RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY

NEW BRUNSWICK

AN INTERVIEW WITH CARL R. WOODWARD JR.

FOR THE

RUTGERS ORAL HISTORY ARCHIVES OF WORLD WAR II

INTERVIEW CONDUCTED BY

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Kurt Piehler: This begins an interview with Carl R. Woodward Jr. on April 21, 1995 at Rutgers University in New Brunswick, New Jersey with Kurt Piehler and ...

Maureen Prado: Maureen Prado.

KP: And I guess I would like to begin by talking a bit about your family background and history. Your family has a long military tradition, you noted that your great-grandfather served in the Civil War.

CW: That's all.

KP: That's all. Although your son then also served in Vietnam.

CW: That's right. Those are the only two.

KP: Those two.

CW: The rest of the time they worked on the farm. They were farmers and they stayed there. One of our distant relatives, Abraham Van Neste, was an assistant to General Washington. And he came across the Delaware in the boat with Washington on that particular day. Captain Abraham Van Neste who was-- ... you might say he was a very great lieutenant for Washington, because he did a lot of the legwork. That's the way we got the message anyway.

KP: What about your great-grandfather's Civil War story?

CW: I don't know very much about it, except he was wounded at the Battle of Chancellorsville, spent time in a hospital in Washington and then was discharged. .. And that's about all we know. ... Nobody made any big deal about it so ... I can't really tell you any more than that. Except that he did return to the farm in Tennent. And then ultimately his son took it over who was my grandfather. And it stayed in the family for a good number of years. The reason we know about Abraham Van Neste and his connection with Washington, was the fact that my sister wrote to the Office of Veterans in Washington and wanted more information. And they sent us a copy of his petition for a pension. And in this petition he enumerated all the things that he did. He was in a number of the battles in New Jersey: Springfield and Princeton and Trenton. And he was ... [at] Monmouth, he spent a lot of time right next to Washington. So that's how we know about that. Now that didn't happen with the Civil War. I mean there's not very much about it.

KP: You have not been able to find anything else?

CW: No. Nothing much. All I have is some relics at home. A few little things that the soldiers had, but that's about all.

KP: Your family and Rutgers are very closely associated. When did the first Woodward go to Rutgers and do you know why?

CW: It was my father.

KP: Your father was the first.

CW: It's a very interesting story about that too. He was one of three sons in Englishtown, Manalapan Township, on the farm. And he was the middle son. He had a younger brother and a older brother. And he wasn't certain he wanted to stay on the farm. He graduated from high school at the age of sixteen, and he was very interested in teaching. He was very interested in teaching. He spoke to his grandmother, Grandmother Reid who was a very dominant, domineering individual, a big woman besides. I mean in stature. He told her that he thought he might like to go on for further education. But in the meantime he had a job ... in a one room schoolhouse as a teacher of, I think, five grades. They were all together in this one room. And after two or three years he decided, "I've got to get out of this and really get a good education."

So he applied to come to Rutgers as an older person. He entered in 1910. So that made him ... twenty years old when he entered. Which ... at that day was a little old. So he was very serious about this, that he was a very good student. He was Phi Beta Kappa. And he took all the courses necessary at that point. And he got into agriculture, ... which was a result of his farm background. Jacob Lipman at that time, was the dean, and there's an interesting story there I'll get to. But Lipman says, "I have just invented a new journal. Soil Science, Journal of Soil Science and I'd like you to be assistant editor." Well fine, so. ... "And I also would like you to be editor of the New Jersey Agriculture," which is a bi-monthly flyer or bi-weekly flyer I believe they put out-- the state, the College of Agriculture. And so my dad was doing that. Now that was up until the time ... he graduated in 1914. Lipman said, "You go on for your master's degree, but while you're doing your master's degree you can do this." And even after he did his master's degree he continued in the same position. After a few years Lipman said, "I think you should get your Ph.D." And he says, "I suggest you go to Cornell." So my father went to Cornell. ... That was in 1923. I was six years old at that point and my sister was four. And ... we lived in Ithaca for almost two years while he got his Ph.D. His thesis was a book entitled, "The Development of Agriculture in New Jersey, 1660-1880." This was published in 1927 by the New Jersey Agricultural Experiment Station, now known as Cook College of Rutgers University. So by 1926 he had his Ph.D. and Lipman still wanted him on the faculty over there at the experiment station.

Well, in the meantime, in the middle twenties, around 1928, John Martin Thomas who was president says, "I need an assistant." And they looked around and my father turned out to be the assistant. So he moved from the farm over to Vorhees Library. And that's where the president's office was. And that's where his office was. So my dad was assistant to him for three or four years until Martin retired or resigned and Clothier came in after a year or so. Clothier kept him on as assistant, but he renamed the job Secretary of the University. And in that position my father was the go-between between Trenton and the University. Anytime anything needed to be done, legislature, whatever, "You go down to Trenton and straighten it out. Do whatever you have to." My dad was very good at that. He was very political.

