AN INTENSIVE SCRUTINY OF THE ATOM

If the reader has read the introduction to the chemistry section, he will already be cognizant of the fact that a model of the atom will be presented which is radically different from the standard model of particle physics. The presentation of this model will be in various steps which are designed to slowly build the model up. During the course of this "building up" certain questions may automatically arise in the reader's mind. Those questions will not necessarily be answered immediately. However, in subsequent sections they will be answered. The reader should keep this in mind when the material is being read. (The questions that will be answered are the questions which seem to be major flaws in the theory. It goes without saying that I may not be cognizant of all the objections/questions raised about this work. Therefore, some questions may go unanswered if I did not probe my theories to the same depth that another scientist might do so. As an example, during a doctoral thesis defence, some questions will probably be asked by the examiners that the candidate did not give previous consideration to.) Furthermore, it should be mentioned that in order to fully grasp these theories, it is presumed that the reader has read my paper on magnetism (at this web site under physics) and comprehends my explanation of what mediates the electromagnetic field (both attraction and repulsion). There will also be the presumption that the reader possesses some knowledge of rudimentary particle physics theory.

As was stated in the introduction to the chemistry section, the genesis of *some* of these theories was to pose the very simple question, "Why?". Why is the electron negative, the proton positive, and the neutron neutral? It would be appropriate to defend my position as the reader may be of the view that it is foolish to ask such questions. Namely, the leptons and hadrons simply possess the charge they possess (or don't possess if the particle is neutral) and there is nothing more to be understood. However, if the reader scrutinizes the situation in slightly more detail, you may find that it *is* appropriate to ask, "Why?". If a layman is asked, why is the sky blue, why are clouds white, and why are sunsets reddish-orangeish, they will probably provide an answer similar to what a scientist states when I ask why certain particles possess the charge they possess. Things are the way they are because that's the way they are. There is nothing to be understood about it. However, even as a physics undergraduate student knows, there *is* a reason behind the atmospheric phenomena mentioned. There is something to be comprehended. In a similar way, I feel that there is something to be comprehended in regards to why particles possess the charge they possess.

In order to answer the question, why is the electron negative, I have chosen to represent the electron as a composite of smaller components. In other words, the electron is not elementary. Two of these smaller components (which I do *not* intend to name) bear strong resemblances to (macroscopic) magnets which we are all familiar with. In other words, they have a north and south pole just like a magnet. Two of these components are joined (via a mechanism that will eventually be described) to form an electron. The following diagram is an *exceedingly simple* pictorial representation of an electron.

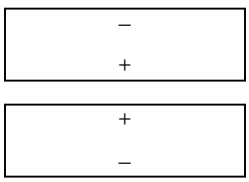

Fig. 1

In this pictorial representation, there is a reasonably significant chasm between how the smaller components are represented in relation to a bar magnet. The poles are not at the "small ends" (i.e. the widths) of the components as in as in a macroscopic magnet, but rather along the *lengths* of the components. The reason for establishing this pictorial model is to optimize the surface area that each sub-component is exposed to when it interacts with the other sub-component. As the reader can see, if the electron were comprised of two sub-components that looked like figure 1, when we "examined" this particle (via a myriad of different experiments), we would state that it is a negative particle. (The reader already has strenuous objections to what has been presented. *One* of those objections being, that I have obviously overlooked the simple fact that two negative charges existing in such close proximity is impossible as they would repel each other. This is only one objection and there are many others. Consequently, there's no need to read any further as this model is obviously absurd. If the reader is adopting a position along these lines then I will briefly remind you of what was stated at the beginning of this paper. My model of the atom is being built up in incremental steps. Major questions which are immediately arising will be dealt with in subsequent sections.)

A similar analysis can be applied to the proton. Although the analysis will be similar, there would be differences in the pictorial representation. The major difference would be in the mass since the proton's mass is obviously greater than the electron's. The representation of the proton is as follows.

Fig. 2

Another major difference that the reader will automatically notice, is that there are *not* two similar poles facing each other as is the case with the electron. Why isn't the positive proton represented in the same manner as the electron with only slight differences? The only differences being a greater mass and the two poles of each sub-component facing each other which are the opposite of the two poles facing each other with the electron. I have given considerable consideration to representing the proton via two similar poles facing each other which are the opposite of the poles that face each other in the electron. However, I have rejected that model and opted for the pictorial representation presented for one primary reason. That primary reason is the proton interactions that are outlined in *The Feynman Lectures on Physics*, volume II, chapter 8, page 7, the first four paragraphs. This reference has been provided so that the reader can read for himself what Feynman has to say. I don't intend to rewrite everything written there. However, a few things mentioned are that protons attract at large distances and repel at short distances, and that the interaction between protons differs greatly when their spins are parallel or antiparallel. As has been stated, a few other effects are mentioned there as well. If a model of the proton is to be developed along the lines outlined, then the effects described in the reference cannot be explained as a result of two of the same poles facing each other (and subsequently two of the same poles

facing outwards). However, from all outward appearances, the effects can be explained by two different poles facing each other, and subsequently two different poles facing out. (The validity of this statement is questionable for the simple reason that Feynman does not delve into explicit details about the intricacies of the effects he describes. It is for that reason that the phrase "from all outward appearances", is utilized).

On to the neutron. What model could be utilized to represent a neutral particle? James Chadwick (the man who first identified the neutron) may have had the right concept all along. When it was realized that neutron decay culminated in the "appearance" of a proton and an electron, Chadwick suggested that the neutron may be a combination of an electron and a proton. If an electron and a proton have the proper spatial orientation with each other, then this may result in our experiments viewing the particle as neutral. The following model is suggested.

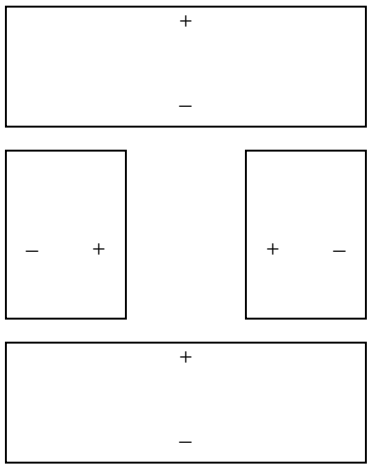

Fig.3

The sub-components of *both* the electron and proton are further apart than is the case with the individual electron or proton. The sub-components of the proton constitute the "length" of the neutron whereas the sub-components of the electron constitute its "widths". This model would explain why a neutron would not possess either a positive or negative magnetic moment (at least not a significant magnetic moment). If a *free* neutron were placed in some type of "environment" which had both a positive and negative potential, it would not be attracted to either potential. If the negative "component" of the neutron started to be attracted to the positive potential (in its "environment") a spin would be induced which would then cause the positive "component" of the neutron to face the positive potential, thereby causing repulsion. The converse would also be true when the positive "component" of the neutron started to be attracted to the negative potential. Therefore, although a neutron would possess *both* negative and positive components, its *net* charge is, essentially, zero (the reason for the utilization of the word "essentially" will eventually be clarified). A free neutron would not be attracted to either a positive, or negative potential. In the conduction of our experiments, we would perceive this as a neutral particle.

Now that the starting points of the model for the structure of the electron, proton, and neutron has been presented, we can now proceed with its further development. The next stage is to outline the coupling mechanism between these sub-components. Quantum chromodynamics dictates that the coupling mechanism between quarks is established via the exchange of virtual gluons. However, at this web site, I have proposed alternatives to quantum field theory. One of

these alternatives (at least on a macroscopic level) has already been presented in my paper on magnetism under the physics section. As was stated towards the beginning of the present paper, it is assumed that the reader is familiar with this paper. Without a comprehension of this paper, the nature of the coupling mechanism with respect to these sub-components will be incomprehensible. The simplest coupling mechanism pertains to the proton. The model behind this coupling mechanism is fundamentally similar to the coupling between the opposite poles of two macroscopic magnets. Namely, the lines of force are propagating in the same directions thereby causing the sub-components to be attracted to each other.

The coupling mechanism between the sub-components of the electron is more complex. In fact, the reader is obviously wondering how there could be any coupling at all, since lines of force propagating in the opposite direction (which is the case with the sub-components of the electron) would only repel. The coupling mechanism which establishes an electron is different, and somewhat "delicate", when compared to the macroscopic model. With the sub-components of the electron, the lines of force do not actually connect with each other at the points where the closed loops begin to form. Instead, the sub-components are so "delicately aligned" that the lines of force *slide over and past each other*. Let's return to the analogy outlined in the paper on magnetism. Namely children on roller skates who thrust out their arms in such a manner as to mimic the lines of force on a magnet. In the paper on magnetism, repulsion was explained via this analogy by stating that the palms of the children's hands connect and push each other away. That sufficed for illustrating repulsion. However, in order to illustrate the situation with the electron, there shall be a slight modification with the analogy. Instead of their palms touching, the tips of their fingers will be involved instead. There will still be repulsion if the tips of their fingers *make actual contact* with each other. However, to show why the sub-components of the electron *do not* repel each other, the tips of the children's fingers will not make contact. Instead, their arms will be so "delicately aligned" (as is the case with the sub-components of the electron) that their fingers, hands, and arms *slide over and past each other*. Although the tips of their fingers will *not* make contact (thereby preventing repulsion) it is possible for their arms to make contact as they slip past each other. Children on roller skates is not the best analogy for illustrating the situation with the electron as the children's arms do not form closed loops as do the lines of force with the sub-components of the electron (children's arms do not bend in such a manner as to enable their arms to intertwine with each other *and* establish closed loops). However, it was important to state that when the children's arms intertwine with each other, it would be possible for their arms to make contact as this element will assume a critical dimension in a subsequent paper under the chemistry section. The situation with the sub-components of the electron is as follows. The lines of force are established in the forms of closed loops. However, at the place where the loops begin to form, there is no contact thereby preventing repulsion between the sub-components. The sub-components are so "delicately aligned" that the lines of force slip over and past each other. For the primary purpose of a subsequent paper, although these lines of force do not connect with each other where the loops begin to form, when they slip over and past each other, the lines of force from one sub-component *are capable of making contact* with the lines of force from the other sub-component.

The reader has an understandable reservation to what has just been proposed pertaining to the electron. Even if this is true, it has only been explained why there is no repulsion. There's nothing to indicate that there is an attraction. There should be an attraction (of one kind or another) between the sub-components. Once again, this model is being built in steps, and this question will be subsequently answered.

The coupling mechanism of the neutron does not have to be explained as a model has previously been outlined stating that the neutron is a combination of an electron and proton. Since the coupling mechanism of both of these particles has already been outlined, it should suffice to state that the coupling mechanism of a neutron is a combination of these two coupling mechanism. The lines of force from each sub-component propagate perpendicularly to each other. However, since the sub-components of each particle are further from each other than is the case with the individual electron or proton, this model must be developed further.

The next stage in the development of this model will, in one particular respect, be the most difficult. It will not be any more difficult to explain, or comprehend than any of the preceding material in this paper. The phenomenal difficulty will be in attempting to convince the reader of the validity of what will be proposed. Not only will this difficulty exist in regards to particle physicists, it will even apply to chemists. In fact, because of certain nuances between chemistry and particle physics (as it pertains to what will be proposed), it will be far more difficult to convince chemists than particle physicists (which is in contrast to some of the precepts stated in the introduction to the chemistry section). As a result of the phenomenal difficulty involved, the proposal must be presented in a judicious manner. Firstly, a broad, abstract idea of the proposal will be presented. Secondly, an analogy will be provided which will show why a proposal of this nature is valid even though the reader would be vehemently opposed to it.

