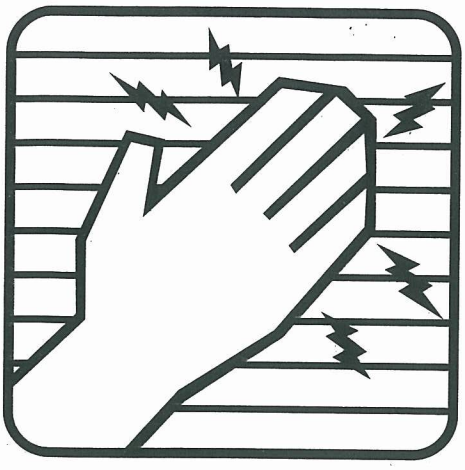
A Physicist's View of the Use of



Feeble Electric Direct Currents

To Repair Tissue and Replace Body Parts

Part Two

By Gary Wade

In Part 1 of this article, which appeared in the February 1996 issue of *Health Freedom News*, we saw that mammals were lacking a single simple tissue electric direct current "code" to be able to regenerate from severe tissue damage. When this direct current "code" was applied directly behind an amputation site, regeneration/replacement of the amputated tissue was initiated. A simple practical method for regeneration/replacement of the amputated digits and limbs using the contact potential difference between a platinum plated acupuncture needle and a skin surface mounted silver electrode was illustrated. In Part 2 we will extend the use of this direct current "code" to regenerate severed spinal cords and potentially treat cancer tumors. Two other unrelated methods for total body regeneration will, however, be discussed first. The discussion of these other, never before publicly disclosed, regeneration methods is not only to enlighten the reader, but to underscore what is the real problem to overcome in regeneration research. That is the problem of corrupt greed driven vested interests, which control research dollars and therefore research projects.

OTHER REGENERATION METHODS

A physicist friend, who wishes to remain anonymous, in 1979 invented, designed, and built a successful mammal electromagnetic field regeneration chamber. He had come to the conclusion that the ultra low level of very broad band electromagnetic radiation given off by living creatures was not just the normally expected black body radiation given off the body due to it's temperature. In fact, he had come to believe that hidden inside the normal looking black body radiation emission pattern were "signature" frequencies of electromagnetic radiation associated with the cell's chromosomal DNA. Furthermore, he had come to the conclusion that the chromosomes could be thought of as collections of strung together parallel inductance (L) and capacitance (C) circuits, with the chromosome segments between binder proteins being electrically conductive and having inductance and internal capacitance between the double helix windings of the DNA (LC circuits each with a well-defined resonance frequency). He designed a special chamber which doubled as an antenna chamber to pick up a mammal's electromagnetic emissions spectrum and as a standing wave resonance chamber to expose the mammal to it's own amplified electromagnetic emission field. The mammal's electromagnetic emission spectrum would be picked up by the chamber and amplified by an ultra wide band high frequency amplifier and then sent back into the chamber. The closest common analogy to illustrate the situation that occurs in the chamber is that of runaway positive feedback in a public address system. We have all heard what happens when the microphone gets too close to the loud speakers, which are always producing low level white noise from the amplifier. And just like with the runaway positive feedback of a public address system which is intolerable to the ears after a short period of rapidly

