

HISTORY OF THE
U. S. FOOD AND DRUG ADMINISTRATION

Interview between:

Louis C. Weiss

Retired Regional Food and Drug Director

and

Fred L. Lofsvold

U. S. Food & Drug Administration

Suquamish, Washington

January 25, 1981

INTRODUCTION

This is a transcription of a taped interview, one of a series conducted by Robert G. Porter and Fred L. Lofsvold, retired employees of the U. S. Food and Drug Administration. The interviews were held with retired F.D.A. employees whose recollections may serve to enrich the written record. It is hoped that these narratives of things past will serve as source material for present and future researchers; that the stories of important accomplishments, interesting events, and distinguished leaders will find a place in training and orientation of new employees, and may be useful to enhance the morale of the organization; and finally, that they will be of value to Dr. James Harvey Young in the writing of the history of the Food and Drug Administration.

The tapes and transcriptions will become a part of the collection of the National Library of Medicine and copies of the transcriptions will be placed in the Library of Emory University.

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TAPE INDEX SHEET

CASSETTE NUMBER(S) 1 and 2

GENERAL TOPIC OF INTERVIEW: History of the Food and Drug Administration

DATE: Jan. 25, 1981 PLACE: Suquamish, WA LENGTH: _____

INTERVIEWEE

INTERVIEWER

NAME: Louis C. Weiss NAME: Fred L. Lofsvold

ADDRESS: [REDACTED] ADDRESS: U. S. Food & Drug Admin.
[REDACTED] Denver, Colorado

FDA SERVICE DATES: FROM 1939 TO: 1972 RETIRED? Yes

TITLE: Director, Region VI
 (If retired, title of last FDA position)

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This is an interview in the FDA Oral History Project. We are interviewing today Mr. Louis C. Weiss who retired from FDA as the Regional Food and Drug Director at Dallas. This recording is being made at Mr. Weiss's residence in Suquamish, Washington. The date is January 25, 1981. My name is Fred Lofsvold.

FL: Mr. Weiss, would you briefly sketch your career in FDA?

LW: I entered on duty with FDA in September, 1939, along with the rest of what we call the "class of '39" in San Francisco. We went through a three month training period there, then I was assigned to my duty station in Los Angeles. I remained there until the fall, I believe it was November, of 1942, at which time I went on leave without pay status to serve with the wartime research project at Northwestern University in Evanston, Illinois. I returned to FDA in November, 1945, in Los Angeles and remained there, working as a bench chemist, until February, 1957. At that time I was transferred to Washington, D.C. into a sort of training situation in what was then the Bureau of Field Administration. I remained in that position until, I believe it was April, of 1958, when I was transferred to Atlanta as the Chief Chemist. I was there until 1962, when I was transferred

to Denver as Chief Chemist. In 1967, I was transferred to Seattle as Chief Chemist and shortly thereafter was made Deputy Director of the Seattle District under Frank Clark. I stayed in Seattle about two years. In April of 1969, I was transferred to Dallas as District Director, and that position shortly thereafter became the Regional Director. I remained there until my retirement in June of 1972.

FL: You mentioned that immediately after your appointment you underwent a training program in San Francisco. Can you describe that training?

LW: The training consisted of essentially two types of activity. One was a series of lectures which ordinarily occupied the morning hours, and the other part was practical applications of laboratory work for people whose basic training was chemistry and field work for those who were prospective Food and Drug inspectors. The lectures covered such topics as the various parts of the FD & C Act, and these were delivered by such people as John Harvey, J. Edward Kimlel, Harry Moore, Frank Vorhes, and others that I cannot recall at this late date.

Could you identify these individuals as to their official titles or duties?

LW: I'm not sure. Of course John Harvey was the Director of the Western District, and I believe Harry Moore was the Station Chief, at the time. Kimlel, I don't recall what his position was.

FL: I believe that he was Deputy to Mr. Harvey.

