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E. Charlton Prather (CP): Good afternoon. It's a pleasure to have with us today, Dr. Donald L. Price, who's a parasitologist of some renown who's made some rather important contributions to the matters of the public's health in Florida. Dr. Price, it's a compliment that you would come and share with us this afternoon. And let me welcome you to our oral history project.

Donald L. Price (DP): Thank you very much, Dr. Prather. I am pleased to be here and hope that I can contribute something.

CP: There is no question. What in the world got you interested in parasitology?

DP: Well, it is kind of an interesting little episode that happened. I was at the University of Maryland, and I didn't know what I wanted to do, actually. I was in biological science, and the head of the department said, "We just got a new professor in. His name is Negherbon (sic) and he came from Harvard University under Cleveland, who's a renowned parasitologist in the world. And Negherbon is supposedly going to start a course in parasitology. You probably ought to take it."

So, I did. And this was a fascinating man, and of the four of us who took this course, four of those students that took that course ended up as parasitology as their career.

CP: Oh, really? That is some testimony.

DP: And we were in an ideal spot. Because, I don't know if you know, University of Maryland is right next to Washington DC, and Washington DC is a mecca for parasitologists. At least it was at that time because we had all of the different places there. Georgetown University and George Washington University both had good parasitology departments. As did University of Maryland, was just starting its parasitology.

But we had the Walter Reed Army Institute of Research and we had some of the outstanding people there who had done all kinds of work in parasitology. We had Bob Traub, who became a world famous entomologist and ran a program, first, for the Army and then, later, at the University of Maryland.

And then, at the Armed Forces Institute of Pathology, Dr. Ashe had written, right at the beginning of World War II, under pressure, a book on tropical diseases. And so those people were there and organized.

Then there was National Institutes of Health that had a big national program and very famous people were there. Dr. Cotney, who was a malariologist, a world-renowned malariologist, and Dr. Willard Right, who had worked on schistosomiasis¹ during the war and had been instrumental in some of the things in the Philippines, accomplishing some of the things that were done in the Philippines on filariasis².

And then, we had the Naval Medical Research Unit. Dr. Huff, there, had done mosquito work on mosquito transmission and mosquito susceptibility to malaria and other parasites. Then we had the big organization at the Beltsville Agricultural Research Center.

And they had set up the index catalog of medical and veterinary zoology that was a part of the Smithsonian. And they set up the parasite collection for the Smithsonian there, so all of the people from the Smithsonian, all the things that were identified, ended up in their repository there at Beltsville. And there we had people like Foster, who was an expert on treatment of diseases, parasitic diseases.

We had one of the people who had originally, Jacobs, who had originally done some of the outstanding work on toxoplasmosis³ and a host of other people there and I worked

¹Schistosomiasis, also called bilharzia, is a disease caused by freshwater parasitic worms in tropical and subtropical countries.

²Filariasis is a tropical parasitic disease that affects the lymph system.

³Toxoplasmosis is a disease caused by the *Toxoplasma gondii* parasite, which is usually consumed through contaminated food.

with later. So I worked with a Dr. Weir, who established the first, I guess, catalog on filariasis, on to all the different relationships for all the different organisms. And he was sort of my mentor when I got to medical school.

So, my first experience, then, I graduated in June and got married in January. And I was doing a little project at the [Smithsonian] National Museum [of Natural History] in Washington, really, looking at intestinal parasites in some of the animals there, and Dr. Mann had asked the university if they had somebody that might like to do this.

And while I was there, Dr. Mann says—he called me in and he says, “I got a letter from a guy named Hagner down in Sarasota, Florida. Hagner’s got a research organization that has evolved from the Beth Laboratories,” which was a big research organization during World War II. And he said that, “You know, the Navy sent Dr. Williams down to work on *Litomosoides carinii*,” which is a filarial worm in cotton rats.

And he developed the life cycle, at that time, with this laboratory, and Hagner had taken that over afterwards. And he said, “He wants somebody who can find animals and identify parasites and so forth.” So, I told my wife, “Well, it’d be good experience for the summer, at least.” So we headed down to Sarasota, and we did just about everything under the sun. We looked at everything.

And one of the slaughterhouses came to see Hagner and said that they were having some problems and asked if they had anybody who knew anything about parasites. So I went out and worked with the slaughterhouse, and they asked me if I could be an inspector for them, and I said I didn’t think I was quite qualified to do that.

But we had *Oesophagostomum*⁴ in the intestine that was interfering the growth of nodules in the intestine. That was interfering with their sausage making because it destroyed the linings of the—and then they had flukes in the liver, which they still have here in Florida in the cattle, and that was making livers unsellable.

And they had a number of other things that were things, so I was collecting all of this material. And what Hagan was doing was, then, getting this in such a way to sell it to colleges and universities for students to study.

So, that’s what he was doing. And he hired another man, Harold Williams, who was a trapper and collector. And Harold Williams did all kinds of interesting things, too. He got

⁴*Oesophagostomum* is a genus of parasite nematodes.

grasshoppers, these big grasshoppers from here, and he had injected them with latex so that they could see the veins and the arterial variations.

And he did this with frogs and so forth, so he was preparing things also for the colleges for teaching purposes. So this all sort of worked in together. Hagner wanted me to find anything that I could. And Rockefeller Center—Rockefeller Laboratories had a contract with Hagner for bullfrogs.

And I don't know how long you lived in Florida, but at that time, their contract read that they wanted no bullfrogs that were less than 10 inches from nose to tail, and this doesn't include the legs. And that's a pretty good-sized bullfrog. And we had orders for a dozen every month.

And so, we would have to go out at night, and get these giant bullfrogs. Well, Harold Williams was an expert at doing this, so he taught me how to do it. And so, at night, when we weren't doing something else, we were collecting bullfrogs. And of course, they had parasites, and so we were looking at the parasites of bullfrogs and seeing what was going on there.

Well, a sort of a little incident happened during this summer. There was a Department of Commerce laboratory in Sarasota, right where Marina Jack's restaurant is, down on Sarasota Bay. And a lady called Hagner and asked if he knew anyone that knew anything about these dinoflagellates⁵ that were causing red tide.

Well, he said, "I want you to go down and talk to this woman. Maybe we can do something with this." So I went down. Well, it just so happened that Dr. [R. V.] Truitt, who was my zoology professor at Maryland, had worked on red tide in Delaware Bay. And they had proven at that time that there was a combination of nitrates and phosphates that caused the bloom. And so, they had fought with the agriculture departments to cut down on the spill-off into the bay from the agriculture at that time.

So, I told the lady this, and she said, "Well, do you think we could prove that?" I said, "Well, I don't know." I said, "Do you have plankton nets? Can you go out and get this?" So, she went out with plankton nets, and she got the organisms.

And we had these big test tubes in the laboratory, and we must have had 25 or 30 of these big test tubes set up. And we, then, mixed nitrates and phosphates, at what I could try to

⁵Dinoflagellates are a group of marine plankton; an algal bloom of dinoflagellates can result in red tide.

remember that Truitt said was the right amounts and we mixed up—she was a biochemist as well as a biologist, and we mixed up about 35 or 40 different mixtures of these things.

And finally, we came in one day and hear, “Boom!” This one tube, the organisms had just grown like mad; they had multiplied tremendously. So she said, “That’s it!” So I said, “Well, I’ve got other work to do. I can’t spend any more time here. Hagner’s on my back, and I’ve got to get back.”

So I went back, and I didn’t go back there until about three weeks later. I went back three weeks later to see how she was progressing. The laboratory was closed. She was gone, no word about this. And as far as I know, nothing else happened until the late ’50s, early ’60s on red tide. It just stopped right there.

And I tried to find out what happened. I couldn’t. She was not traceable. And I had her name, and I called people at the—I went back to University of Maryland in the fall and started my graduate work and couldn’t find out anything about this woman at all. But apparently, the agriculture department had been strong enough in Florida that they decided that they didn’t want this information out, and they closed her down.

So, that was an interesting little part. So it, although on the fringe of public health, red tide is still a public health problem.

CP: Red tide is considered a public health issue in Florida.

DP: So I got back to the University of Maryland, and I started in my graduate work, and Professor Negherbon was still there. And we had a group of good graduate students, and we were doing all kinds of things in school. And I helped him teach the course in protozoology, so I learned the course, learned protozoology while I was teaching it. And then he got into trouble with the head of the department, and they fired him. So I was at the master’s degree, and I didn’t have a professor.

So, there was a Navy commander in one of the courses that I took in microbiology and a major in the military. And they said, Why don’t you go over and talk to Bob Traub over at Walter Reed? You’re still in the Army Air Corps. Why don’t you transfer back over to Medical Service Corps?”

Well, the Army Air Corps then became the Air Force, so I was in the Air Force. So I went to see Bob Traub and he said, “If you’ll transfer over to the Medical Service Corps, I

have connections out of the University of Maryland. I'll be your major professor, and I'll guide your research." I said, "Okay."

So, I went back on active duty in the Army in the Medical Service Corps and worked with Bob Traub. And so, that was the way I did my thesis on trichinosis⁶. So they had a couple of drugs they wanted to try on trichinosis, so I raised the organisms in mice in the laboratory and treated the disease to see if it would work. It didn't work very well, but at least it was good drug trials. So that was well done.

They thought that the work was pretty well done, so I got my thesis finished and got my master's degree. And, as soon as I got my master's degree, they sent me to Puerto Rico. They said a tropical research medical laboratory's just opened, and we want you down there to see what's going on.

Well, this is another fortuitous situation because we had two, really, master's in parasitology down there. Dr. José Oliver Gonzales and Dr. José Maldonado, both were world-renowned parasitologists. And they had just started their school of medicine, and we set up our laboratory within six blocks of the college. So I was back and forth with them regularly. And I really enjoyed working with them in a lot of things.

And they, what they had wanted me to do in Puerto Rico was to—well, let me step back just a minute. They had just developed an antigen for the diagnosis for schistosomiasis, which they thought would work. So, I don't know if you know, but Walter Reed was instrumental in doing all kinds of things like this.

They did this—they actually made the vaccines for typhoid⁷ and cholera⁸ and so forth in the facility at Walter Reed Army Institute of Research. And one of my—the man who became my commanding officer in Puerto Rico was one of the people who helped to develop the typhoid vaccine for the military, which later was taken all over the world.

And he worked with, after, I guess it was well in the late '60s, he went over to Europe to help them set up a development of the typhoid vaccines there. So, another person that I worked for that was good. What they wanted me to do was to raise schistosomes in mice and to collect them, to freeze-dry them, and send them back to Walter Reed, so they could use those to make antigens.

⁶Trichinosis is a disease caused by eating undercooked meat containing the larvae of *Trichinella spiralis*.

⁷Typhoid fever, also known as enteric fever, is a bacterial disease spread through contaminated food or water.

⁸Cholera is a bacterial disease that is spread primarily through contaminated water; it causes severe diarrhea and dehydration.

So, I had colonies of probably 500 mice and a colony of snails and was developing schistosomiasis. This is a disease that the organisms live in the mesenteric venules of the definitive host. And the eggs are passed in the feces, and they go into a snail, a specific snail, and in the snail they develop through several cycles, and then they produce a larvae called a sciarid that gets out into the water. And a sciarid can penetrate right through the skin, so people get it by being in fresh water where the sciarid are and have it go right through their skin.

So I had converted this to the laboratory and was using the mice instead of people, of course, to inspect them. We were producing a fair amount of this. And, while I was doing this, we had a leptospirosis⁹ outbreak at the prison in San Juan. And so, they told me to delay this for a little while and work with a veterinarian to see what we can do about leptospirosis.

So, we trapped animals and tried to find out what was going on with leptospirosis there, and we pinned it down to certain rats in the area and to mongoose, which are fairly common in the area. So we had a big team come down from Walter Reed and take it over from there and see what they could do. And they started treating people. The Army took over one of the hospitals and were treating people for leptospirosis.

CP: There must have been a lot of cases. I wanted to ask how many you encountered.

DP: Well, they started out with only about 15 or 20 cases. They had a prison break, and these prisoners were captured and brought back. And they were sick at the time, but they were mixing with other prisoners, and a whole bunch of the people and the prisoners got this.

And then, it got into the community, and a number of people in the community got it, and it was now in the—this is a *Spirillum* that comes from *Spirillaceae* that is passed in the urine. And it's infective as it's passed, so if you get exposed to the urine of an infected individual, you can become infected.

CP: So it just kind of plays havoc?

DP: So it played havoc for a while. And the Army did a very good job of containing it and getting it under control.

⁹Leptospirosis, also called Weil's disease, is a bacterial disease that infects humans who make contact with water, soil, or food that has been contaminated with the urine of infected animals.

CP: Excellent. What year was this? May I ask that?

DP: This was in 1952.

CP: Okay, so tetracyclines¹⁰ were just coming onto the market. Do you remember the drugs that they used? If you don't that's—

DP: I think chloramphenicol¹¹ was the first thing that they used.

CP: Okay. But it controlled the outbreak?