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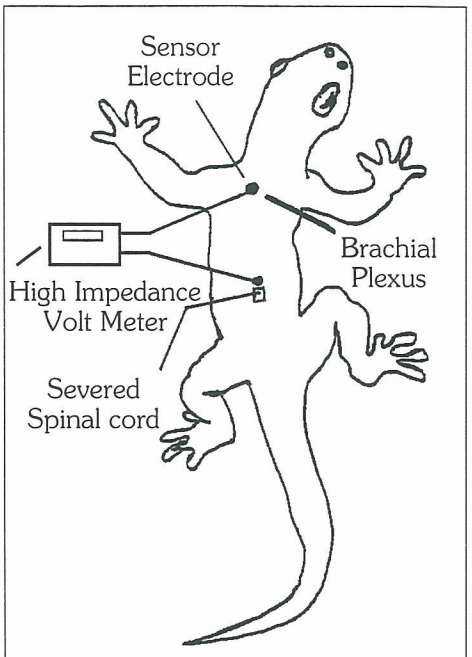
growing noise volume, so too, the run away positive feedback of the chamber can only be tolerated by the mammal for approximately 30 seconds, in his chamber, before the chamber must be powered down. What happens in that 30 seconds is truly phenomenal. Throughout the mammal's entire body in many cell types, genes which are associated with the aging and planned death of the mammal are apparently being reset backwards. In experiments with old injured and maimed cats and dogs, mainly supplied by veterinarians, he found that three successive approximately 30 second treatments spaced at about one week apart could cure all manner of illness and tissue damage and bring the animal back into it's prime of life. As an example, consider his next door neighbor's dog, which had been hit by a car some years before. The dog's hind leg had been crushed and partly amputated by the accident and there was spinal cord damage. When he began treatment, the dog's hair was graying and had fallen out in several patches. It was extremely overweight and was having trouble breathing. Three months after a three treatment regimen in the chamber, the hind leg had regrown and was fully operational, spinal damage was healed, all the dog's hair had grown back in, now black, and it had lost it's excess weight and breathing trouble. It was young again. Perhaps, just to show you that God has a sense of humor, the dog was shortly thereafter run over and killed by a car.

Returning home to his combination house and laboratory one day he found uninvited and unwelcome agents of the National Security Agency (NSA)* going through his house and laboratory examining and taking whatever they wanted. He was informed he had no say in the matter. Some days later he returned home to find his home and laboratory burned to the ground by a fire of suspicious origin. Since that time he has not worked any further on his regeneration chamber.

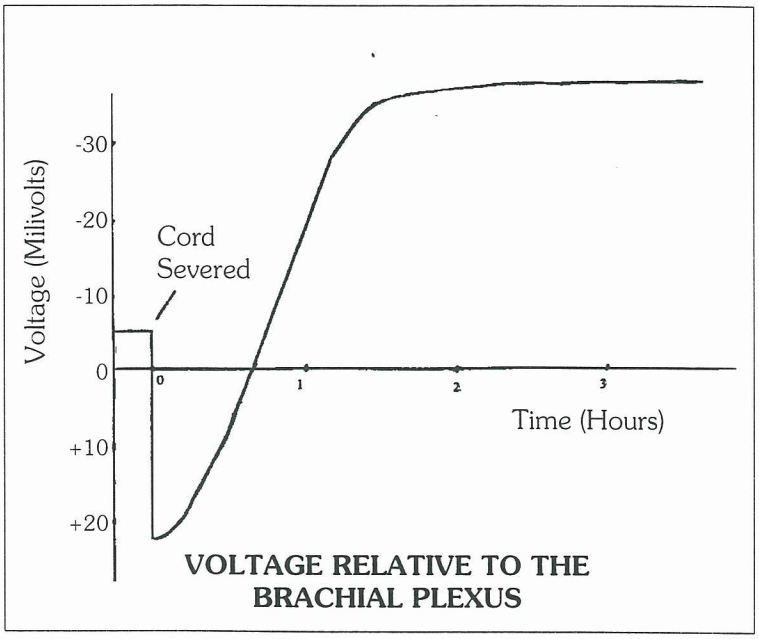
A second friend and researcher of regeneration phenomenon works with strong magnetic fields. He also currently wants to remain anonymous, until he is ready to publish his work. He has been able to produce some rather phenomenal regeneration results. He immersed the entire human body in a strong uniform magnetic field. The body was aligned with the field in a different manner unique for each individual and super human body regeneration and healing would occur. The actual driving mechanisms of the super high rate of healing are not known, however there are some promising theoretical possibilities being worked on. He has found that each type of regeneration or healing problem has it's own minimum magnetic field intensity requirements before any healing begins. Once this threshold of magnetic field strength has been reached, from then on the stronger the magnetic field the shorter the regeneration or healing time. A couple of examples to illustrate this method's power are:

1) A man who was a quadriplegic due to a spinal cord tumor which had taken over 90 percent of the crossectional area of the spinal cord pathway in the cervical part of the spine was totally healed of the tumor and paralyses in 104 hours of accumulated treatment time in the magnetic field., and 2) A patient who was blind from degeneration of the optic nerve regained full sight after 6 hours in the magnetic field.