It is my position that there is a significant flaw in *rudimentary* atomic theory. On a sporadic basis, I have mentioned the precise nature of this problem to some scientists over the years. However, nobody has agreed with me. They've given me their explanations as to why there is no problem. I've heard their explanations and nobody has given me an explanation that I find even incrementally dissuasive in regards to this problem. From the time I started studying science, I have felt that this problem existed. I feel as strongly (if not more strongly) today about this as I did many years ago. The reason I state more strongly is because if the reader reads the next paper under the chemistry section, he will see that some of today's most significant scientific problems are solved if he acknowledges that; (a) there *is* a problem, and (b) my solution is fundamentally accurate. Let me provide an illustration to show how a rudimentary problem can exist in science and yet, the fact that this problem exists seems to elude everyone.

The chemist is no doubt cognizant of today's most commonly accepted theory to explain the origins of the universe. Namely, the big bang theory. The aspects of the theory which are germane for our purposes are as follows. There is no explanation of the state of the universe prior to the big bang as cosmologists claim that knowledge of that nature is inherently unknowable. The universe began as a singular point of infinite density at which point all known laws of physics broke down. This singular point had no beginning but existed for an infinite period of time. Approximately twelve billion years ago (give or take four billion years), the point exploded and eventually gave birth to our universe. These aspects of the theory are sufficient to illustrate the desired precept I am striving to convey. From all outward appearances, nobody seems to have noticed that this theory is lacking in one specific (and significant) way. If this singular point of infinite density was infinitely old, something must have caused it to explode. *Why* did it explode at all? If it had no beginning, but instead was infinitely old, then it should have continued like that forever. Since, according to theory, it did not continue forever, what caused it to explode? For the big bang theory to be complete, some dynamic element must be incorporated into the theory. Either the singular point must have some dynamic component and/or its surrounding must have a dynamic element. Without a dynamic incorporation of one kind or another, the theory is incomplete and inadequate.

However, as far as I know, there is no attempt to incorporate a dynamic element into this singular point of infinite density or its surroundings. There are other elements of cosmology which are being actively researched, such as charge parity violation (why is there a preponderance of matter over antimatter). Presumably, there is no attempt to achieve a dynamic element for the simple reason that the problem has not been previously noticed. Notwithstanding the failure to notice this problem, it is presumed that the chemist can see that this *is* a major problem within cosmology which *must* be addressed. (If the chemist is wondering whether I have addressed this problem in my own work under astronomy, I have not. That's because my theory of the origins of the universe is different from the big bang theory and does not begin from a singular point of infinite density. However, in my theory, the state of the universe prior to the explosion is dynamic.)

Hopefully, I have at least given the reader cause to consider that it is possible for a significant problem to exist within basic science, yet the existence of the problem seems to elude everyone. In my view, there is a similar situation in rudimentary chemistry. However, the situation is not the same. As previously stated, when I've mentioned this problem, it has been insisted upon that there is no problem. However, since nobody has provided an explanation which I find even incrementally dissuasive, I will proceed to outline the nature of the problem and why the explanations offered have been invalid.

Since it will be extraordinarily difficult to convince the reader of the validity of this problem, there will not be an attempt to "build up" to the theory via the presentation of analogies or elaborate arguments (other than those already presented). Instead, the problem shall merely be stated. *In accordance with our current model of atomic structure, matter should not exist. Since matter obviously does exist, our model of atomic structure is incomplete and must be developed further*. The reader is obviously wondering what the basis of this statement is. In order to facilitate the explanation, let's take a heavy element like element number 82, lead. According to contemporary principles, it should not be possible for a block of lead to exist. The reason lies in the inordinate amount of repulsion that exists between atoms as a direct result of the electrons. When there are 82 electrons surrounding each nucleus, the repulsion in a block of lead (as a result of the same negative charges of the electrons) is so substantial, the atoms should all repel each other and render the establishment of that block of lead impossible. Although the analysis has been applied to lead, the same would be true of any nucleus that is surrounded by electrons. Specifically, the electrons around one nucleus would repel the electrons from other nuclei and prevent any quantity of that substance from forming (unless it were a gas).

The most common explanation I've heard to counter this argument and state, no this is not a problem, is as follows. The electrons from one atom are attracted to the nucleus of another atom, thereby creating a sort of "binding force". It is only when an atom comes too close to another atom that the coulomb repulsion will take effect. In the final analysis, my position of why matter should not exist (in accordance with our theoretical model) is invalid as the electrons from one atom are attracted to the nucleus of another. There is more than one reason for intense opposition to a position of this nature. A simple explanation is to state that the repulsion among the electrons is too substantial to enable one atom to be attracted to the nucleus of another atom. Let's proceed with an analysis via principles that are taught in first year chemistry.

Firstly, as we proceed up through the periodic table and add more shells (of electrons) to the atoms, the repulsion among the electrons (within a singular atom) increases. As an example, the electrons from the "m" shell will cause the electrons from the "n" shell to be at a considerable distance (relatively speaking) from each other, and *most importantly of all* (for the purposes of this explanation) from its own nucleus. Although this repulsion is counter balanced to some superficial

extent via the increasing size of the nucleus, the "counter balancing effect" is grossly insufficient to compensate for the enormous amount of repulsion. Since the distance between the outer shell and its own nucleus has dramatically increased, there is a very low probability that an electron (or group of electrons) in the outer shell would be attracted to its *own* nucleus as a result of coulomb's law. Therefore, the probability of being attracted to the nucleus of *another* atom is even lower since there is an even greater distance between the electrons of an outer shell and the nucleus of another atom.

The second reason for rejecting the position adopted by other scientists (there is no inadequacy in atomic theory) pertains to another principle from first year chemistry. Namely, the shielding effect. The magnitude by which an electron will be attracted to its own nucleus will be severely negated if it is in one of the outer shells. This is not a simple question of coulomb's law (the force of attraction being inversely proportional to the distance), but rather the shielding effect. An electron in the "n" shell will be shielded from the attracting force of the nucleus because of the negative charges in the previous shells. Once again, this applies to an electron being attracted to its *own* nucleus. How much stronger will the shielding effect be when an electron from one atom is shielded from the attracting force of *another* nucleus by *all* of the electrons ("k","l","m", *and* "n") of another atom?

If one bothers to truly think about and carefully analyze the situation, it seems reasonably apparent that the electrons of one atom cannot be attracted to the nucleus of another atom. A second explanation I've heard to explain the problem, is that one atom "sees" (loosely speaking) a neutral particle (equal number of protons and electrons) and is therefore not repelled. Again, this does not hold up against scrutiny. As a result of the shielding effect, and the distance involved, electrons from one atom cannot "see" the protons of the nucleus. The electrons from one atom would only "see" an inordinate amount of negative charge from another atom and, in principle, repel.

Since matter *does* exist (in contradiction to our model which states that matter should not exist), our model is incomplete. There must be some type of binding "force" between atoms which prevents the negative electrons from one atom repelling the negative electrons of another atom and enables an element to form a solid or liquid. Since I am the only one who seems to have observed the existence of this problem, there is a high probability that the reader is completely unconvinced about the merits of my argument. Therefore, let me try and approach this from a slightly different point of view. Unfortunately, the following argument will, in all probability, do little to persuade the chemist of the validity of my position as it pertains to a physics theory which the chemist may very well be completely oblivious to. Notwithstanding this fact, the efforts may be justifiable.

For illustrative purposes, let's present a hypothetical scenario. That hypothetical scenario is to ask the reader to accept my position (there is some type of binding force between atoms) regardless of how he feels about my arguments. If the reader does accept my position, then it may be possible to show that the development of a theory which is of the utmost importance to physics is a viable possibility. That theory is the development of quantum gravity. Two of the great successes of twentieth century physics are general relativity and quantum mechanics. Both have been resounding successes, yet both are at opposite ends of the spectrum. General relativity deals with very large scale objects, and quantum mechanics deals with incrementally small dimensions. Therefore, there is a quest to develop a theory that reconciles the two. Namely, a quantum theory that will explain gravity on the quantum level while *simultaneously* accounting for the large scale successes of general relativity. If the position that I've adopted in previous paragraphs is accurate, then the key to the development of quantum gravity will have been presented. If there is some type

of binding force between atoms, then that would explain gravity on a quantum level. If that theory could then be extrapolated to the very large scale to effectively explain general relativity (large objects bend space), then we will have a successful theory of quantum gravity. That is precisely what I have done in striving to answer the question I've posed (how do we complete our model of atomic structure to explain why matter exists). Although the *details* of an effective theory of quantum gravity will not be presented in *this* paper, the next one will do so. Consequently, serious consideration should be given to the proposal that there is some type of binding force between atoms which prevents complete repulsion of the atoms. (I would also like to emphasize that these principles were not developed for the *purpose* of developing quantum gravity. I was much younger when these principles were first developed and I was completely oblivious to the need for a theory of quantum gravity. For the reasons previously outlined, I only knew that matter should not exist and that our atomic model required further development since matter obviously did exist. Quantum gravity was only mentioned in an attempt to persuade the reader that the proposal is worthy of serious consideration.) To take this concept one step further (some type of binding force between electrons would solve other physics problems), there is an ardent quest to explain the coupling mechanism between electrons in order to explain superconductivity. An attractive force between electrons *which took optimum effect at low temperatures* would explain the coupling mechanism in superconductivity. Again, although I knew nothing about this when I was younger (when these principles were initially developed), when I learned of the problem in superconductivity, I realized that I had the solution via my new model of the atom.

It is my position that there is a particle which is responsible for the binding force between atoms. It should be immediately pointed out that this would *not* be the type of particle which is responsible for constituting a force carrier in quantum field theory (i.e. virtual photon, virtual gluon, virtual W-) since various papers at this web site have been striving to develop an alternative model to quantum field theory. In accordance with the model of the electron thus far established in this paper, the electron has two sub-components to it. In order to begin to explain the binding force between atoms, the particle being referred to would be on the *exteriors* of *both* sides of the electron. In other words, there would be two of these particles. Where, on the exteriors of the electron, would these particles "sit"? Let's recall the pictorial representation of a bar magnet under the paper on magnetism. We will take either side of the magnet where the lines of force either emerge from the magnet, or enter the magnet. In the immediate centre of one of these sides, there seems to be an "empty area" where there are no lines of force. This would be the same situation with an electron. The particle would be in these areas of the electron. The "empty space" on the centre of a sub-component where there are no lines of force.

What exactly is this particle? The electron is one of the smallest particles that we are cognizant of. It's difficult to conceptualize a particle smaller than the electron that would be capable of achieving the requisite effects described. It is my position that the particle in question is the electron neutrino. Independent of the immediate objection that the neutrino would be completely incapable of being responsible for a binding force, there is another objection that comes to mind. The neutrino is relativistic. As soon as it is created, it propagates at light speed. Neutrinos are incapable of merely "sitting" in the central areas of the sides of an electron. I am already fully cognizant of these objections. It is with regrets that I am forced to state that *for the time being* I have no answer. The reader's position is, if I acknowledge this as a flaw, and I am incapable of accounting for it, how can I possibly expect the scientific community to take my proposal seriously? My defence is as follows.

