ELECTRICITY

In previous physics papers at this site, new physics has been developed when the phenomenon in question was taken to an extreme. What new physics might emerge if we give consideration to the possibility of a truly phenomenal number of amperes passing through a conductor? (If the reader has read the paper on magnetism, it should be emphasized that the goal of this paper should not be confused with one of the expressed desired precepts in that paper on magnetism. The analysis presented in this paper is completely independent of the desired goal in that particular paper.)

A logical analysis would be as follows. If the amperes were truly inordinate in magnitude, then a strong current density would build up on one particular side of the conductor. As this current density builds up, the other electrons within the atom (let's say a copper atom) would be repelled from that inordinate current density. The spatial orientation of the electrons within a designated atom (and, of course, all of the atoms) would then radically change. A *preliminary* analysis is as follows. To speak in exceedingly simple terms, a type of "hole" would develop where certain electrons should be. This does not mean that there would be any type of "hole" within the electrons themselves. The meaning of this "hole" is as follows. As the reader is well aware, electrons will adopt certain orbitals around a nucleus that adheres to the rules of quantum mechanics. The orbital occupied by any electron will remain consistent given the provision it is not exposed to some other "factor" (which could be of a highly varied nature) which would cause that orbital to change. If electrons within a conductor are exposed to a phenomenally strong current density (which would be the case if a truly inordinate number of amperes were sent through a conductor) then those orbitals would change. The electrons closest to that current density would move further and further away from that density. The reader may feel that this would be counterbalanced by the electrons (within a designated atom) moving closer to each other within other "areas" (if one can utilize a word like area when referring to quantum mechanical phenomena) of the atom. In other words, even if some electrons within an atom were to move away from an inordinate current density, they would be forced back to their previous position (even if only for a very brief period of time) when they came increasingly closer to other electrons within the same atom thereby nullifying the movement away from the strong current density on the one side of the conductor. However, the current density that is building on a particular side of the conductor would easily cancel the negative repulsion that is experienced when electrons within an atom move closer to one another. Since there would be movement away from the phenomenal current density, the electron orbitals would change so as to create the previously referred to "hole" in the *spatial orientation* of the electrons. In essence, there would simply be an "area" of the atom where there would be no electrons. It goes without saying that the electrons would not simply vanish into thin air, but instead would "conglomerate" in different spatial orientations around the nucleus in order to allow this "hole" in the area of the electrons. A (silly) analogy for illustration purposes would be as follows. Let's take the asteroid belt in our solar system and assume there were some (hypothetical) force which could repel asteroids. If this force were brought close to one part of the belt, the asteroids in this area would move away from the force and re-orient themselves (assuming the sun's gravity maintained them in that designated orbit). There would be a greater density of asteroids in certain parts of the belt, and a hole in the part where the force was being exerted. This would be the situation with the spatial orientation of the electrons if a truly phenomenal number of amperes flowed through a conductor.

In what has been outlined thus far, no new physics has emerged which would be useful, or for that matter, even particularly interesting. However, if the analysis is taken further, new physics will emerge in which there is the small possibility that something incrementally useful may be derived.

"Taking the analysis further" entails increasing the amperes to an even larger extent once the spatial orientation of the electrons have changed. Obviously, the magnitude of the current density will increase to an even larger extent. Since there are no more electrons in the "immediate vicinity" to repel, once the current density is sufficient, the most viable alternative to consider is the following. The nucleus of the atom itself will be attracted to this inordinate current density, and will propagate along with the current density. Once the nucleus is attracted, that automatically entails that the other electrons (around a designated nucleus) will propagate along with the nucleus while *simultaneously* maintaining the spatial orientation previously outlined. Therefore, through the introduction of truly phenomenal amperes, it won't merely be a question of singular electrons in the outermost shell providing energy, but the *entire* atom providing an energy yield.

When applying this analysis to various conductors in the periodic table, the higher we proceed within the periodic table, the larger the amperes required to achieve this effect. The rationale behind this is rather straightforward. With higher elements, there are more shells of electrons to contend with. Therefore, the amount of current density required to re-orient the spatial orientation and "expose" the nucleus (so that it will be attracted to the current density) will become far greater than conductors that have lower atomic numbers.

The reader may feel (with some justification) that this paper still has not yielded any truly useful information. As has already been stated in this paper, the number of amperes required to achieve the designated effect would be nothing short of phenomenal. Consequently, the energy already being provided is so substantial, that even if this effect were true, the additional energy provided by an entire atom propagating (in contrast to a single electron from a designated atom) would not provide mankind or science with anything useful. I am cognizant of these objections and would tend to agree with them. However, one can never discount the value of scientific knowledge. Even though the precepts outlined in this paper seem fundamentally useless, we cannot rule out the possibility that if this effect were achieved, we would not have a use for it.