That was his career here at Rutgers, and in 1940 he began to get offers to go to Rhode Island State College. He took a couple of interviews and they wanted him to be president of Rhode Island State College, which was a land-grant college the same as Rutgers. But it was much smaller and didn't have university status. It was just a, they called it a "cow college" and people in Rhode Island were very, indifferent about the college. They did not make much of it. They thought it was, well it's like a little college off there in the country somewhere. Well, he decided he would take the job. And believe it or not, he went up there in November of 1941, one month before Pearl Harbor. He had big plans because he knew how to take from Rutgers and plan it up there in Rhode Island. Which he did ultimately. He was there as president for seventeen years. And he made it a university by adding all the curriculum necessary and extension program, which is still in existence up there, just as they had here. He was very high on that.

KP: He thought the extension was very valuable?

CW: Oh, very. They are. And he, the people in Rhode Island just loved it. They couldn't believe they could get all this stuff. It was so bad up there in Rhode Island he told me, he says, "They don't even invite the legislature to come and see this place. Can you imagine that?" I said, " No, I can't because I know what they did here at Rutgers." They ... always .. were entertaining the legislature at games or whatever, which they never did that up at Rhode Island. But he started it and they loved it. So that's his career-- pretty much so. He retired in Rhode Island and ultimately died in Rhode Island at the age of 84. He left quite a mark for himself.

KP: I guess I have a few more questions about your father, but more in relationship to you is, getting a Ph.D. is a difficult thing. How did your father, and you were very young, what do you remember about living in Ithaca and your father working at his Ph.D? Did he spend a lot of time in the library?

CW: Oh, did he. Oh yes, oh yes. He spent a lot of time. He was a writer. He really was a writer. And he would work till one o'clock in the morning, writing. He was one who could take a fifteen minute nap and then be up and charging all over the place. It was very, very noticeable. I remember as a child ... this is kind of funny. [laughter] The school I went to, the primary school I went to was just around the corner in Highland Park. Hamilton School. It was only 200 yards away. And I'd come home from lunch, and this also happened when I was in junior high which was in Highland Park. I'd come home for lunch and my dad came home for lunch. He rode a bicycle before he got a car, back and forth to Highland Park. After he had his lunch, I used to see him lie down on the sofa and I thought, "Geez, what a neat job he's got. He comes home, takes a nap, goes back." Faculty members here told me many times, that, "Your father in the late afternoon is wide awake, charging around, full of fire while we're ready to go home and take a nap." So I told them, I said, "Well, you know he used to come home and take a nap every, ... almost every noon, he'd take a nap." Now I don't-- the time was pretty much his own and that's how he did it. He still did that all the way up till the time he died. He was always taking a nap whenever he felt like it. He would just sit in the chair and bow his head. Fifteen minutes later he'd be all right. It's a nice little technique. It really is. I've learned so I can do it now. [laughter]

So as far as the experience up at Cornell, I found very valuable even though I was so young. Because I'm interested in nature and birds, particularly birds. Comstock Publishing Company, which ultimately became, I think, a part of the laboratory of ornithology at Cornell. I spent a lot of time in there. It was a great experience for me, because I saw all these books and papers and paintings. Louis Agassiz Fuertes was the Cornell man, a very famous ornithological painter. He published several books, and as a result of my experience up there, I came back here really full of energy when it came to nature and particularly birds. I've followed that ever since. I still do and I now even correspond with Cornell on a regular basis keeping data of counts of birds. Winter feeder counts for one. It starts in November and runs through April. I just finished the last count a week ago and I sent all that data back. This is a very fine organization, and they publish regularly on this. And they are showing the changes in populations of birds, including the ones that are endangered, and the ones that have disappeared. During the past year, year and a half, they found ... the house finches were coming down with an eye disease. I remember seeing last spring, before I got into their count, a couple of birds at my feeder that had funny looking eyes. Well this disease, I don't know how serious it is, but it spread only with the finches apparently. It was from North Carolina to Massachusetts and they wanted to get a handle on this. So they asked us if we were willing, if we would make these counts of how many, and observe daily, how many-- not necessarily the count of birds but whether they were ill or normal. And we would, they have a sheet you fill out for a month. Then you send it in. I've been doing that now for, the best part of year, and I haven't seen ... any sick birds fortunately. But I know that from their data that they send to us, and they send data to everybody who was involved, that they have found that this is now beginning to spread to the Midwest and even farther South. They've asked us if we want to continue this during the summer and those of us who do say, "Sure, we'll do it." I'm around so it's no problem. It's just stay at the window, watch the birds and look at them through the binoculars and you can tell if they're ill or not.