SALAMANDER WITH SEVERED SPINAL CORD

Figure 1A



VOLTAGE RELATIVE TO THE BRACHIAL PLEXUS

Figure 1B

** NSA — The National Security Agency is twice the size of the Central Intelligence Agency and operates both in and out of the United States. It monitors phone and radio communications worldwide. All long distance phone calls and Faxes are subject to monitoring by the NSA.*

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THE DIRECT CURRENT METHOD OF REGENERATION

Well now that we have arrived at a basic understanding of how to use electrodes (acupuncture needles) to facilitate regrowth of an amputated limb, how does this understanding relate to spinal cord regeneration? Figure 1B illustrates the voltage potential relative to the brachial plexus verses time profile taken at the wound site and on the head side of a severed spinal cord of a salamander (see Figure 1A), while the spinal cord goes through regrowth and reattachment. The shape of the curve in Figure 1B is essentially the same as the shape of the curve in Figure 2B for regrowing a salamander front limb (see Figure 2A). The only significant difference between the two curves is that the time scale for spinal cord shock is only a few minutes to a few hours for successful regeneration to occur, instead of the several days of tissue shock seen in Figure 2B. This situation strongly suggests that the spinal cord regeneration process has the same requirements as those of any other major body part/limb regeneration process. These are the sustained presence of below normal chlorine ion concentrations, higher than normal positive ion concentrations, and high pH which are generated and maintained for an adequate time length in the spinal cord wound region. Some questions to be asked are: 1) What is the crossectional area of the tissue to be replaced at and around the spinal cord damage site? 2) How many implanted electrodes will be required for that crossectional area to maintain the right pH and positive ion and negative chlorine ion concentrations on and at the surface of the surgically cut spinal cord?