In science, we do not necessarily dismiss theories for the sole reason that there are no answers to certain questions for "today". Instead of expounding upon this precept ad infinitum, let's proceed straight to a tangible example. In Darwinian evolution, there are unanswered questions. Furthermore, these questions are of a significant nature. For example, there are major gaps in the fossil record. According to pure Darwinism, we should see organisms that make a smooth transition from a lower form to a more developed form. In general, we do see this. However, there are major gaps where transitory organisms are simply nowhere to be found in the geological record. How did organisms make such a tremendous "leap" from one organism to a *much* more developed organism. As far as I know, there are no answers. Furthermore, what was the genesis of life itself? Again nobody knows. As a result of these unanswered questions, should we dismiss evolutionary theory all together? Although the creationists would certainly want to see that, the scientists know that we cannot and must not resort to such a ridiculous notion. There is no question as to the fundamental accuracy of evolution. In regards to the unanswered questions, we must continue to strive to answer them. The reader may object to this position as evolutionary theory stands on a firm experimental basis. My theories do not. Very well, let's scrutinize the early stages of the development of QED. A problem manifested itself in regards to the infinities. For the longest time, nobody knew how to eliminate them despite the concerted efforts of physicists world wide. However, did this justify the dismissal of the theory? Again, no. Efforts persisted until renormalization was developed. The germane point is as follows. Within a designated scientific theory, if there are unanswered questions in the theory (even if the questions are reasonably significant), it is not necessarily justifiable to dismiss the entire theory. Efforts must continue until the questions are answered. I am confidant that eventually I will be capable of explaining how relativistic neutrinos can merely "sit" there. If there are readers who are obstinately insisting that I must answer *all* questions *now* (otherwise the theory is to be dismissed as incorrect), then perhaps those readers would like to join the creationists and insist that evolutionary theory be eliminated from biology text books since there are also significant unanswered questions in evolutionary theory. Furthermore, if we wish to know how life came into existence on the earth, then we should read the book of Genesis and have faith that what is stated there is correct.

The reader's next question is, what is the mechanism by which neutrinos are able to function in the capacity of a "binding force"? In the paper on light (under the physics section) I adopted the position that there were strong correlating factors between the neutrino and the photon in light of the fact that they are both relativistic. In fact, it was stated that the neutrino is nothing more than a "failed" photon. Specifically, at the time of the neutrino's creation it did not gain a sufficient amount of energy to render it a photon. Since the neutrino does not possess the photon's energy, the primary difference between the two is that the neutrino does not propagate with the same sinusoidal motion that the photon does (or if it does propagate with some type of sinusoidal motion, the neutrino's energy is so minuscule as to render that sinusoidal motion virtually undetectable). As was stated in the paper on light, the photon has lines of force emerging from it (which are similar to, but somewhat different from the lines of force emerging from magnets, electrons, protons, etc.). Consequently, the neutrino would also have lines of force emerging from it.

For the purpose of an explanation, let's establish some "labels" with respect to the neutrino. The part of the neutrino which points in the direction of the neutrino's propagation will (simplistically) be referred to as the front end. The opposite side of the neutrino will be the back end. (The reader may feel it is foolish to apply dimensions to a neutrino. However, without these dimensions in order to explain the lines of force, and subsequently, the nature of the binding force, the explanation becomes difficult.) If, for the purposes of an explanation, we utilize the terms front

and back, then the other two "sides" of the neutrino will be referred to as the top and bottom. Since the neutrino does not propagate with the same sinusoidal motion as the photon, there is no energy applied on the top or bottom of the neutrino. Therefore, no lines of force will emerge from these specific areas. However, there is energy being applied to the front end of the neutrino. Therefore, lines of force will emerge from the front end. Given the neutrino's paucity of energy (in relation to a photon) there would be one primary difference between the lines of force emerging from a photon and the lines of force emerging from a neutrino. A neutrino is chiral and *only* has lines of force emerging in a left hand direction. The photon on the other hand can have lines emerging *either* in a right hand (clockwise) or left hand (anticlockwise) direction. The following pictorial representation will *not* emphasize the neutrino itself but rather how the lines of force propagate.

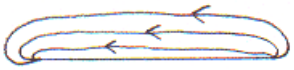

Fig.4

Although the lines of force only propagate in one direction, this will suffice to explain attraction, as the only pre-requisite for attraction to transpire, is for the lines of force to be propagating in the same direction (in this case, anticlockwise).

At this stage, it would be judicious to briefly sidetrack from the explanation of how neutrinos can function in the capacity of a "binding force" between atoms in order to address another issue. At a subsequent stage in this paper, there will be a comparison between the principles outlined in this paper, contemporary particle physics theory, and experiment. Objections will (try to) be addressed and advantages will be pointed out. Since it has been pointed out that the lines of force on the neutrino only propagate in a left handed direction, one advantage of these theories over existing theory will be pointed out now. When Yang and Lee outlined their theory stating that the law of conservation of parity is violated during the weak interactions, it was eventually recognized that neutrinos are chiral. However, here is a critical question. Was it ever theorized as to *why* neutrinos are chiral? As far as I know, there is absolutely no theoretical framework to explain what causes the chirality of neutrinos. This is the very first time there has been an explanation of why neutrinos are chiral. Therefore, here is one small advantage of these theories over contemporary particle physics theory. (I am fully cognizant of the fact that the reader feels that there are a myriad of problems with my model. As has been stated, there will be a subsequent attempt to anticipate the nature of these objections and explain them.)

If the reader comprehends my theory of magnetism and how attraction is induced, then he should begin to have some rudimentary idea of how the neutrino is responsible for the binding force previously mentioned. However, it is absolutely critical to outline a certain aspect of the neutrino's lines of force which differentiate it from a magnet's or a lepton's/nucleon's lines of force. (This concept was already previously outlined in the paper on light. However, the concept will be repeated here in order to avoid the *need* to read that paper in its entirety.) The neutrino's lines of force are much weaker than a lepton's/nucleon's lines of force, thereby causing the neutrino's lines of force to have a much longer range. This last statement is no doubt of an extraordinarily confusing nature. How can something which is weaker have a longer range? We all know that the greater the power source being supplied to a light source, the further the light will propagate. Therefore, how could something weaker have a longer range than something that is stronger? In

order to elucidate upon how something can be weaker, yet have a longer range, let's draw a silly analogy. We have two dogs with different leashes that are tied to two poles. The only difference will be that one leash is much stronger than the other. If these dogs try to move away from their respective poles, what will transpire? The dog on the weaker leash will be able to move much further away from the pole than the dog on the strong leash. Furthermore, if the leash is weak enough, the dog might be able to break the leash altogether and move as far away from the pole as he likes.

How exactly can this analogy be extrapolated to the quantum level (or even the macroscopic level when dealing with magnets) to explain why a neutrino's lines of force are weaker, yet have a longer range. Let's start with a bar magnet to explain how its lines of force are stronger yet have a shorter range (although we are dealing with a bar magnet, this example can easily be extended to electrons and protons). Here is the situation when we are dealing with lines of force on a magnet that are strong. As has been previously outlined in the paper on magnetism, there will be a certain stage when a line of force "wants to" (speaking loosely) continue propagating in a linear motion. However, "something" will exert another force on that line of force and cause it to loop back on to itself. This "something" will either be the magnet itself (in the case of the line of force which is closest to the magnet) or another line of force if we are dealing with lines of force which are more distant. The stronger this second force is (the force which induces a line of force to loop back onto itself) the smaller the distance by which a line of force can propagate linearly. Therefore, when dealing with lines of force from magnets/leptons/nucleons, the stronger the force, the shorter the distance over which it will exert itself. (The reader may immediately feel that there is a flaw in this. With an electromagnet, as the strength of the force increases, the field becomes larger and larger. Therefore, the stronger the force, the larger the field. Although this is true, it does not invalidate what was previously stated. The specific intent in the explanation being offered is to elucidate as to how a weaker force, such as is found in a neutrino, can give rise to a longer range force. When dealing with a proton or an electron, the magnitude of their *individual* charge cannot be arbitrarily increased as is the case with electromagnets. Furthermore, the final goal in expounding upon stronger and weaker forces is to explain how a neutrino constitutes the binding force in atoms.) Since the neutrino's energy is minimal, the lines of force propagating from it are much weaker. Therefore, when a line of force is propagating linearly, the lack of energy will negate the "ability" of the neutrino (or another line of force for the lines of force which are more distant) to induce a line of force to loop back onto itself. As a direct result of this paucity of energy, the lines of force will be able to propagate much further than would be the case with electrons and protons.

It should now be reasonably clear to the reader as to how neutrinos are capable of inducing a binding force between atoms. The requisite theoretical principles have now been provided. The lines of force from the neutrinos are weaker than the lines of force from the electrons and therefore have a longer range. Since they propagate in the same direction, when they couple, there will be an attraction between atoms since neutrinos "sit" in the space of the electrons where there are no lines of force (via a mechanism yet to be determined). However, when the attraction between atoms is induced, the atoms will not get too close to each other as the lines of force from the electrons (propagating in opposite directions) will cause a repulsion. The repulsion will, for a very short period of time, be stronger than the attraction since, as has been previously stated, the lines of force from an electron are stronger than the lines of force from the neutrinos. Prior to the atoms completely repelling each other, the long range force of attraction will once again prevail, and the process will be repeated.

Prior to proceeding any further, a minor "dissertation" will have to be provided which seems fundamentally extraneous to what is currently being delineated. It pertains to the following diagram. The reader may be seriously taken aback at how primitive and amateurish the following diagram is. Therefore, some level of explanation will be provided.

Firstly, my financial resources are extremely limited. Regrettably, this is as applicable today as it was when I first did this picture in 2000. Even to gain access to a scanner, I had to resort to skulduggery in order to gain said access. At one point in time, I briefly struggled with Word and an attempt to draw more appropriate diagrams. I gave up on the endeavour until someone pointed out to me a method of achieving what I desired. However, independent of my poverty and my extremely limited resources, other "events" have transpired which have caused me to be, fundamentally, apathetic about the primitive nature of the following diagram.

Firstly, the reader may be cognizant of the conspiracy that the physics community is maintaining towards me (and yes, it *is* a conspiracy). Specifically, my paper on the Heisenberg Uncertainty Principle. Namely, the fact that the archive removed it via a nonsensical excuse when I submitted it many years ago. At the time, they were not permitted to do this. They simply could not tolerate a successful challenge to Heisenberg. Therefore, they happily committed crimes against all of mankind and suppressed (what may be) the reality of nature just to prevent the end of their careers and brining about the greatest crisis in the history of physics. Given this reality, one has to ask, what is the purpose of science? What is it *really* all about? Although the answer(s) to this should be obvious, what is the point of it all when highly "disturbing" data is simply suppressed? The way science is pursued, it seems to be about egomania and reputation building with a wanton disregard for reality (assuming that reality threatens egos and reputations). If the reader doesn't believe me because of this "isolated" example, let me continue.

