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JOHN FLEMING: THE SHOCKING MENACE OF SATELLITE SURVEILLANCE FULL VERSION OF THE ARTICLE

Unknown to most of the world, satellites can perform astonishing and often menacing feats. This should come as no surprise when one reflects on the massive effort poured into satellite technology since the Soviet satellite Sputnik, launched in 1957, caused panic in the U.S. A spy satellite can monitor a person's every movement, even when the "target" is indoors or deep in the interior of a building or traveling rapidly down the highway in a car, in any kind of weather (cloudy, rainy, stormy). There is no place to hide on the face of the earth. It takes just three satellites to blanket the world with detection capacity. Besides tracking a person's every action and relaying the data to a computer screen on earth, amazing powers of satellites include reading a person's mind, monitoring conversations, manipulating electronic instruments and physically assaulting someone with a laser beam. Remote reading of someone's mind through satellite technology is quite bizarre, yet it is being done, it is a reality at present, not a chimera from a futuristic dystopia! To those who might disbelieve my description of satellite surveillance, I'd simply cite a tried-and-true Roman proverb: Time reveals all things (tempus omnia revelat).

As extraordinary as clandestine satellite powers are, nevertheless prosaic satellite technology is much evident in daily life. Satellite businesses reportedly earned $26 billion in 1998. We can watch transcontinental television broadcasts "via satellite," make long-distance phone calls relayed by satellite, be informed of cloud cover and weather conditions through satellite images shown on television, and find our geographical bearings with the aid of satellites in the GPS (Global Positioning System). But behind the facade of useful satellite technology is a Pandora's box of surreptitious technology. Spy satellites—as opposed to satellites for broadcasting and exploration of space—have little or no civilian use—except, perhaps, to subject one's enemy or favorite malefactor to surveillance. With reference to detecting things from space, Ford Rowan, author of Techno Spies, wrote "some U.S. military satellites are equipped with infra-red sensors that can pick up the heat generated on earth by trucks, airplanes, missiles, and cars, so that even on cloudy days the sensors can penetrate beneath the clouds and reproduce the patterns of heat emission on a TV-type screen. During the Vietnam War sky high infra-red sensors were tested which detect individual enemy soldiers walking around on the ground." Using this reference, we can establish 1970 as the approximate date of the beginning of satellite surveillance—and the end of the possibility of privacy for several people.

The government agency most heavily involved in satellite surveillance technology is the Advanced Research Projects Agency (ARPA), an arm of the Pentagon. NASA is concerned with civilian satellites, but there is no hard and fast line between civilian and military satellites. NASA launches all satellites, from either Cape Kennedy in Florida or Vandenberg Air Force Base in California, whether they are military-operated, CIA-operated, corporate-operated or NASA's own. Blasting satellites into orbit is a major expense. It is also difficult to make a quick distinction between government and private satellites; research by NASA is often applicable to all types of satellites. Neither the ARPA nor NASA makes satellites; instead, they underwrite the technology while various corporations produce the hardware. Corporations involved in the satellite business include Lockheed, General Dynamics, RCA, General Electric, Westinghouse, Comsat, Boeing, Hughes Aircraft, Rockwell International, Grumman Corp., CAE Electronics, Trimble Navigation and TRW.

The World Satellite Directory, 14th edition (1992), lists about a thousand companies concerned with satellites in one way or another. Many are merely in the broadcasting business, but there are also product headings like "remote sensing imagery," which includes Earth Observation Satellite Co. of Lanham, Maryland, Dowell Inc. of Denver, and Spot Image Corp. of Reston, Virginia. There are five product categories referring to transponders. Other product categories include earth stations (14 types), "military products and systems," "microwave equipment," "video processors," "spectrum analyzers." The category "remote sensors" lists eight companies, including ITM Systems Inc., in Grants Pass, Oregon, Yoni Engineering of Phoenix, and Satellite Technology

Calendar

Mo	Tu	We
2	3	4
9	10	11
16	17	18
23	24	25
30	31	

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Management of Costa Mesa, California. Sixty-five satellite associations are listed from all around the world, such as Aerospace Industries Association, American Astronautical Society, Amsat and several others in the U.S.

Spy satellites were already functioning and violating people's right to privacy when President Reagan proposed his "Strategic Defense Initiative," or Star Wars, in the early 80s, long after the Cuban Missile Crisis of 1962 had demonstrated the military usefulness of satellites. Star Wars was supposed to shield the U.S. from nuclear missiles, but shooting down missiles with satellite lasers proved infeasible, and many scientists and politicians criticized the massive program. Nevertheless, Star Wars gave an enormous boost to surveillance technology and to what may be called "black bag" technology, such as mind reading and lasers that can assault someone, even someone indoors. Aviation Week & Space Technology mentioned in 1984 that "facets of the project [in the Star Wars program] that are being hurried along include the awarding of contracts to study...a surveillance satellite network." It was bound to be abused, yet no group is fighting to cut back or subject to democratic control this terrifying new technology. As one diplomat to the U.N. remarked, "'Star Wars' was not a means of creating heaven on earth, but it could result in hell on earth."