DP: Well, it wasn't the ideal drug, but it was able to get people through the problem. And, I don't know if you know, but they go into paralysis because it gets into the spinal cord, and they'd go into paralysis. And you'd see this man actually frozen there, unable to move. And they'd tap the spinal cord, relieve this—

CP: Pressure.

DP: —and he'd be back to almost normal again. But they were able to get it under control. I think it was more of an epidemiological control than it was actually by drugs, as most controls are. We've only controlled one disease in the world, now, and that's smallpox, and that was a vaccine. But most everything else is controlled by epidemiology and engineering.

Well, anyhow, I spent two years in Puerto Rico and then came back to the Walter Reed Institute of Research and—

CP: Did you spend all of your time on schistosomiasis in Puerto Rico and leptospirosis?

¹⁰Tetracycline is an antibiotic used to treat a number of bacterial infections.

¹¹Chloramphenicol is an antibiotic useful for the treatment of various bacterial infections.

DP: No, we did studies on amoebiasis¹² in several of the hospitals. They had a very high level of *Trichuris*, the intestinal parasite whipworm. And the reason for this was kind of interesting.

The women practice geophagia, which is eating of dirt during pregnancy. There are certain clay banks, which they felt had certain kinds of minerals in them, that if they ate this during pregnancy it protected their fetus against certain diseases. Well, the kids would see their mothers eat dirt, and they would eat dirt, but they wouldn't be specific at getting this particular clay; they would just eat dirt. And so, they got a level of *Trichuris* that was extremely high in children.

The children, really, the little boys and girls didn't wear pants or anything until they were about four years old, so if they had to defecate or anything, it was on the ground. And so, this meant everything around them was contaminated. So if they picked up any dirt, or got their hands dirty and got their fingers in their mouth—and this is still true in a lot of places in the world, where this happens.

In Peru, where I just did a study—and I'll explain that a little bit too. But we also looked at schistosomiasis as the endemicity of it there. And one of the things that both Dr. Maldonado and Dr. José Oliver Gonzales had said was, "Well, the one thing we don't have to worry about is that this isn't in the mountain stream, that it is in the fast running water."

And then someone came in one day and said, "We've got a bunch of kids up in a school in Caguas,"—which is up in the mountains—"that have schistosomiasis, and we are not sure where it's coming from." So, I went up to the area, and I looked and was there with my little team of three or four boys. We looked at all the streams.

And we had this real little, fast-running stream with cataracts all the way down it, and we found snails in there, *Astrologus globlottus* (sic), which is the snail that was carrying the organism. And since we had people with schistosomiasis, and we did find human feces on the edges of the stream—this was right near a place where they were growing sugar cane, and at the edges of the sugar cane fields we'd find feces.

And so we knew it was washing into this, and we collected a group of snails from there and took them back to the laboratory. And, in about a week, we had saccharide from these snails. So, we proved that even in fast-running streams, we would have schistosomiasis if the snails were able to live there. So that took, was one step to move information in public health a little further ahead, I think.

¹²Amoebiasis, also called amoebic dysentery, is a parasitic infection of the colon.

So, I went back to Walter Reed after that, and Walter Reed had changed quite a bit. And Dr. McMullen, who was an expert on schistosomiasis and on the treatment of the snails and so forth, was the head of that department. But we had the Commission on Parasitic Diseases, which were people from all over the country who were specialists on parasitic disease and they came to Washington to the commission meetings.

And out of this one meeting, Dr. McMullen came to me and said, “Don, you don’t have a specific project right now. Why don’t you think about the possibility of finding a laboratory model for filariasis?”

I said, “Well, what do you want me to do?” He said, “Well, you’ll have to look at all kinds of animals, and see which ones have filaria and see which filarias you can get the life cycle going, and you can bring that into the laboratory.” I said, “Well, I can’t do anything right here.” He said, “Well, why don’t you look around and see if there’s any place you can work?”

So, I went out to Beltsville again because I had met these people through the hematological society of Washington [The American Society of Hematology], and all of these scientists in the area that were parasitologists came to these meetings. And in fact, they even came from the University of Pennsylvania, down, for the meetings. So we had a pretty heavy group there.

And as, I mentioned, Dr. Weir before, he said, “Well, Don, I can start you out on the taxonomy of these things.” And so, I worked with him a little bit out at agriculture and, then, Dr. Carlton Herman, who was an expert on malaria in birds and animals, worked for the Fish and Wildlife Service at Patuxent Wildlife Research Center. And he says, “I don’t have anybody out here who knows anything about the helminth parasites. I’ll furnish your laboratory, if you come out and work out here.”

So I went back and told McMullen, and McMullen sat down with Dr. Truitt, who was—no, I’m sorry, Ken Tigrett, who was, then, the head of the epidemiological section at Walter Reed, said, “Do you think we could put some money out there and send a couple of technicians out to work with Don Price, if he does this study?” And he said, “Sure, we can do that.”

So, I had a little bit of money, and I got cages—I bought cages. And they gave me space out there, and I worked with their people, their wildlife people, and we trapped

everything that was on the place there. We trapped raccoons and skunks and possums and squirrels, and everything had filaria. Every animal had some kind of filaria.

I ended up—and so, you'll find some of the papers in there are reprints identifying six different species of filarial worms. And we had one in rabbits that we wanted to get into the laboratory because rabbits are pretty easy to keep in the laboratory. So we transmitted this to domestic rabbits, and we did some studies in the area, and we found out there was an island down in the Potomac that had a lot of rabbits.

And we went down and trapped some there, and they had this filaria. So, here was an isolated spot that we could look at and study, so we worked it out, and it turned out that *Anopheles quadrimaculatus* was the intermediate host and vector for this disease. So, we brought that into laboratory and set up our mosquito colony and started this life cycle going. And we thought that we were going to come up with a really good model.

Well, while I was doing this, something else happened. And I had done a good deal of work now on these filaria. And the British had contacted our military people and said, We have a problem in Malaya. We have a parasite in monkeys and men in Malaya. And we think it's been called *Whuchereria malayi*, and we're not sure that's what it is, and we've never seen the adults. And we're not sure what the major host is in the area. So, we'd like some help.

So, our head of research there called me in and said, "I think what we'd like to do is send an entomologist and you out there to see what you can do." So they pull me in from the other work I was doing, and they got Leo Jachowski, who had worked with Gilbert Otto in the Solomons [Islands] working out the new vector for filariasis there, which turned out to be an *Aedes* rather than *Culex*¹³.

So he was the one that was selected to work with me. And so, we went over, and we worked with a British physician and an entomologist from there, Dr. Edis and then Dr. Wharton. And we started examining animals, and we found, again, we found filaria in everything. We did find out that this particular filaria was most predominant in cats.

So, I had the cat in the laboratory. And I said, "We've got this answer now. I know this is where the filaria is, and we know it's in the lymphatics, and not in the tissues like some of the others are that we've found." And I sent this cable back to Walter Reed, and in two or three days we got a cable back from Walter Reed that said, "Close down the project. You're coming home." What's going on?

¹³*Aedes* and *Culex* are two different genera of mosquitoes.

Well, it turned out that the British who ran the program in Malaya were pretty upset that we were going to get the credit—that the Army's going to get the credit for answering this. So they decided they wanted to send their specialists over from the school of tropical medicine in England to finish this up. So it was—

CP: With your lab data?

DP: It was my cat that they found the first organism in, and Dr. Buckley identified it and classified it as *Brugia*, and found a second *Brugia* in dogs, *Brugia pahangi*, so that they had two *Brugias* that they found from Malaya. And then, from there, that team went on to the island of Timor, where they had another problem and found a third *Brugia pahangi*. And then a George Nelson, who was in Africa, found one in dogs, and so he found a fourth *Brugia*. So now there were four species of *Brugia*, all started from this one incident in Malaya, which I thought was pretty interesting.

Now, at this time, when I went back to Walter Reed now, since my work there was over, and—well, I might mention that on the way back, they decided that they'd had some problems with malaria in the area, and maybe they'd like me to bring some material back and, then, that sort of fell through. But the reason I tell you this, is a few years later that actually happened. So—

CP: Did you go back for the purpose of getting the material?

DP: I did later. And so, I came back to Walter Reed, and some people from England were raising gerbils and trying them for various things. And they got this particular filarial, *Brugia*, to go into gerbils. And so, that became a good model.

And I started my research up some years later in cats because I wanted to know some certain things that, actually, hasn't been published yet. I've got all the material. I've got to write it on this, and since I move around a lot, I never get to write a lot of these things, as I should.

But in the course of things, I went back to Malaya again, this time for another purpose. And, when I was ready to come home, they said, We don't want you to leave because we want you to carry back blood from this chloroquine-resistant case of malaria to Dr. Alvin in Chicago, who was working with the people in Indiana State Prison, and wants to find out what this malaria's all about. And the person who volunteers at that time, they got the sentence reduced, if they volunteered for these programs.

And so, that was what I was supposed to do. So I brought this back, and we found out after I got back with the blood that the nurse who was on charge of this ward couldn't stand to see this fellow having malaria with his fever and so forth. So she treated him the night before they took the blood, and they didn't know that.

So, they had to go back and do this again. So but I wasn't the one that did it the second time. But they were able to prove the chloroquine-resistance, and that followed some other work.

CP: That's very significant in the world health picture.

DP: So I wanted to stay where I was, but the Army decided I'd been at Walter Reed just too long, and I had to have some other assignments, so they assigned me to Fort George Meade, Maryland, which was still close by. I could still live in the same house and still drive back and forth, so that was kind of nice.

But, I continued my relationships with Patuxent Wildlife Research Refuge and continued doing some work there. And they let me, at Fort Meade, do some things. And, at that time, the naval medical research unit out in Cairo had developed a new procedure.

CP: Like in Cairo, Egypt?

DP: Cairo, Egypt. Yes. They had a laboratory there. And what they'd had a problem is they were going out into the field and collecting fecal samples, but by the time they got them back to the laboratory, the organisms weren't still—some of them weren't alive.

And they developed a preservative that they could use in the field and collect and preserve the organisms. And they were just as good when they got back to laboratory in the preservative, as they would have been if they looked at them on the spot. So they could make several field trips to several villages and bring them back, and they started this.

And they introduced this to me, one of the fellows that had worked there, and I introduced this at Fort Meade at the time. And we changed our fecal program, and we got better results than we had been getting in the past. So that was sort of a new thing. So that was kind of good.

And I wanted to go back to college and get my doctorate because I had a master's, and they had promised to send me back. But I had now been out for six years, out of school, and I wasn't sure I could—

CP: But you had 15 years of experience in those six years, but go ahead.

DP: So I went to Dr. George Anastos. And I had been working with several graduate students from Maryland, and I had been sort of guiding their research. And Dr. Anastos, who was head of the department, went to McMullen and said, "Why don't you send Dr. Price to get his—no, Don Price to get his doctorate?" He said, "Well, do you think he's capable?"

And he said, "He's teaching graduate students now. He's running their program. I think it would be a good idea to do that." So McMullen says, "Okay, we'll put him on the next list."

So, I was transferred over to the military district of Washington and sent to the University of Maryland for two years to get my doctorate. And I was able to finish up the work on the filaria in animals, and that I used as my thesis. So that was the whole variety of different organisms.

And one other little incident that happened during this same period of time is that the polio vaccine had just been developed. And they used monkey kidneys for kidney cells. So they were importing monkeys from Malaya and killing them and grinding up the kidneys to use for making the polio vaccine.

Well, they found a lot of filaria in these monkeys. So, they called up Walter Reed and said, Send Don Price out to see what we've got here. We want to know whether these things are interfering, or are going to interfere, with the work we're doing.

So I went out to Indianapolis at the Eli Lilly [and] Company, where this work was being done, and got to look at these animals, and we found a number of filarial worms. And none of them involved the kidney, and none of them involved any of the tissues that were—but we found two new species of filaria.

And so, I got to publish on, what, two species. One was a new, and one I found in the literature after we got back. I was able to trace it back in the literature. But so we got a paper out of this.

We got Harry Wharton out of Australia now. He had gone back from Malaya to Australia to try to work out the life cycle of this from the Malayan monkeys, which he did. And then Dr. Hawking out of England worked on the periodicity.

So we had the three of us working in three different parts of the world on this one organism. I identified it and classified it, and they did the transmission and the periodicity and so forth. So that was a nice little friendship.

So, that's all part of this same group of organisms that we were working on. And so, I went back to—I went on to University of Maryland. And the next two years, I finished up my doctorate. And my last year, I went to the tropical medicine meetings in Miami—American Society of Tropical Medicine and Hygiene.

CP: Like in Miami, Florida?

DP: In Miami, Florida. And a Dr. Louis Vandenberg, who's Belgian and had a laboratory in the Belgian Congo, gave a paper there. And I gave a paper on the filaria. And he looked me up afterwards and he said, "Don, we've got some interesting filaria over in Congo, why don't you come over and work with us?" I said, "I'm in the Army. I can't just leave and come and work for you. It'd be very nice."

He said, "Well, who would I have to ask?" So I said, "Well, I guess, my commanding officer, Colonel Mason at the Walter Reed Army Institute of Research. He's not my commander now, but he will be when I graduate, when I get my degree, because I'm supposed to go back to Walter Reed in June. I'll mention this to him, but you'll also have to write to the surgeon general's office," and I gave the names of the people and so forth.

