
Interview: Dr. Martin Welt

'To develop food irradiation, I wouldn't take no for an answer'

Dr. Martin A. Welt, president of Radiation Technology, Inc., in Rockaway, New Jersey, has been the most active U.S. advocate of food irradiation commercialization since the late 1960s. Welt operates three plants in the United States to irradiate food for export, including strawberries, grapes, poultry, and fish. He also processes the irradiated food used by NASA to feed the astronauts. It was Radiation Technology's petition to the Food and Drug Administration that led to the FDA regulation last July permitting irradiation of spices.

Welt's firm and a handful of other U.S. companies with irradiation facilities are ready to expand as soon as the proposed FDA regulation permitting 100 kilorads of irradiation becomes law. In early March, Radiation Technology successfully tested the irradiation of grapefruit for insect disinfestation.

Welt was interviewed in his Rockaway plant by Marjorie Mazel Hecht, managing editor of Fusion magazine. The first installment of this interview was published in the March 27 issue of EIR.

Hecht: When did you first get interested in food irradiation, and how?

Dr. Welt: After I left MIT, I was invited to join a group in Washington called the Hazards Evaluation Branch of the Atomic Energy Commission. This was the predecessor of the operation that now licenses nuclear reactors. I believe I was the first person in the United States with formal training in nuclear engineering and reactor physics to actually license a nuclear reactor. While I was with the Atomic Energy Commission, I realized that if we were going to build all the nuclear power plants that we were predicting back in the 1950s, that we had to address ourselves to the waste disposal problem. And to me, it always made sense not to look at a problem as a problem but to look at a problem possibly as an asset. And I started trying to advocate the conversion of this potential liability into an energy source, a radiation source—asset. In fact, when I left the Atomic Energy Commission and started in my business career—I worked for an aerospace company and for a small business corporation—

Hecht: When was this?

Dr. Welt: This was about 1959-61 or so. I had contracts

aimed at converting calcine fission products into an energy source for saline water conversion. I had another contract that made use of taking constituents in the waste fission products, namely strontium-90. . . to convert it into a heat source for remote area heaters for the Navy. This was under a contract for the Bureau of Yards and Docks at that time, known as Project Artesia and Project Nuclide Heat, respectively.

Since that time, when I began teaching, I kept in mind the fact that I wanted to find uses for these products. I got a contract while I was on the faculty at North Carolina State University to do some work on food irradiation, and that took me around to various labs, talking to various scientists in the field. I also did my own investigations, and I satisfied my own mind—because I was a young fellow, I didn't want to waste my life in a technology that was just a closed door. I concluded that this was a very meaningful, very important technology, and I subsequently founded Radiation Technology, Inc. in 1968, and naively thought that something that was this good would grow quickly into commercialization.

I didn't realize that 17 years later I'd still be at the threshold. Meanwhile, we survived, and I believe we have a very bright future. But one thing the United States does do—it gives you enough rope, anybody can go out and kill themselves if they want to earn a living or develop a technology. Unfortunately, we've had to fight with such a strong entrenched regulatory authority that when I stop to think of how much time we've lost due to non-productive actions, and what we could have accomplished, I have no idea where we could be, or where the level of this technology would be.

Hecht: We'd certainly be feeding the world more than we are now, just through non-spoilage.

Dr. Welt: Well, that is correct. The United States does a very fine job in feeding the world. I just told a reporter from Springfield, Illinois, that agriculture certainly is the largest industry in this country; we export about \$40 billion worth of agricultural products a year, \$8 or \$9 billion of which go to Japan alone. And we can certainly increase our exports; we do have to contend with certain things. For an example of what we deal with, competing with France and Brazil in subsidized chicken sales; we can't raise chicken as cheaply

as they can. But in talking to some of the industry just recently, if we can go ahead and jump the gun by taking our poultry and preserving it so that it can be shipped to very distant places very inexpensively, then perhaps not only can we compete, but we can compete very well.

So, we are beginning to look at increasing exports, but I'm afraid this is not coming through government action, it's coming through free enterprise. The problem in this country is that the free-enterprise system is being hamstrung by regulations that become very difficult to move against. For years, the FDA was very suspicious of us because we were irradiating food for export. Somehow they believed that the food was entering the supermarkets in the United States, which it certainly wasn't doing, to my knowledge.

