

INTO THE RIDE #4

This month we have a guest writer. Please welcome Dr. Arthur P. Reel the 1st to the RANS INTO THE RIDE column. Dr. Reel is friend of my sister Dr. Teri Moore. Both are working at Princeton University in Princeton NJ. Thanks to my sister for encouraging Dr. Reel to share his work with us, and to Dr. Reel for a very interesting article. Please let us know if you enjoy guest writers and we will try to feature them more often.

NANO MACHINES AND CYCLING

By Dr. A.P. Reel

For the past 9 years I have enjoyed relaxing rides on my RANS Stratus. Such rides serve as a welcome diversion from my all too often intense work. I am a pure research scientist at Princeton University, a campus known to great minds such as Dr. Albert Einstein, Physicist, Dr. Vincent Chaney, Astrophysics, and Dr. Kateri Moore, Molecular Biologist, known worldwide for her research on stem cells and isolation of the Cerozene molecule.

My field is Nano Science. This is the study and pursuit of constructing machines on a minute scale; a nano is one millionth of a centimeter. To gain some perspective a typical cell would be the size of a multi-story apartment building, and the nano machines are the cars parked outside.

On this scale you can imagine conventional tools and logic do not work. In the nano world we build with specially formulated chemical baths, which resolve desired outcomes on the invisible level. A simple experiment that we have had much success with is building assemblers. These are machines that are used to assemble greater more complex machines within the nano world. Assemblers are much like the basic tools you have in your home bike shop. They are the wrenches, drills, and cutters of the nano world. Many of the nano machines we have constructed mimic nature in design, looking a lot like proteins, but differing in the fact they can replicate, so a doing a lot with a little is possible.

The breakthrough in assemblers has allowed us to begin building on the nano scale. We have been able to program assemblers to do more and more complex chores. Recently my team was responsible for the successful assembly and deployment of an Arterial Reclamation Device, in simple terms it is a roto-rooter for clogged arteries.

We have used ARD's in human volunteers and have achieved an 89% improvement in cardio/pulmonary circulation. The ARD are simply swallowed or injected into the patient's bloodstream. In matter of hours the ARDs begin removing arterial plaque, chopping it into tiny harmless chunks that filter out in the liver. The ARD's are programmed to self disassemble after about 20 to 30 hours, depending on the level of clean up required. Such non-invasive methods will revolutionize cardio surgical methods, rendering invasive interventions obsolete. It is no surprise that we are excited about the many applications of this technology.

But even as exciting, as it may seem, the work we have done in the field of cardiology, is not dear to my heart, no pun intended. Instead my heart belongs to the recent advance in Electro-Fibrocontraus Tissue, EFT, or more commonly known as muscle. Using baboon muscle tissue, obtained from the baboon, with little trauma I might add, we have constructed a nano mechanical that interfaces with the tissue to carry away the normal binders such as lactic acidosis that causes early muscle fatigue and strength loss. The nano mechanical in this case can actually amplify the effective out put of the baboon muscle in the range of 175 to 213 %. Testing on the actual baboon showed duration and damage to adjacent tissues at very acceptable levels, well within the body's ability to repair. Human experiments could be conducted as early as 2005. The project name is Bio-Amp and holds great promise for expanding the output of the human engine. There are of course the military applications, since Bio-Amped soldiers would be able to out perform conventional infantry by a wide margin. Our calculations show hiking speeds for a fully loaded foot soldier in the 9.75 to 10.3 MPH. A marked improvement over the current average of 3.3 MPH. Running is another matter. The added protease being catabolized somehow amplifies the Bio-Amp even more. It gets even more interesting if adrenaline is introduced, then outputs can increase to an incredible 457% over typical. Imagine biking with 4.5 times the power. Imagine there better be an all you can eat buffet at the end of that ride, because using Bio-Amp does not come without a cost in fuel. Calorie burns are increased as expected. Dare say this would be an effective weight loss product!

Where this has lead in recent days is to a very interesting incident. I work with a very lucid team of scientists, and sometimes the tedium of research dulls their better judgment. I unknowingly became the brunt of a Bio-Amp practical joke, and likewise premature early human trial.

