The Global Health CHRONICLES

MALARIA CONTROL: CDC BEGINNINGS

Name: Collins, William E., PhD

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Summary of Interview:

Dr. William "Bill" Collins has a career spanning over 50 years in the US Public Health Service as an entomologist and parasitologist. He relates his experiences in working with various ways in which to decrease the devastating effects of malaria on populations. During the course of his career, he worked with and befriended many of the CDC and MCWA's early founders. He continues to work at CDC and to continue his studies and publications about his findings.

Notable Quotations from Interview:

On the effects of malaria during WW I: *"In World War I, 25% of all the soldiers that came out to be trained came down with malaria. That was a terrible thing. You bring the Northerners down to the South to train them in the warm weather to go off to Europe and 25% of them came down with malaria! That was unacceptable. So they said, 'Okay, we will set up these bases again in the South, Fort Jackson and these other bases, but we will control malaria in a ring around the bases so they won't get malaria.' "*

On locating CDC in Atlanta*: "The people up in Washington decided it was not a feasible thing to put everything in Washington because all of the malaria was in the South. And they argued up there that the best thing was to put it in a central area in the southern states where the malaria control is going to be. And they would spray DDT and that was the strong arm, that it would be in the southern states, and that the ideal thing was to put it in Atlanta. And the CDC would have the responsibility of not spraying, that's the states responsibility; the responsibility would be for CDC to monitor the thing.*

On treating people with malaria for neurosyphilis*: "Neurosyphilis is a fatal disease. It kills the patient. It's a slow agonizing death, and it's awful. Now whether they suffer or whether their brain is turning to mush and they don't suffer, but their brain turns to mush. They become terrible, terrible patients and they eventually die but they slowly die. It's an awful death. Malaria in a third of the patients stops the progression of the disease."*

Key Terms in Interview:

Malaria Control in War Areas (MCWA); National Institute of Health (NIH); Public Health Service; entomology; virology; Korean War; For Dietrich; biological; warfare labs; malariologist; neurosyphilis; parasite counts; mosquitoes; antimalarial drugs; World Health Organization's World [Malaria] Eradication Program; veterinarian; DDT; falciparum; vivax; parathion; Tennessee Valley Authority; chloroquine-resistant falciparum malaria; membrane feeding; syphilitic; colloidal gold test; pimeluria; Coleoptera; Lepidoptera; Hemiptera; Homoptera; biological warfare;

Key People Mentioned in Interview:

Boyd, Dr. _____
Collins, Janet
Eyles, Don
Hollis, Mark
Jeffery, Geoff
Kaiser, Dr. Robert
Melvin, Mae
Miller, Seward
Mountin, Joseph
Schultz, Bob
Sencer, David
Warren, McWilson
Williams, Dr. L. L.
Young, Martin

MALARIA CONTROL: CDC BEGINNINGS INTERVIEW

I am in the CDC office of Dr. Bill Collins on January 20, 2012 and this is Karen Torghele. Dr. Collins, is it all right if I record our conversation?

Yes.

In our previous correspondence, we talked about the part of pre-CDC history having to do with Malaria Control in War Areas (MCWA) and how that later evolved into the Communicable Disease Center here in Atlanta.

I was in grade school probably in MCWA. But I know about MCWA and I know about the founding of CDC.

I worked for National Institute of Health NIH for a number of years. I started out at NIH in 1959 with the Public Health Service. Before then, when I graduated from Rutgers with my PhD, I went to work for a drug company, which I didn't like working for an industry. A lot of people do like working for an industry but I didn't. I went to Stoneville, Mississippi as my first job to look at cotton. It was very interesting, but I wasn't interested in insecticides for cotton.

Three months later, the draft board found me, and like many other people in that era during the Korean War I went in the army, whether I wanted to or not. I liked the Army because the Army, after basic training, decided they would put me in a research lab, and that was absolutely post-doctoral work. I went to Fort Dietrich, which is biological warfare labs. It was extremely interesting.

Dr. Bill Collins, USPHS. Photo courtesy of Dr. Collins.

