

" IN HIS OWN
WORDS,

**' THE MICROWAVE MENACE
IS ZAPPING US ALL, WARNS
WRITER PAUL BRODEUR "**

"A lot of people hold on to the notion," says author Paul Brodeur, "that what you can't see can't hurt you. If I've learned anything in my last 10 years of work, it's that what you can't see can kill you." Brodeur's enemies list of environmental hazards to human life includes detergent enzymes, cancer-causing asbestos fibers and ozone-depleting fluorocarbons in spray cans. But none of these, he claims, is so chillingly insidious and pervasive as the subject of his latest investigative work, *The Zapping of America*—namely, microwave radiation. Americans, says Brodeur, are routinely "zapped" by missile-tracking radars, TV transmitters, microwave ovens and even CB radios, exposing them to potentially injurious or even lethal doses of radiation. Moreover, he claims, the full danger of microwaves has been self-servingly denied—or covered up—by the so-called "military-industrial complex." A Boston-area native and graduate of Andover and Harvard, Brodeur worked in Army Counterintelligence in Germany during the mid-'50s before joining *The New Yorker* as a staff writer. A resident of Manhattan, Brodeur, 46, recently discussed microwave radiation with PEOPLE's Jim Jerome at Brodeur's Cape Cod vacation home.

What exactly are microwaves?

Microwaves are a form of invisible electromagnetic radiation that can penetrate deeply into the human body. Like other electromagnetic rays—for instance, radio waves, infrared, visible light, ultraviolet, X-rays and gamma rays—they move at the speed of light.

What specifically is "zapping" us?

Radars of all types, FM radio and TV transmitters, millions of CB radios and, of course, microwave ovens. People who work or live in areas of high electromagnetic pollution—in high-rise buildings in the line of sight of broadcast antennas or near airport and military radar—may be exposed constantly to a level of radiation as high as one milliwatt per square centimeter.

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Brodeur's parka keeps out the cold but not, he fears, microwaves coming from radar domes at North Truro Air Force station.

Photographs by Peter Kramer

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What level is considered high—and dangerous?

The U.S. maximum established by the American National Standards Institute is 10 milliwatts per square centimeter, but it is only a recommended guideline, and unenforceable. At very high intensities, microwaves can cause an injurious heating-up of tissue. Yet even at levels considerably below the 10-milliwatt standard there have been experiments on test animals which resulted in changes in brain chemistry and the central nervous system, abnormalities of the blood-forming systems and birth defects.

What does zapping feel like?

Humans cannot feel it, unless they are exposed to levels far in excess of the 10-milliwatt standard. It is then experienced as heat. At lower levels most people do not have the vaguest notion of how much or how little radiation they are exposed to.

How does a microwave oven cook?

When microwaves penetrate deeply, they excite water molecules in the food, which in turn causes them to collide and produce friction. This generates sufficient heat to cook the food.

Is there any danger in eating food cooked by microwaves?

None that is known.

Are these ovens leakproof?

All ovens are allowed under law to leak—after purchase—up to five milliwatts. This level is 500 times higher than Eastern European and Soviet standards for worker exposure and 5,000 times the recommended limits for the general population.

Is there any danger from these ovens?

In 1975 over 800,000 microwave ovens were sold in this country, more than the sales of gas ranges for the first time. Nobody knows for sure what constitutes a safe level of exposure to microwave radiation. Some studies indicate that effects of microwave radiation are cumulative. If so, the risk from repeated exposure for young children is high.

Manufacturers say there have been no confirmed cases of injury from microwave ovens. Have cases been reported?

There has been at least one lawsuit involving eye injury in New Jersey resulting from a leaking microwave oven.

It was settled out of court. There have also been published reports of numerous other injuries from excessively leaking ovens.

How can microwave injury be proved?

It is very hard. "Signature diseases" are diseases known to occur only after exposure to certain harmful substances. In the case of microwaves, the only known "signature" is a unique form of radiation cataract.

Is color TV dangerous?

Only if the set is defective and emitting excessive X-rays. Basically, electromagnetic hazards are from the transmitters of microwaves, not receivers like TV sets.

Apparently the Soviets in Moscow have been trying to jam listening devices in the U.S. embassy with low-level microwaves. What has been the experience of the employees there?

