

# 14

## Zaret

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From time to time Dr. Becker had talked to me about the work of an ophthalmologist named Milton Zaret; they shared an interest in the health risks of EMFs although they had never worked together. A book about Zaret appeared in which, according to a review in the *NY Times*, he had claimed that microwaves caused cataracts and that the supporting evidence had been covered up by the Defense Department and the Central Intelligence Agency. The *Times* had interviewed the Navy's Paul Tyler who denied there was any health problem or cover-up and said, "I'm a doctor whose specialty is preventative medicine, and I obviously have to be very concerned about the health of our men on shipboard. If I thought we needed money for research on microwave effects, I'd ask Congress for it."

When I asked an ophthalmologist whether microwaves could cause cataracts, he told me, "The Navy did many studies about that on servicemen, but couldn't find any connection."

Soon after the book appeared Zaret visited our lab. I spoke with him long enough to see that he had much experience studying EMF bioeffects, so I asked him for an interview regarding that work, and he invited me for a visit at his home in Scarsdale, New York.

We sat at his dining-room table and talked from mid-morning until late evening, stopping only to eat a dinner that his wife had prepared. He smiled easily, but not deeply, and spoke with a quiet dignity as he told his dark story all the way through to its sad ending. He showed me reports he had written for the Defense Department, and told me about conversations he had had with Tyler and others.

Early in his career he had been consulted often by government officials regarding EMFs, and had been respected both for his knowledge and his loyalty. Then the same officials cast him out like a leper, and the soft-spoken man with the hunched shoulders genuinely seemed unable to understand the reasons for the reversal of his fortunes. After our discussion I talked with many of the people he had mentioned, and I read his reports and those of his antagonists. Ultimately, I came to see that his career could not have

had any ending other than the one that occurred.

As a teenager Zaret had pleaded with his mother for permission to join the Navy. She refused at first, and relented only after he threatened to enlist in the Canadian Armed Forces. He told me how he had been greeted when he reported for duty at Pearl Harbor. "The first thing the captain said was, 'Here's your copy of the Navy's rules and regulations. I want you to read it and remember that every one was written to be broken, but with foresight.' That was the best advice I ever got, because the war wouldn't have been won if we hadn't been breaking regulations." Zaret had been on duty the day the Japanese attacked.

He completed three tours of combat in the Pacific as an engineering officer, and after the war went to medical school and then trained in ophthalmology. Not contented with only a clinical practice, he began doing research on the nature of the ocular hazard posed by lasers, which was a pressing ophthalmological problem of that time. In studies for the Defense Department he showed that the intense red beam could instantly burn the retina of rabbits. That work led to the first warning of the dangers of lasers.

When a question arose concerning whether servicemen exposed to microwave EMFs from radars and communication equipment were at increased risk for developing cataracts, the Defense Department again sought Zaret's help. He began a study in which he was to perform a particular ophthalmological examination on several thousand servicemen who had been identified by the military as working in a job that involved exposure to microwaves.

As the study neared its end, without Zaret having found even one cataract, several electronics companies asked him to examine some of their employees, civilian microwave engineers who had been diagnosed with cataracts by other ophthalmologists. The engineers had a practice of looking through a peephole in a wave guide to observe the operation of the device that generated the microwaves. Zaret found that the cataract had always occurred in the eye that the engineer had used to look through the peephole. In these inadvertent experiments, the microwave energy had signed its name at exactly the same place in each man, the tissue in the front of the eye immediately behind the lens.

"It is seldom possible to establish a cause-and-effect relationship with scientific certainty in human pathology," Zaret told me. "In these cases I was sure beyond any reasonable medical doubt that the repeated exposure

the engineers got by looking through the peephole was what had caused the cataract.”

Corroboration of his hypothesis had not materialized in his ongoing clinical study. However, the kind of ophthalmological examination needed to examine the tissue behind the lens had not been one of the planned study examinations, so he would not have found evidence of an EMF-induced cataract of the type he saw in the engineers even if it had been present. But enrollment in the study was not quite over, which gave him the opportunity to perform the necessary examination on the last of the servicemen who entered the study. When he did, he observed a roughening and thickening of the tissue behind the lens that could have been the inception of the pathological process that results in a cataract.

In his final report he said that he had not found any cataracts in the study cohort, which Tyler interpreted to mean that microwaves posed no ocular hazard. But Zaret had not systematically examined the tissue behind the lens, and he had told Tyler that the health implications of the study could have been far different if he had done so. He also told Tyler, “I have seen cataracts in my private patients that seem clearly linked to repeated exposures to low-level microwaves.” Tyler, however, discounted Zaret’s findings in his private patients and in the handful of servicemen whom he had examined near the end of the study.