LW: That seems reasonable. Frank Vorhes was the Chief Chemist of the San Francisco Station. The chemist prospects would spend a portion of the afternoon period doing laboratory work of the type that they could expect to do if they went into the laboratory in a functional capacity. Frank Vorhes had set up a program of various types of laboratory procedures, and it was almost like going back to school because we would be assigned unknowns to run through the standard laboratory procedures and see how well we did. I think all of us--the inspector prospects and the chemist prospects both spent a lot of time cracking out almonds, as part of an ongoing survey being conducted by the San Francisco Station at the time. Both the chemists and the inspectors were

given field experience. I recall that I accompanied Eric Gray, who was an operating inspector, and Perry Clark on inspections of fish canneries down in Monterey. I think all of us had similar experiences. It is worth noting that this training session, when it began, was just a little over a year after the passage of the new Food and Drugs Act. Because of the increased responsibilities of the Agency, there had been a substantial recruiting effort, and a group of approximately 100 new professional types had been hired. The bunch at San Francisco amounted to in the neighborhood of 25 individuals who had the necessary backgrounds in science to qualify. Somewhat larger groups were undergoing a similar training experience in Chicago and Atlanta.

FL: That's right.

LW: Some of the subject matter which was the basis for the training was entirely new to most of us who were recent college graduates. It had to be kind of new even to the people who were conducting the course because the law was only a little over a year old at the time. In the course of the lectures, certain landmark cases were touched upon because they illustrated certain of the

provisions of the old 1906 Act, but which would constitute some sort of precedent, even under the new act.

Among the several things that were very impressive to a neophyte was the apparent quality of the leadership in this Agency that we were joining. They were, by and large, most highly competent. John Harvey in particular just seemed to have an encyclopedic knowledge on a vast number of subjects. He could call relevant pieces of information to mind without hesitation, which focused very directly upon the subjects he was talking about or illustrated the points. This made his efforts very effective. Frank Vorhes was another one who just seemed to be the ultimate scientist. Another thing that impressed me, and I think it did with most of the other trainees, and that stayed with us for a good many years was the idealism, not only of the law itself, but in the attitude of those people whose job it was to enforce it. This was quite a satisfying experience when you considered this was a new job you were about to undertake. This was the organization that you were about to become a part of. It left you with a feeling--well I had no uncertainty as to the worthwhileness of this job.

You were sure that you could get job satisfaction out of the work.

FL: And then at the conclusion of this training period in San Francisco you were assigned to a regular duty station at Los Angeles?

LW: That's correct. Believe me it was quite a shock when I found my way to Palmetto Street where the L.A. Station was located at that time and found that the laboratory and offices occupied a sort of mezzanine floor in the old appraisers store building there. The contrast was shocking. In San Francisco, the quarters were in the Federal Office Building, and the laboratory furniture, in particular, was beautiful stuff. It had been designed by Frank Vorhes. He even made all the working drawings for the stuff. It was wooden, oak furniture, and thus the laboratories were quite elegant in contrast to the L.A. lab which was pretty dismal. But we survived.

FL: The San Francisco laboratory was fairly new as compared to the Los Angeles laboratory?

LW: Right. The first job of any consequence that I got when I entered on duty in Los Angeles was to make a survey of the dried date industry. My job was at the laboratory end. The inspectors, of course, collected the samples. I spent a good many months at a rather uninspiring task which involved cutting dates and observing if they contained any mold or insect contamination and, if so, how much. I counted untold thousands of insect pellets in the dates that I had cut. All this information was tabulated on large sheets of tabular paper. To tell the truth, after a few weeks of that, I wondered if I'd gone to school for four years, worked hard to learn the trade of chemist and wound up counting insect pellets in dates for a living. Obviously the intent of this work was to establish a tolerance for contamination in dried dates.

FL: In other words, one could expect some small percentage of dates to contain insects, and the question was where we should draw the line for taking legal action?

LW: That's right. It was recognized that you couldn't require a zero tolerance for what we called filth in a natural product, but it was essential and desirable that a reasonable figure be arrived at which would reflect

what could be accomplished with the use of reasonable care and attention by the industry.

This sort of chore didn't go on forever. We learned to do the Howard mold count and to recover and identify and quantify other types of filth elements in other products. Then there was an ongoing monitoring of the dairy industry, particularly to see that butter contained the requisite amount of butterfat to comply with the standard. There was another survey going on at the time to gather data to aid in the establishment of appropriate standards for citrus juices. We analyzed lemon, lime, orange, grapefruit juice, both from the fresh fruit and from the processed products, the canned products, for such things as Brix, specific gravity, sugars, vitamin C, total ash, potassium and phosphorus in the ash. This occupied a lot of our time for a number of years.