My barracks had 23 men in it, but there were 41 college degrees, six of us had PhDs and it was absolutely fantastic to go to work every day in a research environment. It was post-doctoral work basically. And there I met my wife, who was working on viruses, as I was working on viruses also in entomology. I worked in entomology. It was absolute fun. And I stayed on an extra year for two reasons; one, I enjoyed the work; and secondly, I needed the money and I didn't know where to go, but I did want to publish and you couldn't publish at Fort Dietrich. So I went back to Rutgers and they are always hired under Department of Agriculture, which was a continuation of my government employment, and I was an extension entomologist. That means I went all over the state of New Jersey.

Like the extension service?

Extension service where you go out and lecture to garden clubs; you tell farmers—I didn't tell farmers, I'd tell gardeners and garden clubs what to do mostly about their flowering plants and termites and stuff. I dealt with the smaller things, not the big growers; although I did participate in some of that. I learned a heck of a lot about bugs that infect people. It was a lot of fun.

But then I got a phone call from Martin Young, who is a great malariologist. I didn't know anything about it; just a phone call out of the blue, who said, "This is Martin Young, how would you like to come and work for NIH?"

It turns out they were looking for a researcher to expand their work at the public health hospital in South Carolina, and one of their people, who was working at another NIH lab in Memphis, Tennessee, had worked at Fort Dietrich, and he recommended me. He gave me a call. It was at that time I had thought I had given enough talks to garden clubs and individuals on termites, and I was looking for more of a research job again. So I took it sight unseen.

I went to work in a mental hospital, which was giving malaria to mental patients for the treatment of neurosyphillis. I knew nothing about malaria to tell you the truth, except what I read in textbooks. It was a fantastic situation. I didn't know that in this laboratory Geoff Jeffery and Martin Young were world authorities on malaria. And they would bet me a dime each day on what the parasite counts would be in the mosquitoes. I always lost. They knew exactly from their experience what it would be. It was an amazing learning experience.

But after four years there. The laboratory was closed and we moved to Atlanta. The support was to the federal penitentiary. So we were stationed in the midst of CDC. We had a building—we had several buildings actually and we were located here in Atlanta in the midst of a number of buildings occupied by CDC. Our experience was to work on

malaria and support the federal penitentiary where they were testing antimalarial drugs and volunteers at the federal pen. So we were an NIH laboratory, but we were actually very much involved with CDC.

But in 1973 NIH decided to close their prisoner volunteer studies, and CDC, in the midst of a freeze on hiring people, decided they wanted to have a malaria research lab. That's one of the things that were missing. They had looked over the eradication or near eradication of malaria in the United States in the mid to late '40s, but they knew that there was a great deal of malaria in many parts of the world that was going to be their responsibility. They were very much involved in supporting the World Health Organization's World [Malaria] Eradication Program at that particular time. But they did not have a strong research laboratory for malaria and this was an opportunity for Dr. David Sencer, who, in the middle of a job freeze to pick up the pieces of the NIH lab. They knew they couldn't take up the whole lab, but they would take up the pieces that they could. So they said they would pick up four technicians and me. And with that they could pick up much of the equipment and the sera, the agents and the organization. Dr. Robert Kaiser would be the head of it. He was very good at organizing it. He was an epidemiologist who was involved in many of the programs with the World Health Organization and with CDC, in particular. And Bob Schultz, a veterinarian, was also involved in the world health organization programs, and there would then be an opportunity for this lab.

McWilson Warren, Geoff Jeffery, Martin Young. Picture courtesy of Dr. Collins.

There was also a field station which they were strongly supporting and establishing in El Salvador and we would work together with that. They then hired Dr. Jeffrey from NIH to go to El Salvador. Another piece that they brought in was McWilson Warren. Wilson Warren worked in Malaysia with the monkey malarias that supported the program, the

NIH program, that worked in the ‘60s and the early ‘70s. He became part of the program in El Salvador. So many of the people that had worked at NIH now came to work for CDC. The strong program of working with malaria in monkeys now became the program at CDC. So we had a strong monkey program, and this wasn't part of the early program at CDC. CDC was responsible for the eradication—not the eradication of malaria, the eradication started in malaria control war areas, which was the program that was set up by actually the malaria men at NIH, and you can see him over here, Dr. Williams. I think there's a picture of Dr. Williams.