In the second paragraph of this paper, it was stated that a preliminary analysis would indicate that this effect (an *entire* atom providing energy) could be achieved. However, the precepts outlined *thus far* would show that this specific effect would not be achieved. On the contrary, the phenomenal current density on one side of the conductor would only succeed in the electrons (and subsequently atoms) being “pushed” to one side of the conductor. A “hole” would not be created within the orbital electrons. However, this does not mean that the stated effect cannot be achieved. It merely means that certain concepts must be applied if we hope to ever achieve this effect. This, of course, raises the question, what are the requisite elements to achieve a “hole” within the spatial orientation of electrons so that the nucleus (and subsequently entire atom) can be attracted to this phenomenal current density?

Firstly, let’s outline some ideas which may culminate in the attainment of an inordinate number of amperes. (These are only meant to be rudimentary ideas, not tangible methods which are assured of achieving the requisite amperes). I do not believe that the requisite amperes are attainable "today". To begin with, it would be presumed that if such energies are required at all, it would only be required for a short time scale. The rationale for this would pertain to an analogy with fusion. In order to generate fusion, we only require the requisite phenomenal levels of heat on a short time scale. Some ideas for the attainment of these short scale intensive amperes are the following.

To begin, a method of circumventing the atoms being “pushed” to one side of the conductor must be developed. There are two precepts which may achieve this effect. Firstly, the amperes must *not* be gradually built up within the conductor. If there were a “building up” of the amperes, then it is inevitable that the atoms would indeed get “pushed” to one side. However, let’s assume we require “x” amperes to achieve the desired effect. If “x” amperes were applied at an instant, it should suffice to circumvent the atoms being “pushed” to one side of the conductor. However, if this does not suffice to circumvent the atoms being “pushed” to one side, there is a second precept which should circumvent this effect. Place a second wire directly underneath the first wire which has an electric current flowing in the opposite direction. If the amperes flowing through this second wire were sufficient in magnitude, it should serve to induce a sufficient repulsive effect on the atoms of the first wire so that they don’t build up on one side of the conductor. (The wires would have to be fastened together as two wires with opposite flows of electricity, in close proximity to each other would repel.) The reader may have objections to this position for pragmatic reasons. The energies required for this would be phenomenal. Namely, an inordinate number of amperes flowing through the first conductor in the hopes of creating a “hole” within the electrons and an inordinate number of amperes through the second conductor to prevent the atoms from building up on one side of the conductor. What motivation would there be for achieving such energies in an attempt to achieve this effect? For the purpose of emphasis, an argument that was already outlined in this paper will be briefly repeated. Even though we have no practical application for an effect of this nature for the time being, that doesn’t necessarily mean it’s useless. We are simply striving to develop new scientific knowledge. In this particular case, it happens to be the possibility of an entire atom yielding energy as opposed to one component of the atom (electrons) yielding energy. We can only hope that it will yield more practical benefits in the future. As an example, the reader should keep in mind that when the laser was first developed, it was labelled the solution to no problem.

The next question would be, how do we produce such phenomenal amperes? Again, the following are merely meant to be rudimentary precepts. Firstly, the "environment" in which conductors are rotated (by steam) in a magnetic field to generate energy should be changed. If possible, they should be enclosed in "something" (let's say glass) and the air pumped out in order to create a vacuum and eliminate air resistance. Secondly, something as "passive" as steam cannot be utilized to turn the conductor. The faster the conductor rotates, the greater the amperes generated. Therefore, a high energy "propulsion system" would have to be designed to rotate the conductor as quickly as possible. Since these precepts are only meant to be rudimentary considerations, the exact nature of such a "propulsion system" would remain to be seen. Thirdly, step-up transformers with an inordinate number of coils would also be required. Presumably, very large transformers would be required in order to dramatically enhance the number of coils which could be established around one arm of its surface area. Unfortunately, these are only rudimentary precepts. We will see what new concepts emerge in the future.

One of the reader's questions is the following. How many amperes would be required to achieve this effect? As a result of certain variables, a precise calculation cannot be rendered. We are dealing with a many body problem for which no mathematical framework exists. Furthermore, in order to successfully implement a calculation of coulomb's law, we must know the denominator. Specifically, distance. Schrodinger's equation only gives us the probability of where an electron will be. Furthermore, as the reader is well aware, the successful calculation of Schrodinger's equation becomes increasingly difficult as atomic number increases. Secondly, although the following may seem nebulous, it should be mentioned. This web site will establish new scientific principles. Certain new "complicating factors" will arise when I delve into a more intense scrutiny of the atom in the section on chemistry. These new factors will also impede the development of a calculation which would enable us to describe a theory of nature which would enable us to predict the number of amperes required for this effect.