FL: This data was to be used then in hearings to establish legal food standards?

LW: That's right.

In addition to the what we used to call wet chemical analysis, we had to do a lot of what is called organoleptic examination of food products. These were techniques which involved the use of the human senses of sight, smell, even feeling or touch, at times, on various food raw materials and final products. I remember one outfit that was making what we called fruit flows, which were generally made from dried berries which were soaked and then pureed and diluted rather extensively, and then canned and marketed. I think the worst case of the inclusion of filth in raw materials occurred when a sample of dried huckleberries was taken by the inspector which was a raw material this individual proposed to use in one of the products and it turned out to be literally almost half rodent pellets mixed in with the dried huckleberries. It was this sort of contamination that the new FD & C Act gave the government the tools to prevent, or at least mitigate.

We did do some pesticide work, even at this early date. It was largely the determination of lead and arsenic as components of spray residues on fruits and vegetables. The techniques, by today's standards, were quite

primitive, but they were accurate and precise enough to give us good control over the products that we examined. We did a lot of (well, some people did, I didn't) organoleptic examination of processed foods, in particular, fish products. The technique there was to examine the product by cutting open the cans and emptying out the product and smelling the can and breaking up the canned product and smelling it and examining it visually for evidence of decomposition. Strangely enough, to this day, decomposition is best determined by organoleptic means, in spite of the development of such exotic instruments as gas chromatographs and other sophisticated instrumentation.

One interesting thing that might be worth mentioning is the fact that, at this period, it was the practice to have even us laboratory types go out and make independent field inspections. I know that I made several trips around Southern California surveying the ongoing work in tomato canneries and, in particular, apricot and peach canneries, which abounded in Southern California at the time. The purpose of this was not to make Food and Drug Inspectors out of chemists, but to give us an overview

of the Agency work and acquaint us with the work that inspectors do so that we would have that knowledge and an appreciation of what the inspectors were up against, what they were attempting to do, and how it meshed in with the work that was done in the laboratory. I don't believe this is done in the field establishment of FDA any more. I thought it was a very valuable part of the training of the Food and Drug Analysts.

In 1942, there was a war on. My draft board decided that, despite the fact that they classified me as a 4-F, it would be more in keeping with the requirements of the war effort if I would work in some other capacity than as a Food and Drug Chemist. I was offered a position at Northwestern University with an outfit called the National Defense Research Committee, with one of their projects, which involved the development of charcoal for gas masks. I accepted this position. It required me to go on leave without pay status from the FDA, which was readily arranged. I spend about 2-1/2 years working on this project until early 1945 when the project petered out for the obvious reason that nobody was using chemical warfare, at least poison gas warfare, and the products that had been developed seemed adequate to fulfill

any foreseeable need. Then there was another project at the Allegheny Ballistics Lab. This was a hot item. It was the development of jet propulsion fuels, bazooka powders, recoilless rifle propellants and JATO units for the jet assisted take-off of aircraft to enable them to take-off from short fields. The Allegheny Ballistics Lab, at that time, had no analytical laboratory, so I was sent to Cal Tech to learn the techniques of column chromatography and the analysis of various types of propellants. Then I went to Cumberland, Maryland, where the Allegheny Ballistics Lab was located and stayed there till November of 1945. I mentioned this interlude because it was here that I got a boost in my technical knowledge. I had access to and was required to learn to use some of the more advanced types of laboratory instrumentation, things which were fairly unknown to the field laboratories of FDA prior to the war. When I came away from this project, I was considerably better prepared for the introduction of the more sophisticated instrumentation, which came to the field FDA laboratories at the end of World War II. At the conclusion of the war, I was offered the opportunity to return to FDA in Los Angeles, which I eagerly accepted. The L.A. Station

had moved from the miserable quarters on Palmetto Street to fairly adequate quarters uptown in the office building on Hope Street. It was gratifying to see that some more instruments were becoming available in the field. Of course, the analytical techniques that developed from these instruments have vastly increased the capability of the field laboratories.