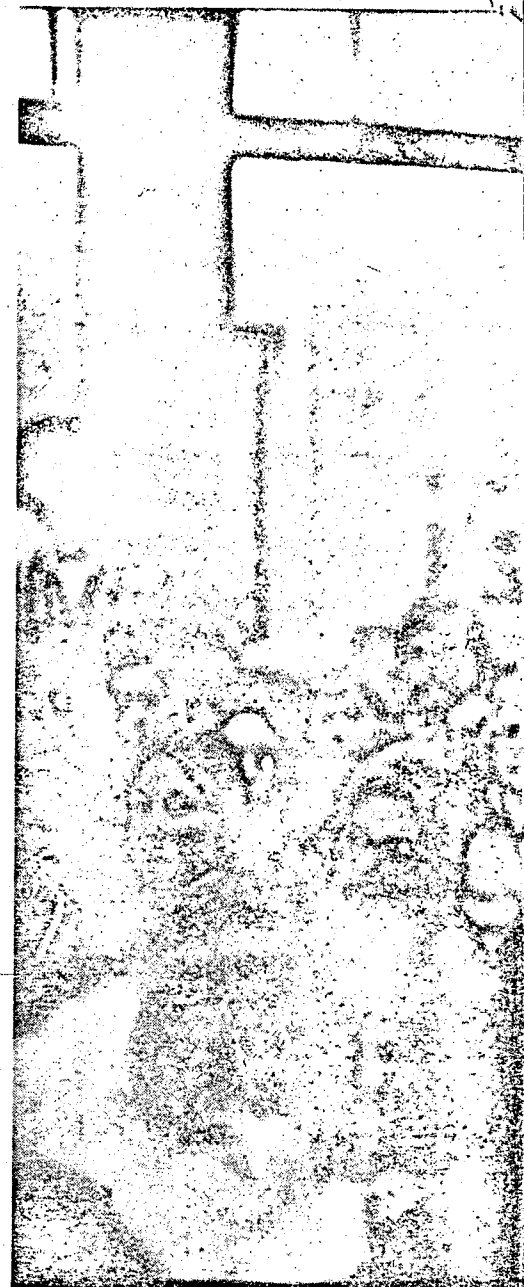
There have been some disturbing preliminary results from studies done on them—for example, that one-third of embassy employees have developed lymphocytosis, an abnormality of the blood-forming system leading to a high count of lymphocytes, a type of white blood cell. In addition, there is believed to be an excessively high rate of cancer among Moscow embassy personnel.

Is microwave radiation suspected of having any genetic effects?

Yes. There was an excessive birth rate of female offspring at a Sperry-Rand radar plant during World War II, where 19 workers in a row became fathers of girls. At Fort Rucker, Ala., in 1969-70, 17 children were born with congenital clubfoot—four times the expected number. Their fathers were helicopter pilots routinely exposed to emissions from military radar.

Have there been any long-term studies on the overall effects of microwaves?

All our studies to my knowledge have been short-term. There has not been one serious study over a 20-year latency period, during which biological damage can evolve. That's the whole ball game right there. What happens to us in 20 years? The assumption that this stuff at lower levels is absorbed or goes right through the body without ill effect is asinine. It has put our society—the world's most technologically sophisticated—into the position of crossing its fingers.



Brodeur confronted Air Force experts at a meeting in Sandwich, Mass. to protest a huge missile-tracking radar at a nearby base.

Why the cry of cover-up?

For 25 years the military-electronics industry complex has suppressed, ignored or failed to pursue evidence that people were being injured by microwave radiation. The reason is that our weapons systems depend upon the use of microwave radiation. In 1967-68 the State Department went so far as to test women returning from the Moscow embassy for genetic damage—and lied to them as to the nature and the reason for these tests. Today the Army, Navy and Air Force deny there is any such thing as microwave cataracts, even as the Veterans Administration and Department of Labor are awarding compensation for them.



What has been Congress' role in dealing with microwaves?

Congress has been dragging its feet. I recommend that the Senate call in State Department officials, including Kissinger, to testify under oath about what has been going on in the Moscow embassy and why. High-ranking military officials should also be asked why key documents pertaining to the embassy microwave bombardment were destroyed.

What can be done?

I recently flew into New York during a blinding ice storm and, God, I was glad we had radar in that cockpit. I'm not saying we should dismantle everything. We need to go for attainable goals—surely there is a way to maintain national security without irradiating the populated land mass. Some officials of the EPA and the FDA's Bureau of Radiological Health believe that the present U.S. standard ought to be tightened. This conviction is shared by a growing number of researchers from the independent scientific and medical community. Perhaps radio and TV transmitters should be moved away from densely populated areas. In California and Massachusetts, citizens' groups have demanded environmental impact statements before giant Air Force radar units, known as PAVE PAWS, can become operational. And of course, for the injured and the desperate the last recourse is litigation.

Is the general public aware of the problem?

There is a growing awareness. Now when housewives see the word microwave, maybe they'll think beyond ovens and recipes. There is also bound to be an avalanche of litigation, and the military has tried to buy research that will refute claims of microwave injuries. They want to keep these cases out of the courts.

One Air Force officer told me Paul Brodeur should leave this complicated matter to "the experts."

That's as good a description of how a cover-up is engineered as any I've ever heard. □

The divorced Brodeur tests his cross-country skiing outside Boston with daughter Adrienne, 12, and son Stephen, 13.