For chemists who may be reading this, here is the requisite background. Prior to 1981, there was a substantial mystery as to the structure of the universe. Namely, why is it so homogenous throughout? In 1981, Alan Guth proposed a theory which purported to solve the mystery. He came to call it inflation. This became an overwhelmingly "powerful" theory which gained Guth a formidable reputation. Furthermore, over the years this theory became *widely* published upon. Hundreds upon hundreds of variations have been published over the years. It's not unreasonable to state that within cosmology, yet another inflationary variant is the most feasible way to get published in a journal. Inflation has succeeded in building many careers over the years. Now, in the 2000's satellites were launched to study the universe in greater detail. What was discovered? There were at least three findings which seriously questioned the validity of inflation. (There is possibly a fourth finding. However, the fourth one does not pertain to the structure of the universe *as a whole* whereas the other three do pertain the overall universe.) I have addressed these findings at the end of my own paper on cosmology on this web site. Any *one* of these findings could potentially invalidate inflation. However, all three of them combined virtually demand the elimination of inflationary theory from cosmology. With this, consider the following.

The vast majority of physics professors are
oblivious to these discoveries.

I will give the reader my personal assurance that these discoveries are not being mentioned in colloquia. A central purpose of academic colloquia is to keep others abreast of recent discoveries for those who don't necessarily have time to read the journals. Yet, not one word is being said in colloquia about these discoveries. Although I am under the impression that there are

some who have striven to modify inflation to conform to some of these discoveries, these efforts have largely been futile. Fundamentally, cosmologists are burying their heads in the sand and pretending like these discoveries have not been made. The question is, why?

If these discoveries were properly considered, there is only one reasonable conclusion. Inflation is wrong and must be dismissed. That, of course, means that egos and reputations will also end. This will not be tolerated by those who already possess these reputations. Therefore, they pretend like these discoveries haven't even been made.

Once again, what is the purpose of science? Why should it be pursued? What is the point of it all? Again, the answers are obvious. *However*, when scientists are simply suppressing data which contradicts their reputations, the first three questions of this paragraph *need* to be answered. With all of this, let's return to the following diagram.

After what has happened to me *and* the overall situation with inflation, this has only served to anger my overall attitude towards the scientific community. To be perfectly frank, you can consider it lucky that I even bothered to change the previous diagrams which were originally here. My frustration is sufficient in magnitude that I simply couldn't be bothered to render a conscientious effort to find a way to make the following diagram more "palatable". However, given the way you people are, you have no right to complain about it. Almost all of you would have removed my paper from the archive. Practically all of you are ignoring the reality of inflation. If any of you *genuinely* care about the reality of nature (*regardless of the impact that it may have on your ego/reputation*) then you have the right to complain about this diagram. I simply don't see that being the case with any of you. Furthermore, if enough of you did care about reality, despite my limited financial resources, I would have done whatever I had to in order to create a better diagram.

When I first drew these diagrams, I made the error of comparing sub-atomic particles too acutely with magnets. Where is says N pretend it instead is a negative sign. Where there is an S, accept that as a positive sign. Now, to return to the paper.

A diagram providing some indication as to the dichotomies in these lines of force is as follows. (The diagram is only meant to be very general. Precise details such as the dynamical interactions between the electrons are not illustrated, nor is there a *precise* representation of all the lines of force.)

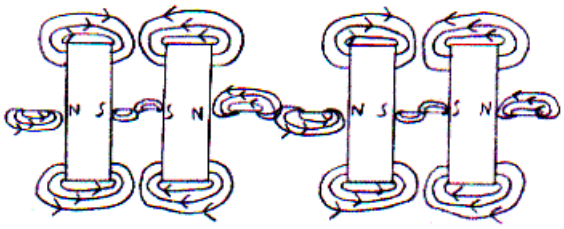

Fig.5

Some of the elements which are lacking (as a result of a lack of artistic capabilities) in diagram five are as follows. The lines of force from the neutrinos (which are sitting in the middle of the electrons) should be thinner and longer than the lines of force from the electrons (at the outer edges) in order to illustrate a longer, yet weaker, range force. Furthermore, the sub-components from a *singular* electron should be much closer together with the lines of force from the sub-components slipping over and past each other in such a manner so that there is virtually no space between the sub-components.

In the past few paragraphs there has been an emphasis on how neutrinos have been on the exterior surface of electrons in order to induce an attractive force between atoms. However, there is another place where neutrinos play a critical role within electrons. A previous objection by the reader to the model being proposed pertained to the coupling mechanism between the sub-components of an electron. It was stated that the lines of force do not make direct contact with each other (thereby preventing repulsion), but rather slip over and past each other. Although this explains why there is no repulsion, it does not explain why there should be any attraction between the sub-components. If that were the full extent of the explanation, then there wouldn't be any attraction. Therefore, in order to explain attraction between the sub-components of an electron, the model must be developed further. Since there are neutrinos on the outsides of an electron, then it would be logical to adopt the theoretical framework that there are antineutrinos on one side of each sub-component that face each other. The lines of force would be right handed (this could not be clearly illustrated in diagram five). Since they're propagating in the same direction, this would be the explanation of why there is an attraction between the sub-components of the electron.

The purpose of expounding upon the relation between neutrinos and the electron was to make our atomic model more complete. Namely, to explain why matter exists despite the fact that our *current* model (the model that is independent of this work) dictates that matter should not exist as a result of the inordinate amount of repulsion among electrons/atoms. Although there was a reason for proceeding with the preceding analysis of the electron, might it not be possible to analyze the proton with a similar type of analysis even though there does not seem to be a clear need for such an analysis for the time being? A simple explanation of why it would be judicious to proceed with said analysis can be found via the singular word, symmetry. In an attempt to support this position, let's look at some historical precedence pertaining to physics and some beliefs of physicists (even though what is being written here is directed towards chemists).

When physicists discovered the tau particle (the third particle in the lepton family), they hypothesized that there should be a third generation of quarks. These were the quarks that eventually came to be known as the top and bottom quarks. Their initial feeling was predicated upon the belief that there should be a deep symmetry in nature. If there were three generations of leptons, then there was the belief that there should be three generations of quarks. Furthermore, Einstein believed that a GUT should exist (despite the fact that the various forces were clearly different) because of a fundamental symmetry in the force law equations for these forces. By the same token, it is my opinion that if there are neutrinos intricately "linked" with electrons, then the same should apply to protons since there are certain correlating factors between electrons and protons. In accordance with the tenets established in this paper, the only factor which differentiates the charge of a proton from the charge of an electron are the poles of the sub-components which face each other. The only real difference between the two, would lie in the different masses of the two particles. Therefore, since there is a strong symmetry between electron and protons, it would be judicious to state that neutrinos are also intricately linked with protons, even though there

doesn't seem to be a substantial "need" for them. (A more tangible rationale will be provided in subsequent parts of the paper.)

Since the primary difference between the two particles lies in their different masses, it would be unwise to postulate that *electron* neutrinos would be linked with protons. If not electron neutrinos, then what? There is only one other neutrino whose existence has been *conclusively* proven. That of course is the muon neutrino. The reader (or at least the particle physicist who may be reading this) would immediately have strenuous objections to what has just been proposed. The muon neutrino is a lepton. Therefore, *by definition* it can only act via the electromagnetic force or gravity. It cannot function via either one of the nuclear forces since only hadrons are capable of interactions of that nature. My counter argument is the following.

At this web site, I am proposing a substantial amount of *new* scientific theoretical work. If my theories are correct, then a great many established principles of science would be overturned. A simple example of this would pertain to the missing matter. The "entity" which I state is responsible for the missing matter has already been ruled out as being a potential candidate for the missing matter. However, I am justified in adhering to my position for the simple reason that I will be proposing a *new model* of gravity which will supplant Newtonian and Einsteinian gravity. Since gravity will be taken to a new dimension (the quantum level) it is appropriate for me to state that this "entity" *is* the missing matter despite the scientific community's insistence that it cannot be the missing matter. In a similar way, I am proposing new models of particle physics which should *replace* (in contrast to *supplanting*) existing models. Therefore, the reader is not in an appropriate position to insist that muon neutrinos cannot be linked with protons merely because *current* theory dictates that the muon neutrino (a lepton) cannot interact via the nuclear force. Furthermore, particle physicists are merely assuming that it is a lepton by virtue of the fact that the muon seems to be nothing more than a heavy electron. It should be emphasized that to this day, nobody has been able to ascertain the function of the muon in nature. However, for the first time since the discovery of the muon, a role will be assigned (in subsequent parts of the paper) to the function of the muon neutrino.

Since there is a certain sense of symmetry between the electron and proton, it can be stated that our model of how muon neutrinos are linked with protons would be very similar to our model of how electron neutrinos are linked with electrons. There would be a total of four muon neutrinos "sitting" in the middle areas of the sub-components where there are no lines of force (again, given the fact that they are relativistic, I am oblivious, for the time being as to how they merely "sit" there). Since the electron has a different charge than the proton, the muon neutrinos that are in each area would be different from the types of electron neutrinos in each area of the electron. With an electron, the two same poles face each other and face outwards. Consequently, the same neutrinos would face inwards (electron antineutrinos) and the opposite neutrinos would face outwards (electron neutrinos). However, with the proton, since different poles face inwards and outwards, then a different muon neutrino would be at each pole. Namely, with the interior poles, there would be a muon neutrino at one pole and a muon antineutrino at the other pole. In a similar way, with respect to the exterior poles, there would be one muon neutrino at one exterior pole and one muon antineutrino at the opposite pole.

In this paper, subsequent to a new model being proposed for the electron and proton, the analysis was extrapolated to the neutron by simply stating that the neutron is a combination of a proton and neutron along the lines previously outlined in the model of the neutron. When extrapolating the "placement" of neutrinos to the neutron, the same would be fundamentally true. The neutrinos (both electron and muon) would be in the same places on the sub-components as

they would be when dealing with composite electrons or protons. However, when theorizing about the neutron and neutrinos, there is more to be said about their nature. As we all know, a free neutron will decay (within approximately 12 minutes) into a proton, an electron, and an electron antineutrino. The proton and electron are already in possession of "their" neutrinos (four for each particle). Therefore, this additional neutrino must be explained. If the reader feels that an explanation of this nature is superfluous (as a result of the already existing electroweak theory), please keep two things in mind. Firstly, as has previously been stated more than once in various papers at this web site, alternatives to quantum field theory are being proposed. Secondly, this model of the neutron certainly does *not* advocate two down quarks and one up quark. Therefore, an explanation of neutron decay must be provided. Since an "extra" electron antineutrino is present in the neutron, it is postulated that the antineutrino is necessary in order to achieve the requisite "binding energy" on the sub-components of the neutron. The reason for this required additional energy is that the sub-components of the neutron are further apart than they would be when dealing with electrons and protons. A simple model to explain the decay of a *free* neutron would be as follows. (Various elements of the following model may be refined and/or modified in the future.) The electron antineutrino constitutes a certain binding force on the neutron (while *simultaneously* contributing to its decay) in the following manner. The antineutrino is constantly propagating at a relativistic speed *within* the neutron. It makes contact with the two sub-components of the proton. As an example, it will hit the sub-component of the proton which is on top (see diagram three for an example of what is meant by the "top" and "bottom" of the sub-components of the neutron), then propagate downwards to hit the bottom sub-component, propagate upwards again, etc. The antineutrino would function in the capacity of a binding force as its lines of force are propagating in the same direction (right handed/clockwise) as the two antineutrinos that are already present on the two internal poles of the sub-components of the electron. Since lines of force which propagate in the same direction induce attraction, this additional antineutrino functions in the capacity of a binding force. However, clarification should be provided as it pertains to this additional binding force. In light of the fact that this neutrino is constantly propagating relativistically, it would be in stark contrast to other neutrinos which merely "sit" in their respective positions on the sub-components of particles. This propagation would cause the attraction induced to be significantly less than the attraction induced as the result of two "stationary" neutrinos/antineutrinos. In order to clarify the position, an analogy will be drawn. Let's assume we have one bar magnet which is suspended by a string. We then take another hand held bar magnet and move it past the suspended magnet. The faster we move the hand held magnet, the smaller the attraction induced. Or, to be more precise, there will be less time over which the attraction can be induced. This would be the similar situation with the antineutrino propagating relativistically within the neutron. Since it is not stationary, it will be comparable to the hand held moving bar magnet and the attraction induced will not be as significant. The reader may have an objection to this situation. In light of the fact that the antineutrino is relativistic, there shouldn't be any attraction *at all* since the time over which it could act on the two other antineutrinos would be incomparably small. Although the reader's (potential) objection is understandable, there is another factor which must be given appropriate consideration. The relativistic antineutrino is confined within a small given area. Therefore, even though it is relativistic, as a direct consequence of propagating within a confined area, it would succeed in inducing attraction. This can be clarified via the analogy with the suspended magnet and the moving hand held magnet. If the hand held magnet were to pass extraordinarily quickly (let's present a completely hypothetical scenario and say close to the speed of light), it would not induce an attraction *if it only made one pass* as there was insufficient time for it to act. However, if