The Bio-Amp nano mechanical has the curious property of smelling like chocolate. My colleagues know of my extreme addiction to this confection, and have witnessed me consuming it even during delicate experiments. The joke around here has been that Dr Reel will one day invent a nano machine to produce chocolate directly in the body, not a bad idea I must confess, but I would rather have the pleasure of tasting it.

However, my propensity for this food of the Gods, has also led to the addition of several unwanted pounds around my middle. I try to fight this war using my RANS Stratus, and in general have thought to be winning. This must not have been the state I projected to my cohorts, since they took it upon themselves to sprinkle a "harmless" amount of Bio-Amps onto my 4:00 PM chocolate bar. I had the habit of indulging at that time to help me get through the next two hours of work. Coincidence was that the Bio-Amp also took two hours to enter the blood stream and work itself into place among my muscle fibers.

So there I was on a mellow spring day, mounting my Stratus for the short ride home, a mere 2.3 miles. Little did I know the legend of the "Phantom Lowrider" was about to be born.

Now if you ever been to the Princeton Campus, you know of the beautiful walks, with stately trees and colorful flora, and some unexpected fauna. The winding paths are part the fun of riding the Stratus; it corners well at any speed. I set about my journey home, and immediately notice a welling of strength in my abs. My God, I thought, the training is starting to pay off! I was excited, but unsuspecting of the biotransformation that was really taking place. The pedestrian traffic was light that day, and increasing the speed about the paths seemed like a good idea at the time. Heck I was starting to feel pretty darn good; I could care less about those foot bound students trolling MY cycling path. Oh, there is one previously un-mentioned side effect of Bio-Amp; it makes you higher than a kite, something the baboon never mentioned.

So there I was, power increasing, speed coming up, judgment taking the backseat, hell, it had fallen off the bike! My Cat-Eye computer was reaching new regions for readouts, 25, 27, and 29, 32 MPH as I skillfully rounded the corners. Depth perception was enhanced, vision was sharp, I was feeling like superman as I carved through the network of walks at blinding speeds! Students were diving for the grass, lending books to air, campus cops were alerted, and sirens could be heard behind me. The racket was unnerving, as I passed under an oak tree an excited squirrel jumped into the air. His timing was perfectly wrong, landing him square on my face and scaring me to near death. That's when my adrenaline kicked in. The campus was soon departed, and the campus cops eluded. The Cat-Eye computer ran up to a shocking 85.5-MPH for top speed, and 55MPH for the ride's average.

Lucky for all (me included) my presence of mind was never lost, and I managed and get away without physical causality to students, squirrel, or bike. I can't conclude what mental damage may have ensued, on Princeton Pike, not my normal route home, but when you got the power?ell a little space can be fun. I passed more than a few bewildered motorists, but hopefully they're still thinking its just one of them new fangled bikes.

The effect of the Bio-Amp wore off a few miles from home, the loss of "turbo boost" sure made the ride home seem like I was on flat tires. Still I hammered it on in. Once home a painful hunger hit me like a boxer's punch to the gut. Everything edible item in the house became victim to my gaping maw.

The next day I sheepishly walked to the campus. My colleagues all were wearing smug smiles, and not uttering a word. No doubt a select few on staff at Princeton were privy to the event. The tenseness in my stomach finally relaxed when it became obvious they were not going to mention the events of yesterday for the same fear of losing tenor. Instead we went about the task of perfecting our science.

The only lasting mark from that day was the legend of the Phantom Lowrider. Incredible as it seems not a soul recognized me, apparently the Bio-Amp, had an effect on my face muscles, to point the rumor was some young, and very handsome student stole Dr. Reel's bike and made a spectacular get away at terrific speed.

Strangely enough my love of chocolate has dwindled as well as my waistline, a much welcome side effect of the

Bio-Amp I can live with. The new, lighter me is clicking off some pretty nice numbers on the old Cat-Eye, but that high of 85.5MPH is still there just as a personal souvenir/reminder of the potential to come.

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