MP: What was the relationship between Cornell and Rutgers?

CW: Well, Cornell was the land-grant college of ... New York and also the large experiment station. Now our Dean of Agriculture is moving to Cornell, Dean Lund.

MP: That's what I was getting to.

CW: Dean Lund. I'm sorry to see him go, because he's a great guy. You know there's another interesting story I should tell. My father was told by Lipman-- Lipman hired my father and he told him to go to Cornell. Now I'm going to back up to George Cook who was the first dean. George Cook hired Edward B. Voorhees. And Edward B. Voorhees, he told him, "You go to Cornell. Get your Ph.D." Edward B. Voorhees went to Cornell, got his Ph.D, came back and Cook kept him and trained him to take over for him. Voorhees hired Jacob Lipman. Jacob Lipman ... came from Russia initially, but he also went to Rutgers. He was a Rutgers grad. And Voorhees told Lipman, "Go to Cornell for your Ph.D." He came back and he replaced Voorhees as dean of the agricultural experiment station. Now Lipman hired Woodward. Carl Woodward, my father, and he told him, "You go to Cornell. Get your Ph.D." And he came back. I'm sure that he was lining him up to be, to take his place when he retired. But instead Woodward went up to Rhode Island. I think that's kind of an interesting tale.

MP: It is. Was there a sense of who was better in the field between Rutgers and Cornell? Was one more highly noted in the field than the other?

CW: Is one better than the other?

MP: No, back then. Was there a sense of one is better than the other in terms of academics?

CW: No, I don't really think so. I think Cornell is a very great agricultural experiment station. But so is Rutgers. And ... one thing that I noticed as a kid when I was up there with my father who was doing his Ph.D., that there were a large number of Orientals, at Cornell. More so than here. Rutgers was a much smaller school, I would say at that time Cornell probably was the twice the size in the number of students. Although I'm not sure of that, but I think it was. I mean, here at Rutgers when I was in school we had only 1,800 students, so before that they may have 800, 1000, 1,200. ... Cornell was at least three or four thousand at that time. And their experiment station was a very famous one. But Rutgers with George Cook, and he's the man who really started it, really drew in a lot ... of people from all over the world. He was worldwide, worldwide known and worldwide famous in his line. And that continued through Voorhees and Lipman and even today. Rutgers is a very well known school agriculturally. I remember one time we were on a trip, ... visiting the Canadian Rockies, ... that was a very interesting trip. When we got into Glacier National Park in Montana, we wanted to go over the Sun Highway, and you can't take an ordinary bus to do that, because the road is so narrow and winding. There is a special van that they have, a 1925, I don't know what ... Packard or something, and it takes X number of people, and the driver. They use kids from Montana State College. I happened to sit in the front seat with this kid, I was talking to him while we were riding, and I said, "Where do you go to school?" and he says, "I go to Montana State College." ... And then he says to me, ... "Where did you go to school?" I said, "I went to Rutgers." "Rutgers, geez, that's a famous University." I mean like that. And that's out in Montana. Some people around New Jersey don't even know Rutgers exists.

MP: Seems to be the big dilemma.

CW: Amazing. Okay, that covers it maybe.

KP: One question in regards to your father and you. What do you remember about the early Rutgers presidents, both from the perspective of a child growing up and then as a student? Could you talk a little bit more about your father's relationship with President Clothier? Did you watch your father interact with both these presidents?

CW: Well I even knew President Demarest. He was very fond of Demarest. Demarest was a really sharp man, very, very scholarly, very academic and also a very fine gentleman. ... Who came after Demarest, ... there was an interim president here ... Phillip Brett. I didn't know him too well. But I knew Clothier well. ... In fact, I played golf with Clothier. He was a very, very fine gentleman, ... very stately, executive type, ... very friendly, very knowledgeable. Good

administrator, I felt. My dad was always very high on him. And he was also very high on my dad. ... It worked very well.

KP: He had a good working relationship-- because usually people in those positions, when a new president comes in, they find themselves in a very awkward position and sometimes just be pushed aside.

CW: ... Well Thomas had a problem with the Board of Trustees a couple of times, and he was a little stubborn. He was a Vermonter, Yankee so to speak, and I only know pretty much what I've read about that. But he wanted to do something, and the Trustees were not at all endeared with it. He ultimately was frustrated and ... retired. And then Phillip Brett took over again, and that's twice he was interim president. And then Clothier came in. Now Clothier was here for about nineteen years, I think. ... Nineteen years it always sticks on my mind. And then, of course, after Clothier came Lewis Webster Jones. I never knew him very well. His wife was more popular than he was. After Jones came Mason Gross.