the moving magnet were confined to a specific area, and were forced to move back and forth in an area near the suspended magnet, even if the hand held magnet were moving close to the speed of light, then it would induce an attraction of one magnitude or another. By the same token, the relativistic antineutrino *is* confined within a specific area so that "multiple passes" are made within the area of the other two "stationary" antineutrinos and an attraction is induced.

The mechanism just described is how the antineutrino can induce a certain binding force on a free neutron. However, this same relativistic, "binding" antineutrino is simultaneously responsible for the decay of a free neutron. When something is relativistic, and is capable of some type of interaction, a pressure will be induced. Free neutrinos do not, as a general rule, engage in any type of interaction as they are capable of propagating through several light years of matter without interacting. However, when dealing with a neutron, the relativistic antineutrino is confined and will interact (and subsequently induce a pressure) when it interacts with the sub-components of the proton. It is this interaction which results in the decay of the neutron and the “establishment” of the proton, electron, and electron antineutrino. The nature of the interaction is explained as follows. When the electron antineutrino impacts against one of the proton’s sub-components, the sub-component moves slightly further away for an *incremental and temporary* period of time (I cannot state the precise period of this time, but it would be significantly less than a second). The reason it would be incremental and temporary is that the lines of force from the other sub-component (of the proton) would immediately induce an attractive force to bring it back to its original position. In this time, there will be slightly more space between the two sub-components of the proton. At that specific time, the (long range) lines of force from the electron antineutrino would induce an attractive force on the antineutrinos from the electron’s sub-components and draw them closer together. The primary factor which enables the electron’s sub-components to be drawn closer together is the additional space between the proton’s sub-components. When this additional space is *not* present, the sub-components of the electron are, for lack of a better word, “jammed” between the sub-components of the proton thereby preventing their movement. Every time the free antineutrino makes contact with either one of the proton’s sub-components, this temporary additional space will be created and the electron’s sub-components will have a sufficient amount of room to be drawn closer together (via the attractive force of the free antineutrino) with the lines of force from the electron’s sub-components sliding over and past each other. Eventually, (within approximately twelve minutes) the sub-components of the electron will be drawn sufficiently close together so that an electron is established. At that stage, the free antineutrino that was propagating relativistically between the proton’s sub-components is no longer “needed” and/or “confined”, thereby enabling it to escape and propagate independently. In theorizing about the "formation" of the proton, keep in mind that two different poles of the proton's sub-components are facing each other. When the electron is "established", one of the proton's sub-components would experience an electromagnetic attraction to the electron prior to the electron propagating freely. The other sub-component would also feel a small attraction *if* it were "sufficiently" far from the electron. The rationale is as follows. Although there would be an *electromagnetic* repulsion with this other sub-component, the neutrinos from each would be able to interact at a longer range despite the fact that one is a muon neutrino and the other is an electron neutrino. The lines of force from each neutrino would still interact and induce attraction when the lines are propagating in the same direction. Therefore, although the attraction experienced by this second sub-component for the electron would not be as strong as the first, there would, nevertheless, be an attraction. Consequently, given the "correct" distance of the electron from each sub-component of the proton, the electron would

cause the two sub-components to come together and form a proton prior to the electron propagating freely.

There is one other experimental fact that should be accounted for. That is the twelve minutes required for neutron decay. This, of course, is the average time for neutron decay. Neutron decay may potentially take a few seconds to considerably longer than twelve minutes. An average of twelve minutes for neutron decay would seem to indicate the following. Firstly, a greater amount of space is *not* created *every time* the antineutrino makes contact with one of the proton's sub-components. The rationale being that since the antineutrino is relativistic, it makes contact with each sub-component an inordinate number of times (to say the least) prior to the neutron completely decaying. If space was created temporarily *every time* that contact was made, neutron decay would take significantly less than twelve minutes. Therefore, the *precise* circumstances that induce additional space between a proton's sub-components when the antineutrino makes contact is something that must be worked out in the future. Secondly, the fact that neutron decay shows variations in the twelve minute time period would indicate that the places in which the antineutrino makes contact with the proton's sub-components when it propagates are completely random. If the neutrino made contact in the exact same places each time, neutron decay, in principle, would not show any variations at all. However, since some degree of variation is shown, the antineutrino must be making contact in various places in order to cause the proton's sub-components to move slightly further from each other. Presumably, when the antineutrino makes contact, it will propagate in a manner which is indicative of "the angle of reflection equals the angle of incidence".

This completes the new model of the electron, proton, and neutron. Before proceeding with the other aspects of this paper, the structure of the positron, antiproton, and antineutron should be briefly addressed. I believe it was Feynman who hypothesized that an antiparticle is nothing more than a particle going backwards in time. According to the model proposed in this paper, this is not correct. An antiparticle is the same as a particle with the exception of the nature of the poles which are facing inwards and outwards. A positron would constitute the opposite of the electron via the following description. The opposite of Fig.1 would be two north poles facing *inwards* and two south poles facing *outwards*. Obviously, there would be electron antineutrinos on the exteriors of the poles and electron neutrinos on the interiors of the poles. An antiproton would be the opposite of Fig.2 via the following. Starting from the "top" (as represented in the diagram) there would be a south pole facing outwards with a north pole on the interior. There would then be an interior south pole from the second sub-component with a north pole on the very "bottom" facing outwards (once again, as illustrated in the diagram). The reader may feel that a representation of this nature would not constitute the antiparticle to the proton as "turning it upside down" would provide the exact same representation. However, if we take the model *as it has been presented* and were to "place it" (loosely speaking) beside a proton, it would be the antiparticle to the proton. (For those who continue to insist that an "upside down" antiproton would be the same as a proton and therefore, cannot be an accurate representation of an antiproton, this issue will be addressed to a very superficial extent in a subsequent part of the paper.) The antineutron is a combination of these two particles with an electron neutrino acting in the capacity of the "binding force" of the antineutron.

The final stages of this paper will provide a brief description of the precise mechanism of how these three particles combine to create an atom. Prior to that, it would be judicious to address some of the objections and advantages to this new model.

One objection may be as follows. In this model, there is neither complete attraction nor complete repulsion between particles. If there is attraction, there is some degree of repulsion (as a

result of the neutrinos) and vice versa. However, this model cannot be true as we know that matter and antimatter annihilate each other when they attract. There is no repulsion between the two particles. My response is that free particles will function differently than particles that are "bound" to atoms. In this *particular example* there is no repulsion as the particles approach each other with sufficient velocity so that the (weak) negative repulsion caused by the neutrinos is overcome via the combination of stronger electromagnetic forces *and* the velocity.

On the point of free particles, there is an experimental fact which provides some support for the model proposed in this paper. When certain experiments have been conducted with free electrons, it has been found that the coulomb repulsion that is dictated by theory is not as strong as it should be when the electrons are brought closer than 10^{-11} cm closer together. Particle physicists have explained this by theorizing that electrons are surrounded by a cloud of virtual positrons. However, this paper explains that there is a small attractive force between electrons without having to resort to virtual particles. The reader may feel that this theory is wrong as it has been stated that the lines of force from neutrinos propagate further than the lines of force from electrons. However, it was already stated in the last paragraph that free particles behave differently as a direct result of the velocity associated with them.

A second, and significant (from the reader's perspective), point of objection pertains to the alleged violation of angular momentum. With the electron and proton, the model has outlined two primary sub-components and four neutrinos for each particle. This is an even number of particles. This is in gross violation of rudimentary conservation laws and on these grounds alone, this entire model, regardless of the potential magnitude of its advantages, must be dismissed. My defence is as follows.

In July of 1999, I was reading an article in Scientific American that pertained to the spin crisis of the proton. The article provided an analysis of the proton that went beyond the realm of two up quarks and one down quark. In this more intense analysis, the violation of angular momentum, as it pertained to the proton, was outlined. As I was reading this, I felt there was a major flaw in the whole nature of the argument. When we have some type of entity that functions in a particular way and is comprised of smaller constituents, it is not necessarily legitimate to ask the same questions of the smaller constituents as you ask of the entity as a whole. As an example, let's take the human body and any one of its organs. The heart will suffice. A legitimate question of the whole human is, what is the average life span of a person in a developed country. However, a similar question *cannot* be extrapolated to a singular component of the whole even if that singular component is analyzable as an individual system. Specifically, it is *completely* illegitimate to ask what is the average life span of a heart. There is no such thing as the life span of a heart. The various organs of the body function *in a co-ordinated way* to create an average life span of so many years for *the body as a whole*. Let's draw another analogy which, although is outside the realm of physical science, may be a more cogent example of how individual constituents do not necessarily "add up" when analyzed separately in order to function in the same capacity as the unified whole. Let's take a happily married couple. Their combined happiness (speaking in general terms) is, on a scale of one to ten, an eight. The husband is in the navy and is required to put out to sea for eight consecutive months without seeing his wife. Now that they're apart, their individual “happiness level” should be a four for each of them. However, upon analysis each of them only has a "happiness level" of two. If we didn't know better, we would state that there is a crisis. Why doesn't their individual happiness add up to their combined happiness? The answer obviously lies in the fact that their combined "happiness level" lies in their marriage and *their interaction with each other*. Again, the individual components do not necessarily add up to the resultant whole as

