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## ELECTRONIC SURVEILLANCE

Most people are inclined to think of electronic bagging of other people's homes, offices, and persons in terms of the Hollywood stereotype. A reasonably adroit individual places a few transmitting devices in the appropriate places and the unsuspecting victim proceeds to tell all.

Such is the stuff that low cost television movies are made of. In real life, planted transmitting devices (called "bugs" in the trade) are not too efficient, are subject to atmospheric changes, and, most important (as the Watergate burglars learned to their great dismay), subject to discovery. There are other, more modern, means of electronic surveillance. They are more reliable, less subject to detection, and, with implications for the privacy of the great body of citizenry, operable virtually anywhere. The two most commonly discussed are microwaves and laser beams.

Equipment using microwaves plays a major role in modern American industry. Most long distance phone calls are carried by microwave relay; food can be rapidly cooked in a microwave oven. In the field of intelligence gathering, a microwave beam can activate hidden transmitters (even those that have been permanently emplaced in the foundations of buildings or in plaster walls and the like). The laser beam, subject of much popular science discussion, is simply a beam of monochromatic (or coherent) light (as opposed to scattered or incoherent light that we receive from the sun or a lightbulb).

The laser beam has many industrial, medical, and military applications. It can be used to cut materials, to repair damaged retinas in the human eye (sort of an electronic scalpel), and as a range-finding and target designating device. In the field of intelligence it can be used to monitor conversations behind closed doors and windows. By concentrating a beam of coherent light on (for example) a window, it is possible to monitor the conversations behind it through analysis of the infrared vibrations. As the sound of the voices vibrates on the window pane, the laser beam also vibrates in the same manner. This vibration is then turned back into human speech.

While the lasers used for this purpose are probably physically harmless to human beings, the same cannot be said for microwaves. The recent uproar in the American Embassy in Moscow over the heavy microwave radiation of the embassy by Soviet operatives is a case in point. In general terms, microwave radiation is particularly dangerous to persons who have implanted heart pacemakers. Indeed, such persons are routinely warned to stay away from areas in which microwave ovens are operating.

Beyond those with pacemakers, microwave radiation can be deleterious to anyone's health if the exposure is significant enough. There is evidence that at least a few of the Americans assigned to the embassy suffered physical and psychological harm. Whether this was the actual intent of the Soviet operatives is unknown but the fact remains that many Americans were unable to function effectively in that environment.

Fortunately, there are some countermeasures which are fairly effective in reducing the risk of compromise of sensitive conversations. Screens can be emplaced on windows which can have the effect of stopping microwaves. Metallic paint (or even aluminum foil) can be placed on walls to neutralize buried bugs. Since laser beams operate on a line of sight principle, conversations conducted in rooms without outside windows would be reasonably secure.

There are, of course, some very grave political considerations in the Soviet actions. They have attempted to interfere with the legitimate activities of a foreign power within its embassy (a place which, by custom, convention, and treaty, is as much the territory of that power as its own national capital).

Beyond the question of the propriety of the Soviet action (and, perhaps, of much graver long-term import), are the implications for the average American of the development of these new types of surveillance equipment. While an embassy has a large number of resources at hand to counter these systems, the average citizen does not. Especially in the area of laser development, as the new technology becomes more and more available to the average citizen, the likelihood of abuse of this technology will rise.

While it may be possible (indeed, in a democracy, it is possible) to regulate the surveillance activities of Government, it may well be impossible to guarantee the average citizen against the invasion of privacy by a dishonest (or simply curious) individual.