So he wrote letters to them, and I came in to see Colonel Mason. And Colonel Mason called me in and said, "You know, Don, we've been trying to get somebody located in that part of Africa for the last three years. We've sent two doctors over there, and they've not been able to be invited to come. And you've got a personal invitation here from the director of IRSAC, the Institute for Scientific Research for Central Africa. Now, if you want to go, I'm going to talk to the R&D people and see if they would like to send you instead of a physician."

I said, "Well, I'll ask my wife if she's willing. If she's willing, yeah, I'd like to do it." So, she said, "Yes, if I wanted to go to Africa. I've always wanted to go to Africa, anyhow." So why didn't we go?

So, I came back and saw Colonel Mason. And he picked up the telephone, called Colonel Hollingsworth, who was in charge of research and development command of the Army, and told him what was going on. He said, "I've got Dr. Yuma is in here from Vanderbilt, who's one of our consultants, and a couple of other consultants in here and my staff. Send Price down tomorrow at one o'clock. I want to talk to him."

So I went down there, and I spent all afternoon. And they said, by the time I left at 5:30 that afternoon, I was going to be going to Africa when I got out of my degree in June, assuming I got my degree. I thought I would. And so I finished my degree, and went back to Walter Reed, and started getting everything organized to go to Africa. And this was in the Congo.

And so, I packaged everything up. I had to pick out a vehicle, and the Army was very uncooperative about getting the right kind of a vehicle for me. But they got me a truck that I really didn't like because it wasn't really a truck for the kind of roads where you don't have any pavements, you know? It was used to running on roads and not out in the boondocks. And I needed something like a Jeep that would run over this kind of terrain, but I needed something larger than that that's enclosed. And they really didn't have any idea as to what they wanted to give us.

So I said, "Well, the people over there are driving Ford pickup trucks. Maybe we can get one with an extended cab, and we can use that." But they decided on an International Harvester Travelall, which is like a station wagon. It's like the one we see now in these, sort of, van-like cars that are going around here. They're sort of not a truck, and they're not a van, and they're not a station wagon, it's something in between. And that's what this was.

So, I had that. That's what they told me I would have. So we got packed up, and we went up to New York and got a plane and went on over to the Congo, landed in Leopoldville. My car was shipped over to Leopoldville and then we had to get to where we were going, which was on the other side of the Congo.

Leopoldville is on the west coast and from the east side, Bukavu, where we were going, was on the other side, just next to Uganda and Tanzania, on that side. So, how do we go? Well, we went by riverboat. And I don't know if you've seen these riverboats, they're

paddle wheelers that the Belgians came over and bought them from along the Mississippi. They bought them, broke them down, shipped them over, reassembled them and used them to push barges up and down the rivers in the Congo.

So we had to go from Leopoldville to Stanleyville by riverboat. And I watched my stuff being put on the barge in front while we were on the boat and all hold aboard. And the next morning, we took off and went on up the river. And it's a big river. There are parts of the Congo River where we were, where I took a camera just to show—I took pictures out of four directions, and you couldn't see land in any one of the four directions, it's so wide.

CP: Really?

DP: Yeah. It's about eight, ten miles wide. And, of course, it's just forest on both sides. You wouldn't see anything, nothing towering, no buildings towering up or anything.

CP: What was the distance of your boat ride?

DP: Well, about 800 miles.

CP: Eight hundred miles? What period of time?

DP: It took four days to get to—no it took six days. We should have taken less time, but we got about halfway up, and they had to pull into a mission station. What happened is the food had spoiled, and we didn't have any food to eat on the boat. So they had to fly it in from Leopoldville to this mission station, and then they had to bring it out by canoe, so that we had food that we could eat for the rest of the trip.

And so we were there for an extra day, and then we went on from there. And we made two or three stops where they'd pick things off, you know, and so forth. One of the interesting things that happened is a lady—one of the mission stations had a grand piano shipped by barge up to her. Well, we had pulled up, and we were about 100 yards offshore. This is as close as we'd get because the river was very shallow.

And they had to get this piano, now, from the barge to the shore. Well, they didn't have anything but dugout canoes, but that's what they used. They put two dugout canoes, came out and a bunch of natives, they set this piano down on these two dugout canoes, and they

pulled it all the way in, pulled these canoes up, picked it out, didn't get a drop of water on it. Put it up and carried it up to the house.

It was really fascinating to see. It took about two hours for them to do it, just to get it from the boat to the land.

CP: I would have been worried, had I been them.

DP: I'd have been a bit worried if it had been my piano, I'll tell you.

CP: Was your car with you on this barge?

DP: It was on a barge. While we were on the boat, it was on the barge up in front of us.

CP: Your car flew over with you?

DP: The car was shipped over by boat, and then to Banana, which is a port down on the Atlantic. Then it's taken by rail up to Leopoldville and transferred from rail over to the barge, to one of the barges. And then it goes by barge up to Stanleyville, and then they hold it off at Stanleyville. Well, when we got to Stanleyville, we still had 600 miles to go.

CP: Oh, you did?

DP: And I didn't have a permit to drive this car in the Congo, so they gave me a driver's license there. I got an international driver's license. And that took another day. And we stayed in Stanleyville for the day, and then we headed out for Bukavu, which is 600 miles south of Stanleyville through the mountains.

So, I got my first real driving of this car was, first, through pretty good roads. They weren't too bad to begin with. They were cut right out of the forest, but they were pretty good roads. And then we got in some places where they weren't so good. The question was where did you get gasoline?

CP: Yes. That's a question I'm having.

DP: Well, the Belgians were very, very, very industrious. They had gas stations all over the Congo. But these gas stations were big 50 gallon drums of gasoline that were put down by some native with a hut, and he had to pump. They'd open up this, put the pump in, and he'd pump this gasoline into your tank. And that's how we got gasoline. But you had to find these things.

And we are riding down roads in which the elephant grass is some 18 feet high on both sides of us. And we're on a road that's only big enough for one car to drive, just a track. And somewhere along this is a break where there's going to be a gas station, and I was getting pretty low. And we got there, I said, "I don't know whether we're going to make this or not."

And, finally, I got to a place, and I heard some noise. Banging on a can, you know? And I said, "That must be the gas station." So, we pulled off to this little side place, and sure enough, that's where he was. And he was there getting the top off of one of these things, one of these drums, so he could put his pump in. And we got there just in time. He put his pump in, and he pumped us full of gas, and we went on out and off the road.

And we got to a place where we had to decide whether we wanted to go into Uganda and go down where the roads were better, or stay in this mountain road in the Congo. Well, if we crossed in Uganda, the question was, could we get back in the Congo? Would they let us back in?

Well, I talked to the man who was there, the customs person who let you through. And there's 100 yards of no man's land. You'd get out of the Congo, and then you've got 100 yards, and then you go into Uganda. Well, they didn't want to let me into Uganda. I got out of the Congo gate. I got over to the Uganda gate and they said, You don't have a visa.

And I said, "But this is British. I don't need a visa. I'm American." And so, they finally decided to let me through. And so, I drove down, and this way takes us out through Queen Elizabeth's Park, which is a big, beautiful park. As we drove along we saw elephants and colobus monkeys and boars, everything under the sun as we drove out through this park area.

But the roads were pretty good. And we got down where you had to go out, again, through this and, then, the no man's land over to the Belgian side. And the Belgians spoke only French. And my French, although I'd had a little training before I left, was still pretty bad. And no one else could speak French in the family. My wife and two kids were with me, and couldn't speak any French.

And it took us about an hour to convince the man to let us through. But we did get through, and then we headed on down, and then we got to the place called IRSAC. And this little sign on the road says IRSAC. And we went up this mountain road, climbed up this dirt road, and finally came to a big compound with a building. And pulled up to the building, and walked in, and introduced myself.

And they looked at me for a minute, and they said, Just a minute. And they called somebody, and Dr. Vandenberg came down. And he said, "You're late. You were supposed to be here a week ago." Well sir, we did what we could. But we got here.

CP: What did you do there?

DP: So my job there was to set up a laboratory and do research, but also to arrange for military people to be able to come through and be indoctrinated in tropical diseases and then go back. So it was sort of set up as a training program for the Army. And that's what my responsibility was, my primary responsibility. So I wanted to know everything that was in the area.

So, that's what I did. I searched around and looked at everything that was in the area to find out, what do we have? And I had to have some technicians, and I had to train them, and my little bit of Spanish was not very good. And I hired one boy who spoke both English—I mean French, pardon me—who spoke English because he had been raised by a mission family. And he also spoke French and Kiswahili. So he had three languages.

But, people in Africa are amazing. I met people who could speak seven different languages. Had, maybe, a fifth or sixth grade education.

CP: Is that because we're so lazy?

DP: I don't know what it is about us; we just aren't language-prone. But they would go from one village that spoke one language to the next village that spoke an entirely different language, and be able to communicate. Now, this is the men.

Now, the women couldn't. The women couldn't speak the languages. The men were the travellers. The women never ventured very far. So, the men were the people who could speak the language. But they had been from coast to coast.

And Kiswahili was the, sort of, language that everybody spoke because it was a slaver's language. The Arabs came in and took a little bit of the different African languages and dialects and so-forth, and put it together. And that became Kiswahili, which is varied in different parts of Africa but was still the slaver's language. So they got able to get by and so everybody used that as their language when they went to a different place as an opening. And sometimes they could speak the other language, and sometimes they couldn't.

But I had four people. I had a lady, who one of the missions had recommended, who was learning parasitology, via from me. I was teaching it in the laboratory. And a young man that Vandenberg had said that had worked with Vink, who's a malariologist from Belgium and had worked there in the past and, then, this boy that had been raised by the missionary. And another young man who came in one day, his pants were all ripped and he wanted a job.

And I said, "I don't have a job. What do you do?" He didn't know anything. He had a sixth grade education. And I talked to my wife about it. And she said, "Well, why don't you give him a chance to see what he can do?" So I hired him. This was Gustav Malangu.

Well, Gustav turned out, by the end of the time we worked together, to be the best technologist for identifying malaria of anybody I ever worked with. It was outstanding. He could take a blood slide, there'd be half a dozen malarial parasites, and he'd not only find them, he'd tell me what species it was. He was absolutely marvelous. Pierre, who was raised by the missionaries, also was very good.

Now, at first, when I started teaching, I had some problems. The Belgians taught the Africans to parrot. They learned things by parroting. Well, you couldn't learn parasitology that way because I'd come in and ask them what they meant, and they didn't know what they meant.

So, I was sitting at home one night, and I was watching my kids do jigsaw puzzles. I said, What the devil is a jigsaw puzzle? Jigsaw puzzle is a picture that you have to create. And it depends on the size, the shape of these things. And so that's how you identify parasites, by size and shape and structure, colors and so forth. So I said, Maybe I could use jigsaw puzzles to teach these people what I want them to know.

So I took four of my kid's jigsaw puzzles into the laboratory, and that's all they did. Every time they did something, I told them, "That's what you do when you're identifying a parasite. That's how you do it." And I showed them to use this to change their thinking.

And it actually changed their thinking. Instead of parroting, they began to see colors, sizes, shapes, and so forth. They begin to use their minds. And I had two people who the doctor had set up to be trained, and they were older people. And they couldn't do it. They just couldn't do the jigsaw puzzles. It just wasn't something—and they quit. They just said they wouldn't do it anymore.

But the other four people all did them well. And Pierre did the best, Gustav second, and then the other two people didn't do as well. But Pierre could've put one of these jigsaw puzzles that my kids could put together in about, well, maybe, 15, 20 minutes, he put it together in 30. And that was pretty good because he had never done anything like this before in his life. Why the missionaries didn't use these, I don't know, but they didn't.

So, I talked to them afterwards and said, "This is a real good way to train your people." So I was really pleased, and I think that was one of my biggest accomplishments in Africa was showing these people how to think differently. During the time, now, this was 1960—1959, actually, '59—and Belgium gave Congo independence in 1960, June.

Well, if you remember what happened, there was all chaos. First, it happened down the Bakongo, which was on the west coast. Raids came up, and they raided mission stations, and they killed people and raped women. It was real battle. And then there was another battle going on down in Kasai and then the south.

And this was a time of all these different politicians trying to get control. [Patrice] Lumumba¹⁴ was up in the Stanleyville area, [Joseph] Kasa-Vubu¹⁵ was down in the Bakongo, and someone else was down in—Nkamba (sic) was down in the east, and they all had different directions that they were going.

And this was really a kind of a hairy time. And I talked to one of the Belgian—he was, I don't know exactly what the position would be, but he was in charge of a fairly large area, and what his responsibility was is settling problems between tribes.

CP: A mediator of some sort.

¹⁴After leading in Congo's fight for independence, Lumumba went on to become the Congo's first democratically elected leader.

¹⁵Kasa-Vubu was the first president of the Democratic Republic of the Congo.