Bill Collins working in the field.

McWilson Warren and Bill Collins with monkey.

Photos courtesy of Dr. Collins

Louis Williams?

Louie Williams, yeah. He had more or less guided the program, although it was an Army program. I have to admit it was an Army program. In World War I, 25% of all the soldiers that came out to be trained came down with malaria. That was a terrible thing. You bring the Northerners down to the South to train them in the warm weather to go off to Europe and 25% of them came down with malaria! That was unacceptable. So they said, “Okay, we will set up these bases again in the South, Fort Jackson and these other bases, but we will control malaria in a ring around the bases so they won't get malaria.” Well if you do that, that's fine, but then as the war is ending, let’s continued that.

Dr. L. L. Williams. http://www.cdc.gov/about/history/pastdirectors.htm

And then you have [Joseph Mountin], the guy responsible for the founding of the CDC. The people up in Washington decided it was not a feasible thing to put everything in Washington because all of the malaria was in the South. And they argued up there that the best thing was to put it in a central area in the southern states where the malaria control is going to be. And they would spray DDT and that was the strong arm, that it would be in the southern states, and that the ideal thing was to put it in Atlanta. And the CDC would have the responsibility of not spraying, that's the states responsibility; the responsibility would be for CDC to monitor the thing.

This historic 1945 image depicted a meeting between Dr. Joseph Mountin (second from right), Dr. Seward E. Miller (far right), Dr. Mark Hollis (far left), and Dr. Boyd (second from left). http://www.cdc.gov/widgets/phil/alt/

Now falciparum goes first. It's more feasible to get rid of falciparum, than it is vivax. If you go around in an active case detection that everyone who has malaria you make a

blood film, the first species to disappear is falciparum because it doesn't relapse. So falciparum should disappear in two years with adequate malaria control. And that's what happened. Falciparum disappeared. first, but vivax takes probably 3 to 5 years to disappear, and vivax was the hardest one to get rid of, and it hung on and then it disappeared. If you look at the—Mountin! General Mountin. Yes, General Mountin was the one that proposed the founding of CDC for Atlanta and argued for that. And so you have the Mountin lecture and General Mountin is probably the one who argued for CDC to be in Atlanta.

Tell me what you know about the beginning of CDC and how it came about after the Malaria Control In War Areas.

Well, my understanding is malaria control in war areas was successful. It was to control a swath around different Army camps or shall we say, production also the factories in the southern area because of the fact of what happened during World War I, and it was successful. And then came along DDT which the early part had to be by eliminating water. They didn't have DDT at the beginning, they had parathion. But then when they had DDT. If money was available they could spray every single household in the 13 southern states; every house, every barn, every outbuilding with DDT and the government would provide to the states the money. CDC was to provide teams to go around and look for active cases of malaria and to confirm them, so they would read slides—thousands and thousands of slides of suspected cases of malaria to confirm. And this is what they did, and it was thought that in five years malaria would disappear. It turned out it did in three years. Then they had to find out how to continue it , and General Mountin argued for the continuation. Not only the presence of CDC in Atlanta, because that's the central area; Alabama, Mississippi, Texas, South Carolina, Virginia, Tennessee. These were the states. Now the Tennessee Valley Authority was set to provide power for the atomic bomb, of course, but it's also to provide mosquito control. Built into Tennessee Valley was mosquito control for malaria, and it was a huge project. They provided power to an area that needed power, provided power for the atomic energy. But it also provided an up-and-down system to control malaria. If you push the water down , and then brought it back up, and then pushed the water down and brought it back up, you would control mosquitoes as you would have the larvae and that the isolated and they wouldn't survive this up and down flow of water. It was extremely successful. If you can control the height of water on a regular basis, and this involved a number of entomologists, involved airplane spraying, it was really successful.

MCWA hired a great number of entomologists, parasitologists and MCWA at the end of the war was gone. But CDC was created right at the end of the war. They knew they were going to have this left over, and they needed microscopes. As Jeffrey probably told you, they started buying microscopes with Army money at the end of the war so

that when they started up, they didn't have to present a great budget because the supplies were already in the house.