A belief had developed in the military that any damage done by microwaves would involve the burning of tissue in the eyeball, as with lasers. Because of the way Tyler had construed Zaret’s results, military physicians continued to tell sailors who were bathed continuously in microwaves from the hundreds of shipboard antennas and soldiers who operated weapons and communications systems that they were not harming themselves so long as they did not feel heat in their eyeballs. At the same time, however, the Defense Department funded additional studies by Zaret on occupationally exposed servicemen to try to resolve the issue of whether cataracts could develop in the absence of microwave-induced heat; in this study he performed all of the necessary examinations.

As he carried out this research, private patients including veterans and active-duty servicemen continued to seek him out. Over the next several years he found cataracts in many men who had been occupationally exposed to EMFs but had never looked through a peephole, and could not recall having felt heat in their eyeballs. Some of the men had worked with

radar, radio antennas, or microwave ovens, others with walkie-talkies or cathode-ray tubes. In all these cases, young, healthy servicemen had suffered damage to the tissue in the front of the eye behind the lens caused by something that was unseen and unfelt, and could only have been microwaves at intensities too low to cause heat.

Zaret finally decided that it was medically necessary to change the level of microwave EMFs that the Defense Department regarded as safe for servicemen, because that level had been predicated on a thermal-effects-only mechanism of action of microwaves, which he was now certain was wrong. He was told, however, that the proof needed was a direct showing in animals that cataracts could be caused by exposures to nonthermal levels of microwaves. The Defense Department asked Zaret to perform the study, and he agreed.

The Navy owned a small uninhabited island in Pearl Harbor, and it gave him an exclusive five-year lease to use the island for his experiments. He acquired hundreds of old- and new-world monkeys and began his work. Meanwhile, the use of microwaves in weapons and communications systems, industrial devices, and home appliances continued to expand, unrestrained by the possibility of side-effects, ocular or otherwise.

One day, four well-dressed men from the Central Intelligence Agency came to visit Zaret. As they sat around his dining room table eating a dinner his wife had prepared, the man who would soon become Zaret's case officer told him that the country needed his help. He gave Zaret translations of Soviet scientific articles purporting to show that low levels of microwaves could affect the brain, and asked: "Is it possible that microwaves could be used to create something like a Manchurian Candidate?" Zaret told him it wasn't obvious how it could be done, but that the possibility couldn't be completely ignored.

Thereafter Zaret performed EMF research on rats for the Central Intelligence Agency, mirroring work done by Czechoslovakian scientists, and he observed effects on the nervous system that were similar to those that they had reported. These paired experiments allowed the language in which Soviet scientists described the strength of the microwave EMFs used in their studies to be translated into the different scientific nomenclature used in the United States, like a microwave Rosetta Stone.

Soon after that, Zaret's case officer brought him to the Pentagon where he met a man named Samuel Koslov, who Zaret later learned was the chief

advisor to the President on matters involving EMF hazards. Koslov told Zaret something that was known to only a handful of people in the U.S. government. The Soviets were irradiating the American embassy in Moscow with low-level microwave EMFs that were beamed from antennas concealed in buildings on the opposite side of the boulevard from the embassy building (just as I had been told by Jack Anderson's assistant, in New York in 1973). The CIA had analyzed the microwaves and determined their precise characteristics which, to the surprise of U.S. government officials, matched those in published Soviet experiments involving behavioral effects in rats. This had suggested to Koslov that the microwaves could be altering the biochemistry inside the brains of embassy personnel, thereby causing them to make erratic decisions. He gave Zaret the money necessary to replicate some of the Soviet research, and sent him to international meetings to mingle with Soviet scientists and gather information that might help solve the problem of the purpose of the Moscow EMF beam. He was trained by the CIA to recognize his counterparts working for Soviet intelligence, and to avoid their stratagems for compromising Americans.

He learned only a few details about the research of the other scientists who also labored in the black for Koslov. What Zaret did learn only added to his concerns that EMFs could affect the nervous system, and perhaps cause other diseases besides cataracts. Meanwhile the civilian and military embassy staff and their families continued to work and live in the embassy building in complete ignorance that they were being bombarded by a microwave beam.

After the ambassador and several others who worked at the embassy developed cancer, Koslov began a secret study in which the blood of the embassy employees and their families was examined for evidence of cancer. The study was directed by a State Department physician named Herbert Pollack, who told the people that the blood tests were "routine."