DP: Yeah. His name was Johnny Goyen. I'll never forget him because he was an absolutely marvelous man. He said, "I have a pistol in my briefcase, but I would never show it, and I'd never let these people know that I need it. But if I need it, I'll use it." And I said, "Well, Johnny, where are you going? I understand you're going out."

He said, "I'm going over the mountain to the other side. There's a couple of tribes there that are having trouble understanding what this independence is all about, and I have to go over and try to explain it to them. I'll be gone for about two weeks." I said, "Well, maybe I can do some examination of some of the people over there."

And he said, "Well, I'll set it up, so you can go in one of the schools and examine all the schoolchildren, if that's what you want to do." And I said, "Well, why don't we make it two or three schools?" And so, that's what we did.

And so, I went over, and I went into two or three schools and took blood samples of the kids. And I examined and took those back to the laboratory to identify and see what we could find, so that we'd know what was in these particular areas. And I went to one of the meetings with Johnny, and he had the chiefs and the sub-chiefs of one fairly good-sized tribe but not the biggest tribe in the area.

And they wanted to know what this independence was, where they were going to put it, what it looked like. And he tried to explain it to them that it really isn't a thing. It's something you do—you agree to do. And he was getting across that pretty well. And they said, Well, how do we know who's going to win this?

And so, he explained what the balloting was. And each one of the leaders had a symbol that they used. And so, you went to a big place, and you picked up the symbol, and you dropped it in a pail, and that was a vote for him.

So that's where the symbol's going. One person had a belt, one person had a picture of a fruit that he had—that he thought was a good thing, one had a different thing. One had a bird, a picture of a bird, and so on. So whatever their symbol was, that was what you voted for.

Each tribe had different symbols that they wanted to get, so you could try to get the leaders, and these leaders were politicians who had come around and tried to tell these people what they were going to do for them and all these wonderful things, and they'd

learned a little bit of politics and how to do it. And actually, the Africans are probably better politicians than we are in many ways. And they did a pretty good job.

So, we're sitting here in a group, and we've got all these people sitting around in their best regalia, which means they've got their headdresses and everything on and carrying their spears, and they're sitting there. And we're sitting around, and Johnny and I are sitting on a log over here, and we've got these chiefs and sub-chiefs sitting on the opposite sides.

And Johnny explained to them that if the person won, that he would be the one who would be governing the area for that period of time. And they said, Well, what if we don't like what he does? And they said, Well, when the next election comes over, you'll have to try to vote him out and get somebody else in. Get one of the people you want in.

And they sit there, and they talk to each other for about five or ten minutes, and then they started slapping their spears. And they say, We think we have a quicker way, which is how they would change the election results. I think some people in this country have thought about the same kind of thing at times, too. In fact, they did. A couple of our presidents have been shot. So, anyhow—

CP: How long did you stay there? In the Congo?

DP: I stayed there for a year. At the end of the year, they got independence, and Congo was really falling apart. They were fighting all around us. We were in a little protected area.

But the Belgian troop leader in Bukavu, which was about 35, 40 miles away from our station, came out one night and got us together and said, "I've lost control of the troops. I would say that in the next two or three days, they'll break in the armory, and they'll have the ammunition and the guns. And I don't know what they'll do. So, you can do whatever you think, but," and he looked at me, "I think if I were you, Dr. Price, I'd leave."

So Howard Moskey (sic), who was a head of the Department of Anatomy from University of Kansas, had just come with his wife and daughter and son, and it was kind of a hairy thing. I told him, "I've got to get you out of here. You can't stay." And he said, "Well, what's the matter?"

I said, “Well, I don’t know if you know it, but they’ve sold your daughter. Did you know that? There are people carrying chits around that have, on them, that they own your daughter when independence comes.” And he said, “What?”

I said, “Well, I’ve got pretty good sources now, and I know what’s going on. And this is really kind of shaky, and we’d better get you and my wife and kids out of here and your family. But we have to pack and get our stuff out. Now, I’m going to try and get us out of here.”

So, I went that night and got a hold of one of the missionaries with Dr. Herbert, who was a Belgian missionary. One of the other missionaries had a radio system, and he was in contact with people in Uganda. And they were talking back and forth because we’d had a lot of Belgians that left, and there were all kinds of things going on. So they were in communication.

So I got him to call over, and see if they’d get a hold of a military attaché from Adasabe (sic), but who I knew had come into Uganda to see what help he could get. And here you had a military officer over here, and he wanted to know what the hell I was doing in the Congo. And I told him I was from Walter Reed, and I had been set up doing a research project in the surgeon general’s office. And he said, “Well, if you can have your stuff down there at nine o’clock in the morning at the airbase over in Rwanda,”—which was the next country over, but it’s still under Belgian control— “we’ll fly your stuff into Uganda.”

So, we packed all night. And we took this stuff down. I borrowed a truck from IRSAC, we got the stuff down to the airport, and he loaded it on and took off for Uganda. And we went back and finished up the last things. We got into my vehicle, and I got tired out of my skin. We had taken our wives down, and children, and gotten the British East African Airways to fly them into Uganda.

And I had been on a trip earlier to Uganda, when I thought things were going to pot. And I had made arrangements for Makerere University of East Africa, to be able to come there and work, if the Congo fell apart. And I was pretty sure it was going to. And I also established a bank account with Barclays Bank there, so that I’d be prepared for—so we’d have everything we needed, and if my family had to go out they’d have money. They’d have everything they needed. And they wouldn’t be treated like refugees.

So, as it was, they got treated like refugees. They went into refugee camp and had to be decontaminated for lice, deloused, and so forth, before they could leave the refugee

camp. But they went back, and they got rooms in the hotel in town and then we had to come out too.

So, we packed overnight. Howard Moskey was not very cooperative, and he fell asleep. And two of my boys and I said, "I want you guys to come out too. I want you to come with me to Uganda and work with me there." And this was Pierre and Gustav. The other two couldn't come, and they wanted to come.

So, we took off in the morning and we got across into Rwanda at seven o'clock in the morning. And when I got to the first town in Rwanda, we stopped, and we went to the hotel. And we said, What's going on back at the Congo? He said, "Oh, don't you know? They closed the border at eight o'clock." So we got through at seven; they closed the border at eight. So we got out just in time. And then we had kind of a rough ride in getting to Makerere.

This is a side story. It doesn't have anything to do with tropical medicine, but it has to do with working in some of the places like this. We're going down the side of a mountain; we'd come over this first. And Rwanda is all mountains. And we're going down the side of this mountain on this nice, windy dirt road, and I hit the brakes, and they went through the floor. I didn't have any brakes.

And we had low range, and so I started downshifting, and I got Howard Moskey to put his foot on the low-range sink. I said, "When I tell you, kick it in gear." We tried about three times, but we got it in low gear. Slowed the vehicle down quite a bit. Since we didn't have brakes, we couldn't slow it down any other way. And I got it down to second gear. And in low range, we slowed down to about 20 miles an hour.

We got to the bottom of this hill, there's a stream and a little bridge, no rails, no nothing. It's just a wooden bridge with boards across. And it's at 90 degrees to where—so I had to make this bridge at 20 miles an hour, and I tell you, it was close.

CP: And you sweated.

DP: I went across on an angle and we almost went into the ditch, but we did get by. But then we got the thing stopped and then, What do we do now? We still got another 150 miles to go to where we're going, and we've got no brakes.

CP: And you were still in the mountains.

DP: And we're still in the mountains. Well, we were now out of the worst mountains, but we're in a game park. Well, I knew there was a Belgian gamekeeper who had a house somewhere not too far from where we were.

So I got out the map, and I figured about where it was and we headed for that. When we got there, this guy was really helpful. He was really good. He wasn't there when we got there. He was out counting animals. He got back at about six o'clock, just about dark.

And I said, "What's the matter? Well, what happened is, I saw what happened. The brake line has a raised place in it, and that's right near the spring. And as we bounced with this heavy load, the spring was rubbing against this and rubbed a hole in it. And so every time you put on the brakes, it shoots fluid out."

And he said, "Well, the only thing I can do is solder it up. Do you have brake fluid?" I said, "Yes, sir, I have extra brake fluid." Well, I had all kinds of things for an emergency, you know. So, we put brake fluid in it, and we pumped out the brakes and got them to working again, and we took off.

And we got to, from Buraro, which is about another 50 miles from where we were going in Kampala and stopped there to stay in a hotel. And they had an African guard for the hotel, and he didn't want to let us stay in because all we had were traveler's checks—I had Barclay Bank traveler's checks. He had never seen a traveler's check before. And so, he wouldn't even let us in.

And I said, "I'll wake your mistress, who's in charge of this place, if you don't let us in, and that'll play havoc with you, you know that." And he said, "Don't wake her. Don't wake her." And I said, "Will you give us a place to stay?"

Well, at this time we were covered with red ochre dusts and so forth, so we got into the tub, and we washed. And we just absolutely washed this dirt off in the tub. There must have been this much dirt in the bottom of the tub when we finished. And then we got a pretty good night's sleep.

And then we headed on into Kampala and saw our wives and children. And then I went on out to the college, to Makerere University, and said, "We're here." And they said, Okay. And they set us up and we were back in business again in a matter of two or three days.

So, it had been a pretty wild and a pretty good experience from the Congo, and I had learned an awful lot. And I had seen a lot of different disease problems. The same diseases, intestinal diseases, you have everywhere. They had schistosomiasis in the lake, in Lake Kivu. We had that. And at the marketplace, the people had *Taenia solium*¹⁶. They raised a lot of pigs.

And one of the things I didn't get out of the Congo, I got everything out except one vial of fluid that I wanted. I had taken and drained the cysticerci¹⁷ from the subcutaneous cysticerci from probably a hundred cysts. And I had this little vial in the refrigerator of this fluid, which we were going to use to make an antigen. And that's the only thing I didn't get out. I got everything else out. All the equipment, the microscopes, centrifuge, everything that I had, we packed up and got out. So we did very well.

And then I had to go through customs and get everything cleared, and Makerere helped a great deal; the university helped a great deal in getting that. And then we had some pretty interesting people there, too. Some really scientific people who had been around for a long time.

CP: Tell us a little bit about Makerere University.

DP: Well, Makerere University is the university of East Africa, and it set up the first medical school in British Africa and that was at Kampala. And most of their staff were people who had come in from England, and 80 percent of them were people who were missionary doctors who had worked already in Africa and knew something about Africa.

And this was the medical school to train Africans to be physicians. And they had a nursing school to train nurses. And then they had a regular college, just a standard college too. We had one of our best friends there, was on African history was there, who's now in England. He's written a couple of books on African history, at least East African history.

The university now, has graduated—I think it's about 25th class of medical graduates. So, it did very well. It's a really good school. And they had at that time, I think, they had 12 wards of 50 beds. So, it was a big hospital. And they had people from all over, there. And this gave me an opportunity.

¹⁶*Taenia solium* is the pork tapeworm.

¹⁷Cysticerci are the larva of certain tapeworms.

I'd go in and see everything under the sun in this hospital. There we could, you know, we had cases of creeping eruptions from hookworm, but we also had the *Dracunculus medinensis*¹⁸; we had anisakiasis¹⁹; we had, well, people with tuberculosis; we had people with polio. Just about anything you'd ask for, we had in the hospital.

And so, it gave me an opportunity, and I had to teach when I was there. Fifteen percent of my time was free—Makerere set me up, I had to spend 15 percent of my time teaching. So I taught parasitology, and medical entomology, and some part of the preventative medicine course. And then I had the rest of the time to do research.

And this procedure that I had developed, or used, back in Fort Meade, this MIF [Merthiolate-Iodine-Formaldehyde] procedure, I introduced that there. And it went from there to England, and it was used in England for many years. It's still being used, and that's another story. This is after I came back, and I'll get to that in a minute. But we used that method there for fecal examinations.

The people who had worked in the Philippines during the war, during schistosomiasis—George R.R. Hunter III, Colonel Hunter—had developed a procedure for concentrating eggs of schistosomes. Now, it wasn't good for everything, but the eggs of trematodes²⁰ are heavy.

And so he developed this technique, so it'd wash virtually everything else out but schistosome eggs. And you could take a gram of feces and bring it down to just a couple of drops. And if there were eggs there, they'd be there. And it was an outstanding procedure for schistosomes.

So, I introduced that there, and we found that there were schistosomes. They didn't know they had schistosomiasis in that area. And so, we discovered this for them for the first time out of people that had been in Lake Victoria.

And this turned out to be a very interesting thing. The doctor from Jinja Hospitals—now, Jinja is right at the falls of the Niles, where the White Nile goes into the Nile, where Lake Victoria begins the White Nile. And it's right on the banks. And they had a sailing club, and they had a bunch of people that had something going on that they didn't know what it was.

¹⁸*Dracunculus medinensis*, or Guinea worm, is the nematode responsible for causing Guinea worm disease or dracunculiasis.

¹⁹Anisakiasis, or herring worm disease, is a parasitic disease caused by the *Anisakis* nematode.

²⁰Trematodes, also called flukes, are a class of parasitic worms.