KP: Almost everyone has had a good word to say about Mason Gross.

CW: Oh, The Mase-- he was terrific. He was so, I mean know, there was a statesman, believe me. He never had a note when speaking. He would get up and he would speak extemporaneously, and it would be solid, it would be something. ... When he talked to the alumni on Alumni Weekend, when we would be at the luncheon, the place was as quiet as a mouse. Because they knew he had something to say. And everybody respected him and they wanted to listen. I can't say as much for Bloustein, people would get up and walk out, they would make noise. They could care less. And ... [laughter]

KP: You do not have to go to the current president if you do not want to.

CW: It was so different, it was noticeably different. Gross was great. I really liked him. Everybody liked him. He was one who would give a class if he only had one student. And he wanted to continue teaching. He told the trustees when they hired him, "I'll be President, I was Provost and I was teaching, and I'll be President, but I want to teach. A couple of classes." And they said "Fine, go ahead." There was one class where he only did have one student. And he invited the student, ... "When we have our class, just come into my office, and we'll have it the office." ... I mean, that's the kind of a man he was.

KP: You mentioned that your father was the Secretary of the University and in many ways, served as the government relations person in Trenton. Rutgers in the 1930s and 1940s, even into the 1950s had a very awkward relationship with the State of New Jersey to say the least.

CW: Sure. It was, it was I know.

KP: Do you have any insights in that from growing up or from your father's role? Because you said father was very good at this.

CW: Yes, he was. He was, well, he did the same thing in Rhode Island. He was politically motivated. But he was honest. And he was sincere. There was not a false hair on his head. And when he said something, I mean, he really meant it. It wasn't any malarkey. No baloney. I mean, this is it. And ... he would certainly listen to advice. He took advice readily and genuinely. Well now, let's see. I do remember sometimes when he would come back from Trenton, that he was a little down. Because there was a Catholic power there that was not happy about Rutgers being the state university. It stemmed from Mayor Hague, Jersey City, who was very heavily Catholic and a very Catholic area. This is not to say anything against the Catholics, but that was a big factor. Then when he went to Rhode Island, he had already been through the mill. Rhode Island is heavily Catholic. And yet he got every one of them to do exactly-- they were glad to do what he asked for in Rhode Island. At Rutgers it was a real problem. They didn't like to see the money which they felt should go to them going to whatever we were doing here.

KP: Do you think that the fact that Rutgers was still in many ways a Dutch Reformed school was responsible?

CW: Oh, that had something to do with it. No question, no question. And there was a real move to put Seton Hall at the top of the list. There really was.

KP: To make Seton Hall the state school.

CW: Seton Hall. But that died fortunately. I mean, Rutgers was ideal. Really an ideal place. ... Rutgers was first a private college. And you see, that was one of the factors. Seton Hall was a private college. Rutgers was a private college. And there were these legislative moves to try and make them the state university here. It was a real pulling teeth to ... get it through the legislature. I know he worked hard at that. It finally ... came into fruition but it took a long time. And there still is some feeling about it I think. I notice it every once and awhile. I don't seem to know why. Well, money here, money there. But ... with the experiment station here as a result of the Morrill land grant act, we get federal funds that come in. And that has to be. Now the state should supply some of this too, I think. And I think they do. I'm not up on all of the money schedule right now, but it's worked out for the better I'm sure. I mean, after the war, World War II, Rutgers just mushroomed. I mean, all of these veterans came back and they were all over town here, going to school and really studying. My fraternity, Phi Gamma Delta, was always on the borderline of whether you're going to be on pro because you're poor scholastically, or whether you're into some mischief or something when I was in school. When they came back, the first graduating class after the war we had eight Phi Beta Kappas. [laughter] And that's the difference. These guys were older. ... They had a goal in mind. They were going to get it. And, of course, it was the federal money, the GI Bill, that was helping to subsidize that. It was a great thing. Really. Put these kids ... through college after they went through what they did ... on the war.

I just finished reading a book, The Story of Ernie Pyle. I don't know if you've ever read it.

KP: No.

CW: Do you remember hearing about him?

KP: Oh yes.

CW: He was the correspondent who really told what the war was all about. And he finally was killed in Okinawa, but ... it's the most visible account of the war I've read. I mean he was right in the trenches. Sleeping in the trenches. Ducking into the trenches. Digging the holes and everything. That's the way he wanted it. He says, "I can't write about this unless I'm with them in the front lines." And he spent the whole time in the front lines-- 29 months he was over there ... in the European Theater. Unbelievable. It was a very enlightening book to me. I'm glad I read it, because, you read about these things in the paper ... and you see it on T.V. and all that stuff. But when you read what the man had to say, and he got the Pulitzer Prize for this, his column, 700 newspapers and magazines. 700. He was a rich man. A rich man-- $125,000 a year minimum. In that day [laughter] I mean, what do you do with it all? And he wasn't even in it for the money. ... That's aside, but I mean I was so enthusiastic about that book.