So they were ready to go, and at the end of that they looked at syphilis, which was another thing on the agenda. I forget what else there was in malaria control, MCWA There was dengue I think was another thing that they had down in Puerto Rico…..so that would be dengue or yellow fever.

Dr. Bill Collins at CDC. Photo courtesy of Dr. Collins.

Well, when I first came to work at CDC, it wasn't very big. Nothing like it is now. No question about it.

About how many people worked here?

I have no idea, but there weren't many. They had one building, Building 1 of consequence and then they had the Chamblee and then they started renting space around the city and that. And Chamblee—actually we had—they brought food out; they had a cafeteria that they brought food out to Chamblee and we had the chance to eat and then they just stopped that. Never thought of it again. And gradually the people kept leaving Chamblee and the buildings got abandoned and they got torn down. Then they had a fire. They started burning buildings down at Chamblee because they were going to expand the airport and the airport got expanded and a lot of the buildings left, and the Chamblee facility got shrunk to a very few number of buildings and we got left there. So the Chamblee facility got left with only a very few buildings. In fact, we were about the only people left there for a long time.

I understand there was no air conditioning or heat for a while in the early days.

Yeah, it was a primitive facility to say the least, but I enjoyed the primitive facility. The buildings we worked with in South Carolina, the old mental hospital weren't very fancy either, you know, where we treated the mental patients. They were quite primitive to say the least.

This would be in Milledgeville?

Jeffrey was at Milledgeville. I was in Columbia. Then he moved to Columbia to join us. Jeffrey had been in Milledgeville for quite a while infecting a number of patients there and then there were the patients that were infected in Columbia. I joined Columbia. They thought they were going to expand their operation and go into viruses, but as soon as I arrived, within a couple months, they had chloroquine-resistant falciparum malaria arrived at the lab, and then it was to heck with viruses—"Bill Collins, you're working on raising mosquitos and looking at mosquito infections, and if you want to work on some viruses, that's a hobby. You're going to work on malaria," which was great for me. I didn't know much about malaria. That's how I learned it by jumping in with both feet. One of the first patients they had was a patient with no clothes on. If you wanted to make a blood film, you had to get about two or three orderlies in to grab ahold of him because he was slippery and they would hold him down while someone tried to make a blood film on him. You wondered whose blood film they were making, and to feed mosquitos on him was a chore.

I introduced membrane feeding saying, "If you get some blood out of him we can do membrane feeding." So we did some membrane feeding and that was an introduction.

I don't know what that is.

Well, if you get a sample of blood, even if it's only a couple mLs of blood, you can put it on a membrane and there are many sorts of membranes. I'll show you what a membrane looks like here. Here's a membrane. Membranes can come from anything they can come from a condom. This comes from a cow, cecum of a cow where it was stripped from the wall of a cecum of a cow. Has little holes in it but you can go around that. But this is a membrane and you fit it over a funnel of some sort, small funnel or tube and as soon as blood gets on it gets very moist—it's pretty tough, but it's a membrane. Well, mosquitos used to go onto a membrane. Well once it's moisturized with a little blood, you can cut it with a pair of scissors. Here is one of these membranes. You can buy this stuff, you know, an abattoir has this stuff prepared so companies go along, go in and say, "Can we have the cecum?" and that's just throwaway, and they'll grab a hold of it and pull off strips of this and they'll sell this for a couple dollars. I don't know what they charge nowadays. This is old, but it doesn't wear out and there's a strip. Say they charged you a dollar for that. So you strip it, hang it up to dry and then you buy this, then you cut it with a pair of scissors. You look for holes and then you feed it to a membrane. I mean this is a membrane so you put it on the end of a filter of some sort and we have little feeders that come up and actually have a funnel within a funnel. The outside funnel has tubes going into it where you can circulate warm water, and therefore you can keep it warm so the blood stays warm and the blood will stay warm enough so that a mosquito can have a nice warm blood to feed on.

So that attracts the mosquito to the person that you want to infect?

