



you have to know that microwaves are only one part of a vast spectrum of radiations. Beginning with the most lethal from a nuclear explosion -- that's gamma rays -- we pass on down through a range of radiations that can either help you or hurt you, depending on how they're used.

For instance, X-rays are vital to doctors, but now we know that too much X-ray can give you cancer. Laser beams can be used for delicate eye surgery, or they can cut through six feet of steel.

When we get toward the bottom of this spectrum of radiations, we come to microwaves, from TV transmitters and radars and microwave ovens. Scientists and the Federal Government, for the most part, feel that to be in real danger from microwaves you have to feel heat. Nonetheless, they are concerned.

And indeed, for 20 years the Federal Government has said that if our bodies are exposed to microwaves no stronger than 10 milliwatts per square centimeter, an area about the size of a fingernail, we're just fine. Well, it's that 10-milliwatt standard that's now being challenged.

For instance, the Soviet Union has standards a thousand times tougher than our 10-milliwatt standard. The Soviets think that low-level doses of microwave radiation can cause a raft of ailments, from coronary disease to depression, partial loss of memory, anxiety, sexual impotence.

So, when Washington learned the Soviets were beaming microwaves at the U.S. Embassy in Moscow, some eyebrows went up.

The CIA asked your advice about the Moscow Embassy irradiation.

DR. MILTON ZARET: That is correct.

WALLACE: When and what did they ask?

DR. ZARET: They first came to me, I think, early in '65.

WALLACE: Dr. Milton Zaret is an eye surgeon, professor of ophthalmology at New York University, and he's been studying microwave radiation and its effects on us for 20 years.

DR. ZARET: We reproduced some of the Soviet experiments, and I also analyzed Soviet literature, and I found that if I were a professor of ophthalmology at Moscow instead of at NYU, I would believe that radiation would have an anti-personnel effect. The multiple frequencies they were using, the wavelengths they were using all fit into the pattern they would expect a behavioral effect on our people.

DR. SAM KOSLOV: Well, we first realized that there was a specific signal directed at the embassy about 1963 or '64; I couldn't tell you the exact date.

WALLACE: What'd we do about it?

DR. KOSLOV: We worried.

WALLACE: Dr. Sam Koslov. He is the chief scientific adviser to the Navy on microwave radiation. He's been into the subject since the early '60s.

DR. KOSLOV: We decided that one possibility, vague as it was, could be they were on to something in radiation effects we didn't understand.

WALLACE: Conceivably, they were beaming that radiation at our embassy to induce the same kind of sleeplessness, fatigue, disorientation, etcetera, etcetera, that they have seen in their own workers that had been exposed to microwave radiation.

DR. KOSLOV: The only problem with that, Mike, is that characteristically of that period, the maximum level that you would find inside the embassy was about one microwatt per square centimeter, perhaps two microwatts per square centimeter, which is substantially less, even, than the Soviet standard.

A large body of people who looked at the data said, "Look, there's no hazard here," and we turned that particular program off.

DR. ZARET: My recommendation at that time to my contacts in the CIA was twofold: One, make them stop it. It was strictly a dirty tricks operation at that point in time. And two, to tell our people in the embassy that they had been irradiated.

WALLACE: How long was it before the embassy staff was told?

DR. KOSLOV: January 1976, January-February 1976.

WALLACE: That's 13 years after you first discovered the irradiation was going on.

DR. KOSLOV: And after we had pretty well ascertained that there didn't appear to be any hazard.

WALLACE: The main target, ostensibly, was the Ambassador's office, we are told. And maybe there is no connection, but given the Russian literature, doesn't it, as a scientist, make you wonder, when two of our Ambassadors to the Soviet Union have died of cancer, and it is our understanding that Ambassador Stoessel, who is now

In Bonn, now out of Moscow, has been quite ill also?

DR. KOSLOV: Well, I have no way of commenting on Ambassador Stoessel's condition. But let me say this.

WALLACE: Incidentally, Ambassador Stoessel won't even answer our phone calls about this matter, and that, I confess to you, makes me wonder. If there's nothing to hide, then the Ambassador simply comes on the phone and says, "Mr. Wallace, this is the situation."