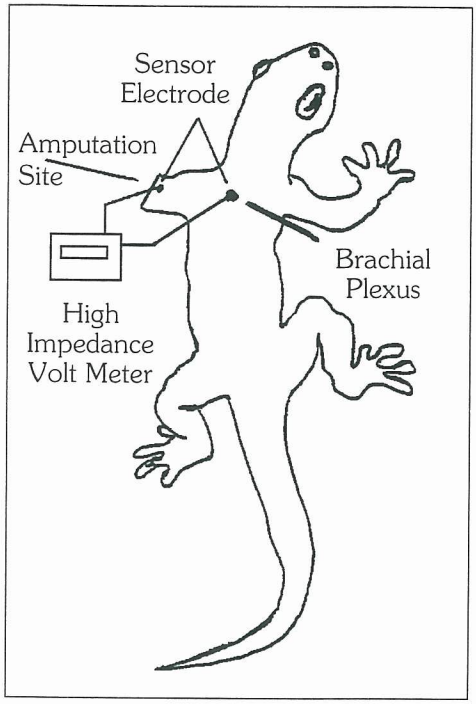


Figure 2A

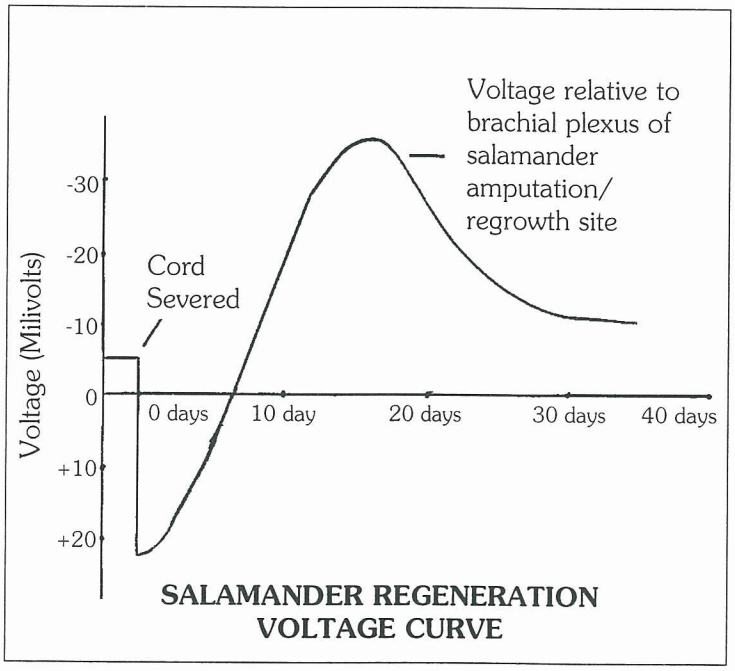
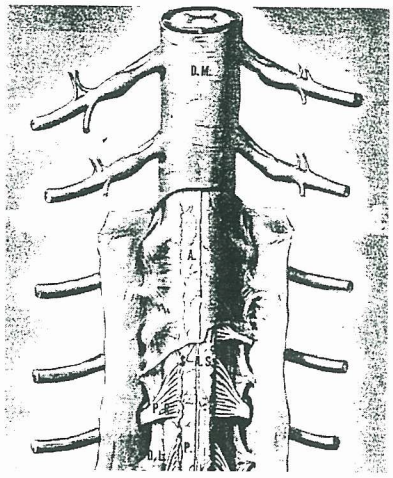


Figure 2B



A- Arachnoid
D.L.- Dentate Ligament