the whole is *only* the result of a *combined* interaction. Although what has been stated should be reasonably clear, I still feel it is necessary to provide one more analogy since the law of conservation of angular momentum is a critical element of physics. Furthermore, I once mentioned the analogy with the life spans of the heart and the human body to a physicist. Although he understood what I was stating, he countered with the following. His analogy was to state that we may measure a certain mass of a car. If somebody takes it apart and measures each individual component, the combined mass of the components is one ton less than the whole car. That would be a problem. I can still stand by my position by stating that there may be factors about a possible "internal mechanism" that we are oblivious to which causes the whole to function differently than the individual constituents. In order to illustrate this, I will resort to a completely hypothetical scenario. Let's assume that our state of knowledge is so primitive that we were completely oblivious about the workings of the human body. Furthermore, for the effective presentation of this hypothetical scenario, we shall assume that we are in possession of measuring instruments which provide infinitely precise measurements. We measure the mass of a person when he is alive. When he dies, we measure the mass of *every* constituent of is body (organs, cells, etc.). The final measurement shows that the combined mass of the constituents is slightly less than the mass of the person when he was alive (remember, we are dealing with measuring instruments which are infinitely precise). At that stage we seemingly have a problem. This scenario illustrates how individual constituents do not necessarily "operate" in the same capacity as the combined whole. An explanation of why our (infinitely precise) instruments did not measure the same mass for the person (when he was alive) and the individual constituents (upon his death) is as follows. When the person was alive, blood was circulating throughout his body. The ramifications of this are as follows. A certain portion of the blood would be flowing "upwards" *against* the force of gravity. The only time that mass will be "registered" upon a measuring instrument is if mass is directed "downwards" *towards* the force of gravity. Consequently, when the person was alive, the mass measured will be slightly less than the individual constituents (upon the person's death) since the constituents of a certain portion of the blood are flowing upwards against the force of gravity. If, as has already been stated, we were completely oblivious to the workings of the human body and the fact that a certain portion of the blood flows against the force of gravity, we would be wondering why the two different measurements were different. As far as we know, the different measurements should have been the same. We were simply oblivious to the fact that when measuring the individual constituents *all* the masses were directed downwards. What manifests itself with this scenario is a concept which has been expounded upon in the past few paragraphs. It is not necessarily viable to ask the same questions of individual constituents as it is of the whole. The constituents may function *together* to establish a certain component of the whole. The individual constituents would not necessarily possess certain designated attributes on their own. I realized this while I was reading the article previously referred to. It was only *subsequent* to this that I realized the same alleged flaw existed in my theoretical framework. I was not the least bit concerned as a direct result of the arguments already presented. As an example, if I am asked what is the spin of the sub-components outlined, I will refuse to answer the question as it is comparable to asking what is the average life span of a heart. The sub-components cannot be analyzed as separate entities. It is the sub-components and neutrinos *acting as a unified whole* which create a spin 1/2 particle. In this case, one simply cannot analyze the sub-components in the same way that one would analyze the composite whole. The reader should not view this as some kind of clever argument designed to protect an "obviously incorrect" theory. As was already stated, it was only when I read the Scientific American article that I *immediately* realized the inadequacy of the

argument presented in the article. It was only *subsequent* to this that I realized the same alleged flaw existed in my theoretical framework.

There may be nothing I can say to convince the reader that the model proposed is not a violation of angular momentum. However, there is something I can state which may cause the reader to give serious consideration to the proposed model without outright dismissing it. There is something which physicists have been in quest of for decades which this model *automatically* provides. Before outlining what this is, the acceptance of my proposal may be facilitated if the reader is cognizant of something that Steven Weinberg once wrote. In 1992, he wrote a book for the layman entitled, *Dreams Of A Final Theory*. In chapter V, Tales of Theory and Experiment, he writes the following. "...time and again physicists have been guided by their sense of beauty not only in developing new theories but even in judging the validity of physical theories once they are developed." In that vein, there is something rather "beautiful" about the model proposed.

*There **is** symmetry between magnetism and electric charge.*

In physicists' quest to establish this, they have always sought, without success, magnetic monopoles. Although monopoles *cannot* exist (as outlined in my paper on magnetism), there is nevertheless symmetry between magnetism and electric charge. It is not a question of finding magnetic monopoles. It is a question of showing that electric charge has dipoles. That is exactly what this model has established. Furthermore, I cannot see any effective method of establishing this if nucleons contained three primary sub-components (quarks) as contemporary particle physics theory dictates. Our experiments only perceive singular charge because of the structure of protons and electrons. By way of analogy let's present a hypothetical scenario and assume that two magnets are attached together, but we were oblivious to this fact. If the two north poles were, somehow, attached to each other, we would perceive a singular pole. Namely a south pole. However in the "reality" of this hypothetical scenario, there are in fact dipoles. It is the same situation with protons and electrons. Therefore regardless of how vehemently opposed the reader may be to this model as a result of the alleged violation of angular momentum, keep in mind that a long sought after goal of physicists has been established via this model. Namely, symmetry between electric charge and magnetism.[*]

Other points of opposition, and support for my model are as follows. Although my model of the proton has shown dipoles, there are two different poles facing outwards which is in contrast to the model of the electron. In principle, our experiments should be able to detect this. For example, if a proton is placed in a box with a negatively charged plate on one side and a positively charged plate on the other, at least some of the time (if not half the time) it should be attracted to the positive plate. Yet every single time, it is attracted to the negative plate. I will admit that this has given me cause for concern. It is a phenomenon which, *for the time being*, I cannot explain. It is something which I will have to work on and explain in the future. (In this vein, I will also have to explain why the previously provided written representation of the antiproton would still constitute the antiparticle to the proton even when it is turned “upside down”.) In fact, I was

[*] Since Steven Weinberg has been mentioned, it would be appropriate to point out that I don't expect him to defend my theories because of what he wrote. On the contrary, I expect him to attack my work even more intensely than Witten, as mentioned in the introduction to the chemistry section. At least with superstrings, nobody knows if it's correct or not. Since I am proposing a model which opposes Weinberg's Nobel prize winning electroweak theory, strong opposition is expected from him.

considering modifying the model to reflect the same two poles facing each other and outwards. However, as was previously stated when the structure of the proton was being described, it was *The Feynman Lectures on Physics*, volume II, chapter eight, page seven which caused me to adhere to the model which I initially developed. At least those experimental facts mentioned in Feynman seem to show that the proton does have two different poles facing outwards.

The following points can be stated about the neutron and the theory of neutron decay. The neutron is, in essence, neutral. However, it does have an incremental negative magnetic moment. Would the theory of two down quarks and one up quark successfully explain this tiny negative magnetic moment? As far as I know, it would not. However, my model would as the neutron is a combination of a proton and an electron (as well as a "binding" antineutrino). Since the electron has a greater magnetic moment than the proton, this would explain the neutron's small negative magnetic moment. With respect to neutron decay, I feel that there is a small flaw in the electroweak theory which must be explained, even though the vast majority of readers probably will not agree with me. What prevents two down quarks from *simultaneously* emitting a virtual W-boson? I don't feel the answer, there is no such thing as an "up, up, up" nucleon in nature (apparently they have been discovered in accelerators) will suffice. Although quarks do not possess consciousness, I would like to utilize the word "know" in the following. Quarks do not know that there is no "up, up, up" nucleon in nature. A down quark only "knows" that it emits a virtual W- which will eventually decay into an electron and an electron antineutrino. Therefore, of the two down quarks, which one decays? Independent of the final state, which the quarks know nothing about, what prevents the two down quarks from simultaneously emitting a virtual W-? It is my opinion that this is a flaw in the theory which must be explained some time in the future if the electroweak theory is to be adhered to. Obviously my model does not possess the same flaw.

My model does conform to other experimental facts in a way that is slightly superior to the standard model. When Gell-Mann and Zweig proposed quarks (or in Zweig's case, aces) in 1964, their theory was predicated upon certain experiments which seemed to indicate some type of sub-structure to nucleons. However, it is still believed that electrons are elementary as similar experiments have shown that electrons have no sub-structure. My model is in accordance with these experimental facts for the following reason. *Within* the proton there is space as a direct result of the small repulsion induced by one muon neutrino and one muon antineutrino. Within the neutron there is space as the sub-components are much further apart than they normally would be when dealing just with an electron or a proton. However, the electron is different. Unlike the proton, there is no repulsion whatsoever. There is only attraction. This is because the lines of force slip over and past each other, thereby negating repulsion. The attraction is the result of the lines of force from two antineutrinos interacting with each other. Therefore, there is no space (or at least none that is significant) between the sub-components. Consequently, this is another dimension in which this model conforms to experiment (experiments show a sub-structure to nucleons but do not show a sub-structure to electrons).

Although the following is *not* an example of how my model has advantages over the standard model, it is, nevertheless, something which must be addressed. The proton and electron have the same, yet opposite charge. Despite this fact, the electron's magnetic moment is much stronger than the proton's magnetic moment. Does my model explain the *precise* reason for this? In my model, the electron and proton have the same charge because there are the same number of lines of force on each particle. The electron's greater magnetic moment is the result of the electron being smaller than the proton. To be precise, the same number of lines of force are present on a smaller physical surface. In order to more effectively explain this, let's take the equation for

pressure. Specifically, force divided by area. If we reduce the area, but maintain the same force, the pressure will increase. In a similar way, when the same number of lines of force are present on a smaller surface area, the magnetic moment will increase since there is less "empty space" between the lines of force on an electron as there are on the proton. Consequently, when it interacts with a magnetic field, the interaction will be far more "efficient" and result in a greater magnetic moment for the electron.

Another advantage has been briefly mentioned previously. I am able to explain a function for the muon neutrino. Thus far, particle physicists have no explanation for the other two generations of leptons (muon and tau). I do possess some kind of an explanation for them. However, the reader should be forewarned, you're not going to like the explanation. Although there is no question that the muon is produced by nature, I do not believe that it is a natural, or "acceptable" part of nature. An analogy is the best way to elucidate on this. Let's take the case of siamese twins. Siamese twins are a natural part of nature. However, whenever it is possible, they should be separated. This is for the obvious fact that to live the normal life of a human being as a siamese twin is phenomenally difficult. Therefore, even though siamese twins exist, that doesn't mean their existence is normal, or "acceptable". I feel that it is a similar situation with the muon. Even though it exists in nature, it doesn't necessarily mean that it's a normal part of nature (as is the case with siamese twins) or has any function per se. When the muon decays, it decays into an electron, electron antineutrino, and a muon neutrino. My own opinion as to its existence is as follows. The muon is the result of the neutron being "ripped apart" at very high energies. The electron and electron antineutrino are the natural "decay products" of neutron decay. Through some type of very high energy mechanism which I am oblivious to, the muon neutrino at one of the internal poles of the proton's sub-components (on the neutron) is "ripped away". During this high energy reaction, the muon neutrino is somehow combined with the electron and electron antineutrino to create one "compact package" that we have called the muon. If this is correct, the muon would have no function in nature and instead would be, like siamese twins, an anomaly. I feel that this is fundamentally the same situation with the tau lepton. It is an anomaly which is created at high energies. Furthermore, since I have ascertained functions of electron and muon neutrinos, I do not believe that the tau neutrino actually exists since I cannot, as of this writing, ascertain a possible function for it. As a result of recent discoveries, the reader will presumably be opposed to the last sentence. To be specific, the tau neutrino has seemingly been discovered. (I am utilizing the word seemingly for the following reason. It is my position, that in almost any aspect of science, any theory or piece of experimental evidence must stand the test of time. Although it is believed that the tau neutrino has been discovered, it is always possible that the experimental evidence may be reinterpreted to indicate that it is not the tau which has been discovered, but something else.) If the future shows (with a reasonably high probability) that the discovery *is* the tau neutrino, an explanation for it would be as follows.