Or the blood from the person or animal such as a monkey which has blood infected with malaria and it just goes up there. Well, say you have 100 mosquitos or 150 mosquitos and they go up to this membrane which is a service area about that can handle 100 mosquitoes easily. They go up there and within five minutes every one of them is fully

engorged and fully happy and then they just flutter down the bottom of the cage so full they can't fly and they sit down there and you put that little cage over aside and you feed another cage and you feed another cage and the first thing you know, you've fed a thousand mosquitoes. Well, a person doesn't like a thousand mosquitoes fed on him. But a thousand mosquitoes can be fed on two milliliters of blood or three or four milliliters of blood. Mosquitoes are pretty hungry. And then they're done. Well, you don't have all the welts of feeding a thousand mosquitoes but you have all the joy of having a couple mLs—actually a thousand mosquitoes would take 2 mLs of blood so you want to have a little extra so you feed 3 mLs or 4 mLs of blood, you take 4 mLs of blood. And then there's a thousand mosquitoes fully happy over here. There's no welt that big on the person's arm, and you say, "Thank you very much, we'll see you tomorrow." And there you are.

I'm curious about how you counted them. How did you know you had a thousand for instance?

A thousand mosquitoes? As you suck them into a tube before you load them in your cage, you go "That's 10, 20, 30…" and you blow them into the cage. It's easy to count mosquitoes and just suck them into a tube. The tube has a barrier in it, of course. So you have this long tube with a screen barrier and so you go into the cage and you say, "One female, two female, three female, one male, I won't count you." Then you just go in and suck in 20 or 30 at a time and put them in the cage until you get 100.

That explains that. I couldn't imagine how you counted them.

You count them by sucking you do and bring them in. Now Doug over here doesn't like to suck them into a tube. He has a battery operated little motorized fan on the back of his tube and he presses the button and a fan goes (makes sucking sounds) and it sucks them into the tube. A little fan that has a reverse motor on it and then when he wants to get them out of the tube, he reverses the fan and blows them out. He cheats. I've always used my own—because your own sucker is much more sensitive at sucking them into a tube or blowing them out of a tube. Yeah, it works much better.

Interesting. What kind of results did you get from the syphilitic patients that you infected?

Well they infect mosquitoes extremely well and a third of the patients benefit from malaria treatment, the high fever of being treated with malaria give a beneficial result in that it stops the progression of the disease of syphilis, a third of them. Neurosyphilis is a fatal disease. It kills the patient. It's a slow agonizing death, and it's awful. Now whether they suffer or whether their brain is turning to mush and they don't suffer, but their brain turns to mush. They become terrible, terrible patients and they eventually die but they slowly die. It's an awful death. Malaria in a third of the patients stops the progression of the disease. It doesn't make them Einsteins. If you give it early enough, you can stop the progression of the disease. It doesn't turn them around. It stops it there. So you have somewhat of a choice. If their brain has already gone to mush, it stays at mush.

So you try to get them before it gets to that last—

So if they do a colloidal gold test on the spinal fluid which indicates they have neurosyphilis and they're still, shall we say, smart enough to become a farmer or something—or else—they're still functional, then probably it's worthwhile having the malaria, but the penicillin might do the same thing. Might do the same thing. Although side by side tests show that malaria and penicillin together were better; at that particular time they gave every one of them penicillin and they gave them malaria, but malaria isn't a lot of fun either. But they went ahead and gave them malaria. A lot of the doctors wouldn't be satisfied with the penicillin only. A lot of the doctors were thoroughly convinced that in addition to the penicillin they wanted to give malaria and so they gave both penicillin and malaria. Others thought penicillin by itself was sufficient.

I know there was a shortage of penicillin in the '40s. Did you ever experience that when you came to work here?

By the time I was there, I don't think there was ever a shortage of penicillin. Now the black patients all got pimeluria if it was available. If not, they gave them falciparum. Martin Young on occasion would try vivax because sometimes it worked in a black patients, but most of the time it did not.