KP: You spent some time in Ithaca, but you spent a good part of your youth growing up near Rutgers, because of your father's job.

CW: Oh, yes. Right. I did. I learned to swim in the Rutgers pool. [laughter] The old Ballantine pool.

MP: Up at Cook I did. I didn't know how to swim until a couple of years ago.

CW: There was no pool over at Cook when I was there.

MP: I know.

CW: But this Ballantine pool was, ... there was a day or two when the faculty could come in, that they could come in and bring somebody with them. So I wasn't the only son that was there. But there were three others. But the faculty would come in and they'd have a swim in the afternoon. Late in the afternoon. It was great.

KP: You have a lot of memories probably, of growing up with different faculty members and their kids and so forth.

CW: Well, I used to go to all the football games. I never missed a football game. All the way back to Homer Hazel. I remember, in the 1923s. That was one thing up at Cornell. ... 1923, Rutgers played Cornell at Ithaca. And Homer Hazel was on the team. Homer Hazel was great fullback. He was a triple threat man. Burly guy. That was the days when you played both ways. I mean, you had a squad of twenty men and that was it. Cornell had two All-Americans on their team. George Pfann and Eddie Kaw. They were both expert backs. But Hazel was the Rutgers man. And Hazel scored ten points. Rutgers won the game ten to nothing. That was a great victory, really a great victory. Hazel graduated I think in 1924, so that was the end of him. But I do remember him. I remember my father used to take me to all the games before I went with the

kids, because I was small enough. And he said, "Now Hazel is number eight." I remember this just as clear as it happened. He said, "Watch for the fellow number eight." So I watched the whole game for number eight, what he was doing. It was great.

The kids used to have a cheering section on Neilson Field and they would let the kids in off of George Street entrance. They had ... a bleacher section there. All the town kids were let in for free. The Rutgers cheerleaders would come over and they would lead the cheers. The kids all knew the Rutgers cheers. That was great. [laughter] They were cheering louder than the main body. So we had a good time and we learned a lot about who the players were and so on. It was lovely. Very fond memories of that.

KP: In 1930s it was a tough time economically for the school.

CW: Oh yes, yes.

KP: How did it affect the faculty?

CW: Well, my father happened to be on a committee that was ... determining whom they were going to cut salaries on and layoff. There was a layoff. I remember one night he came home and my sister and I, my mother were around the dinner table and he made the announcement. He says, "We're going to have to tighten our belts. Unfortunately, because of the Depression, because of lack of funds, were going to have to lay some people off. I will have my salary cut, but I will still have a job. Almost everybody will have their salary cut, but those who do, retain their job. But they are going to layoff some people." And he says, "Some of them are our best friends here in Highland Park." I remember that very clearly. And they were. They were some of our very good friends who lived right around the corner from us or on the same street maybe. They were laid off.

One of the top ones on the list I think was Waksman. They wanted to lay Waksman off, this committee. They thought, "Well, what's that fellow doing over there in the lab. All he's doing is looking at soils and talking about certain bugs in the soil and that sort of thing." My father stood up and said, "No way you lay that man off. He is doing vital work as far as the soils are concerned." And ... his recommendation held. He did not get laid off, but he had his salary cut. He had already discovered the organism that produces streptomycin, but didn't know what it could do. That was an actinomycete. The actinomycetes are the ones that made streptomycin, neomycin and ... actinomycin and so on. So he was classifying these organisms. His book is about two inches thick on the classification of actinomycetes. It's still the bible of actinomycetes. So my father held his ground and they just cut his salary and left him over there. Lipman didn't want to see him go either, of course. ... But some of the other fellows got laid off. Ultimately, Waksman came up with his streptomycin which is a lifesaver. Multi-million dollar product. ... He was a very interesting chap. If it hadn't of been for Waksman I don't know where I would have ended up.

KP: Really. He was very important in your career?