Zaret had a great ache in his heart. What kind of an employer subjects his workers to danger without providing any warning? What kind of a general fails to take what steps he can to protect the safety of his men? And what kind of doctor conducts secret research on his patients? Nevertheless, Zaret continued to examine the eyes of civilian microwave workers and servicemen whose duties put them in harm's way. He also continued to study the eyes of the monkeys on Laulaunni Island; he exposed them to EMFs and then looked for the roughening and thickening of the tissue

in the front of the eye behind the lens that preceded formation of EMF-induced cataracts, which was what the Defense Department had demanded as evidence of the hazards of microwaves. As he worked, true to the duty that he felt he owed the government, he said nothing publicly concerning what he knew or suspected about microwaves.

By a process that he never explained to Zaret, Koslov ultimately came to the conclusion that the Moscow microwave beam was not an effective mind-control weapon. He ordered Zaret and the others to discontinue their research and, far worse for science, he destroyed all the data and records that had been produced by each of the investigators who had performed the secret studies. Because of this, Zaret's work, and that of Ross Adey at the Veterans Administration Hospital in Loma Linda, Don Justesen at the Veterans Administration Hospital in Kansas City, and many others, was lost. Years later Koslov told Congress, in effect, that he had destroyed the material because he didn't have any room to store it.

Finally a time came when the forces inside Zaret resolved themselves, and he saw his duty in a different light. At a scientific meeting he described the early signs that occur in the tissue behind the lens of the eye of someone who is repeatedly exposed to microwaves. At another meeting he detailed several dozen cases in which the degenerative process in the eye had not been interrupted by withdrawal from the hazardous environment, leading to formation of a cataract. At still another meeting he told his audience that the microwave cataract was a preventable environmental disease. In a publication, he said explicitly that the Defense Department standard for microwave exposure was not clinically credible.

Although there was no ostensible response by the government to what Zaret had said about microwaves, the gears had started to turn. Secretary of Defense Harold Brown met with his advisors and received estimates of the cost in money, injuries, and lowered military efficiency of changing the microwave standard as Zaret had advised, and estimates of the costs for caring for the injuries that would occur if the EMF standards were not changed. Tyler and others argued that a more stringent standard, which would require that radars be used at lower power levels, would threaten the Navy's ability to carry out its mission and would "kill ships," by which he meant make them more vulnerable to the enemy. They pleaded with the Secretary to retain the standard, which is what he decided to do. I know that this is true, or mostly true, because I also heard the story from someone

who was at the meeting who told someone else who told me, and because the story explains the pounding that poor Zaret took in the aftermath of his public call for a change in the official microwave standard.

He first knew that he had troubles when Tyler issued an order canceling Zaret's lease on the island in Pearl Harbor and terminating the monkey experiments; when Zaret appealed, the Navy chose Koslov to review Tyler's decision. Zaret's mentor and fellow cold war warrior told the Secretary of the Navy that Zaret was not trustworthy, and that neither his scientific nor clinical research was reliable. The Secretary sided with Koslov and authorized Tyler to take control of the island and destroy the monkey colony. That guaranteed there would never be evidence sufficient in the opinion of the Defense Department to require a change in its microwave standard.

There followed a drumbeat of articles in scientific journals that directly attacked Zaret and supported the microwave standard that his work threatened. The public face of the effort was Colonel Budd Appleton, the head of the Ophthalmology Department at Walter Reed Hospital, who authored several studies that appeared to vindicate the military's myth about microwaves. Anyone who read his studies carefully could see that they were not proper science. However, there was really no motivation for anyone to parse his work; the military didn't want to jeopardize its mission, industry saw only the profit microwaves could yield, not the pain, and the public blindly trusted the experts whose opinions appeared in the press.

Appleton and Tyler were Zaret's chief antagonists, but there were also others who took part in the mission to destroy him. Don Justesen was among the most vicious and effective. I attended a meeting in Richland, Washington, that was held mostly for the edification of contractors who made their living by performing EMF research for the government. Justesen gave an after-dinner speech in which he cruelly exploited a debate he had had with Zaret on a radio program in Kansas City. Justesen spoke to the Richland audience for a few minutes about microwaves, and then asked in a mocking tone, "When did the microwave cover-up begin?" When the laughing died down, he held a tape recorder near the microphone and Zaret's voice said, "It goes back to the project that was set up by the Defense Department to investigate the microwave irradiation of our embassy in Moscow." More laughter.