Other than the particles that electron neutrinos/antineutrinos and muon neutrinos/antineutrinos are associated with, there is another primary difference between these neutrinos. The difference can be explained via the following. As previously stated in this paper, the paper on light stated that the neutrino is a "failed" photon. The neutrino is lacking the necessary internal dimensions to contain the requisite energy needed to create a photon. To develop this point slightly further, the dichotomy between low frequency photons and high frequency photons is the smaller dimensions of high frequency photons which forces the internal energy to propagate in a smaller confined area and induces a higher frequency. The difference between a muon neutrino and an electron neutrino may be that the muon neutrino has *incrementally*

larger dimensions which enables *incrementally* larger energies to be contained therein. In a similar way, if there was another neutrino with slightly larger dimensions, this might be the tau neutrino. To develop this concept one step further, an *extraordinarily ardent* search may reveal one (or possibly more) generations of neutrinos *if* their internal dimensions were slightly larger than the tau's internal dimensions (thereby allowing a slightly higher energy to be contained within). However, there would be a limit as to how large a neutrino may be, since once it reaches a certain size, it would have a sufficient amount of internal energy to be a photon.

Since it has been stated that the tau neutrino does not fit into the parameters of this new framework, this may naturally raise the question, what about the mesons, baryons beyond the proton and neutron, or even the force carriers of the electroweak theory? Where do they all fit within this theoretical framework? To put things quite bluntly, they don't. Does that then mean that decades worth of theorizing and experiments have resulted in work that is invalid? On this point, the reader should keep in mind some of what may be established by this web site. Brand new theories are being proposed which may very well overturn established principles. As *one* example, I'm certainly throwing QED completely out the window despite its outstanding experimental success. Therefore, the idea of decades worth of theorizing and experiments resulting in work that is more or less invalid is not as radical as it sounds given the overall "spirit" of some of the concepts at this web site. The next question would then be, what are we seeing in the accelerators which have confirmed the existence of these particles? It is my opinion that we can see almost anything we want to if the energies are sufficient in magnitude. For example, when the requisite modifications are implemented at CERN within a few years time, I have virtually no doubt that something will be found which will be claimed to be the Higgs boson. Furthermore, since the energies will be so much higher, I have a strong suspicion that a fourth generation of leptons will be found, if experimentalists' scrutiny is sufficiently intense. This will be followed by the eventual discovery of a fourth generation of quarks. I don't know what is actually being found in these accelerators, but, as already stated, almost anything can be found if the energies are sufficient in magnitude. In other words, *at these energies, over a period of time, various anomalies will occur*. If these patterns continue and there is continuing success in increasing the energy levels, within a few centuries there may be 100 generations of leptons and 100 generations of quarks.

Regarding the mesons, contemporary theory dictates that the pion, at low energies, constitutes a "binding force" on the nucleus and overcomes the repulsion of the nucleus. Theory also dictates that the pion (or any meson) is comprised of a quark, antiquark pair. Within my framework, what would my analysis be? The "binding force" of the nucleus will be outlined shortly. Regarding the structure of mesons or baryons beyond the proton or neutron (which in my opinion are anomalies of high energy reactions), it is my opinion that whatever they decay into, that's what they're comprised of. I don't intend to analyze every meson or baryon, but here are two brief examples. I believe the pi-plus is simply comprised of an antimuon (a "packet" of a positron, electron neutrino, and a muon antineutrino) and a muon neutrino as this is what it decays into. A sigma-plus may be a neutron and a pi-plus as this is one decay mode of the sigma-plus. The only interest I have in any of these elementary particles is with the kaon. As a point of curiosity, there is charge parity violation as the decay rate is significantly longer with one of the kaons.

In the preceding few pages, I have striven to show that my model does have advantages over the standard model. I realize that many readers may be vehemently opposed to some of my arguments and concepts. Therefore, I would like to emphasize the following. The true worth of this model will manifest itself in the next paper. In that paper, for the first time in history, some of physics most baffling problems will be solved *via this model*. It is then that the true strength of this

model will make itself felt. Therefore, although some of your objections are understandable, please reserve judgement until the next paper is read.

The final part of this paper will take the model of the electron, proton, and neutron and create a model of atomic structure. In the following explanation, the theoretical groundwork will be provided. Explanations and diagrams will not be provided for all ninety two natural elements or the laboratory creations. However, the groundwork provided will be sufficient to enable the reader to fill in precise details for himself.

In the development of an atomic model that conforms to the theoretical parameters outlined in this paper, the following critical principle must be kept in mind.

There can be no attraction without some degree of repulsion.
There can be no repulsion without some degree of attraction.

The one exception to this prevails with the *internal* "mechanism" of the electron. As has already been previously outlined, there is only attraction without repulsion on an internal level of the electron. It should also be pointed out that electron neutrinos/antineutrinos and muon neutrinos/antineutrinos can interact with each other (i.e. repulsion and attraction).

We will ignore hydrogen as there are no neutrons involved. Therefore, the simplest explanation of atomic structure would obviously lie with helium. When dealing with the nucleus, an interesting question may be posed. If north *and* south components are an integral aspect of the proton, why wouldn't the opposite poles of protons be capable of attracting each other for the establishment of the nucleus? The answer pertains to the long range force of the muon neutrino and antineutrino on the two different poles of the proton. The lines of force from each neutrino are propagating in opposite directions thereby inducing a repulsion when two protons (with their opposite poles facing each other) come within range of each other. Since the lines of force from the neutrinos possess a longer range than the lines of force from the proton itself, this will prevent the protons from attracting each other even when opposite poles are facing each other. (To further expound on why protons cannot attract each other, the situation with two of the same poles facing each other will be briefly explained. When the same two poles face each other, although there would be an attraction via the neutrinos, once the protons came sufficiently close to each other, the lines of force from the protons themselves would induce repulsion as the lines of force from the protons are propagating in opposite direction). Consequently, since protons cannot attract each other, it is the neutrons which will function in the capacity of a "binding force" between protons. It is the sub-components of the proton (on the neutron) which will specifically induce this binding force. The reader would automatically experience vehement opposition to a position of this nature as, from all outward appearances, this would seemingly be the exact same situation as with protons. Although this would seem to be the case, the neutron would constitute the binding force of the nucleus for the following reasons. Firstly, a certain unique type of interaction would prevail when higher elements are created via the fusion of lighter elements during the course of high energy reactions. The repulsive force between neutrinos is temporarily overcome when neutrons are created and "forced" between protons as a result of the phenomenal energies involved when dealing with fusion thereby enabling the sub-component of the proton (on the neutron) to be

attracted to another proton. The following diagram will provide some indication of the nature of a helium *nucleus* (no orbital electrons are shown).

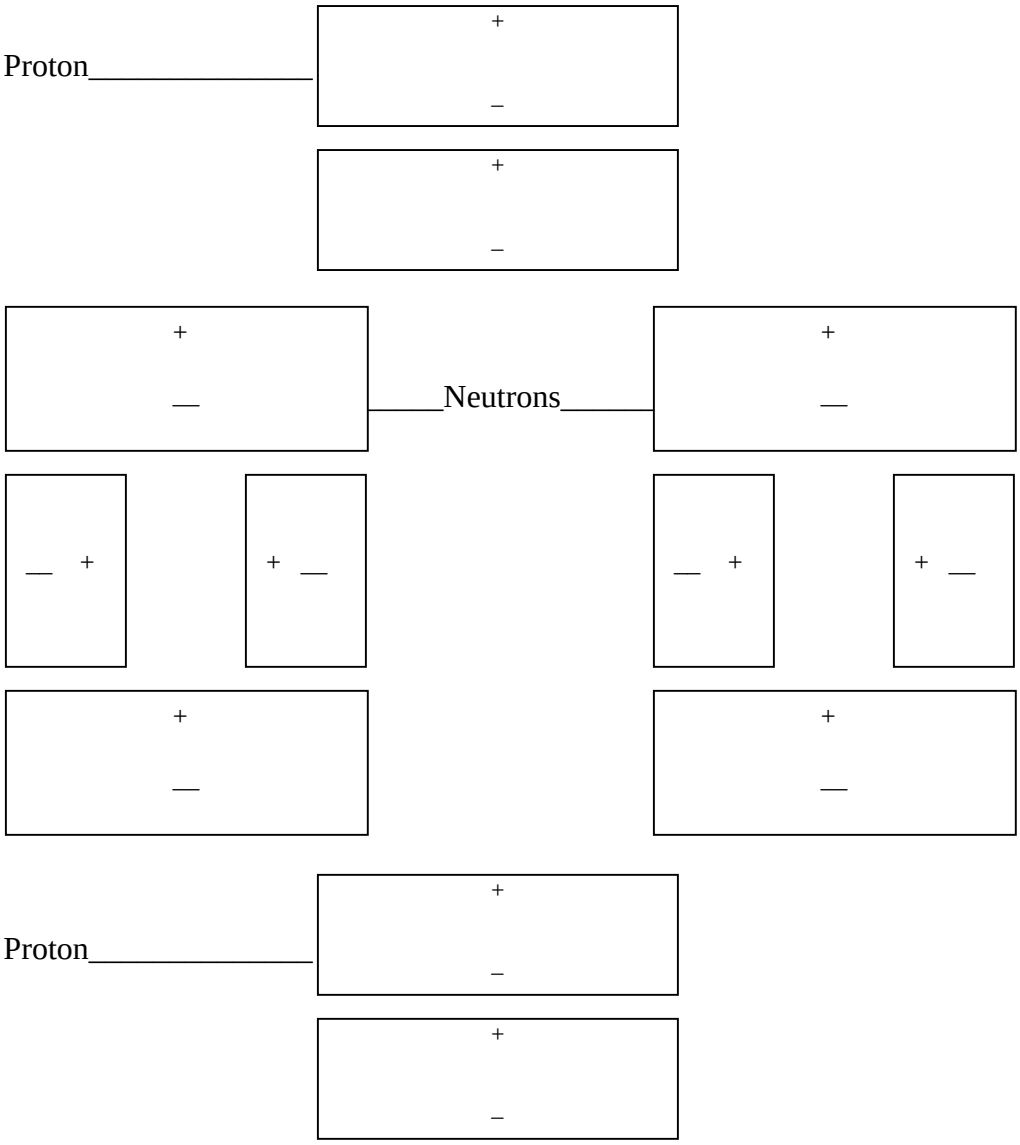

Fig.6

The reader may experience various difficulties with this model. Even if the reader is prepared to accept that the sub-components of the proton (on the neutron) would bind two protons, the diagram seems to show that two neutrons could not exist in such close proximity to each other as the sub-components of the electron would repel each other. This would not invalidate the pictorial model presented. Towards the middle of this paper, it was stated that matter should not exist (in accordance with our current theoretical model) as orbital electrons from one atom would repel the orbital electrons from another atom. However, a new theoretical model was provided to

state why matter *does* exist. This is fundamentally the same situation with two neutrons existing in such close proximity to each other. Although there would be repulsion between the sub-components of the *electron*, the lines of force from the two neutrinos would induce an attraction between the neutrons prior to the neutrons completely repelling each other. Therefore, neutrons *would* be capable of existing in reasonably close proximity to each other, yet in a state of constant oscillation.