CW: Well, yes. ... I didn't take an undergraduate course with him. I took a couple of graduate courses. But I knew him. I knew him very well and he knew me. And when I was graduating in 1940 and I had a degree in microbiology. That was what they called it then, although originally it was bacteriology. ... There were three of us who graduated [with] degrees in microbiology. One day, I think it was March of 1940, he called me to his office. And he says, "I want you to go over to Merck. They are looking for a young graduate. One who is just graduating to go in and be an assistant to the man they just hired to head up a microbiology research lab." I thought, "Well, that's very nice." And he told me, "See these two men. Doctor Major and Mr. Woodruff. Go talk to them." That was it. I made the appointment. Went over. ... They wanted me right away. "Can you start tomorrow?" [laughter] I said, "I want to get my degree first!" "Well, you can get your degree later." I said, "No. I'm going to get my degree. I'm almost there. I want to get it and I'll be here June. June the ninth was when we graduated, and June the tenth. I said, "I'll be here June the tenth." ... We graduated on Sunday in those days and held it in the gym up here {College Avenue}. I went over to start my work, and that's where I started my career. ... I was in the pharmaceutical industry my entire career. But I started at Merck, which was a really, a great place to start. No question about it. Waksman was a consultant for Merck. That was another thing. He knew my father very well, and he knew me very well. I knew his son. I knew his wife, and I was very delighted to be able to have a job like that. $135 a month.

KP; Jobs were tough to get in 1940.

CW: Oh yes, yes, yes I know. $35 a week. Now that was good salary in that day. ... The laboratory had been set up by one of his graduate students, and I'm sure he was instrumental, in him going there. Fleming's penicillin-- and his organism was making waves because they found this antimicrobial activity, and they wanted to get into it and really produce, because ... Britain was already in a shooting war. We weren't. We were on the sidelines, all we were doing was giving them wherewithal. But they wanted us in the States to take over the research and the production of whatever we could. So, believe me, every batch we made and all of our tests that we did were all ... if and by gosh. Because we didn't really know where we were going, this is a whole new spectrum of microbiology, as far as the testing of it, the production of it, the development of it, how do we produce it what do we have to do, and all that. ... It was basic research in a sense, but it was applied, applied basic research and industrial microbiology ... right in the middle of that, and I was right in the beginning, the very beginning.

I feel very fortunate that I had this contact and got this start, because my five years at Merck all during the war, were instrumental in what I did and basic to what I did for the rest of my career. Because wherever I went I was involved ... with the ... basics that were involved in making antibiotics. ... In the quality control, in the production of toxins and vaccines, which I got at Squibb and ... blood products which I got at Johnson and Johnson Ortho. Then ultimately up at Warner Lambert where I got into cosmetics and baked goods and candies, and antibiotics in addition and other chemicals and other type of things. Everything that I did was all based what I learned at Merck. I frequently had colleagues ask me, how do you know what do so quick? I'd explain to them.

One of the organisms that I became very involved with pseudomononas aeruginosa. Now this is a very common organism all over the place and it is a very tough organism. It can synthesize its own nutritional necessities. ... Now that's a tough organism that can do that. It can live its own dead bodies and multiply and multiply, and keep multiplying. And it contaminates water supplies, it contaminates cosmetics, it contaminates antibiotics, it contaminates anything you can name because of its ability to live in distilled water. You know, distilled water by definition is sterile, but it may not be. You have to make sure that you've got sterile water there, because that bug will go through most of the filters you can think of, its so small. Really minuscule in terms of ... half a micron, you can't see without a microscope. ... That's where I got involved with that almost immediately at Merck, and I knew it was this green organism that makes a slime. ... The very fact that I worked with it so early, all the way down the line. ... The rest of my career no matter where I was, I would run into that bug. And nine times out of ten, ... that was ... the problem. It was very difficult, I had a difficult time, every once in a while explaining this to some of the administrators of the pharmaceutical companies. "What do you mean this is in the water? How can it be? Nothing lives in the water." No! Plenty lives in the water. [laughter] So anyway, I had a good time of it, and I really enjoyed it, and I felt that I made quite a contribution. At Warner Lambert, I remember when I was hired up there, and I was up there for 23 years, the fellow who hired me was a quality control manager, and he said we need a microbiologist here who knows what bugs are, all we have are pharmacists and they don't know anything about bugs. Well I know pharmacists are a very, very vital science and I have total ... 110 percent respect for these fellows, and gals whoever do it. Because they are great. They can tell you all kind of things about the anatomy and the physiology of the body, which I don't know. But I went into the microbiological part and I had to deal with a lot of these pharmacists who kind of looked at me askance every once in a while, but they believed me. And It worked out very well.

KP: So in other words you had a very important niche in the pharmaceutical industry.