Pesticide work became far more sophisticated than the old Gutzeit arsenic determination and dithiazone lead determination. Such pesticides as the chlorinated hydrocarbons, DDT in particular, rapidly were coming into wide use. FDA got involved in the analysis of fruit and vegetable products for residues of these types of compounds. I recall that about this time, in order to perform one analysis for DDT would take one man one full working day, and you could not run multiple samples. You might be able to run two at one time. This is in contrast with the many samples that can be run for multiple pesticide residues with the techniques and instruments that are available today--the gas chromatographs, and so forth.

FL: At about this time when you returned to Los Angeles District, didn't that district become involved in control problems with the canned tuna industry?

LW: That's right. As far as I'm concerned there is a coincidence involved here because immediately after graduating from college, my first job was with the Van Camp Seafood Company on Terminal Island in California. I had essentially never heard of FDA at that time, but one of my assignments on my job with Van Camp was to attempt to develop chemical methods for determining spoilage in canned tuna. I repeated and tried to amplify the work that Fred Hillig had done on this subject and was able to duplicate his work, but I don't think I was able to effect any improvements in it.

FL: Mr. Hillig was an FDA chemist?

LW: He was a chemist in the Washington laboratories, yes.

In the same building where I worked for Van Camp's there was a laboratory operated by one Bill Spaulding, a name

that will be familiar to some of the old timers from the West Coast, dating back to the days of the canned salmon problems, when so many thousands of cases of canned salmon had to be reconditioned. Here again, the method of detecting decomposition was strictly organoleptic-- open the can and smell it. If we could detect odors of decomposition, then you had made an analysis.

FL: Is that the canned salmon problem that grew out of the World War I experience?

LW: That's right. When apparently the industry would can any kind of fish they could get hold of and ship the canned goldfish, as the GI's of the period referred to it.

Bill Spaulding invited me to come to work with him and go into the business with him, but I had learned early on that I simply did not have a sufficiently sensitive sense of smell to make the fine distinctions in odors that was required for this kind of work. So I declined, and then some months later I was notified that I was eligible for a job with FDA which I took.

FL: Spaulding, at this time was a private consultant to the industry?

LW: That's right. He did this kind of organoleptic examination for a number of canneries located in Southern California. FDA became concerned with the quality of the product of the tuna industry and with the development of standards for canned tuna under the FD & C Act. Because a very large segment of the industry existed in Southern California, particularly the Los Angeles and San Diego areas, the LA District became heavily involved in the examination of canned tuna for spoilage. This is particularly tricky because of the way that canned tuna is processed. It is cooked twice. The raw fish is first cooked in retorts, then the upper loins are separated from the lower, and it's the upper loins that go into the canned product. The rest goes to fish meal, fertilizer, animal feeds, and so forth. Then after the stuff goes in the can, of course, it is processed again, so it has been cooked twice. The first cooking tends to cook out a lot of the odors of decomposition, so the organoleptic examination of canned tuna requires special skill and rare talent.

In connection with the development of standards for canned tuna, two fellows who did much of the leg work were Bob Born, who at that time was Chief Inspector of the Los Angeles District and Perry Clark, who worked both out of LA and out of San Francisco. These were fellows who had a very thorough knowledge of the tuna industry. As I mentioned, I learned early that I could not become an expert at the organoleptic examination of canned tuna, but I did go on some inspection trips with Born and with Clark where we were examining the raw tunafish before it was processed. The way that tuna goes through a packing plant, of course it depends on how it arrives, but if it arrives unfrozen then, of course, it can be gutted and processed immediately. If it arrives frozen, which most of it did at that time, and I presume it still does today, the fish in the round would be thawed and then pass over a gutting table, where the belly cavity was slit open and the entrails removed, and then along a conveyor belt to go to the so-called pre-cook. When we were on one of these factory inspections, we would spend considerable time standing along this conveyor belt reaching our bare hand into the belly cavity of the fish and scraping a small amount of flesh from the cavity and smelling it. If there was any substantial amount of decomposition, it

was easily detected here. This is where decomposition always sets in first in a fish, in the belly cavity. The fish then goes to the pre-cook, where they are loaded into metal baskets and the baskets loaded on to racks which are wheeled into retorts. The fish are cooked for a requisite number of minutes under a requisite temperature. All these factors were involved in the collection of data for establishment of standards for canned tuna. After retorting, the fish are cooled and then skinned and the fillets separated, as I mentioned previously.