D.M.- Dura Mater
P- PIA mater overlying spinal cord
P.R.- Posterior root
S.A.S.- Subarachnoid Septum

▲ Figure 3A

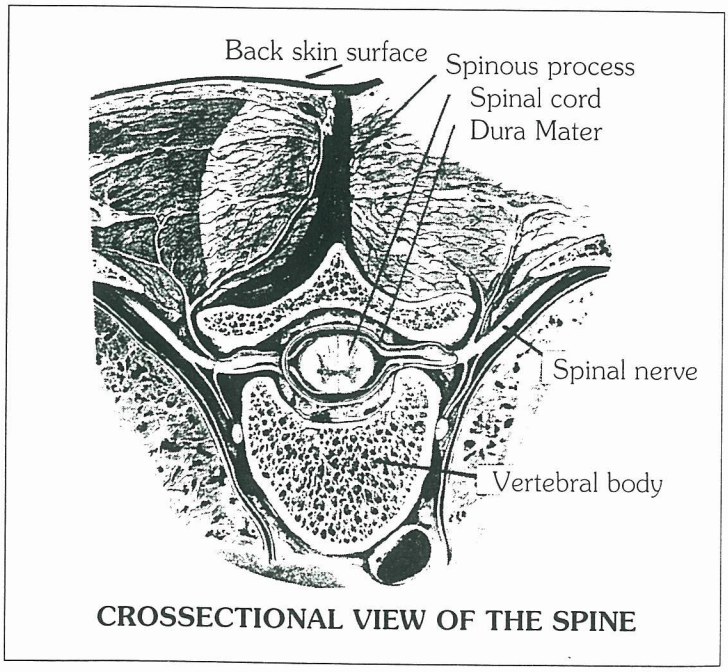
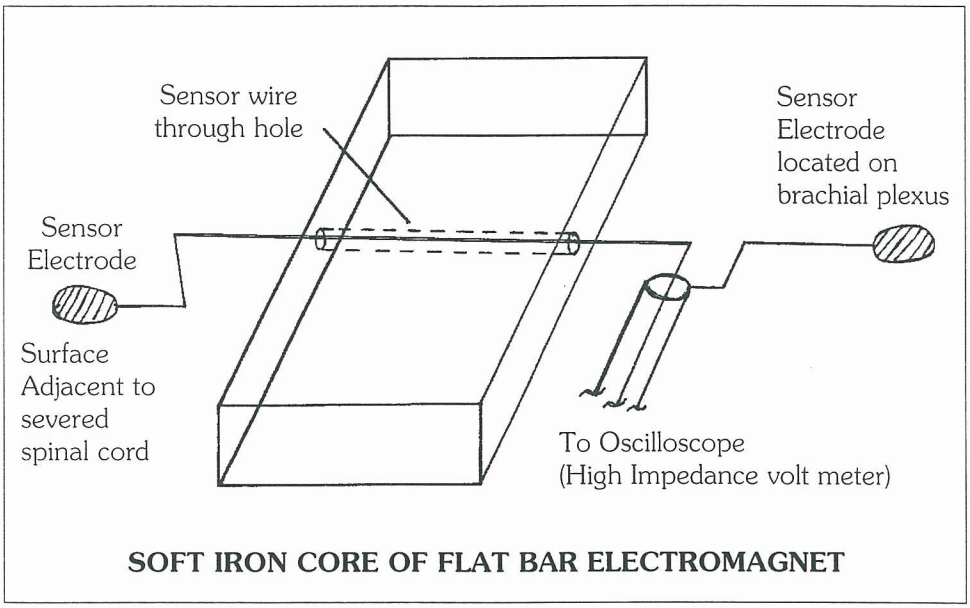