CW: I would say, yes. ... At Warner Lambert they would not release a product unless I told them it was okay. I mean ... that was the quality control. Quality control took a lot of my career. And quality control-- I mean I was a lot in production. I was in production at Warner Lambert, but I was also basically, the largest percentage of my time was spent in quality control. Quality control at Squibb. No quality control at Merck per se, but nevertheless I learned that because we were working with it. It was vital to get the production out as soon as possible. Ortho was quality control. That was a big one. Because they couldn't understand why, after the serum had been put through a filter, these millipore filters, cellulose filters, why in the world after standing in the refrigerator for maybe two months before they filled them, they'd have these five gallon bottles, why was that contaminated when they filled it? And I remember the vice-president over there, made me very angry one day. He says, "There's something wrong with the filling operation." I said, "There's nothing wrong with the filling operation." I said, "It's in the manufacturing." And he says, "Well, I want you to go in there and I want you to put on a gown and I want you to go in there and audit the entire procedure of filling." And I said, "I'm not going to find anything. I'm going to find their technique is perfect, but the bug is already in the bottle." He wouldn't believe this. But I did what he said. ... And then after it was all over and I had to write a report. He says, "Well, what's the problem? Where do we find this thing?" And I said, "If you want to know, it's in your distilled water. Because ... I took a look at your tank. It's got a

green scum all around it and all of the joints. The bug is in the tank." "Oh, how can that be? This is distilled water." "I know," I said, "but distilled water by definition is," as I said, "sterile. But you're not keeping it heated. Now if you keep it heated at 180 ...

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CW: ... You've got to scour it and heat it and there's nothing like steam or fire to kill bugs. But ... you can never use a fire down there. You have to use steam. Steam, live steam. I learned this at Merck in making penicillin. We had a terrible time getting the product started because we did not know where the contamination was coming from. And we had a crude tank with agitators that had nipples and everything else flowing to take samples. We had a bottom valve. All of these valves ... are potential contaminant areas. It wasn't until we learned how to put steam on all of these joints, all of these valves, all of the agitator wells, everything. When we learned how to steam that with live steam so that you could see the steam flowing out, I mean actually seeing a wisp of steam, then you know the stuff is not going to be contaminated. That was how we licked the problem. Penicillin in production in a tank is very highly susceptible to contamination. Contamination destroys penicillin immediately or within a few hours. I applied the same procedure to the blood products over there at Ortho. I said, "You've got to run steam through these lines and have them bleed into the laboratories for 24 hours." He says, "Well, you'll steam up the whole lab." I said, "You won't steam it all up. It's just a little wisp. That's all you need. Just so you know everything's hot coming through." So ... he says, "Okay, ... we'll put a coil in there." ... I think they put a coil around the tank. It was easier to put it around than it was to put it in. But they had to clean it out first. They put that in and once they kept it at 180 degrees, no more contamination. ... To me that was simple. [laughter] I mean, it was costly, but it was simple. I had to do the same thing down in Lititz, Pennsylvania, at our Warner Lambert plant. They were getting contamination in their creams-- cosmetic creams. That's an organic compound and ... lot of stuff in there that bugs can chew on. Especially this psuedomonas. And every time we had a contamination or a test of anything, it was always psuedomonas. It was nothing else. Because it's a tough bug. I kid you not. So anyway, I kind of like to talk about this stuff. [laughter] Because it brings me back. ... I've been retired for thirteen years now and I can still remember a lot of this.

MP: You talked about your production of penicillin. I know that when penicillin was first getting started, or when they were first working on it, they had trouble producing enough of it.

CW: Oh, that's right.

MP: What was your involvement in that? Because I know there were a lot of pharmaceutical companies, I think there were about fifteen trying to produce some.

CW: Well, when we first started, Merck was the only company. Merck was the only company and then Squibb got into it and then Pfizer. ... And this is all during the war period. But Merck was first. But anyway, my involvement was supervising the production. I had a crew of about four people who were on the tanks as we call it, and I had a laboratory helper. We had to test the utilization of sugar. ... The utilization of sugar indicated how fast the organism was growing,

because it needed sugar to reproduce and grow and produce its penicillin. As soon as we got to a certain point or a certain level, lower level of sugar in the media, then we knew it was time to harvest. So we immediately shut off the incubation period and turn on the brine to cool it. Cool it as fast as we could, because that would stabilize it, and then it would have to be filtered out and then extracted by the extraction people. We didn't have to have anything to do with the extraction, because that was the chemical end of it. They had that process. We would pump it over to the extraction group, we were in this area and the extraction group was over here. Then they would extract it and crystalize it. It was a very crude process at that time. ... The big thing was getting it out uncontaminated, and until such time as we had the steam on it we were not producing very much penicillin. Now everything we produced was a very low level by today's standards of potency. ... If we had 60 to 100 units per milligram that was terrific, I mean now it's up in the thousands per milligram that's the difference.