Hecht: Are your three plants actively irradiating food now for export?

Dr. Welt: A lot of it is for the United States now; we do a lot of spices and so forth for the U.S. market.

Hecht: But you also have a huge chicken plant in Arkansas?

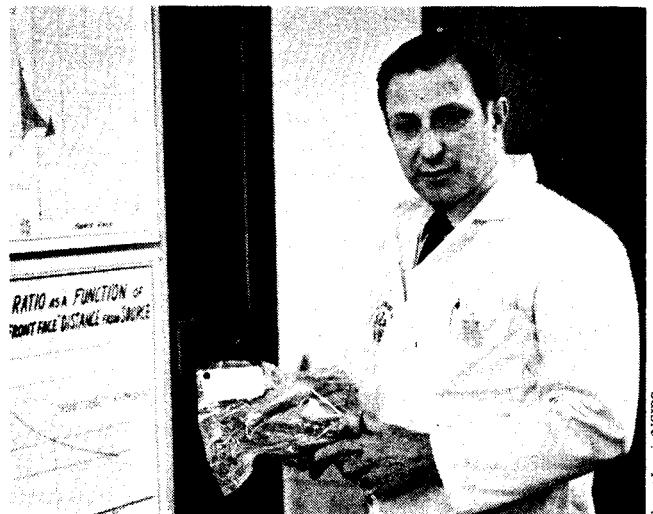
Dr. Welt: Well, our plants in Arkansas and in North Carolina were put there because of the big poultry interest. These plants are used for export of poultry; they have a tremendous capability for processing. Each plant can do a million pounds a day of fresh poultry. But the volume depends, of course, on outside customers to place the orders. We're not in the chicken marketing business, so somebody will call us and say that they're putting together a shipment for someplace in the world where they accept irradiated poultry. And that's the way these orders will come in.

Hecht: What are some of the countries you export to?

Dr. Welt: In Europe, Holland is probably the major importation point. The Dutch are very advanced with this technology. The Dutch traders are probably some of the best in the world; when buyers get product from Holland, they don't differentiate whether it's irradiated or not. And I suspect that a lot of irradiated product that has entered Holland is in transshipment, going elsewhere. . . . In fact, I was there one time when a German fellow asked the Dutch trader, "How do I know I'm not getting Dr. Welt's fish?" And the Dutchman looked at him and said, "If it stays longer, it's Dr. Welt's fish."

Hecht: Are any of the developing countries involved?

Dr. Welt: Sure; it's growing like crazy. We just got word we're going to be building an irradiator in Guatemala. . . . I have a lot of colleagues in Asia, in India and Thailand, and in fact we've had maybe six visits from people from the People's Republic of China. I was invited to the Chinese Academy of Sciences and the Chinese Institute of Nuclear Science in Shanghai. doing research in this field. The Filipinos, the Thais, the Malaysians, the Bangladeshis, the Egyptians, the Iraqis, the



Dr. Welt displays irradiated poultry and the preservative effects of various dosages.

Israelis, the Canadians, many of the South American countries are working on this.

Hecht: Have they made use of the years of U.S. research on food irradiation?

Dr. Welt: I want to say something about how this technology has really been misdirected. In the early days, when it was funded by the Atomic Energy Commission, I personally think the research was very poor, because the people who were funding it really didn't give enough thought to what was going on. A lot of the early work in my view—and I know a lot of people may take offense at what I say—was done carelessly in the '50s and '60s. To get the Atomic Energy Commission to foster this—and their intent was good—they built a lot of irradiators that were basically tanks. I built one in North Carolina of my own design, which Radiation Technology now offers for sale; it's a good research facility. But the food that was irradiated in these things was placed in canisters, the canisters were sealed up and put under water where they were irradiated for long periods of time, to study the irradiation of food, and the food came out damaged and whatnot, and it was concluded that irradiation was the cause of the damage.

Now we find that this is really not the case; that much of the damage was due to ozone and nitrous oxides that were formed, or the long durations of humid temperature. I think people who have been critical of this work should realize that. Meanwhile a lot of data have been generated, a lot of contracts were paid for, and the work was meaningless, as far as I'm concerned. For example, one of our strawberry accounts—we ship strawberries to Europe—one of the fellows from California asked me if he could include a couple of cases of lettuce. I said, "Oh no, you can't do lettuce, they'd never eat it; lettuce is no good, it turns black," and so forth. He shipped me a couple of cases of lettuce, anyway. So we processed it, and we stored it as per USDA requirements, and

it was beautiful. It had a tremendous shelf-life extension. So I went back to the literature and I realized what had happened: The original work was done in this underwater type of irradiation, and there must have been an ozone damage with the lettuce, which got black leaves. We do it in a ventilated, cool facility and we get good results.

