaction until recently when a major synergy of these ideas may have substantially advanced the fundamental understanding of the basic building block of matter.

Ken Shoulders recently stated:

EVOs are considered by the author to be composed of myriad electromagnetic wavelets instead of conventional particles such as electrons. A note on this viewpoint entitled, "Detecting Fundamental Wave Action in Elementary Particles by Using an EVO" was placed on the web for download at: <http://www//svn.net/krcsfs/>. Further consideration of this complex array of wavelets introduces a strong possibility that the ensemble can also be characterized as a primordial substance capable of, under proper but relatively ordinary conditions, resolving itself through physical manipulation into all known elements and perhaps some yet unknown substances. As unlikely as this assertion presently seems, some supporting evidence will be submitted here permitting such conjecture.

Some supporting evidence was then given and he concluded with: "I believe EVOs are the Mothers of all matter."

Don Hotson then replied:

Ken's brilliant insight that EVOs may be the "Primordial Substance" was an "Aha!" moment for me, congealing ideas I have previously tried to express.

According to Dirac's Equation, the electron is a wave, the positron also the identical wave, simply 180 degrees out of phase with the electron. (They only exhibit "particle" properties when they interact, in an analog to digital conversion, and are "assigned" to specific coordinates with specific properties. At all other times they are waves.) All over the universe, electron changes to positron every TAU, thus reciprocating but having identical electrical properties (plus still attracting minus and same charges still repelling).

In an EVO, as I tried to point out in an earlier email, myriad electron "waves" are confined to a small space, I believe by an epo sheath similar to that I have postulated to contain all atoms. (This sheath can be shown to form whenever a large group of ions is produced, separating areas of different potential.) When an electron wave in an EVO hits this confining sheath, as must happen millions of times a second, the electron wave is reflected, *changing phase* as it does so, electron wave becoming (out-of-phase) positron wave. In the confined space of an EVO, thus, roughly half of its constituents at any time would be positrons, thus most or all of its constituents are (electrically neutral) EPOs.

This is indeed, as you point out, the primordial substance, as whenever 9,180 epos are confined to a single EVO, voila: a neutron is born. A neutron could thus be considered to be the "ultimate EVO." (It would not need a confining sheath, as all its constituents, being in phase, would "change phase" every TAU, thus forming a metastable "particle" TAU C in diameter. Slightly unstable, because for stability it must have a single "order parameter" which allows it to condense as a stable BEC, which it does emitting an electron, the "extra" positron forming the "order parameter" which allows it to condense as a stable proton.)

This view combined with the substantial volume of previous writing by both Shoulders and Hotson, and others, opens an explanation to the possibility of many so-called anomalous events that mainstream science does not recognize, but offers mechanisms that may help understand the way the brain connects to the universe and by extension the limits to what we can achieve and discover.

These theories also unify all the conventionally understood fundamental forces, the strong nuclear force, the weak nuclear force, the electromagnetic force and gravity into one fundamental force which is the electromagnetic force from which all others can be derived. These ideas are well argued, although far from proven. They are certainly in the early stage of development and may have serious flaws, but they are more internally consistent and deal with observations

better than the current standard model.

A few years ago I wrote a short article (*IE* #65) that proposed that the force of intelligence was the fifth force after the four conventional fundamental forces. Maybe it could now be considered the second force of two fundamental forces. This gives further incentive to understand its limits better and see how the brain interacts with the bulk of the universe that is shaped by the electromagnetic force. The brain contains about 100 billion neurons that contain extensions called axons that connect the neurons. The actual passage of information is via ions that pass through ion channels in the axons that open and close when stimulated by electrical signals. The ion channels are almost unstable so that very little energy is required for switching. It is thought that this is to conserve energy but it may also be to allow connection to weak signals from outside the brain.

These signals are in the quantum realm and subtle, but this kind of very sensitive switch could be influenced by as little as a single photon if it was appropriately matched. This general mode of connection has been proposed previously. It has been observed since recorded history that "ideas can come out of the blue" but there is no good way of watching it happen or even being sure, in any given case, that it did not originate inside the brain. Many thousands of pages have been written over the past few thousand years that together make a sound case for the brain being able to receive outside information even though most conventional scientists would discount the idea because it does not fit their paradigm and there is difficulty in testing it. When tests of this nature are done, the result is usually so indefinite that statistical analysis must be used to make the case that anything is happening. This may be partly explained by the very weak ion channel switch that can actually flutter on and off as it is signaled. This kind of on-the-edge performance may explain why some people are much better at receiving signals than others and why the mind has to be in the proper meditative state to receive them. If it is not in a relaxed state, the noise of mental activity will far overpower the incoming information.