DR. KOSLOV: Well, I admit from time to time I've tried to reform the State Department, but I don't really think I'm qualified to do so.

But there is no evidence in the literature, Soviet or ours, there is no sign, no indication that anything in the electromagnetic spectrum, in the non-ionizing electromagnetic spectrum, can induce cancer.

WALLACE: Maybe so, but the State Department is paying \$400,000 for research to find out if there is a connection between the embassy irradiation and health complaints from our employees there, including a reported high incidence of cancer.

The beaming of microwaves by the Russians at our Moscow Embassy was intentional, but some people in this country are now concerned about everyday occupational exposure to that kind of radiation. For instance, our military has billions of dollars worth of microwave paraphernalia for our offensive and defensive weapons systems, and now some people who have worked around those systems for years say they have developed job-related ailments, specifically cataracts.

JOE TOWNE: I can see a figure across the table but I can't tell who you are, without the glasses. With the glasses, you're Mike Wallace.

WALLACE: Joe Towne, former Air Force Sergeant. He's had surgery for cataracts in both eyes. Towne for years was a radar tech aboard EC-121s, flying radar stations.

Is there any doubt in your mind, Joe Towne, that your cataracts were caused by microwave radiation?

TOWNE: None whatsoever.

WALLACE: The man who operated on Towne's eyes, Dr. Milton Zaret.

Over the 15 years that you've been dealing in this area, how many diseased eyes do you think that you can attribute to

microwave radiation?

DR. ZARET: Well, it's a large number. I stopped counting quite a while ago.

WALLACE: Zaret has been called on by all branches of the military and the CIA for his expertise. But when he starts talking about cataracts due to long-term exposure to low-level microwave radiation, military doctors like Bud Appleton take exception.

DR. BUD APPLETON: We've found no evidence that people have sustained cataracts as a result of exposure to microwaves, not just small amounts, but even large amounts.

WALLACE: Dr. Appleton is the chief ophthalmologist at Walter Reed Hospital and adviser to the Surgeon General of the Army. He says the military tested the eyes of 1300 servicemen who had worked around radars and compared them with others who hadn't.

DR. APPLETON: There wasn't any difference between the microwave workers, as a population, with respect to their eyes, and the control population with respect to their eyes.

TOWNE: We ran a study on 70 men who were radarmen in the EC-121 aircraft, and we discovered 12 out of the 70 had cataracts.

DR. APPLETON: There wasn't anything different about their eyes than what one would expect from people of their age in the population coming through the clinic of people who had been identified as having an eye problem.

WALLACE: Despite that opinion, Joe Towne sued the makers of the equipment he had worked on. They claimed no liability, but they settled anyway.

TOWNE: Lockheed settled out of court.

WALLACE: How much?

TOWNE: \$50,000.

MAN: The low-power system could still be transmitting...

WALLACE: These four men worked on Army radar sites. All got cataracts in their 30s or early 40s. They're suing the equipment manufacturer, and they're mad at military doctors for not backing them up.

MAN: If they brought this equipment down to a safe standard, they would have to spend billions and billions of dollars.

DR. APPLETON: If they have service-connected disabilities, then they should be compensated.

WALLACE: But you don't believe that they have a service-connected disability.

DR. TEMPLETON: I say there is no scientific evidence to support the claim that they have a service-connected disability.

WALLACE: Critics say the government won't concede a hazard from microwave radiation because it would cost billions to move and redesign all that equipment. But Dr. Appleton says nonsense; it would cost more not to move it if there were a danger.

DR. APPLETON: If there were such a thing as microwave cataract, what it would probably cost in the long run to compensate people for them would be astronomical, in terms of dollars.

WALLACE: But other employees of the Federal Government have made out better. Air traffic controllers have put in claims for disability from cataracts after working around radar for years. Thomas Markey of the Department of Labor told us that six claims were paid, others are still pending.

These claims amount to tens of thousands of dollars, and we asked Markey on whose medical expertise did you depend in these settlements.

DR. ZARET: What was his answer?

WALLACE: Dr. Milton Zaret.

DR. APPLETON: I'm not surprised. But I'm not the only ophthalmologist who disagrees with Dr. Zaret.