The typical American actually may have little to fear, since the chances of being subjected to satellite surveillance are rather remote. Why someone would want to subject someone else to satellite surveillance might seem unclear at first, but to answer the question you must realize that only the elite have access to such satellite resources. Only the rich and powerful could even begin to contemplate putting someone under satellite surveillance, whereas a middle- or working-class person would not even know where to begin. Although access to surveillance capability is thus largely a function of the willfulness of the powerful, nevertheless we should not conclude that only the powerless are subjected to it. Perhaps those under satellite surveillance are mainly the powerless, but wealthy and famous people make more interesting targets, as it were, so despite their power to resist an outrageous violation of their privacy, a few of them may be victims of satellite surveillance. Princess Diana may have been under satellite reconnaissance. No claim of being subject to satellite surveillance can be dismissed a priori.

It is difficult to estimate just how many Americans are being watched by satellites, but if there are 200 working surveillance satellites (a common number in the literature), and if each satellite can monitor 20 human targets, then as many as 4000 Americans may be under satellite surveillance. However, the capability of a satellite for multiple-target monitoring is even harder to estimate than the number of satellites: it may be connected to the number of transponders on each satellite, the transponder being a key device for both receiving and transmitting information. A society in the grips of the National Security State is necessarily kept in the dark about such things. Obviously, though, if one satellite can monitor simultaneously 40 or 80 human targets, then the number of possible victims of satellite surveillance would be doubled or quadrupled.

A sampling of the literature provides insight into this fiendish space-age technology. One satellite firm reports that "one of the original concepts for the Brilliant Eyes surveillance satellite system involved a long-wavelength infrared detector focal plane that requires periodic operation near 10 Kelvin." A surveillance satellite exploits the fact that the human body emits infra-red radiation, or radiant heat: according to William E. Burrows, author of Deep Black, "the infrared imagery would pass through the scanner and register on the [charged-couple device] array to form a moving infrared picture, which would then be amplified, digitalized, encrypted and transmitted up to one of the [satellite data system] spacecraft...for downlink [to earth]." But opinion differs as to whether infrared radiation can be detected in cloudy conditions. According to one investigator, there is a way around this potential obstacle: "Unlike sensors that passively observe visible-light and infra-red radiation, which are blocked by cloud cover and largely unavailable at night, radar sensors actively emit microwave pulses that can penetrate clouds and work at any hour." This same person reported in 1988 that "the practical limit on achievable resolution for a satellite-based sensor is a matter of some dispute, but is probably roughly ten to thirty centimeters. After that point, atmospheric irregularities become a problem." But even at the time she wrote that, satellite resolution, down to each subpixel, on the contrary, was much more precise, a matter of millimeters—a fact which is more comprehensible when we consider the enormous sophistication of satellites, as reflected in such tools as multi-spectral scanners, interferometers, visible infrared spin scan radiometers, cryocoolers and hydride sorption beds.

Probably the most sinister aspect of satellite surveillance, certainly its most stunning, is mind-reading. As early as 1981, G. Harry Stine (in his book Confrontation in Space), could write that

Computers have "read" human minds by means of deciphering the outputs of electroencephalographs (EEGs). Early work in this area was reported by the Defense Advanced Research Projects Agency (DARPA) in 1976. EEG's are now known to be crude sensors of neural activity in the human brain, depending as they do upon induced electrical currents in the skin. Magnetoencephalographs (MEGs) have since been developed using highly sensitive electromagnetic sensors that can directly map brain neural activity even through even through the bones of the skull. The responses of the visual areas of the brain have now been mapped by Kaufman and others at Vanderbilt University. Work may already be under way in mapping the neural activity of other portions of the human brain using the new MEG techniques. It does not require a great deal of prognostication to forecast that the neural electromagnetic activity of the human brain will be totally mapped within a decade or so and that crystalline computers can be programmed to decipher the electromagnetic neural signals.

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In 1992, Newsweek reported that "with powerful new devices that peer through the skull and see the brain at work, neuroscientists seek the wellsprings of thoughts and emotions, the genesis of intelligence and language. They hope, in short, to read your mind." In 1994, a scientist noted that "current imaging techniques can depict physiological events in the brain which accompany sensory perception and motor activity, as well as cognition and speech." In order to give a satellite mind-reading capability, it only remains to put some type of EEG-like-device on a satellite and link it with a computer that has a data bank of brain-mapping research. I believe that surveillance satellites began reading minds—or rather, began allowing the minds of targets to be read—sometime in the early 1990s. Some satellites in fact can read a person's mind from space.