I think it is safe to say that many creative ideas are synergized from information that comes from outside the brain. This information is combined with direct physical experience that has been accumulated by the entity to enable a decision and action. The fundamental force of electromagnetism combined with the independent force of intelligence derived through matter and biology drives action. Action is guided by dual fundamental forces of interaction, or social forces, which are love and competition. This insures the growth of intelligence, but what are the limits of that growth and the factors that limit it?

Judging by the performance of the best in any field, the limits are potentially very high. The problem is that there are so few of these extreme outliers that decades can pass before one appears in any given field. That field can then stagnate in mediocrity until the next extreme expert comes along. As knowledge advances, the areas of expertise become narrower and more numerous so more extreme experts are required just to keep progress moving at the same rate. The first requirement of these experts is to have a good antenna to pick up outside information; the next is to filter it so that what comes through makes sense in the context of the problem. Experience can help or hurt in this step because a new

idea may fall outside the experience of the person and be rejected but it may be the breakthrough that is being sought. A person with less experience might accept the idea without knowing it does not conform to the norm and find a key to a new paradigm. On the other hand, an inexperienced person may not be able to make any sense of the idea when it is received so it then is not integrated into an actionable concept. Ideas must be accepted with a properly critical but open mind, which requires a balance few people have.

This balance requires considerable experience and judgment resulting in wisdom about the problem. Few can achieve this but it probably is not the major bottleneck. The major bottleneck is the ability to pick up numerous and good ideas from outside the brain by a not-yet-understood mechanism and without knowledge of the origin of the ideas. The ability to achieve the proper mental state is the key to this. It demands an innate ability combined with a skill honed from long practice. An important part of the skill is to achieve the proper environment. It is a very delicate balance of relaxed openness to eliminate mental noise and the ability to select and judge what is offered. I think the main reason we are not achieving what we could as a society is that there are too few people skilled in the art of idea generation and too much mental noise in the general environment of most people for them to achieve at a high level even if they have an innate ability and, worse yet, the noise may prevent them from ever discovering if they have an ability.

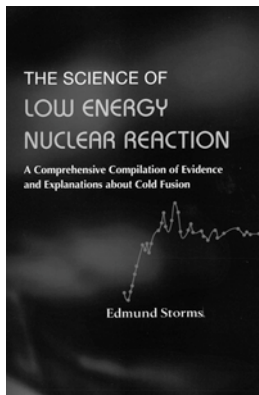
Most of this destructive noise in the mental environment has been generated in the past fifty years due to the mass distribution of electronic devices. Radio existed and then was followed by television, then computers and computer games, then the internet and cellular phones and now the widespread use of so-called "smart phones" that essentially combine all the other devices in easy to use, convenient devices that are widely affordable. New software enables wide communication and enables people to be recognized in

a way that is enticing and even addictive.

The total amount of time that has been spent with these devices over the years is immense and the subject of much discussion, most of it warning of the detrimental effects of spending such time. This large use of time in an occupation that is essentially mental noise drowns out the quiet time required for meaningful thought and inspiration. Mental work is hard to do even when one is relaxed in a physical sense and the mind is calm. The extreme concentration required to focus on a difficult problem can be very tiring and demanding. It is very easy to let someone else or a machine entertain rather than do the work required to pursue a dream that in itself can be a major effort to even find. Thoreau said most men live lives of quiet desperation. In his day they were preoccupied with simply living and had little or no time to think about anything else and today the time that was spent then on survival is spent in idle entertainment. Roger Waters of Pink Floyd fame wrote a song called "Amused to Death" that made some very good observations about today's society. Watch out, your phone could be getting smart at your expense.

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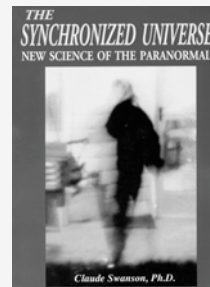
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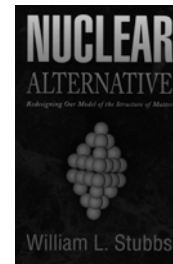
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