Other factors involved in the establishment of the tuna standard, and I was not involved in this, but I was aware of what was going on because Perry Clark and Bob Born were in and out of the laboratory frequently, was the development of methods for the establishment of color standards for canned tuna. There are different color standards for light meat tuna and white meat tuna. In order to differentiate one from another there had to be an objective method for determining if the color of the product met the standards. I recall some of the data that was collected by Clark and Born involved the

preparation of spinning disks with segments of various color standards, so when it spun the colors all blended into a single shade. Then you would hold the spinning disk beside the piece of the tuna that you were attempting to establish a color for and see if they would match. This was pretty primitive, but it was the best that was available at the time. I don't know whether anything any better is available now. Also they had to have a fill of container standard for canned tuna. I am not knowledgeable on this matter, because I just never was involved in it, but these fellows worked on that a great length.

FL: I believe that there was no problem in establishing a fill of container standard for tuna that was solid or large chunks, but when you were canning small pieces like grated tuna, the article was spongy, and full can could mean a difference of as much as an ounce, depending on how hard the tuna was pressed into the can. They developed a method by which you applied a standard pressure to the contents of the can to demonstrate whether the canned had properly filled it at the time of packing.

LW: It was about this time, subsequent to the end of World War II, that the FDA and a lot of others became concerned with the contamination of tuna fish caught, particularly in the western Pacific, with radioactive materials consequent to the explosion of atomic weaponry in that area. I believe fallout resulted possibly from the two atomic bombs, but also from the testing on some of the atolls in the western Pacific. At any rate, shiploads of frozen tuna entered the United States through the port of San Pedro. One of the assignments that both inspectional and laboratory personnel got was the privilege of monitoring this fish as it came off the boats for radioactivity. This involved the use of portable Geiger counters. We would stand on the dockside and stick the Geiger tube inside the fish belly, if possible, and running it up and down all sides of the fish to detect any radioactivity that might be present. I believe that a very few fish were found to contain radioactivity as a result of this program, but my recollection is that we never did discover a really serious incident of this type of contamination.

In addition to the tuna fishery, there was another fish industry in California of great importance during this period. Some of the inspections I made accompanying experienced inspectors while I was still in the training process in San Francisco were trips to Monterey to inspect some of the numerous California sardine canneries there. I believe there were at least four or five different sardine canneries in Monterey at the time. One in particular that I remember was the Del Monte operation, which was very large and, for that time, very modern and by the standards of the time very sanitary. It was quite clean by contrast with many of the older canneries. There was a substantial sardine fishery off the Southern California coast as well. There were several plants which processed sardines in that area. There were three principal types of pack, the sardines in tomato sauce, sardines in mustard sauce, and so-called "natural" pack, which was just in oil. The sardines were generally brought into the canneries on purse seiners. These were relatively small fishing boats on the order of 50' in length, and the sardines are lifted out of the nets into a hold. When they arrive at the cannery, they are broiled or dipped out of the holds and into materials handling equipment which

deliver them into the cannery. During the late '30s and early '40s, they caught so many sardines that the canneries couldn't handle them. They would run the excess through a fish meal plant to reduce them to fish meal for animal feed or fertilizer. This unregulated fishery was at least partially responsible for the decline, during the period of World War II, in the sardine fishery to the point that, shortly after the war, this particular fishery just ceased to exist because there was no sardine population to work. This, of course, resulted in the closure of a great many canneries. There was an effort, when this fishery ceased, to market a new product. They caught a fish which, I believe, is actually an anchovy, they tried to pack it in the style that the sardines were packed, but it was never a market success.