Other points pertaining to the helium nucleus (and nuclei in general) are as follows. Protons could not function in the same capacity as neutrons (vis-à-vis a nuclear binding force) as protons could not bind to each other in the same way that neutrons bind to each other (even if that binding is reasonably weak). It is this binding between neutrons which plays a role in the establishment of the nucleus and higher elements. Another point is as follows. Why are there *two* neutrons between protons as opposed to one when dealing with the helium nucleus? Although He^3 exists, the existence of two neutrons between two protons is more stable. The existence of two neutrons is more stable for the following reason. If there is only one neutron, the neutrinos from protons and neutrons would experience a more direct interaction thereby contributing to a greater instability within the nucleus. However, with the existence of two neutrons, the neutrinos (between neutrons and protons) would not experience such a direct interaction. This is the situation with He^4. However, this does not mean that a proton cannot bind to a singular neutron. As has already been alluded to, the very existence of He^3 shows that one proton can bind to one neutron. When dealing with the lighter elements of the periodic table, this is the case. For the establishment of an additional proton within a nucleus, a neutron must be present. (The situation with the intermediate and heavy elements in which neutrons exceed protons will be subsequently dealt with.)

The dynamics of the helium nucleus (and to some extent, other atomic nuclei) can be explained via the following. Two protons cannot be attracted to each other as a result of the long range repulsive force of the muon neutrino on one pole and the muon antineutrino on the opposite pole. The neutron constitutes the binding force between protons. This binding force of the neutrons is created during the course of high energy reactions when neutrons are created and "forced" between the protons. Neutrons are attracted to each other via the long range force of the neutrinos on the sub-components of the electrons on the neutron. The neutrons are in a state of constant oscillation as a consequence of the dynamical interplay between the (attractive) lines of force from the neutrinos and the (repulsive) lines of force from the sub-components of the electrons on the neutron. Furthermore, when the muon neutrinos and antineutrinos from a proton and neutron (that is the sub-component of the neutron which is a part of the proton) interact with each other, this will induce further oscillations of the neutron in conjunction with oscillations of the proton. Within the helium nucleus, the existence of two neutrons between protons is more stable than one neutron as the direct interaction among the muon neutrinos/antineutrinos is circumvented via the presence of two neutrons. Although this is the most stable way for neutrons to exist between protons, it is possible for a proton to bind to a singular neutron.

The strongest attraction/repulsion is the result of the lines of force from the sub-components of the particles. The weaker attraction/repulsion is the result of the lines of force from the neutrinos. Therefore, although the neutrons attract each other, there is repulsion among them. Although the neutrons attract the protons, there is some degree of repulsion between the protons and neutrons. Although the protons attract the electron (this is not presented in Fig.6), there is some degree of repulsion between them.

It would be judicious to explain what may appear to be an anomaly pertaining to the neutrinos. It is the neutrinos which are responsible for "some degree of repulsion" (or attraction).

However, the repulsion is between a muon neutrino and a muon antineutrino (this is one example of repulsion between neutrinos). However, a particle and an antiparticle should attract not repel. The explanation behind this anomaly as it pertains to neutrinos lies in the chirality of neutrinos. A neutrino is left handed whereas an antineutrino is right handed. This entails the lines of force propagating in opposite directions. Consequently, there is a repulsion. If this chirality did not exist, then neutrinos would behave like other particles (opposites attracting, likes repelling) since there would be lines of force propagating in clockwise *and* anticlockwise directions when the lines of force emerge from one end of the "entity". The reader may still object since there is experimental evidence that neutrinos and antineutrinos attract and annihilate each other. Firstly, these neutrinos would not be interacting per se (to be specific, *their lines of force* would not be interacting) since they are relativistic. If two magnets were to move past each other at a relativistic speed, there would not be an interaction as a result of a lack of time. On a secondary level, they would not necessarily meet each other "head on" (which is the point from where the lines of force emerge) thereby largely circumventing any interaction among the lines of force. Two opposite neutrinos would simply smash into each other (at an angle that is *not* "head on") and annihilate.

To return to the model of the atom. For the lower atoms, every time there is an additional neutron, another proton can be added. There are various "places" within the nucleus where the lowest energy states will be achieved and the approximate area where an additional neutron can be established, thereby enabling an additional proton to be established. As the nucleus becomes larger the electrons in the lower orbitals (1s, 2s, 2p) will be drawn closer to the nucleus. However, as we proceed to higher orbitals, the electrons will *not* be attracted to the nucleus due to the shielding effect. Instead the electrons in the higher orbitals will be maintained in their orbitals via the long range force of the neutrinos (on the electrons) of the lower orbitals. (The reader should not forget, that within any atom, there are constant oscillations of all the components due to a careful balance between attraction and repulsion.) As we proceed to the higher atoms, there will be more protons. It is now a question of comprehending why, when we move beyond calcium, the number of neutrons exceeds the number of protons. Prior to proceeding with an explanation of why there are more neutrons than protons, let us view an approximation of a nucleus. (In the following diagram, for the sake of simplicity the sub-components of the nucleons have not been shown. The “N” will denote a neutron whereas the “P” denotes a proton. Furthermore, as a result of the spatial orientation of this diagram, the protons and neutrons at the top and bottom part of the diagram had to be drawn slightly smaller than the others in order to achieve an approximation of the desired diagram that was somewhat reasonable.)

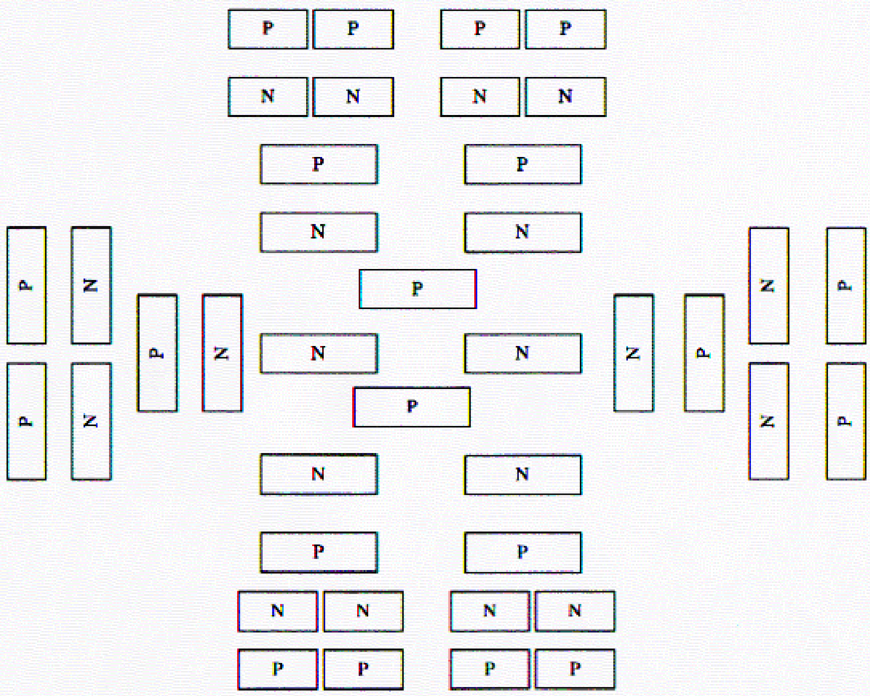

Fig 7

(Prior to proceeding, one point should be mentioned as it pertains to figure seven. Generally speaking, neutrons are attracted to other neutrons via electron neutrinos on the exterior poles of the sub-components of the electrons. However, the neutrons towards the central area of figure seven are attracted to each other via an electromagnetic attraction between the sub-component of an electron on one neutron and the sub-component of a proton on the other neutron.)

As has been previously outlined, two protons cannot exist within close proximity to each other within a nucleus as two different muon neutrinos (on different exterior poles of protons) will repel each other. However, the concept of proton repulsion does not only prevail with the lines of force from the muon neutrinos, but from the lines of force from the protons themselves. If the reader will momentarily look back at figure five (even though figure five is incrementally different as it illustrates electrons as opposed to protons), he should be capable of assessing that these lines of force would induce repulsion even if the protons were side by side (i.e. with their widths "facing" each other.) (As was previously alluded to, an accurate representation of certain aspects could not be achieved with the protons and neutrons at the top and bottom of figure seven.) Within the lower elements the proximity of the protons to each other would be, loosely speaking, "tolerable". To be more precise, the protons would still be sufficiently far apart from each other that the stability of the nucleus would be maintained. However, every proton is capable of "supporting" an additional *two* neutrons. Each of these neutrons are capable of "supporting" an additional proton. Beyond calcium the nucleus would no longer be stable. This is for the simple reason that the protons would be too close to each other to maintain stability within the nucleus. The only way of circumventing this would be via the existence of additional neutrons. Via these additional neutrons, the protons would be sufficiently far apart from each other so that the protons would not significantly repel each other. For illustrative purposes, if an additional "line" of

neutrons were to be added to the top of figure seven, there would not be eight additional neutrons, but slightly more. The addition of more than eight neutrons would suffice to keep the protons sufficiently far apart from each other when an additional “line” of protons was added to the neutrons. This would circumvent an “unacceptable” level of repulsion. Consequently, the overall number of neutrons would have to exceed the overall number of neutrons. In an attempt to provide a slightly higher level of lucidity to the explanation, an additional difference between the nuclei of intermediate/heavier elements and the lower elements is that with the intermediate/heavier elements one additional neutron will *not* necessarily be capable of “supporting” one additional proton. If this situation were to transpire, this would defeat the purpose of the overall number of neutrons exceeding the overall number of protons. The reader may feel that there is a significant flaw in this model. Since the neutrons possess charge (or at least various sub-components of neutrons possess charge) the sub-components of the electrons on the neutrons would repel each other and induce an instability within the nucleus. This point has already been addressed when the “composition” of the helium nucleus was first explained. Although the lines of force from the sub-components of the electron would repel, the long range lines of force from the neutrinos on the sub-components would attract each other. Therefore, additional neutrons would not contribute to the overall repulsion/instability of the nucleus.

Finally, this model of the atom (as it specifically pertains to the electron structure) explains ionic and covalent bonds. As has already been stated elsewhere, the lines of force from the neutrinos have a longer range than the lines of force from the electrons. If there is a "place" within the orbitals where an electron (or electrons) could go, the basic mechanism is as follows. We'll take salt as an example. Since chlorine has seven electrons in its outer shell, there is one "place" where there is a lack of negative charge. However, the lines of force from some of the neutrinos on the electrons in the "l" shell fill this particular area and function in the capacity of an attractive force for another electron (or more specifically, the lines of force from the neutrino of another electron). Since the singular electron from the sodium would be loosely held it would be attracted to this "place" on the chlorine. Since there is no negative charge in that specific area to repel the electron, its place will be established. This basic mechanism can be extrapolated to covalent bonds as well.

In the paper on the Heisenberg uncertainty principle, it was stated that a rudimentary idea for detecting electrons via passive detection would be presented (this is in addition to the other concept that was presented in that paper). The following may be rather opaque since it relies on other papers at this web site which the chemist would have no interest in. Therefore, the following is directed at physicists even though it may only be understandable upon completion of reading other papers. In the astronomy section under the paper The Missing Matter, it was stated that neutrinos may be the gravity waves predicted by general relativity. It was also stated that our current level of technology is far too primitive to detect such incremental effects which may be induced by these neutrinos. If our technology is sufficiently advanced to the point where gravity waves can be detected, then it may be possible to extrapolate this technology to electrons so that a singular electron (or more correctly, its neutrino) can be detected via passive detection as it propagates through the two-slit interference apparatus. Obviously this would requires *highly* advanced technology which is completely beyond our present day capabilities.