# Air Force Plan: Hack Your Nervous System

Posted By: February 13, 2006

*This is the first of a two-part series on plasma and electromagnetic weapons by David Hambling, author of Weapons Grade: How Modern Warfare Gave Birth to Our High-Tech World.*

The brain has always been a battlefield. New weapons might be able to hack directly into your nervous system. "Controlled Effects" (see image, right) is one of the Air Forces ambitious long-term challenges. It starts with better and more accurate bombs, but moves on to discuss devices that "make selected adversaries think or act according to our needs… By studying and modeling the human brain and nervous system, the ability to mentally influence or confuse personnel is also possible."

The first stage is technology to remotely create physical sensations. They give the example of the Active Denial System "people zapper" which uses a high-frequency radiation similar to microwaves as a non-lethal means of crowd control.

Other weapons can affect the nervous system directly. The Pulsed Energy Projectile fires a short intense pulse of laser energy. This vaporizes the outer layer of the target, creating a rapidly-expanding expanding ball of plasma. At different power levels, those expanding plasmas could deliver a harmless warning, stun the target, or disable them – all with pinpoint laser precision from a mile away.

Early reports on the effects of PEPs mentioned temporary paralysis, then thought to be related to ultrasonic shockwaves. It later became apparent that the electromagnetic pulse caused by the expanding plasma was triggering nerve cells.

Details of this emerged in a heavily-censored document released to Ed Hammond of the Sunshine Project under the Freedom if Information Act. Called Sensory consequence of electromagnetic pulsed emitted by laser induced plasmas, it described research on activating the nerve cells responsible for sensing unpleasant stimuli: heat, damage, pressure, cold. By selectively stimulating a particular nociceptor, a finely tuned PEP might sensations of say, being burned, frozen or dipped in acid — all without doing the slightest actual harm.

The skin is the easiest target for such stimulation. But, in principle, any sensory nerves could be triggered. The Controlled Effects document suggests it may be possible to create synthetic imagesto confuse an individual' s visual sense or, in a similar manner, confuse his senses of sound, taste, touch, or smell.

In other words, it may be possible to use electromagnetic means to create overwhelming 'sound' or 'light', or indeed 'intolerable smell' which would exist only in the brain of the person perceiving them.

There is another side as well. The sensory consequences document also notes that the nervous system which controls muscles could be influenced to cause what they call Taser-like motor effects. The stun guns ability to shock the muscles into malfunction is relatively crude; we might now be looking at are much more targeted effects.

*Tomorrow: Moscow moves in. Remote-controlled heart attacks, anyone?*

— David Hambling