Hecht: Do you irradiate lettuce here?

Dr. Welt: We do it in all our plants. We've probably done more work in this plant than in any of the others; we do our Space Shuttle astronaut food in this plant.

Hecht: What kind of opposition do you expect? I assume that the FDA will finally allow the 100-kilorad limit for food irradiation and that they will discuss a higher limit as well. Do you think there is going to be any kind of organized opposition to this from the environmentalist groups?

Dr. Welt: No.

Hecht: I'm thinking in particular of a letter that was in the *New York Times* about a week ago.

Dr. Welt: I wrote a rebuttal to that. . . . [The letter] just shows that a little bit of knowledge, a limited knowledge, is dangerous.

Hecht: The Canadians seem to have a monopoly on the supply of cobalt; how do you think that will affect the expansion of the industry? Someone told me that they were actually delaying their deliveries of cobalt-60 in order to control the use of irradiation.

Dr. Welt: I've been outspoken on that subject. I believe the U.S. government and U.S. industry are partly responsible for allowing that monopoly to develop. Radiation Technology started producing its own cobalt about a year ago.

Hecht: Where do you do that?

Dr. Welt: In government reactors in different places that we've sought out. We do buy it from Canada, too. We also are involved with a very large purchase of cesium-132 from the U.S. government, and we also are very heavily involved in the development of an [electron-beam accelerator] machine that would produce radiation.

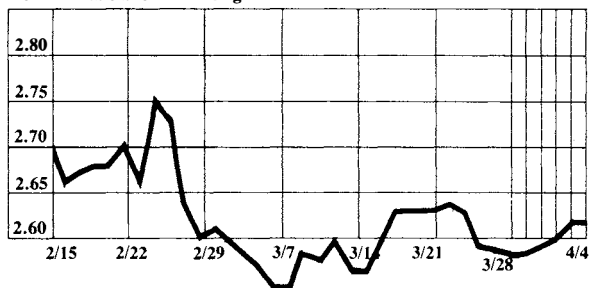
Hecht: I think that certainly food irradiation would not have come to where it is today if you hadn't persisted as you have.

Dr. Welt: I was at a meeting with Clyde Takaguchi of the FDA and a group of us were talking during the break, and he gave me a little friendly tap in the ribs and said, "You know, Martin, if it weren't for you, we wouldn't all be meeting here today." I suspect there's some truth in that, but I think you can make more of it than it is. It's a good technology, and I think the only way I've been different from others is that I fight for things, and I just wouldn't take no for an answer, where others felt it was more expedient just to go into something else or be more of a pacifist. I think I've been right.

Currency Rates

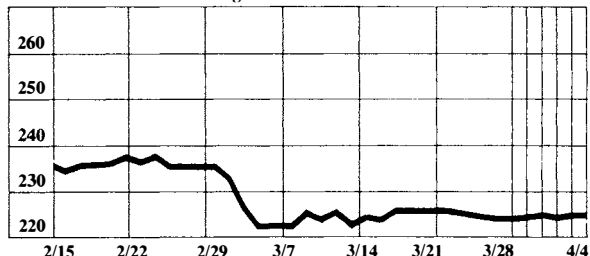
The dollar in deutschemarks

New York late afternoon fixing



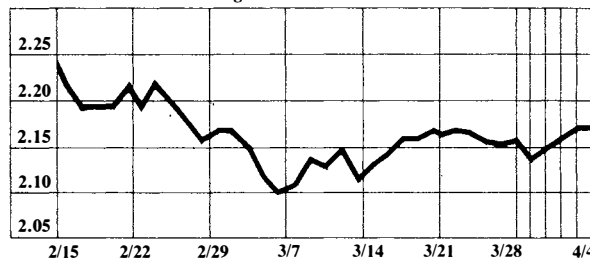
The dollar in yen

New York late afternoon fixing



The dollar in Swiss francs

New York late afternoon fixing



The British pound in dollars

New York late afternoon fixing