And the doctor in charge of hospitals there came to me and he said, “Don, do you think this could possibly be schistosomiasis or what?” I said, “Well, do you want me to look?” And he said, “Yeah, would you?” So I came over. It was Dr. Fairfull (sic) Smith, and he was a very, very, very good doctor. I went over, and I got the people from the sailing club, the children, as well as the adults. And we looked at them, and we found quite a few cases of schistosomiasis.

And one of the interesting things that happened here was they had one child, a little girl about 13 at this time, who had been an absolutely great student who, for some reason, just had lost it. She couldn't concentrate. Her mother told me, she'd get up in the morning, and she'd find one sock; she couldn't find the other one. She'd sit down and cry.

And she said, “I couldn't get her to go to school. She wouldn't do her work. She became an absolute problem. We've had psychiatric examinations and everything else. We didn't know what was wrong with her. And you found that she had schistosomiasis, and she was treated by Dr. Fairfull Smith, and she's back to where she was before. All of these problems disappeared as soon as she had got rid of the schistosomiasis.”

So, the disease causes a lot of strange things, and I had learned something about this in Puerto Rico because that was one of the big things. Dr. Coppice (sic), who was one of the leaders in schistosomiasis, was in Puerto Rico. And later, when I was asked to come down to Puerto Rico to what was set up as the Coppice Lectures, and I lectured in Puerto Rico. They were in honor of Dr. Coppice.

So, but this we found was really a fascinating thing for them because we couldn't find the snail involved. We couldn't find an infected snail in this area. Well, the people down in the southern part of Lake Victoria had a laboratory down there. And they had taken hamsters and guinea pigs and put them on floats out in the water and dragged them along behind the boats and got schistosomiasis. By doing this at three or four o'clock in the afternoon, there are so many cercariae²¹ in the water that they were able to infect them just by dragging them in the water this way.

And so, they brought them in. And so they knew that they had it there; they had the same problem. So one of the doctors decided that maybe it isn't the same snail. Maybe it's another snail. So, what other snails do we have here? Well, they talked to one of the malacologists, she says, “Well, you haven't looked at any of the *Biomphalaria choanomphala*, which is a deep water snail. It's only in water, 10 to 15 meters deep. It won't be on the surface.

²¹Cercariae are the free-swimming larva of flukes.

So, they took these little dredge things that they got. They dredged up this particular snail and got it going in the laboratory, and that turned out to be the intermediate host. So we found out it was an entirely different kind of thing was going on here. It was a deep-water snail.

And apparently, the snails were getting infected from the lake boats that traveled around all of the different cities that were on the lakes. And their feces went directly into the water from their bathroom. And so, this was a constant source of infection for the snails, and that was a constant source of production of cercariae to infect the animals.

The reason this came up was because they were picking up cercariae out 150 yards from where the *Biomphalaria*. The usual species were near the shore, you know, in shallow water. So this is what indicated that it might be something deep. And so, that was a new finding. And even though I wasn't instrumental in it, I was part of this whole thing that was going on in schistosomiasis there.

And Dr. Fairfull Smith, after we did this, said, "Don, you've done us a great favor here in Jinja, what can I do for you?" I said, "Well, I understand that the people at Walter Reed and the Armed Forces Institute of Pathology want to come over here and have a sort of a little review of things that are going on. Can you help me set up something for them?" He said, "We'll set up anything. What do you want to do?"

I said, "Well, I know you have a bunch of field hospitals there, and I've been out to them, and I know you have everything under the sun from mossy foot, *Dracunculus*, hookworm, everything. Can you bring these people into Jinja Hospital? And let's line them up in beds from the early phase all the way to the latest stage of the disease, so that they can see this progressing in disease in each one of these different diseases? And we could set up maybe 10 or 12 diseases?" And he said, "We can do that."

So, when the people came out, and this is Dr. Benford, who's a malariologist, one of the outstanding people in this country on malariology, who just recently died; and Dr. Stoll, who was then at the Armed Forces Institute of Pathology and head of the Registry of Pathology; colonel—isn't that terrible, the name is escaping me—and General Milburn. So they were from Walter Reed. Colonel Benison, who I mentioned before was a typhoid man. Those are the four people that came out.

And, I've got a picture of Benford and Milburn walking on with their heads down, and they're shaking their heads. And he said, "I read about these things. I read about these things. God, I've never seen anything like this." We had them lined up.

We had buruli ulcer²² out from a little tiny thing into a great big opening place on the leg. And we showed them in sequence of what this would develop to. We had *Dracunculus medinensis* and from where we had it from X-ray to show it. It was an X-ray that we found the organism to where it had already opened up on the foot or the leg.

And we had hookworm cases in which we had the charts up, and you could see the hemoglobin was 10 percent. And in some cases you couldn't even read it, it was so low. And these were people that were just brought in, and they were being treated but had just been brought in, and they haven't been revived because you treat a case of hookworm disease in which there's bad anemia, and you get rid of the hookworm, but you still have a case on your hands of anemia that you have to bring that person back. And so, we were seeing this kind of thing too.

And we had mossy foot, which is a fungus disease, and we had a couple of other kinds of fungus diseases. And this was Benford's area too. And another thing I did on another day, since Benford was a malariologist, I went to a hospital run by a bunch of nuns from Poland. And Dr. Blinska (sic) was the doctor with them.

And I had worked with them some in cooperation with some things I was doing at the university. We were working on onchocerciasis²³ in these same people, and they had nodules and so forth. And I was differentiating with her between onchocerciasis and leprosy because some of the appearances of the skin are the same in these two diseases.

So, we were working together to sort out those things that were absolutely not leprosy and were onchocerciasis. And we were doing a pretty good job at doing that. But I told Dr. Blinska, I said, "I want to bring Dr. Benford out here and give him a real show of leprosy because he sees a few cases, and he's got them in the leprosy areas, but he's never seen anything like this."

She said, "Well, just so happens that one of the days that he's here, we have a treatment scheduled. There'll be 1,800 lepers coming that day for treatment. Can you bring him that day?" I said, "I'll bring them all that day."

So, we arrived about nine o'clock in the morning and we had this lineup of people, you know and Benford's eyes are like saucers. He said, "What is this, Don?" I didn't tell him anything in advance. I said, We'll see some leprosy.

²²The buruli ulcer is a tissue-destroying ulcer.

²³Onchocerciasis, also known as river blindness, is a tropical disease that affects the skin and eyes.

I said, "Well, I think, sir, you have probably 1,800 people to see. How many of them do you want to see, and which ones do you want to see? Just go down the line and say, 'I want to see that one, that one, that one, and that one,' and we'll bring them into the clinic for you to go with it." And he turned around and looked at me, he said, "I've had more knowledge about malaria [leprosy] now than I've had in my whole career."

And so, Stoll and all of the people: Benford, and Stoll, and Benison, and Milburn were all fascinated by this. And I've got a few pictures of Benford looking at the leprosy cases. And so, that was a fascinating day, too. So, we had some pretty interesting things going on there. And—

CP: The fact that you could see it impresses me. Go ahead. You could see the teaching advantage of it, even for these old hats.

DP: Yeah. You know, these people had never seen these things in this way. And, of course, now, since I've gone out of the Congo, they sort of shut down that program, but now they sort of want to open it up again. So when I told them after these guys came back, these doctors came back and got onto their own feet, they said, We've got to open this up again. This is an opportunity for people to really see things.

So, this was the end of my first year there. And another thing that we did, I worked with a British entomologist, George Barnsley, who was an outstanding entomologist and also a gunsmith, an excellent man. He worked with the British during the war, and the Belgians, on guns. And he took me out. He said, "I want you to see this place."

Now, in 1901, the British had come into East Africa to Uganda. And in this one area, they had an epidemic of Rhodesian sleeping sickness going on. And so, this was the time when the organism was first found, between 1901 and 1905, and that they were able to show that the tsetse fly was the vector.

So this was the area, and what the British had done—well, first, what had happened in the area? In 1901, the population of this immediate small area, probably, I guess, 30 by 40-mile area had been 300,000 people in this area. They were all farmers. In 1907, the population was 100,000. It had killed two-thirds of the population in that period of time.

CP: I had not appreciated that its appearance was so sudden, but go ahead.

DP: And they pulled the people out in 1907. They just evacuated this area entirely. They said, Until we can get this back under control there's no point in anybody trying to live there because this is a pocket in which we have—well, when Benison had first come, he had stayed the longest. He was there for a couple of weeks and then went back and then came back with a team.

George and I had taken him down along the Nile River in a place where it's beautiful little falls, it was a sort of a horseshoe falls here, and to have lunch. And the reason we had taken him there, not to show him the beautiful falls, but to let him experience the tsetse fly. And so we're sitting here having lunch, and Benison looked like this, you know, back and forth.

And he slaps this, he said, "You know, Don, that looked like a tsetse fly." And George Barnsley's sitting there, "I thought it was a tsetse fly." And he said, "You ought to be getting the Army repellent and put it on these uniforms, so these things won't land and bite."

I said, "You're using my shirt which is treated with the Army repellent, the one that you said would be the best, and I think they're still landing." And so, he said, "Damn, we've got to do something about that. When I get back—" I said, "Don't rush. We've got plenty of time." And while we were there we must have seen 20 tsetse flies. And they would come by and land, and he'd brush them off.

So, about three weeks to a month later, somewhere in that period of time, I got a shipment from the states, which had uniforms, including t-shirts, shirts, fatigues, all these different uniforms, and big gallon containers of all the different repellents that they had. And we were supposed to treat all the uniforms and then go out and run a field test.

Well, we did this. George and I set it up, and we had the people in t-shirts and tan pants. We had people in all tan uniforms, all in fatigues, in fatigues with white t-shirts. And we lined them up with six people in a group, and we marched them down this thing, and each one was supposed to count. Each one had a little pad, and he was supposed to count the number of flies that landed and the number of flies that tried to bite on the person in front of them.

And so, they marched down this road, and then they came back. Well, a group of six people had as many as 8 or 900 flies trying to land and bite in the period of time they walked down and walked back, which was about a mile and a half. So, we said, this area is still not ready for re-habitation, but the repellent's not doing very good.

Now, this clothing repellent didn't do a thing. I have a picture somewhere—I was just putting on George Barnsley's arm, I was putting this repellent on his arm, and I just put it down, and I put this big water repellent on, and it's running down his arm. And it's running down like this, and a tsetse fly comes up and lands right there.

The repellent runs right over him and on down and he kept on feeding like this, and George said, "The damn stuff's no good." I said, "Doesn't look like it." He said, "You better find something else." So, anyhow, that was sort of the end of our experience with the tsetse fly. We knew that that was not going to give us a solution.

Anyhow, that was another little piece of work that we did. So, we were hoping that eventually we'd come up with something that was good. But even the DEET doesn't work. Nothing seems to work.

But what did work? The white t-shirts. They wouldn't land on white t-shirts, not in the sunlight. They'd land under the arms where there was a shadow, but they wouldn't land where there was light.

So we told the Army that if they wanted to work in this kind of country, they'd have to dress all the soldiers in white uniforms. And if they dressed in the white uniforms with a hood over them, so that, you know, to protect their skin and put some little white cream on their skin, then the flies wouldn't bother them. But the Arabs actually knew this. And the Arabs wore their gear—when they went into Africa, into East Africa, they always wore white.

CP: Was it for this purpose, you think?

DP: Well, I don't know, but they knew that it kept the flies off of them. They didn't know anything about pentastomiasis, but it kept the flies off of them. And so, they wore white. And this was something that came afterwards that I found out about afterwards. And one of the historians—the historian I told you about told me. He said, "Well, this is something that the Arabs had said. It's in the literature that the Arabs always wear white because it keeps the flies from biting them."

CP: The British are noted for their white—tropical white uniforms too. Was there any relationship do you think?

DP: I don't think they knew it at the time. I don't think they knew why. Now, somebody may have known why, who got them to do this, but I don't think they knew why.

Anyhow, I was there for three years. Two years in Uganda and a year in the Congo, and it was really quite an experience. And I saw the first case, that I know of, of chloroquine-resistant malaria there. And they hadn't known that, and this was in 1962.

I had a lady who had falciform malaria, and actually, she was our new Norwegian missionary, and she was working there, and we treated her with chloroquine at the hospital. And a week later, the malaria was back. So we treated her a second time, and the malaria was back. And we treated her a third time with chloroquine, and the malaria came back.

So we treated her with pyrimethamine and some other malarias and finally got rid of it, but we didn't get rid of it with chloroquine. So I reported this back, and they had a big meeting in Washington, and they said that this probably wasn't true, and that it hadn't happened anywhere except in the Far East that they knew of.

But about a month later, they got a report from Panama, that they had chloroquine-resistant malaria in Panama. So it was beginning to be known it was all over, pretty much universally. What happens I think, and I think this has been verified, that what happens is the susceptible strains of the organism are killed off, and all you have left is those that are resistant.

So you get into an area, and what you're doing is concentrating the resistant organisms. And so it'll build up in an area from no resistance to quite a few because you're killing off all the susceptible ones. Perhaps that's the reason. At least that's one of the logical solutions to this.

CP: How did you get to Florida?

DP: Well, that's kind of interesting, too. I had come back to Walter Reed and worked there after I left Africa. This was in '62.