Justesen then asked, again mockingly, "Are the government and industry allied in keeping from the American public the possible hazards and

dangers from microwaves?” and turned on the tape recorder for Zaret to reply, “The answer to that question is yes.” Justesen smiled broadly as the audience booed Zaret.

Next Justesen asked, “What does microwave radiation do?” Zaret replied, “The danger lies in the repeated exposure at low levels of microwaves. Each exposure in itself might not be too meaningful. But repeated often enough, it could produce severe damage.” More laughter and boos.

Justesen asked, “Do you think the answer to the microwave problem is government action of some kind?” Then he pulled the electronic string on his puppet one more time, making Zaret reply “Yes.”

During the time it took for the Defense Department to pound down Zaret, no one in the so-called community of scientists or brotherhood of ophthalmologists spoke against his mistreatment, and the idea that ordinary microwaves could be toxic to the eye or cause other diseases became unfacted. Appleton and those in league with him drowned out Zaret with their chronic bellowing.

Zaret began testifying in civil cases on behalf of civilian workers whose eyes were injured by microwaves produced by microwave ovens. Despite opposing testimony given on behalf of the oven manufacturers by Appleton, who appeared in court in full uniform complete with medals on his breast, Zaret’s clients prevailed in the first of these cases.

“How do you decide whether somebody has a cataract that was caused by microwaves?” I asked him.

“First I examine their eyes and look for signs of the cataract. I ask them about the kind of microwave exposure they had, and how long they had it. If I can see the cataract, and if the patient had the exposure, then sometimes I can say that the cataract was probably caused by microwaves,” he replied.

“Why couldn’t it have been caused by something else?”

“It could. No doctor can ever be certain. But look at the facts. The patient has a cataract, and he has experienced a lot of microwave exposure. Now, something caused the cataract. Something made it happen. Something that, if you took it away, you would take away the cataract. I know that microwaves can cause cataracts. It’s possible something else that we don’t know about caused the patient’s cataract, but that’s unlikely because the other things we know can cause cataracts weren’t experienced by the patient. So, it’s more likely that microwaves were responsible, because we



know they can cause a cataract and were extensively present in the case.”

But just as Zaret’s disarmingly direct logic had begun to make an impact in the courts, he was checkmated. The endgame began when two women visited his office to have their eyes examined. They had worked in a restaurant where they opened and closed the doors of microwave ovens several hundred times a day, but had quit after being diagnosed with cataracts by their ophthalmologist. The women had commenced suit against the oven manufacturer, claiming that they got cataracts from the microwaves that had leaked out of the ovens, and they asked Zaret to testify on their behalf. He examined their eyes but remained undecided about the presence of the signature cataract, the opacity in the tissue behind the lens, so he told them to return in six months for another examination. He heard nothing more about the two women until someone showed him a copy of an affidavit in which they swore that they had been instigated to sue by Zaret, and that he had lied to them and misled them regarding their medical condition. They asked the judge to dismiss their lawsuit because it had no merit.

Zaret had little understanding of why the women returned his efforts on their behalf with such vile lies, but I could see their motivation plain enough. They couldn’t sue their employer because the law prohibited lawsuits by employees, so they had sued the oven’s manufacturer. It would have been a coup for the women if Zaret had agreed to testify for them, and a disaster for the company. The litigation would have generated adverse publicity and a flood of future suits in which the essential element of proof in each would have been disarmingly direct testimony by the world expert in microwave cataracts that the plaintiff’s cataract had probably been caused by the microwaves that leaked from the oven. So the lawyers on both sides made an unholy bargain in which the women bore false witness against Zaret and, in return, the company gave them the money they craved.

The affidavit soon leapt into Tyler’s hands and he used it against Zaret like a knife, not as a surgeon who cuts into flesh to preserve life but as a butcher who intends to kill. Tyler circulated copies of the affidavit to any potential litigant he came across, effectively saying, “Look, see what an evil man Zaret is. You will receive honest advice from Colonel Appleton.” In the face of this concerted defamation, microwave patients stopped going to see Zaret, and so the old soldier’s last tour of duty came to an end.

Despite everything he had been through, Zaret seemed at peace with himself. My most vivid memory of my day in Scarsdale was his serenity

and gentle smile when he said goodbye.

Tyler and Koslov had devoted their careers to protecting the nation against external threats of every sort – real, potential, and imagined. They would have used any fact that aided in the completion of their mission, and opposed any fact that interfered. Perhaps fine men to follow in matters of war, but surely not in matters of science.