So was there a difference between black and white patients? Why you used a different—

White patients can take anything, ovale, malari, vivax or falciparum, but falciparum is much more severe in a white patient. Black patients often did not take vivax at all. If they are Duffy positive, then they took vivax; Duffy negative, they may or may not take vivax and it would be a little infection. Duffy negativity indicated they had some white blood probably, but they found in Africa, particularly east Africa, a number of the patients there were Duffy negative. Whatever it is, one of them take vivax and so they have a problem. It's not unheard of for a Duffy negative. I think the Duffy gene gives you immunity to malaria (inaudible 16.53).

Did you know Mae Melvin?

Oh yeah.

Tell me about her.

Mae was a lot of fun but she also ran a great class in parasitology. Everyone liked to take her class in parasitology. She had in my mind at least a crush on McWilson Warren. McWilson Warren did not have a crush on May Melvin. But then Mac eventually married Mary. I forget Mary's maiden name. And Mae Melvin fell by the wayside. But they were in school together at Rice so they knew each other very well. Mac went to Rice and so did Mae, but I think Mae was older than Mac. Mae had been in the CDC program—may have been in the malaria control program and then decided to go to Rice. Mac was at South Carolina, the program, the hospital in South Carolina, lab tech. I think he went there after he graduated from North Carolina. He worked for

Martin Young and Martin Young called him in and said, “Where do you want to go to graduate school?”

And Mac I guess kind of shrugged his shoulders and said, “Well I’d like to go to Rice.”

He said, “Okay.” Called up and told them, “We’ve got a student here who wants to go to you and so they took him with a fellowship.” Martin Young had a great deal of influence among the field. He was well known, well respected and I took his offer over the telephone to go to South Carolina, and I didn’t know him from—as they say Adam’s (inaudible) or whatever it is. He just said, “How would you like to come to NIH and work in South Carolina?”

And I had no idea where in South Carolina. When Suzie mentioned NIH, I took the job. I didn’t know South Carolina at all, but we were working in New Jersey. I liked the job but my wife didn’t like her job and yet she was working with a Nobel laureate at the Institute of Microbiology, but she just didn’t like New Jersey and so I took the job and I loved it. And then two years later they called me from New Jersey and offered me a job, said it would lead to a vice presidency at the university if I’d take it, and I said, “I don’t want to be a vice president, I want to do research.” So I stayed in South Carolina and two years later our lab was closed and we moved here and I never regretted it. I never regretted my career with the public health service. I’ve never been an officer but I admired officers a lot. All the officers I’ve known I’ve admired a lot, but I’ve liked working for the public health service.

Now you would have been in graduate school in the ‘40s. Is that right?

Yes, I was in graduate school from—

In undergrad.

From ’51—I got a master’s in nine months at Michigan State and then the head of the department, thereafter—well, the master’s examination was just a joke. There was no examination really for the master’s. We gathered around the table and we talked.

That was it?

That was it.

So it was an oral exam?

It was an oral exam in which the head of the department said that this was a formality and that the only question he wanted to ask was what groups of insects did I think were the most important for agriculture and public health and the other people there just put down their pencils so to speak. There was no other questions except the discussion of insects. I had been studying entomology all my life. I was an entomologist through and through. I had taken every course in entomology you could think of. Bugs were my thing. I studied courses in Coleoptera and Lepidoptera and Hemiptera and Homoptera and everything. Bugs were my thing, and I didn’t know where to go after I was leaving

Michigan State but the head of the department said he wanted me to go to Rutgers because he owed them a graduate student so I said, “Okay.”

How nice.

Yeah, and when I got there I told them my draft board gave me two years and that’s what I did. I did two years.

And then after that you joined the Army.

I was dragged into the Army, yes, the draft. I spent three months with the Diamond Alkaline Chemical Company. It was, again, an experience to be with a chemical company to see what they did, but then I went in the Army after basic training. I don’t know why, but I was named the outstanding trooper out of 1200 in basic training. I don’t know why I did that either. I guess I could throw a grenade better than the others, but I was a little bit older than the others.

You must have been admired.

I just enthusiastically approached every one of the programs, you know, whether it was how to take apart a machine gun or do anything. I really thought everything was an adventure, and, of course, once I got in the Army and met my wife Janet, it was really an adventure there. We’ve been married now 55 years now. Yeah, I guess so. Fifty five years.