Track 1 ends; Track 2 begins.

CP: So you spent two years in the Congo?

DP: No, I spent a year in the Congo, two years in East Africa in Uganda.

CP: All right, so you were there. Then, where did you go?

DP: Well, then I came back to Walter Reed. Are we on?

CP: Yes.

DP: I came back to Walter Reed and looked at what was going on there. And we decided to take this MIF technique that had been so good and put it into a commercial—sort of a possibility of a commercial thing—because they wanted to use it at some of the Army bases. And so, I worked with some of the people there, and they set that up. But this still comes later.

CP: Oh. I thought—

DP: Not yet.

CP: You brought us some nice materials.

DP: And so, we got that thing started, but it didn't work out very well. So, because it didn't have the right kind of materials to do it, and the head of the department there wasn't interested anyhow. And in fact, the kind of work that he was doing was mostly immunological, and that wasn't my area.

So, the general in charge of the Armed Forces Institute of Pathology came over to Walter Reed one day, and I said hello to him. He says, "I know you. You were in the Congo." And I said, "Yes," and then, "Uganda."

And he said, "Yes, Dr. Stoll and Benford came over and saw you. Why don't you come over to the AFIP and work with us? We're starting a new geographic pathology division, and we'd like to have you work in it. We've got a new director coming in. Dr. Benford's in charge of it now, but we've got a new director. Dr. Howard Hobbs coming in to take over this. He really could use someone like you to help him get started on this."

So I went down to the R&D command and they said, Well, that's very interesting, but if you're out of research, into AFIP, we lose control over you. I said, "Well, I've been far enough along in my career. I ought to be able to make this decision and go ahead. You guys have done a wonderful job of sort of looking after me and making sure that I got to places and so forth."

Although, they lost me when I was in the Congo. They didn't know what had happened to me after I moved into Uganda and the state department wouldn't acknowledge that I was even there. So that was kind of funny.

Anyhow, so I decided to go ahead and take the job over there. And so I worked with Dr. Winslow first. Dr. Winslow was an outstanding pathologist. Very interested in tropical diseases, and leishmaniasis²⁴, Chagas disease, malaria, and did some really good work in this. And he was one of the people who worked in geographic pathology, one of the stable people here.

So, I got to work with him. And he said, "I want to do some field work, Don. I know you have contacts." I said, "Okay, what do you want to do?" He said, "Well, didn't you find trypanosomiasis²⁵ when you were over at Patuxent Wildlife Research Refuge in raccoons?"

I said, "Yes. And one of our colleagues, Bryce Walton, I turned it over to him and he got his thesis on that." He said, "Do you think he could still find it?" I said, "Sure." He said, "Do you think we could work there?" And I said, "Let me know when you want to start." And he said, "Any time."

So I went out and saw a Dr. Carlton Herman who had—we had become really good friends. And I said, "We want to move in on you again. We want to take over a laboratory out here and do some work. And I think you'll welcome Dr. Winslow because I'm sure he'll look at some of your material and give you some pathological response on some of the things that you haven't been able to get before."

So he agreed, and so we set up a laboratory out there. And we trapped a few raccoons, and by the time we got about six raccoons, I had trypanosomiasis again. And we got it in culture; we got it in the laboratory, so we could work on it again. So, we did quite a bit of work. But not only that, but we found out some other things that were kind of interesting.

²⁴Leishmaniasis, also known as black fever, is a parasitic infection.

²⁵Trypanosomiasis is Rhodesian sleeping sickness.

When we were looking at the 'coons, and I have to give Dr. Winslow credit for this kind of thing because he was an outstanding pathologist. He said, "This raccoon's got trichinosis." Well, we had never heard of trichinosis in raccoons before. So I said, "Wait a minute. Let me check the trapping records and see where we got this raccoon."

Well, we trapped this raccoon at Beltsville Agricultural Research Center, which was adjacent. Well, we trapped it right next to where they had an experimental pigs program. So we went over and talked to the people there, and they went over and checked. And we pulled out several pigs. Darned if they didn't have trichinosis in their pigs right at the Agricultural Research Center and didn't even know it.

So anyhow, we opened that up, and so they really went. They got a whole new operation going just to find out how much they had going on, where it was going, how it was being transmitted.

We helped them on that because we showed them that what was happening is that they had a dump not far from there, where they had put a lot of stuff, and the rats were getting into the dump, and the rats were getting into the pigs, and the pigs were eating the rats and then infecting other rats. So it was going in between pig and rat, and the raccoons would eat rats occasionally. So the raccoons picked it up from the rats we were sure.

So it was a pig/rat thing that the raccoons sort of accidentally got into. And so, we pointed out their trichinosis there. Well, that was one of the things that we found. We found a number of other things that were in the wildlife that were kind of interesting and so forth.

Dr. Howard Hobbs came and he said, "Don, I want to explore what's going on in the world, not just here. I want to get in touch with your contacts, and I want to go on my own, and then I want you to join me." So he had a bunch of contacts because we had a lot of people who came to the Armed Forces Institute of Pathology for training. And we had people from India, and from Egypt, and from a whole bunch of places that were doing this.

So, he made his contacts that he wanted to see and went over to Europe, and then I said, "Well, I'll arrange with people I know." So we met in London, and I took him over to meet some of the people in London. George Nelson, who had worked in East Africa with me and was there, and so we met with him. We met some other people, some outstanding people who were there. And Dr. Garnham, who had been the one who had discovered the

actual erythrocytic cycle of malaria in the laboratory in Kenya some years before, while, in fact, while we were in Uganda that happened.

And so, we went from there up to the Liverpool School of Tropical Medicine, where I worked with the people there in Malaysia. Grace and other people who were there that had been in Malaysia when I had worked there, so we had people there we had worked with. Then he had the contacts in some of the other places, and I had worked with the people in NAMRU-3 [Naval Medical Research Unit Three] when I was in Africa. And before I made my first trip over we had visited the naval medical research unit in Cairo. And so, when we got there, I knew the people there.

And so, he had been to Egypt and had not met any of these people. And so I said, “Well, the man to meet is Harry Hoagstraal. He’s an entomologist, but he knows everybody, and he is sort of the liaison for the Navy here with Egypt. If you want to know somebody, talk to Harry, and he’ll get it.”

So, I told Harry we were going to be there and he said, “Are you going to be here over the weekend?” And I said, “We can be.” He said, “Okay. I’ll throw a party at my house, and I’ll bring the people from all over Egypt,” which he did. And so, he brought scientists, and artists, and politicians, and so forth from all over Egypt. And Howard Hobbs just went around from person to person—

CP: Could hardly talk to you, he was so excited.

DP: He was absolutely fascinated by all the people we met there. And then he said he had to go on back. And I said, “Well, I want to go on because I want to see these people in India.”

So, I went from there over to India, and, wherever I went, I lectured and then talked with the people. So I went to the malaria institute in New Delhi, and they arranged for me to go up and visit the Taj Mahal, which I’d never done. And so, I went up one morning to visit the Taj Mahal and, then, I was going to go onto Calcutta. And I was supposed to go to Vellore, which was in the center end of India, which has a Christian Medical College in Vellore, India.

And we had had one of their people who was a malariologist, worked with Benford at the MIP. So his home base was here in Vellore, so I went there to meet with him. And while I was there, we had a case of filariasis in which they couldn’t pin down what the organism

was. And so I was able to identify that for them and show them they have *Wuchereria bancrofti* in this area, which also they didn't know. And so that was a new finding.

And I got to go out to the leprosarium and see what was going on there, and see how this leprosy compared with what was in Africa that people I worked with there. And so, that was a good comparison.

And, then, I went up from there on into Calcutta. And in Calcutta, Johns Hopkins University had a program going in Calcutta, and I had also made contacts in Calcutta with the people there. So I got to see leishmaniasis and filariasis you wouldn't believe. And the people in from Johns Hopkins, Edward Schiller, who is the entomologist but is also an outstanding parasitologist, too, had taken movies of the conditions in India, of the conditions and of the people infected and so forth.

And so, what happened is that—I'll interrupt my trip for a minute to take you back to this. When I got back after looking at this, Schiller contacted me and he said, "Don, I'd like to make a movie of filariasis. And I understand that you have the resources at Walter Reed that you could make them."

And I said, "Let me go over and talk to the people." And so, I talked to the people over at Walter Reed, and they said, Well, if you can do certain things we can do it. So I had a colony of mosquitos, and so I did the part on the mosquito, the development in the mosquito, and so forth, and got that all done. And we got everything done on film.

And then after we got it all done, then, I did the work with the artist people to do the geography and to show this. And then we put this all together in a movie and edited, and I did the narration. So I wrote it, I didn't give it. And then they got a professional narrator to actually give the narration.

And we published this film, and it came in second in the military films that were that year out of all the films that had been done. So it was pretty good. And I still use it some in my teaching when I'm teaching filariasis, I always show the people the film because it covers pretty much the whole life cycle and shows the disease in the people, all the different aspects of it. So that was good.

That's a part of what came out of Cairo—I mean out of the Calcutta. And there were a number of other things going on in Calcutta, which, I had a chance to see. And I went from there to Singapore. And I had been to Singapore when I had been in Malaya. I spent

some time in Singapore. And the university people from the University of Singapore knew who I was.

And so they came and they gave me a big show and took me out to dinner, and I had a good time. And then I went up to Kuala Lumpur, where I actually worked. And at that time, some of the people from Tulane University were now here. And some of the older people, Sandosham (sic) was still here. He was the malariologist who was working there.

And I have the book that he and Field wrote on malaria, which there are a very few copies of it in the world, and I have one of them. Two-volume edition. And that's very nice. So I got to work with them just a little bit to give some lectures.

And Dr. Ming Ming Wong, who I later did a study with on *Dirofilaria immitis*²⁶ after I came to Florida, so, she's in California, and we had a collaborative program that we did. And we did a comparison. And we did all of the intestinal parasites in comparison, in these same dogs that had *Dracunculus* tied to *Dirofilaria*, to see if there was any impact of the other organisms on how fast the dogs deteriorated with the disease and so forth.

So, I got to meet her there, and then I went on to Hawaii, and I had set up a program in Hawaii before, in which we were doing the monkeys that were coming back from Malaysia for the studies in Indianapolis for the polio studies. And I had set up a young man there to work with me to collect specimens for me. And we collected all kinds of things from the monkeys coming in.

And, finally, the importers decided that we were in their way so they started shipping things through the northern route and bypassing Hawaii because they were not duly quarantining these animals when they got into the states, and a lot of them had infections they were able to carry. We isolated *Salmonella typhimurium*²⁷ from the monkeys. We had isolated [*Entamoeba*] *histolytica*²⁸. We had a couple of cases of *Echinococcus granulosus*²⁹ from the monkeys that had been brought in.

So, we had things that they should have eliminated. But the program didn't last long when they started bypassing the people, and I brought the young man back. And we brought him back to Patuxent, so he worked there for a while.

²⁶*Dirofilaria immitis* is the scientific name for heartworm.

²⁷*Salmenella thyphimurium*, more commonly known as *Salmonella typhi*, is the causal agent of typhoid fever.

²⁸*Entamoeba histolytica* is the parasite responsible for causing amebiasis in humans.

²⁹*Echinococcus granulosus* is the dog tapeworm.

So, I had a long stage at the Armed Forces Institute of Pathology of seven years. And we set up the program in geographic pathology to do a lot of the work on parasites. So the man who replaced me in the Congo was Daniel O'Connor, Daniel Connor. He is a pathologist, and he replaced me in Uganda, and he's a—

CP: Military?

DP: And he was there for three years, and he came back to AFIP and joined the division. So we worked together in the geographic pathology division and looked at all kinds of parasitic things. And at that time, we wanted to do some work on onchocerciasis. He bought a lot of material back. And they wanted to see what the South American onchocerciasis was.

And so, I was supposed to go. And they decided that they had a Navy captain that they'd like to send down because he needed some fieldwork, and I had already done fieldwork. So they said, Let's send him down.

So we went down, and we put together a paper and published that, which isn't in the reprints because I couldn't find one, on onchocerciasis. And I finished up in the Armed Forces Institute of Pathology and that's where I retired in 1968.

CP: You've been retired since '68? From the Army, that is?

DP: Twenty-six years, 26 years in the military. I retired in 1968.

CP: Have you consumed your time since then? Half of your life has been since '68.

DP: That's right. So, when I got out of the service, I didn't know what I wanted to do. I had no idea. So a company asked me to come and work with them on electron microscopy of malaria, which I did. And we were able to show how the malarial parasite actually fit on the red cell. So if it wasn't for—so, it was a very interesting thing. And that eventually got into the literature. I didn't personally publish it, but some of the people who worked with me did.

And then I was getting bored with what I was doing because it was too routine. And a friend of mine had just opened a series of clinical laboratories on the beltway in

Washington and asked me to come as the associate director with him, so I came to that. I worked with him for about three years on that, while I was doing other things sort of on the side.

But, I'm now out of parasitology for a while. And I designed and developed a concept of a medical city, which is what they've taken over now as these places that come in. You move into an apartment and as you go downhill you move to the next jurisdiction layer in this town. I developed the concept for that back in the early '70s. And there had never been one built in the United States before that.