Well, about this time, we got involved in another radioactivity project. It became evident that there was a strong possibility that field crops were subject to contamination from radioactive fallout from the various atomic explosions that had been set off. We had to undertake to monitor the consequences. Very large samples of all sorts of fruits and vegetables and even

milk and dairy products were collected and examined for the presence of strontium 90. There simply weren't enough chemists trained in this type of work to handle it, so we had to send people, I believe it was to New York, for special training by the Atomic Energy Commission. Then we had to have special equipment installed. In order to get a sufficient amount of radioactivity to measure, we had to use very large samples. In order to reduce those large samples, many of which contained a large proportion of moisture, we had to dry them, and this meant we had to have big ovens. What we all received were large versions of what were even then called radar ranges. After drying them out here, they were further reduced by ashing and then special techniques were employed in running them through a radioactivity counter. These instruments were called scalers, and we had them in various degrees of sophistication as the state of the art advanced.

This project lasted for several years, and ongoing at the same time was more pesticide work. The fly bioassay technique had been developed by the FDA laboratories in Washington. The new Atlanta District office had extensive fly bioassay facilities, including screened rooms

to raise our own colonies of flies. The two other types of pesticide analysis which were being developed and put into use at the same time, were paper chromatography and thin layer chromatography. It wasn't until about 1962 or '63 that the field districts began to get gas chromatographic instruments for pesticide analysis. The first one was the Dohrman, which utilized a halogen detector and pyrolysis of the cleaned up extracts for the detection of chlorinated hydrocarbon pesticides.

Another activity that we got involved in at about this period was the illegal drug trade. This meant that we had inspector types operating undercover trying to and succeeding in discovering the illegal distribution of potent drugs--amphetamines, barbituates, and this sort. One of the landmark cases of this type was developed in the Atlanta District and resulted in the conviction and imprisonment of the infamous Dr. DeFreese. To the people working undercover, this could get to be quite hazardous. I remember Bill Logan once was involved in the discussion with one of these peddlers and the guy said, "If I felt that you were a Fed, I'd shoot you right now."

One of the problems involved in regulating the illicit drug trade was establishing that the drugs had actually moved in interstate commerce. To go back a little farther than that, part of the technique involved in building a case was the making of buys of the pep pills or barbiturates, or whatever from the peddlers and, before you could proceed any further, you had to be sure that you had actually purchased what you had ordered. For instance, it was not an uncommon practice for the peddler to saw off a bunch of caffeine tablets for amphetamines. So, before you would proceed any further after making a buy, you would want to make sure that you got what you had paid for. This was not always the case. Then, once this was established, the next step was to find out where they had come from in order to establish interstate commerce. This could not always be done by checking on the movements of the shipment. It became essential to have a laboratory method of determining who the manufacturer of the product was. A technique to facilitate this was developed by Dr. Tillson (I believe he was in Pharmacology, or was it Pharmaceutical Chemistry---I think it was Pharmacology, I can't be sure). He developed what was called the ballistic

technique which involved microscopic examination of the tablets and comparison of the sample with authentic samples collected on the premises of the various manufacturers. This frequently would establish that the tablets in question were made on the same machinery as the authentic tablets. Therefore, we could establish the movement in interstate commerce. There was also a technique for identifying the components of the tablets by the use of microanalytical techniques, using the polarizing microscope and associated appurtenances.

It was immediately after I arrived in Denver in 1962, that the field districts began to get gas chromatographs. I believe I mentioned before that the first gas chromatograph, which was installed in all the field laboratories, was the Dohrman. This was useful for detection of chlorinated hydrocarbon pesticides, and that was its principal use. In rapid succession, other types of detectors were developed, both for the Dohrman instrument and for the instruments of different manufacturers, and rapidly became installed in field district laboratories. The gas chromatograph was a tremendous advance over the previous techniques available for pesticide detection and identification,

because they could detect and identify with virtual certainty vastly smaller amounts of these organic compounds than could be handled by the previously best available techniques of paper and thin layer chromatography.