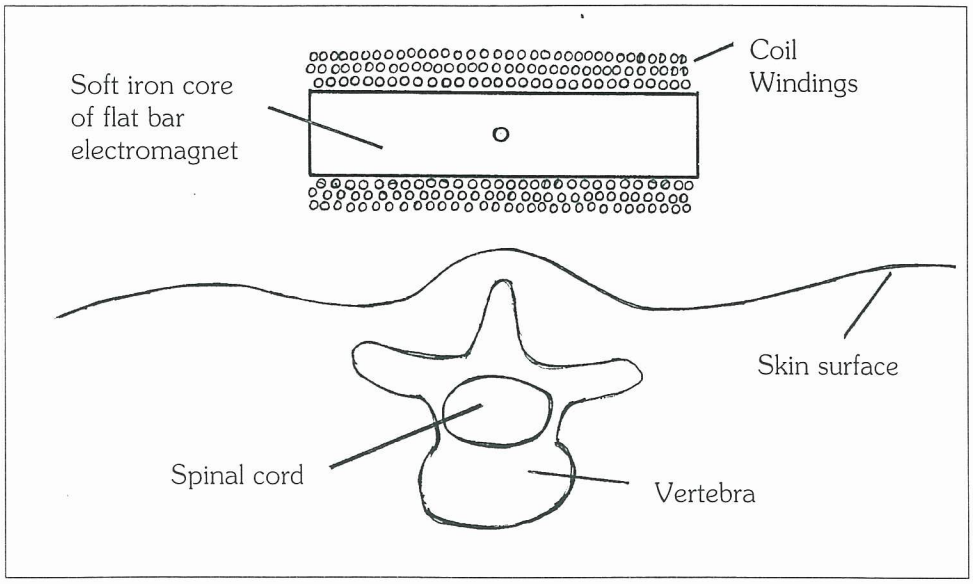
Figure 3B

3) How much current flow should go to each electrode ? 4) How can the implanted electrodes be implanted in such a way as to not physically obstruct tissue growth and spinal cord reconnection? and 5) Is there any other non-needle/non-implanted electrode method of generating the needed pH and positive and negative ion concentrations in the to be regenerated spinal cord region ? Questions 1, 2, and 3 are obviously intimately related. However, unlike limb regeneration the spinal cord also has a cerebra-spinal fluid flow channel which moves/transports cerebral-spinal fluid to, and ideally through, the damaged spinal cord region. This fluid flow makes it much more difficult to determine the needed current flow (hydroxyl ion (OH^-) generation rate) in the now to be purposely surgically damaged region. Also the significant differences in the chemical/ionic makeup between spinal fluid and the intertisal fluid between body cells makes it more difficult to determine the needed current flow. Figures 3A and B illustrate some of the pertinent anatomical details of the human/mammal spinal cord and surrounding support tissue structures. As for question 4, electrodes could be implanted onto and around the inside wall of the dura matter which encases the spinal cord. As the spinal cord end grows and moves away from some electrodes on the dura matter wall and toward other electrodes on the wall, the current can be shifted between and to other electrodes. It will still initially be trial and error to find the right current flow for the electrodes. A few well selected animal experiments will probably be required to determine the needed current flow window. Only a few experiments will be required, not the formation of a research bureaucracy to repeat the experiments over and over again and slowly work their way up to primates. However, measuring the skin surface voltage over the wound site, which the current flow generates may offer a simple solution to the problem of determining the proper current flow window. The answer to the fifth question is yes, and I will develop the specifics required to show this below.