And when I did that, a man named Maurice Perrow (sic), who had a company called Maurice Perrow and Associates, saw this. He says, "You've got some great ideas, son. Why don't you come down and work with me for a while? I'll give you an office down here, and we can see." And so I said, "Well, that'd be interesting." So I left the clinical laboratory and went to work with him.

And the first thing that we did was we went to University of Pennsylvania, and we were asked to look at their facilities and see what they needed. Well, I had been working on facilities. I helped to design the tropical research medical lab in Puerto Rico, and I helped them when they redid the Armed Forces Institute of Pathology building. So I had been in architectural things for a long time.

So, Bill sent me up to interview with these people, to talk to them. And he said, "We've got to find out everything that they do, and what they do, and how they do it." So, he said, "First, let's meet with the dean and see what we can do here."

So, I went up there one evening and he said, "You've worked now for a month, and you've interviewed practically every department there. Do you know what these people need and what they need to do?" I said, "I think so." He said, "Can you tell me?" I said, "Yes, I think so." He said, "Well, we'll have dinner tonight, and then we'll do it."

And we went up to this hotel room, he took all the pictures off the wall and took a roll of brown paper, and he put it up on the wall and taped it up. He said, "Now we're going to go through all the institutes, and you're going to tell me what we have to do with each one of them." So, I sat there and talked to him and he wrote the stuff on this. And we spent until about three o'clock in the morning doing this.

And then, he said, "Is there any more?" I said, "I think that's about it." He said, "You go to bed. I'm going to put this together." And so, I said, "Okay." So, I went to bed. And we

had a meeting at seven o'clock in the morning. And he got me up at six, and we had a quick breakfast meeting over at the medical school. And then we went in to see the dean at ten o'clock.

And the dean said, "Well, do you have any idea what we could do?" And he said, "Well, I think Don Price has sort of outlined it for you. He knows what you need and so forth." I had never done anything like this before but it was fascinating, because it seemed pretty logical.

So he said, "Would you like to see what we think?" He said, "Yes." So he took their pictures down off the wall, and he took this roll of brown paper, which he had now redone and organized it well, pasted it up, and put this tape over there, and we'd taped it along the wall with masking tape. And he says, "Okay, Don, explain it to him."

So I went up, and I went through the whole university complex, and the medical school complex, and how their research was tied in, and all the various things that we did this and that. The chief of planning and protocol sat there with this mouth hanging open. He said, "I've been doing this for four years. You come up, and in 30 days, you've solved all of our problems. I can't believe this."

And the dean said, "But this is going to cost a lot of money." And Bill said, "Well, you know, the Hill-Burton has money for medical schools. They ought to be able to give two-thirds of the cost of this if it's written up. We've got two months to get this in, and get it on paper, and get it all organized, and get it in to the people at Bethesda. And if we get it to them, and they like it, you'll get your money." He said, "Well, how much is it going to cost you to do this?" Bill said, "Just a minute." And he called me, and we went outside.

He said, "I figure we can do this in 45 days, and these are the number of people we need in addition to you and I. What do you think? Are you willing to do this? No weekend work, but we ought to be able to do this within 45 days. Do you think we can?" I said, "Well, we did this much in 30 days. We ought to be able to put it into a format." He said, "Okay, I'll do all the architecture. You do all the numbers." "Okay."

So we went back in, and he told him how much it was going to cost. They said, Done. So in 45 days, we had the draft done, and we brought it up. And it was accepted, and we had the final paper within the year, and they got 5.7 million dollars to build the building. And they still needed three million dollars. And because they got the money so fast, they got their alumni to give the extra three million dollars and got their new medical education building.

CP: Where was this?

DP: University of Pennsylvania medical school. The first medical school in the United States, and so now it was pretty old and pretty—they'd used up all their space for other things. So that was my little trick there. And then we got back to Washington and Bill says, "We've got a job over at Georgetown. Let's go over there and see them."

So, we went over. And they were tearing down or—what did they call it—taking the old hospital and decommissioning it, and building a new hospital with 250 beds or something like that, to replace what the part that they were getting rid of. But they needed to have a laboratory program. And the laboratory was a mess the way it was, and they needed to have a laboratory program.

So Bill said, "Can you do this?" I said, "I think so." So the next two and a half months, I did the laboratory program for Georgetown. And when we went in and presented it, they accepted it. And so, that worked out very nicely, so they got their new laboratory program up.

CP: This includes the building as well as the programing?

DP: Well, this is fitting the building. This is the design of the facility within the building. It was in the medical school building. The medical school building was being built, you see, so we had to design it in the building.

And Bill did the architectural part. He was actually an expert at this, and he did that. Then he said, "I didn't know if you knew it, but I've just made you vice president of the company." I said, "Well, that's very nice. Does that—"

CP: Do I get a salary increase?

DP: Does that—yeah. I said, "Does that include a salary increase?" And he said, "No, but it includes a prepaid trip for you and your wife." And I said, "Well, I'm not going anywhere on another trip without my mother." He said, "I'll pay for her, too, to Mexico. But I've got some work I want you do when you're in Mexico."

So, he paid our facilities and all our expenses for us to go to Mexico. And we went first to Lake Chapala. We stayed in a real Mexican hotel there and interesting, and then we came back to Guadalajara, and that's where my work was. So I went to the University of Guadalajara to work with them and to see what we might do. They needed some new facilities to see what we might do to do that.

But while I was there, they had had, not too long before, a laboratory infection with *Trypanosoma cruzi*³⁰, which they were working on, and they didn't know about this. So, I told them, "Well, perhaps you need some, a little instruction here on this because—let me see what's going on."

So, they were raising these reduviid bugs, and if you know what this disease is, the disease is transmitted by the feces of the bug. When it bites, it defecates, and you scratch the bite and you force it, and the organisms get into the little cracks in the skin and so forth. Well, but that means that they're on the eggs of the bugs, if it's an infected bug.

Well, these are interesting animals. When they lay an egg, they don't lay an egg. They fire an egg, and it'll go all the way across the room. So I found eggs in the room on the floor. And I said, "There's your source of your infection."

They had too big a mesh on these screens, and so the bugs were shooting out their eggs right through the screens and out onto the ground and spreading Chagas disease all over the laboratory. And so, I showed them what was happening, and we actually took some of the eggs and were able to wash some organisms off to see them under the microscope.

CP: Oh, that's beautiful.

DP: So, we corrected that little problem, which was a nice correction for the school. And I got back to Washington and I said, "Bill, I don't know, something's wrong. I'm not doing what I want to do." And he said, "Well, okay. If you want to, find something else."

And a friend of mine who I had worked with at the AFIP [Armed Forces Institute of Pathology], a pathologist, had started five laboratories in five different hospitals up in Appalachian Pennsylvania. And the Clinical Laboratory Improvement Act had just been passed.

³⁰*Trypanosoma cruzi* is the species of parasite that causes Chagas disease.

And he called me. He said, “Don, I don’t know what to do with these laboratories to meet these criteria. Will you come up and look at them?” And I said, “Sure, I’ll come up.” And so, I came up, and I looked at it. And I wrote up a little program, and I sent it to him.

He said, “This is great, but this is going to take up somebody else besides us pathologists to do this. You come up and do it for us.” I said, “I don’t think so.” He said, “Well, come up and present it at least.

So, I came up, and I presented it to them and explained to them what was done. They all shook their heads and said, We can’t do this. This is an administrative job that you understand, but we don’t. And I said, “Well, you can’t afford me.” He said, “Well, try us.”

So I told them everything I wanted, and their eyes were a little big. And they went into the other room and they talked about it a few minutes. But I told them I wanted it with a full-time job, so I wanted 50 percent of my time free, in addition to this.

So after they had a meeting, they came back in. He says, “Don, you’ve got it.” I was absolutely amazed. I thought, This is impossible. I’ve never had anything like this happen before.

So I called my wife and I said, “We’re going to be moving.” And she said, “We are?” And I said, “Yes.” And I told her about what we were going to do. She says, “Okay.”

So, we went up there. And while we were there, we built a nice house on the lake because I was making pretty good money, and I thought I could afford to do this. And I got involved in some other things.

These hospitals, now, were operating very poorly. So first, I organized all the laboratories and got them working properly. Then, I tried to get the hospitals to understand where they could take advantage of each other. So I put together a consortium of five of these hospitals. And so, they started interchanging things.

Then they had in there a pediatric problem. They have a lot of inbred Italian immigrants who had come in, and they had a lot of heart trouble due to this, and it was genetic. And they needed more evaluation. Well, the problem was because so many of these people were around, they had to go either to Geisinger Medical Center, which was 125 miles east, or Pittsburgh, 125 miles west, to do anything.

And they had this one doctor there who was interested in getting a program. He said, “What can we do?” I said, “Well, let’s go down and talk to those people at Geisinger and see what they’ll do.”

So, we went down there, and we sat down and they talked. We called and asked for Dr. Hood to come in, who was the head of Geisinger. They’d taken us around and shown us all the facilities, what they did and so forth. And I said, “What we need, is we need an echocardiogram machine up there to do our cardiograms, we need somebody trained to do them, and we need a consultant there two days a month.

“You send one of your patients—one of your doctors to come up. What we’ll do is we’ll do all the laboratory work; we’ll do all the preliminary work. Then, we’ll get a van, and we’ll get a registered nurse, and we’ll go all around to all the communities at the hospitals and all these communities. We’ll pick up as many as eight to ten patients.

“And we’ll bring them in the first day the doctor’s there. And a doctor can go over the records on the second day. The doctor will go over the records the first day, see the patients the second day, and then, we’ll go from there as to what was advised, and we can treat the people locally.”

He said, “That’ll save families several thousand dollars of travel money and motels and all that sort of thing. And we’ll pay your doctor’s salary, plus we’ll give him the bonus and still do it cheaper.” And we cut their expenses down to about 500 dollars for a complete examination for the children from about 1,500 to 2,000 dollars, which is what it had been. I thought that was a pretty good accomplishment.

CP: I think that’s a good accomplishment.

DP: But we didn’t have any good primary care in the area. And so, the second thing I wanted to do was to organize and establish a regional primary care program for Appalachian Pennsylvania. And I designed it. And I presented it to the people there in the different organizations, and they sort of shook their heads and said, There’s nothing we can do.

So, I went back to DuBois, Pennsylvania, where my headquarters was, and I got together our committee that I had put together for getting the consortium and doing the other things. And I said, “Look. There’s money for the first year of a primary care center. The government will give you 100 percent for the first year, 70 percent for the second year,

and you're on your own in the third year. If we can get a building, we can develop the primary care center and furnish it, get everything in it, bring in a doctor. In the second year we get 70 percent and then it has to make it onto someone, and I guarantee it'll make it."

And they said, "Well, what are we going to do for a building?" And I said, "Well, one of the coal mining people here who's very wealthy I understand is building a medical building right next to the new hospital here at Punxsutawney. Why can't we talk to him?" And they said, "Let's go."

So, we went down and talked to him. We said, We want one floor of your building, and we want it rent-free for the first year. And he said, "Okay." And so we designed it—I designed it myself, the whole place. And we hired a physician, and we built this thing. And then my time was up, and I was leaving. And I was going to leave, and I'll tell you that's how I got to Florida.

But this started to operate. It operated the first year. And that hospital had not been in black since it had been initiated. But we tied this in on the second floor directly into the hospital. They used all the laboratory and radiology and pharmacy from the hospital, so we didn't have to duplicate that. And we had the nursing staff from the hospital help in the center, so that we had it all integrated in such a way that the cost for primary care went way down. And we had identified 2,500 people in this immediate area who hadn't seen a doctor in 10 years, and that was the basis for doing this.

And so, I was sitting here and I thought, Well, we have to work up something for another year. And I had been asked to do a number of other things, a cancer program and some other things. And my sister lived in Sarasota, and she died suddenly. And my wife was the executor of the estate.

And, at the same time, the AID had called me and said, "Don, we want you to go back to Africa, and we have a project over there." Well, actually, this happened before my sister passed away, and we knew about that. And it was all set up for me to go. And I said, "Well, we'll have to delay it because I have to go down with my wife to Sarasota, and then I'll have to get her reestablished in Washington at our home."

So we got down to Sarasota, and they didn't call me from AID. And I called back and said, "What's going on?" He said, "Well, they had a coup in the country, and so we temporarily postponed this."

So, then, I'm sitting in Sarasota now. I don't have a job. I don't have anything to look forward to at the moment. My wife is very busy giving these things and I said, "Why don't we stay?" And she said, "You've always wanted to live in Florida, why don't we?" So we stayed.

And so I called up Marion Laboratories because this procedure, this MIF procedure? They had wanted me to develop this for commercial. And that's where that comes in. So I developed that as a commercial project for Marion Laboratories. This is the first brochure that went out with it, and it tells how do use this thing, how to make the diagnosis.

CP: Tell us what MIF stands for.