I think a dramatic case in point was the Mizokami incident which began in Denver, days, or at most, a week before I arrived on the scene. Here a sample was taken from a carload of spinach in transit from the San Luis Valley in Southern Colorado destined for, as I recall, a distributor in New Jersey. The Denver laboratory detected and identified a pesticide residue as heptachlor, and seizure proceedings were instituted. On check analysis, the Denver Laboratory was unable to confirm their initial finding and notified New York District to this effect. The New York laboratory, in the meantime, had sampled the same shipment and confirmed the Denver laboratory's original finding. So the seizure proceeding was allowed to go to conclusion. The shipper, Mizokami, a very large producer of market vegetables, maintained that he had never used that spray on his crop. Further analysis by the Washington FDA labs was

unable to confirm the presence of heptachlor and, in the normal course of events, the shipment would have been released. By this time, the question was academic because the carload of spinach had rotted and was worse than valueless. The shipper, Mizokami, sued the government for damages and won his case and was awarded the substantial sum for . . . (Were punitive damages awarded in this case, or not?)

FL: No, in addition to the car we seized, other carloads were detained by state authorities or voluntarily dumped at our insistence, and the suit was on the basis of many carloads of spinach that were destroyed, plus the spinach that was left in the field and could not be shipped because it had been alleged to be contaminated. So the damages covered much more than a single carload and amounted to \$200,000 or \$300,000.

LW: If gas chromatographs had been available, this mistake and unfortunate situation would never have occurred. As the improved instrumentation became available, it was adapted to not only pesticide residue analysis, but to many other types of analysis, particularly drug analysis.

The work against the illicit drug trade was continuing at this time, and we had inspector types operating undercover, getting intimate with the drug peddlers and their organizations, making buys. One particular incident of this type occurred while I was Acting Director on one occasion in Denver. Our inspector, Denzil Inman by name, had been working for weeks to worm his way into contact with an organization operating out of a hotel right near the building where the Denver laboratory was located. He had arranged to make a substantial buy, but he had been making small buys and had run out of funds and needed \$500. He was afraid that he had aroused some suspicion, so his contacts with the office had to be by telephone. He didn't dare come in to the building to talk to us. It was just before bank closing time when he called and needed this money. We had no funds available. So I told him that I would get him \$500, which I did from my personal bank account. We arranged a meeting in the basement men's room of a nearby bar and grill. We met and made the transfer of funds. Denzil made his purchase and eventually delivered them to the lab, and we ran our customary analysis. It turned out that he had bought \$500 worth of caffeine tablets. Well, Denzil

is a gutsy type and wasn't about to take this lying down. So he went back to his supplier and complained. He said that his customers had said that the stuff didn't work. He didn't get the whole \$500 back, but as I recall he got about \$400 of it back.

LW: This is the type of operation that several of our people got involved in during this period when we were working in this kind of trade.

One interesting project that we undertook during this period was a contract with the Colorado State University in Ft. Collins to provide the Denver district lab with basic pesticide residue data---they contracted to use one of their facilities, a greenhouse, which had never contained any soil which had been exposed to pesticide, no pesticides, no spraying had ever been done in the greenhouse. In this greenhouse they raised quite a variety of human food crops, including small grains, row crops, berries, and provided us with portions of these to serve as blanks, as near absolute blanks as we thought we could possibly obtain for our pesticide residue work. We would take these materials, run them

through our regular pesticide residue analysis, including the gas chromatograph, and then we would have the basic data with which to correct the data which we got on actual interstate shipments of these crops. Portions of these samples were sent back to the Washington headquarters pesticide laboratory. They were interested in obtaining the same type of basic data.

After about 5 years in Denver, I was transferred to the Seattle District where I remained for about 2 years and then was transferred again to Dallas District and became the Regional Food and Drug Director. It was in Dallas that I retired. There wasn't too much in this last 5 or 6 years that I am sure hasn't been well documented previously.

FL: Do you have any anecdotes about interesting or humorous things that happened during your career?

LW: Well, I remember one time when I was in Los Angeles and was Acting Chief Chemist in Howard Bollinger's absence, I had a caller who came in for advice. He introduced himself as a retired chiropractor and the advice that he was seeking involved his proposal to market a

preparation of dried powdered oysters. He frankly told me that he was aware, and he was sure that I was also aware of the important properties of raw oysters with reference to one's sex life. He wanted me to tell him how he could label and advertise his product with these appealing properties in mind, while avoiding getting into confrontation with the Food and Drug Administration. I told him that he was asking me to tell him how to violate the FD & C Act, I was not about to do that.

FL: Thank you very much for participating in this recording.