Also part of satellite technology is the notorious, patented "Neurophone," the ability of which to manipulate behavior defies description. In Brave New World, Huxley anticipated the Neurophone. In that novel, people hold onto a metal knob to get "feely effects" in a simulated orgy where "the facial erogenous zones of the six thousand spectators in the Alhambra tingled with almost intolerable galvanic pleasure." Though not yet applied to sex, the Neurophone—or more precisely, a Neurophone-like-instrument—has been adapted for use by satellites and can alter behavior in the manner of subliminal audio "broadcasting," but works on a different principle. After converting sound into electrical impulses, the Neurophone transmits radio waves into the skin, where they proceed to the brain, bypassing the ears and the usual cranial auditory nerve and causing the brain to recognize a neurological pattern as though it were an audible communication, though often on a subconscious level. A person stimulated with this device "hears" by a very different route. The Neurophone can cause the deaf to "hear" again. Ominously, when its inventor applied for a second patent on an improved Neurophone, the National Security Agency tried unsuccessfully to appropriate the device.

A surveillance satellite, in addition, can detect human speech. Burrows observed that satellites can "even eavesdrop on conversations taking place deep within the walls of the Kremlin." Walls, ceilings, and floors are no barrier to the monitoring of conversation from space. Even if you were in a highrise building with ten stories above you and ten stories below, a satellite's audio surveillance of your speech would still be unhampered. Inside or outside, in any weather, anyplace on earth, at any time of day, a satellite "parked" in space in a geosynchronous orbit (whereby the satellite, because it moves in tandem with the rotation of the earth, seems to stand still) can detect the speech of a human target. Apparently, as with reconnaissance in general, only by taking cover deep within the bowels of a lead-shielding fortified building could you escape audio monitoring by a satellite.

There are various other satellite powers, such as manipulating electronic instruments and appliances like alarms, electronic watches and clocks, a television, radio, smoke detector and the electrical system of an automobile. For example, the digital alarm on a watch, tiny though it is, can be set off by a satellite from hundreds of miles up in space. And the light bulb of a lamp can be burned out with the burst of a laser from a satellite. In addition, street lights and porch lights can be turned on and off at will by someone at the controls of a satellite, the means being an electromagnetic beam which reverses the light's polarity. Or a lamp can be made to burn out in a burst of blue light when the switch is flicked. As with other satellite powers, it makes no difference if the light is under a roof or a ton of concrete—it can still be manipulated by a satellite laser. Types of satellite lasers include the free-electron laser, the x-ray laser, the neutral-particle-beam laser, the chemical-oxygen-iodine laser and the mid-infra-red advanced chemical laser.

Along with mind-reading, one of the most bizarre uses of a satellite is to physically assault someone. An electronic satellite beam—using far less energy than needed to blast nuclear missiles in flight—can "slap" or bludgeon someone on earth. A satellite beam can also be locked onto a human target, with the victim being unable to evade the menace by running around or driving around, and can cause harm through application of pressure on, for example, one's head. How severe a beating can be administered from space is a matter of conjecture, but if the ability to actually murder someone this way has not yet been worked out, there can be no doubt that it will soon become a reality. There is no mention in satellite literature of a murder having been committed through the agency of a satellite, but the very possibility should make the world take note.

there is yet another macabre power possessed by some satellites, manipulating a person's mind with an audio subliminal "message" (a sound too low for the ear to consciously detect but which affects the unconscious). In trying thereby to get a person to do what you want him to do, it does not matter if the target is asleep or awake. A message could be used to compel a person to say something you would like him to say, in a manner so spontaneous that noone would be able to realize the words were contrived by someone else; there is no limit to the range of ideas an unsuspecting person can be made to voice. The human target might be compelled to use an obscenity, or persons around the target might be compelled to say things that insult the target. A sleeping person, on the other hand, is more vulnerable and can be made to do something, rather than merely say something. An action compelled by an audio subliminal message could be to roll off the bed and fall onto the floor, or to get up and walk around in a trance. However, the sleeping person can only be made to engage in such an action for only a minute or so, it seems, since he usually wakes up by then and the "spell" wears. It should be noted here that although the "hypnotism" of a psychoanalyst is bogus, unconscious or subconscious manipulation of behavior is genuine. But the brevity of a subliminal spell effected by a satellite might be overcome by more research. "The psychiatric community," reported Newsweek in 1994, "generally agrees that subliminal perception exists; a smaller fringe group believes it can be used to change the psyche."