DP: It stands for Merthiolate-Iodine-Formaldehyde in its certain combination. Can you see that? And along with this, there is a pamphlet. There's a set of 60 projection slides of all the organisms, and how they look in this. So this is the procedure. And then the projection slides, which go with this, are what they use in the laboratory to compare, so they can use it for their diagnosis.

CP: Yeah, looking at an unknown and here is a known.

DP: Here's a known. So they did that. Is that all right?

CP: It's marvelous.

DP: So, anyhow, in order to develop that, I had to have a place to work. So I went to the Sarasota County Health Department. And then the director there said, "Well, we don't see any parasites. We had one case of giardia³¹ last year." I said, "Believe me, sir. You have parasites."

And so he said, "Okay, I'll let you set up and work with the nurses here. What do you want to do?" I said, "I want to go to all the housing, different areas." I said, "I want to go to the public housing area. I want to go to some of the migrant places. And I want to go to some of the affluent areas, too. And I want to get stools and bring them in here, process them, and examine them."

³¹Giardia, more commonly known as beaver fever, is an intestinal infection.

Well, the first year, we had, out of—well, it was about six months when we got the first part done. We had about 250 people done, and over 100 of them had parasites.

CP: That doesn't surprise me.

DP: And some of the parasites were in the—mostly giardia—were in the affluent populations, too. But we made several other identifications of things that were kind of interesting.

We found that, when we were looking at this, we said, This has got to be some contamination going on here in this community. I think there's a contamination between sewer and water here. That's why in this particular little group of people we have so many giardia cases, all right. So let's test it. So we got the water specimens tested with a dye, and then certainly that's what was happening. Cross contamination between sewer and water.

Well, Sarasota was very interesting. The old part of Sarasota, they had laid the pipes down but nobody ever reproduced it to paper. They didn't have, and this is true with a lot of cities around Florida, they didn't have the structure of the water system on paper.

So they had to trace every pipe in order to find out where the lines went and where the turnoff valves were and so forth. And they had had to do this for a number of years whenever they had a broken water line. But they were able to go back and they were able to find where the leak was, where the cross-leak was, and they were able to correct this. And so that was one of my first things.

And then I found out I could work with the people up here in Tampa. Now, this was interesting. Dr. Frankel turned out to be a really good colleague, and he and I worked together, and I worked with his staff. And I trained all of them in parasitology. They were already good, but I wanted them to see things that they hadn't seen, and they learned to do the MIF technique as well. And I still work with them, some. And they're outstanding in parasitology there.

One of the things that happened was, while I was doing this and working with Dr. Frankel, an outbreak of giardiasis was occurring in a little nursery school in Ruskin. So, I said, "Well, I'd like to check it to see what's going on."

And so I went down to Ruskin, and I got them to give me stools on 60 children. And I got stools on 60 children, and we had 67 percent infection. So I said, “Something’s wrong.” They said, Well, it’s happening in the way they handle things in the nursery school.

CP: There’s still something wrong.

DP: So, I went in, and I sat, and I watched what they did. And I said, “There’s no possibility that these kids are getting infected from one another in this school. That’s not happening. It’s got to be something else.”

Well, I came up there on Saturday when they were working around this place, and it was really fortuitous because what had happened is they broke a water pipe when they were digging this ditch out here. They broke a water pipe. And I said, “I want to see what was broken here, and I want to see where.”

So they showed me. They have a closed water system, but not a sewer system. So they had a septic tank, and one of the fields from the septic tank went right over this water pipe.

And it’s happened that they’d had a break in this water pipe before. And instead of putting a screw-type valve on it, they put one of these sleeves on it, you know? And so, they put a new piece of pipe in from here to here, put a sleeve on it, and then had an old piece of pipe from here to here, there you’d cut it off, and they slipped it on. Well, because of the corrosion on the pipe. This was leaking.

CP: Oh, sure it was.

DP: And every time the water overflowed from the septic tank, since the water was leaking out of here, it made a pocket. So that would fill the pocket and then, as you know from the Venturi action, or Bernoulli’s principle, when your water moves through a pipe, it sucks from outside.

That’s how you spray with these water sprayers you do in your garden. It’s sucking water because the water’s moving through it. This is where you’re in an airplane—the old airplanes checked their airspeed because it was a Venturi they used. Well, this is what was happening there. They were sucking raw feces directly into their kitchen. And when they were cooking, this is what was happening.

So, I got them to tear this pipe out, replace this whole line. And we treated the case, and their infection rate dropped down to 12 percent. Which is what it was in the migrant community, where most of these people came from. So we were able to correct that. We were able to correct that fairly well.

Then I decided that we ought to look a little further and we got one of the planters out here—the growers out here to let us do stools on all of his workers. And we turned up quite a heavy giardia detection there, so we made some recommendations for them, and they corrected their problems too. That's with speed links.

CP: Yes. Was this a water sewerage problem?

DP: Oh, it was more of the fact that people would not walk the distance to the john. So they put these little johns out into the field, out in the field where the people worked, so that they could—and I know it was supposedly hired people that were doing this. So they put these johnnies, well, you'd call them outhouses.

CP: Johnny on the spots.

DP: Johnny on the spots out in the fields, and that eliminated that problem. So that was another little problem we eliminated. Now, we had something else happen in Ruskin, and this is exceedingly funny, I think. A group of ladies in a bridge club ended up having the dwarf tapeworm, *Hymenolepis nana*³². It was about 14 of them; all had this infection, and they were all in the same bridge club. And we wondered what the heck is going on here.

So we notified the people up here at the University of South Florida. They went down, and they did the examination of the people and the treatment and so forth and took care of that. And I went around, and I talked to the ladies, and I went into the houses, and I tried to see what was going on.

Well, it became very obvious after a while. One lady would have the bridge club three days a week, right? And they were serving this cereal mix. Cereals and pretzels and peanuts and so forth in little bowls on all the tables. Well, since they have them three days, they weren't being very careful about where they kept them in the interim period. They'd have them all fresh the first day, but the same things would be used the second and the third day of the bridge club.

³²*Hymenolepis nana* is a small intestinal tapeworm that causes infections in humans.

Well, it was a rainy season, and field mice like to come in the house. So the field mice were getting into these things. And, in the showing their appreciation, they left their calling card behind, a little bit of feces. And then when the lady's sitting here bidding four no trump and eating this stuff, she's not going to notice this little bitty thing that's sitting here. And so, she ends up getting a tapeworm.

And so, we showed the ladies they must use plastic, sealed containers for this between times, every time. That no cereal boxes in this area should ever be left open. Just close cereal boxes. Once you've opened the box, you've got to put it into something that's going to protect it. If you don't do this, you can expect to have this happen again. And so, that corrected that problem, which is kind of an interesting little side problem.

CP: That's a beautiful piece of epidemiology, also.

DP: So, at this same time, I wanted to do some more teaching. And so I set up a laboratory of my own over on Tallevast Road. And I started advertising and teaching.

And I had collected over the years, some 4, 5000 stool specimens—positive stool specimens. And I wanted to teach intestinal parasitology. And I also, because of this technique—I had developed this technique, and it was a good technique, and I wanted people to learn how to use it.

So I made arrangements through Florida to be registered as a teacher for medical technology and pathologists. And I got together with the physicians' groups, and they also authorized my getting continuing education credits for the courses that I gave. And I had a number of physicians, a number of PhDs that came, but most of the people were medical technologists. And I did this over a period of several years. Continued it, and I was continuing in it.

And at this time, the Vietnam thing was going on, and all the immigrants were coming in. Well, since the immigrants were coming in, they needed to do the evaluations of these people. And I talked to the people up at the St. Petersburg Health Department, who were in charge of the responsibility of examining the people that came in. And they didn't have a program, and again, Dr. Frankel got involved. And he said, "Don, why don't you design the program for them?"

So I did, but they really didn't have anybody to do it. So I said, "Well, I'll do it." So, for the next 11 years, I worked at the St. Petersburg County Health Department. I wasn't there necessarily; I was in my own laboratories.

But I was there for about four years. I moved up there. I closed my laboratories and moved up there one day a week. And I did all of this—what, 2,400, 2,500 people that came in, I did the stools on them. And we got a really high level of some of the diseases.

And one of the things that we had was a lot of *Clonorchis sinensis*³³. And we had a doctor here at the University of South Florida—and I think you have that reprint in here—and, I cannot say her name, a doctor that was a pediatrician at the health department. And the three of us did a treatment program on these people and tested the new drug, which is now used, the drug of choice, for, not only *Clonorchis sinensis*, but all of the intestinal trematodes.

CP: Really? You worked that out over in St. Petersburg?

DP: Yeah. That was worked out in St. Petersburg. So that was—and the papers should be in there, one of them.

CP: Yeah. And for the record—

DP: It's in the record, so it'll be there with the others.

CP: Yeah. Dr. Price is leaving us a series of reprints in these records, including a book.

DP: Well, to go on just a little farther, now, I started since I was doing this, Dr. Winslow, who I had worked with at the Armed Forces Institute of Pathology was a pathologist at Bay Pines.

CP: Oh, very good. Homecoming.

DP: And he left and another pathologist came in whom I knew from AFIP and he said, "Why don't you come up and give us a couple of lectures?" So, after the first two lectures

³³*Clonorchis sinensis* is a species of parasite that lives in the liver of humans and infects the intestinal system.

they put me on the staff up there as a consultant, and I've been a consultant at the laboratory in Bay Pines since, then, 1974, I think, or '75. It's been 14 years, 15 years, anyhow, maybe longer.

Anyhow, I've been the consultant up there for quite a long time. And I've trained all the people up there in parasitology. And I go up when they have problems, and I see them. And I've introduced the MIF technique there, and they use that there. And then I needed to develop another procedure because the MIF technique uses mercury. And the government had now decided that mercury was a bad thing.

So, a company out in California, then in California, said, We need a mercury free product, can you do it? And I developed a mercury-free product. And then it had a little iodine ampule that you used, and he said, "We can't afford to do this with the iodine ampule, so you've got to change this, and get rid of the iodine."

So I did that over the next few years. And just within the last two years, now, this product is on the market as Proto-Fix, a new product without mercury that does all the job: kills the organism, preserves them as they are. And we took this material down to Peru and went into a small village and did the study. And you have a copy of this, what we've just finished just this last month.

We finished it, actually, the first of June. So, you have the latest work that I've done. And this relates, of course, to a lot of other things because this procedure, now, is used in a number of places throughout the country. It's being used in a few places in Canada, and we think it'll probably expand its use over the next few years.

CP: Tell us about your book, *Diagnosis of Intestinal Parasites*.

DP: Well, one of the things, when I had my own laboratories, I decided I really ought to put this into book form. So, I resigned from all my societies, and closed my laboratory, and got to writing this book. This is a procedure manual for the diagnosis of intestinal parasites. And I think it's a pretty good book. It's the best thing I've ever done, of course. And there are over 600 illustrations in it.

CP: All from your personal collection?

DP: No, all from me. I took all the photomicrographs. I did all the drawings in the book. And I don't know if you can see these—these are the drawings, and these are photomicrographs that I've taken. Everything in this book is done to scale.

So, everything—and all the protozoa are to the same scale. Every picture, every drawing, everything is at the same scale. And when you go back to the eggs—all of the eggs are at the same scale, too.

CP: Yeah, that is one notable picture.

DP: Well, this is to show differentiation between them. But these are all shown at the same scale and never just one picture. This is all the same worm. This is all the same worm. And so I tried to show the differences as well as the similarities between them at different stages that you might see them.

And this gets to be very interesting when you get the hookworm. Both of these pages are hookworm. And this shows—what you normally see are these first three stages, but it can be any one of these stages, and it's still the same organism. And this book is now being used in a lot of laboratories throughout the country.

CP: I can appreciate that. And it's available in all the—

DP: It's available in—I don't know if this is in the library here. I know Dr. Dubois has it, but this is—and I think it is available at the library here, in the library. If it isn't, it should be.

CP: And this is just the advertisement.

DP: That's the advertisement.

CP: But the book, *Diagnosis of Intestinal Parasites*, by Donald L. Price. Your book procurer can obtain your copy.

DP: Then because of the information that I was getting at, working at Bay Pines, and what was going on in health care, I decided that somebody ought to tell people what's

going on in the healthcare industry in this country. And so I wrote this book to do that, *What No One Told You About Healthcare*.

CP: And when was that published?

DP: This was published just—

CP: Just a day or so ago?

DP: No, more than a day or so ago. What's the date on this? I know it has a date in here. Avebury published this—the devil did they put the date on this? Nineteen ninety-seven. So this is a couple years old, I guess.

CP: And Dr. Price is donating this copy to our university library, but they're available from bookstores.

DP: They're available only from the publisher. They're not available through bookstores. You have to order it. That's one of the disadvantages of this publisher, but I had a lot of trouble getting a healthcare book published. So, I guess that sort of brings you up to date.

CP: Well, this has been most exciting with Dr. Price. And on behalf of viewers everywhere, we say thank you sincerely, one, for all of the work you've done, and for the contributions you've made to our knowledge in the status of the public's health in this world and your willingness to share it with us today. I say thank you sincerely.

DP: Well, thank you for this opportunity.

CP: And I'm Skeeter Prather.

End of Interview