That’s wonderful. What do you remember about the politics at the time when you were in school? I’m going back to that decade of the ‘40s that affected public health. What was going on with the leadership in the country and around the world that made public health sort of come alive during that time?

Well, I really don’t know a lot about the public health to tell you the truth. Strangely enough, I had to take a course in medical entomology and we had a job and one of the tasks I had was to look at biological warfare, you know, because that was being thought of. My task was to see what would happen if enemy agents introduced and infected mosquitoes with viruses at Thule, Greenland. So graduate students were aware that we had a base at Thule, Greenland that foreign agents might introduce a virus into that so the projects we were given were real life so to speak. We looked up the mosquitoes that might survive at Thule and one of the teachers I had later on I ran into him at Tropical Medicine meetings, Les Stalber, a very famous parasitologist, teacher at Rutgers. I didn’t know that I’d be assigned at a tropical disease biological warfare lab when I went in the Army but that was one of the projects I had when I was a graduate student. I was drafted during the age of Eisenhower who didn’t think draftees should get any stipend when they’re in the Army. I was getting $55 a month and he thought that was too much for us, which made me be a Democrat the rest of my life. I mean this was I thought ridiculous that us draftees who draftees had fought basically World War II, they were the gun fodder and yet he thought that because of the Korean War, the draftees who were doing a great deal of the fighting, shouldn’t be paid. That was a

general's idea of what he thought of us draftees, which probably soured me on the upper echelon of the Army.

I can see why. Well it looks like our time is about up.

I'm sorry I wasn't alive during MCWA, but I'm glad I'm alive now.

I'm glad you are too.

CDC is a marvelous organization to work for, and the public health officers I have tremendous admiration for.

If I have other questions, is it okay to just call you and ask you to follow up?

Yeah. I may have a lot of information on MCWA in that once I get into my files. I keep—as each people die, as many people died, I got their reprints.

So that was fortunate.

Unfortunately, I got the reprints of Don Eyles and then other people like Jeffrey and Warren and them. They're not dead, but they gave me their reprints. They had no need for them anymore, and so I have them.

So are you an organized person so you can find them?

Well, I was an organized person until we moved and then a great deal of it ended up in storage and it's just now coming out because I'm just now coming out. I've only been in this office about few months and as you can see, it's fairly well organized. I know what's in here but I have a lot of it that's down the hall. I have all the patient records from South Carolina and Milledgeville, Georgia are down the hall here I hope in fairly good order. They're beginning to bring them out of storage so that I can go down and find each patient and what mosquitoes were fed on them and start comparing them with our records. I have the Malayan records. I think they're down there or in one of the file that can tell me what mosquitoes were fed in the '60s on the monkeys out in Malaysia which was a four year project to isolate a whole number of species.

Well, I think I'm going to come back and take pictures of your posters here if that's okay.

Sure.

Because they're really interesting.

Well I have no windows as you can probably tell. I'm one of the few that has an office with no windows. Everyone else has a window so I said is it okay if I put up posters and pictures and they said okay, so that's what I did. I also have a very big office. This was a storage room. And they gave it to me because of my handicap. I'm on first floor so in case of fire they don't have to worry about getting me down a stairwell. I don't have to worry about a stairwell. Of course the elevators are totally forbidden when it comes to

fire, so I can get out, although there are three people who are supposed to check, make sure I get out but I think I'll beat them out the door.

Well thank you so much for your time and I will come back and I'll probably think of more questions to ask you then too.

I have a lot of pictures on malaria control but I think it was before MCWA. A lot of them were before MCWA.

Oh that would be really interesting. .END

Dr. William "Bill" Collins (2004)

This 2004 photograph showed Dr. William Collins, a research biologist with the National Center for Infectious Diseases (NCID), Division of Parasitic Diseases (DPD). This photograph was one of a series of images taken in honor of Dr. Collins' 50th anniversary at the Centers for Disease Control and Prevention. Beginning October 1, 1954, Dr. Collins had developed the vast majority of the nonhuman primate animal model systems used to study the immunobiology of human and nonhuman primate malariae. He has been the lead investigator responsible for the establishment of the CDC as a major international center for its work on malarial vaccines.

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