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A Russian doctor, Igor Smirnov, whom the magazine labeled a "subliminal Dr. Strangelove," is one scientist studying the possibilities: "Using electroencephalographs, he measures brain waves, then uses computers to create a map of the subconscious and various human impulses, such as anger or the sex drive. Then, through taped subliminal messages, he claims to physically alter that landscape with the power of suggestion." Combining this research with satellite technology—which has already been done in part—could give its masters the possibility for the perfect crime, since satellites operate with perfect discretion, perfect concealment. All these satellite powers can be abused with impunity. A satellite makes a "clean getaway," as it were. Even if a given victim became aware of how a crime was effected, noone would believe him, and he would be powerless to defend himself or fight back.

And this indeed is the overriding evil of satellite technology. It is not just that the technology is unrestrained by public agencies; it is not just that it is entirely undemocratic. The menace of surveillance satellites is irresistible; it overwhelms its powerless victims. As writer Sandra Hochman foresaw near the beginning of the satellite age, though seriously underestimating the sophistication of the technology involved: Omniscient and discrete, satellites peer down at us from their lofty orbit and keep watch every moment of our lives... From more than five-hundred miles above earth, a satellite can sight a tennis ball, photograph it, and send back to earth an image as clear as if it had been taken on the court at ground zero. Satellites photograph and record many things...and beam this information, this data, back to quiet places where it is used in ways we don't know. Privacy has died." This terror is in the here and now. It is not located in the mind of an eccentric scientist or futurologist. Satellite surveillance is currently being abused. Thousands of Americans are under satellite surveillance and have been stripped of their privacy. And presently they would have little or no recourse in their struggle against the iniquity, since technology advances well ahead of social institutions.

The powers of satellites, as here described, especially lend themselves to harassment of someone. The victim could be a business or political rival, an ex-spouse, a political dissident, a disliked competitor, or anyone who for whatever reason provokes hatred or contempt. Once the target is a "signature," he can almost never escape a satellite's probing eyes. (As an article in Science explained, "tiny computers ..check the incoming signals with computerized images, or 'signatures,' of what the target should like.") As long as his tormentor or tormentors—those with the resources to hire a satellite—desire, the victim will be subject to continuous scrutiny. His movements will be known, his conversations heard, his thoughts picked clean, and his whole life subjected to bogus moralizing, should his tormentor diabolically use the information gained. A sadist could harass his target with sound bites, or audio messages, directly broadcast into his room; with physical assault with a laser; with subliminal audio messages that disturb his sleep or manipulate persons around him into saying something that emotionally distresses him; with lasers that turn off street lights as he approaches them; with tampering with lamps so that they burn out when he hits the switch; and in general with the knowledge gained acquired through the omniscient eyes and ears of satellites. In short, a person with access to satellite technology could make his victim's life a living nightmare, a living hell.

How you could arrange to have someone subjected to satellite surveillance is secretive: it might even be a conspiracy. However, there seem to be two basic possibilities: surveillance by a government satellite or surveillance by a commercial satellite. According to an article in Time magazine from 1997, "commercial satellites are coming online that are eagle-eyed enough to spot you—and maybe a companion—in a hot tub." The Journal of Defense & Diplomacy stated in 1985 that "the cost of remote sensors (or the sensor products) are readily available. Advances in fourth-generation (and soon fifth-generation) computer capabilities, especially in terms of VHSIC (very-high-speed integrated circuits) and parallel processing, hold the key to rapid exploitation of space-derived data. Wideband, low-power data relay satellites are, at the same time, providing support for communication needs and for relay of remote sensor data, thus providing world-wide sensor coverage." In addition, The New York Times reported in 1997 that "commercial spy satellites are about to let anyone with a credit card peer down from the heavens into the compounds of dictators or the back yards of neighbors with high fences." "To date [the newspaper further noted] the Commerce Department has issued licenses to nine American companies, some with foreign partners, for 11 different classes of satellites, which have a range of reconnaissance powers." But the last article discussed photographic reconnaissance, in which satellites took pictures of various sites on earth and ejected a capsule containing film to be recovered and processed, whereas the state of the art in satellite technology is imaging, detection of targets on earth in real time. Currently, industry is hard at work miniaturizing surveillance satellites in order to save money and be in a position to fill the heavens with more satellites.

Yet no source of information on satellites indicate whether the abuse of satellite surveillance is mediated by the government or corporations or both. More telling is the following disclosure by the author of Satellite Surveillance (1991): "Release of information about spy satellites would reveal that they have been used against U.S. citizens. While most of the public supports their use against the enemies of the U.S., most voters would probably change their attitudes towards reconnaissance satellites if they knew how extensive the spying has been. It's better...that this explosive issue never surfaces." Few people are aware of the destruction of the rights of some Americans through satellite surveillance, and fewer still have any inclination to oppose it, but unless we do, 1984 looms ever closer. "With the development of television and the technical device to receive and transmit on the same instrument, private life came to an end."

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