Figure 4 shows a schematic view of a flat bar shaped electromagnet (coil windings not shown) along with its associated sensor electrodes, all of which is to be placed over the spinal cord just above or in front of where the spinal cord has been surgically severed. When I say severed, it must be remembered that most people who will require this form of spinal cord regeneration will have to undergo a spinal cord operation to remove scar tissue (dead cord) and cysts, because their paralysis has been long-standing and there has been ongoing progressive tissue degeneration in the spinal cord region. In Figure 4 the coil around the bar magnet is not shown for reasons of clarity. Figure 5 shows a crossectional view of the bar electromagnet and spinal cord. By applying a simple audio frequency ramp current wave form to the coil of the bar electromagnet, a changing magnetic field will

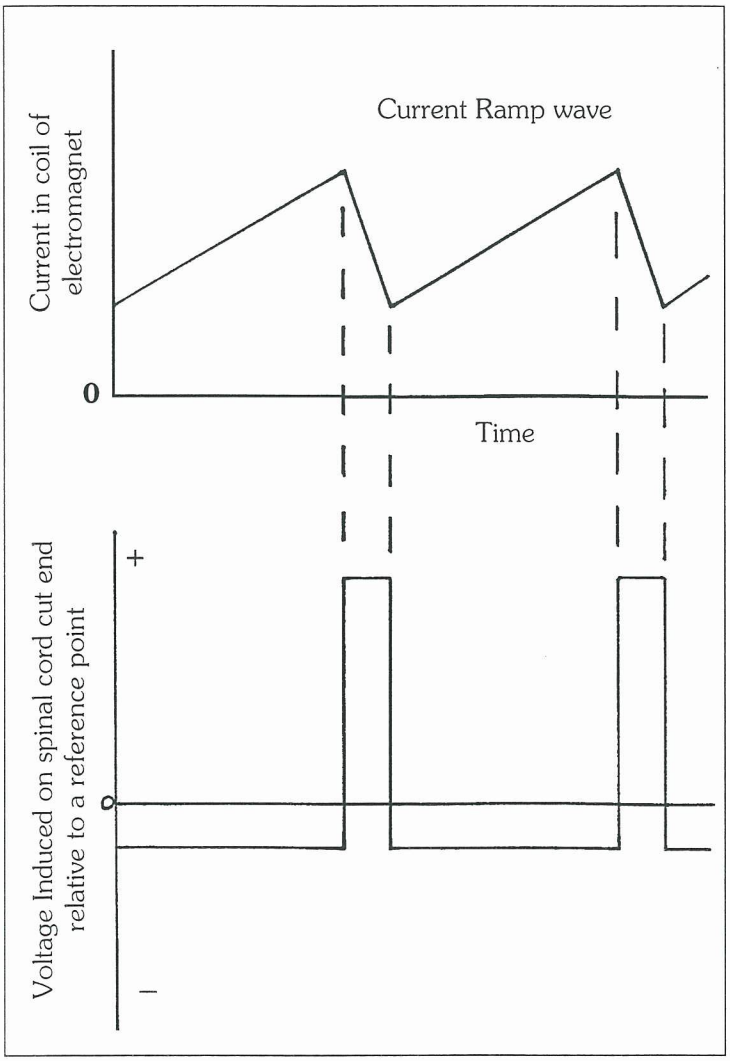


▲ Figure 4



▲ Figure 5

be generated by the electromagnet that will induce a voltage along the length of the spinal cord. The ramp current wave form and the corresponding induced spinal cord voltage are illustrated in Figure 6A and B, respectively. The constant direct current component added to the current ramp wave of Figure 6A is to keep the soft iron core of the electromagnet always in the linear magnetization range, so that the induced voltage from the changing magnetic field generated by the ramp wave current will be of a nearly constant value as those illustrated in Figure 6B. We chose the direction of current flow through the coil so as to induce a negative voltage on the now surgically cut upper end of the spinal cord. The spinal cord is a highly resistive N-type semiconductor. The continuously connected glial cells, which form the structural support matrix of the spinal cord, run the length of the spinal cord. These glial cells are connected one to another by a dense mesh of intertwined electrically conductive N-type semiconductor protein (collagen). By choosing an appropriate combination of ramp wave current amplitude and ramp wave frequency, a negative voltage at the upper spinal cord cut end can be induced, which generates the needed current flow (negative hydroxyl ions as discussed in Part 1) off the end of the severed cord. Since the hydroxyl ion formation process is an asymmetrical type process, once the hydroxyl ion has been generated by electron tunneling off the collagen protein fibers, a temporary reversal of polarity (negative to positive) on the collagen fibers as shown in Figure 6B does not undo the hydroxyl ion formation process. Furthermore, the positive hydrogen ion generation rate during the reversal of polarity in no way compares to the hydroxyl ion generation rate, because of the concentration of the positive metal ions (Na^+, K^+) at the collagen fiber surface region. Therefore, just as with the implanted platinum plated electrodes, we have the collagen fibers acting as a (time average) continuous hydroxyl ion generation source.



Figures 6A and 6B

Figure 7 illustrates a simple electrical circuit which can be used to induce spinal cord regeneration. A standard off-the-shelf signal function generator produces a voltage offset ramp wave form to input into a standard off-the-shelf medium powered audio amplifier. A load resistor is used to properly load the output of the audio amplifier. By choosing the frequency of the ramp wave in the several thousands of cycles per second or higher range, the induced voltage on the spinal cord is much less likely to cause any problems with normal brain function since the induced voltage pulse rate is much higher than normal brain wave frequencies. Also the induced voltage on the spinal cord from the changing magnetic field is directly proportional to the rate of change of the current in the coil. The rate of change of the current in the coil is directly proportional to the frequency of the ramp wave. So, by choosing combinations of ramp wave frequency and maximum ramp wave current, a desired voltage of the right polarity can be induced onto the spinal cord which in turn produces the desired hydroxyl ion generation from the top end of the surgically severed spinal cord required for spinal cord regeneration, growth, and reconnection.

I would like to pass on some information I received from Dr. Robert Becker in a letter. He informed me that over twenty years ago a researcher performed a spinal cord regeneration experiment such as he suggested on page 212 of his book *The Body Electric.* The cat was showing good signs of spinal cord regeneration and then all regeneration progress stopped. The researcher operated to see if he could find out any information on what was happening. He found that the wire to the spinal implant electrode had broken off internally. He was not allowed to repeat the experiment.

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Continued

THE POTENTIAL USE OF DIRECT CURRENTS IN CANCER CONTROL AND CURE

I will end this article with a discussion of the potential use of feeble direct currents being used to cure and/or control cancer. The information presented and discussed will be essentially that of Chapter 12 of Robert Becker's book, *The Body Electric.*