WALLACE: Indeed, Dr. Milton Zaret does not have support for his theories in the scientific community, and a layman has to wonder, if Zaret's right, why aren't microwave cataracts showing up everywhere?

DR. ZARET: Well, there's great individual variation in how you're exposed. There's no constant rate of exposure for the general population. It takes 20-30 years before the radiational effect becomes apparent, in some people. Age is a factor. And who's to tell in 30 years from now what our incidence of cataract will be?

WALLACE: Microwave ovens. They're the gadgets that have brought microwaves from the job into the home, about four million of them in the past five years, sales approaching half a billion dollars worth a year. Food in those ovens is bombarded with heavy doses of microwaves. The question is: How much radiation leaks

out of the ovens.

The Consumers Union is a private, nonprofit testing organization which examines consumer products for their effectiveness and safety. To this day, scientists at Consumers Union refuse to testify to the safety of microwave ovens.

Executive Director of Consumers Union, Rhoda Karpatkin.

RHODA KARPATKIN: Consumer Reports tested microwave ovens and studied the literature about microwave ovens. We reported in the magazine on what we found, and what we found is that there is varying levels of leakage in each of the machines we tested. We found that the literature has not established those levels of leakage as safe.

WALLACE: We asked the industry for a spokesman. They suggested Dr. John Osepchuk (?), a microwave expert employed by the Raytheon Corporation, which makes the Amana Radarange.

DR. JOHN OSEPCHUK: All of the respectable scientists in this country, beginning with the HEW 15-man advisory committee, the AMA, the IEEE -- that is, the electrical engineering organization -- professors galore, have said the emission standard for this oven put out by the American Government is compatible with the U.S.S.R. exposure standard. So any debate about exposure standards is irrelevant to the safety of this oven.

WALLACE: There's a federal regulation that says microwave ovens can leak one milliwatt per square centimeter at sale, five milliwatts once they're in the home. But that raises the question: How does an owner know how much an oven leaks.

KARPATKIN: Either by asking the government to test it for them or by acquiring the equipment to test it themselves.

WALLACE: Consumers Union scientists report some models they tested under severe conditions leaked much more than the federal regulations permit. And the Federal Government this year announced the recall of 36,000 ovens because of potential leakage problems.

Regardless, Dr. Osepchuk insists that no models need testing in the home.

DR. OSEPCHUK: The government has such strict regulations with this device, that are unprecedented in the kitchen. It has to be beaten to death and still survive a radiation standard.

WALLACE: Well, then what's wrong with Consumers Union? I mean they're hardly out to put the GE or Westinghouse or Amana or Raytheon or whomever out of business.

DR. OSEPCHUK: I would say, in view of the fact that the most prestigious scientists across the world agree that this is so safe, I would just say that Consumers Union must be misguided.

WALLACE: You're a scientist. Scientists developed Thalidomide and food additives and pesticides and X-rays, and originally no one worried, and only later did we begin to find out.

DR. APPLETON: Well, the only thing I can say is that in the case of the electromagnetic environment, we've been living in it for a long time. We have seen no pattern.

Everything we do has a risk-benefit characteristic to it. I have an oil burner in my house to heat it. Oil burners sometimes blow up. Okay? But I still want to heat my house.

All I'm saying here is that in the case of the environmental pollution, which there is, from electromagnetics, we haven't approached that risk-benefit threshold yet.

WALLACE: The Federal Government, in the past five years, has finally coordinated all the various experiments being done by a dozen different agencies on microwave radiation. They're spending \$9 million this year, mostly for exposing test animals to a variety of radiation under a variety of circumstances. They want to determine which, if any, of the Russian conclusions might be right when they talk about disorders of the central nervous system, or heart problems, or sexual impotence from microwaves, and whether there could possibly be such a thing as microwave cataracts, as Dr. Zaret claims.

To be sure, the scientists waving flags are a minority of a minority, scoffed at by a lot of their colleagues. But in the middle is a sizable group, including some government scientists, who admit it's going to take years before we can be sure electronic smog is not dangerous, before we can hold it harmless, or before we might say, "If only we had known."