Cancer cells act and resemble primitive embryonic cells in several ways. They look and act as unspecialized cells, divide and multiply at high rates, while consuming large amounts of nutrients. Over forty years ago the Swiss researcher, G. Andres grafted frog embryos into various body tissues of adult frogs. If the embryo was not rejected by the adult frog, it degenerated into highly malignant metastasizing tumors. This suggested that cancer cells come from a cell or cells that for some reason partly dedifferentiated back toward an embryonic genetic state. These partially dedifferentiated cells however are now in a fully differentiated organism and no longer have the needed genetic feedback from a developing embryonic system to differentiate into a specialized cell type. In 1948, Meryl Rose transplanted kidney tumor cells, induced by a virus, from a frog into the limb of salamanders. The tumors soon killed the salamanders when allowed to spread unchecked. However, if Rose amputated the limb through the tumor or just below it, the tumor cells would dedifferentiate into primitive embryonic type cells and mix freely with other dedifferentiated embryonic looking salamander cells now forming the blastema for limb regeneration. Microscopic study of the regenerated non-cancerous salamander limb showed that it was now composed of a mixture of both frog and salamander cells making up the various tissue structures. In other words, cancer cells had been totally dedifferentiated into an embryonic state and then began dividing and redifferentiating into the new cell types needed for the now developing tissue of the regenerating salamander limb. In 1962 and 1963, F. Seilern-Aspang and K. Kratochwil of the Austrian Cancer Research Institute essentially reproduced Rose's salamander experiment, this time using carcinogenic chemicals to generate the tumors. They achieved the same results as Rose. It should also be noted that even if the tumor had already metastasized to other body regions, these other tumors also went into total remission during the salamander limb regeneration process. As was shown in Part 1, it is the ability of the salamander's nervous system to supply a relatively large negative current to the wound site which enables the cell dedifferentiation process to occur which allows the regeneration process to occur and continue. Since apparently the same type of processes which generate cancer cells in salamanders generate cancer cells in mammals, is it not likely that the same sort of tumor cell environment generated around a salamander cancer cell during limb regeneration will also cause a mammal cancer cell to become non-cancerous? As Becker stated in his book on page 220, the National Cancer Institute (NCI) researcher could have had an answer to this question in the early 1980's, but the NCI administration forced him out of the NCI after he submitted a research proposal along these very lines. Our problem of lack of forward movement and lack of implementation into practice of body limb regeneration, spinal cord regeneration, whole body regeneration, the cure for cancer and a whole host of other non-solved or non-implemented health treatments and cures is due almost entirely to systemic economic, ethical, and moral corruption in the administration of all of our public and private research efforts. We have the best corrupt administrators that pharmaceutical and petrochemical pimps can buy or control. When you combine this with the simple fact that the billions spent on research each year, which keeps the giant bureaucracies going, only continues to flow year in and year out if the cures are not found.

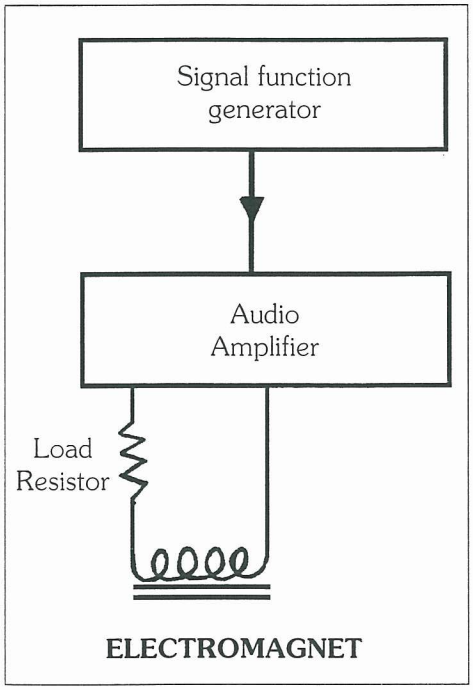

Figure 7

The entire administration of the National Institutes of Health needs to be removed and replaced by administrators directly elected by the research community. Furthermore, the National Institutes of Health needs to be broken up into several regional institutes, which both complete and cooperate on fundamental research. There should still be a central Institute of Health, but it will no longer have dictatorial power and control of all funding. The job of the central institute will be to offer partial funding for joint cooperative and independent research projects carried out by regional institutes.

I wish to leave you with one final question. What could the world be like in fifty years from now, if the honest and competent researchers and inventors were allowed to take the present middle-aged and old people and give them their youth back indefinitely? Think over all the ramifications very carefully and then please write me a letter about it. ✍