... Penicillin ... was at the time all earmarked for the military. Everything went to the military, and it was shipped immediately over to Europe. ... I forget exactly the year, Norman Heatley from England came to our lab, but it was probably around 1942. Norman Heatley was a part of the Oxford Group. I don't know if you ever heard of the Oxford Group, but they were the ones who were working on penicillin in England. They [had] no wherewithal, no equipment, everything was going to the military, everything was going to airplanes, into bullets, in this sort of thing, rifles, what have you. So they couldn't take anything and build shakers or laboratory equipment, so they pleaded with the U.S. to please help us. So they sent over Norman Heatley who was a part of the Oxford Group, and he worked in our lab at Merck. I worked right along side of him. He was the one who invented the assay, the way to determine what the potency was. And that assay today is still utilized, that's how good it was. ... It consisted of a petri dish, which is about that big, and he had little cups on the agar medium. He could drop the drops of penicillin into, and the agar was seeded with the staphylcoccus aureus, and as it grew and as the penicillin seeped out from this cup, as it seeped out, it would kill the organism. The zone of inhibition would be clear agar, after incubation. Depending on the size ... of the zone it would be dependent upon the potency. That's how you measured it, and you always had a control that went along with it. You always had to put a control in, if you don't put a control in, your data is not valid. So he invented that and you could just take a look at and all you had to was measure in millimeters. The widths of this zone, and then you knew how potent it was. You could take it from there and in order to increase the potency we had to maybe reformulate the media. We were always dickering with the media, to get the best growth, the quickest growth. These different nutritional factors were provided by and researched by the research laboratory at Merck. They were doing a lot work on trying to evaluate which nutrients were the most valuable in order to make the best penicillin, or the most potent penicillin. There were a lot of trace elements involved in this, zinc, for example. Manganese also is a trace element, and if there is just enough of that in the medium, and you always have C,H, & O. But we needed ... what we called trace elements. ... Zinc-- ... that was startling how much better it grew with zinc in it, a zinc compound. Lead was toxic. That's the kind of research that they had to do. Then we would apply it to the tank. Now in the tank we had to work ... on the amount of air we would put into it. The larger the tank, the more air it needed naturally. The flask we had, we put them on the shaker and plenty of air. But in a tank you had to bubble air in from the bottom, and ... if you had a thousand gallon tank you would put so many CFMs through. And if you had a 10,000 gallon tank, or a

40,000 gallon tank, which Squibb ultimately had, and they had 40,000 gallon tanks, which are like a swimming pool. ... You needed, the ratio of air and oxygen and all that sort of thing was very important.

MP: How did the gramicidin patent issued to Merck in 1944? ...

CW: A patent?

KP: How did the product development go on that patent?

CW: We didn't work with gramacidin too long. It wasn't as potent as penicillin. But ... it was good. It was a stepping stone that we utilized. That initially was founded by Rene Dubos who worked over here at the farm with Waksman. And ... he's the one who originally isolated that. We were working with it at Merck only because it was ... the one at the time that we could see anything with, and maybe learn from it. ... It had its value. It was a sort of an adjunct antibiotic. But it was very important in the initial development. ... The big one was penicillin, of course, because ... it was non-toxic. Gramicidin at certain levels was toxic. Actinomycin was very potent. More potent than penicillin, but it was also much more toxic. You could kill an army with ... with actinomycin. It was very potent. That was one of the first ones we worked with--that was one that Waksman came up with ... Woodruff. We sort of gave up on that, because it was something really that we couldn't use. Pyocyanin which came from this psuedomonas aeruginosa was an antibiotic too, but that was again too toxic for animal use. But there it was. Even this tough bug that I told you about had an antibiotic property. It really did.

MP: I know in 1941 they used penicillin for the first time on a police officer over in Britain, who eventually died.

CW: Yes that is correct.

MP: I think he had a blood disease.

CW: ... He was lucky. He would have survived, but ... they didn't have enough material. It was too bad, because it short circuited that project. Well, I had a mastoid when I was at Cornell. I'll never forget that. Radical! My semi-circular canal is exposed. I have to keep cotton in here. And I was only six years old and I had this terrible ear ache. ... I guess I was kind of delirious anyway. I remember going to the hospital and it was awful. But they chopped this bone out. Everybody has a mastoid bone up here, which is like sponge. It is a spongy bone. This was ... highly susceptible to infection. So they cut that all out. Well now, this is 1923, there are absolutely no antibiotics, nothing, not even sulpha drugs. So you either lived or died. ... It was a highly mortal disease for kids. But I survived. I was a tough one, I guess. (laughter)

KP: Did you know how serious it was at the time?

CW: Oh I didn't know. I had no idea.

KP: You parents must have been very worried?

CW: Oh, my mother was beside herself. I guess she thought I was going to die. I have pictures of myself with the bandage I had around my head. God, I looked ... like I was the Sultan or some sheik or whatever. Wrapped it around. Every time I had to go to the doctors to change the dressing, I ... just petrified, I really was. I screamed and hollered and kicked the nurses. [laughter] Anyway, I survived, ... but I missed a year of school really. Because I was in terrible shape. I had to get some life insurance after I got married, because I had this, I wanted to get some life insurance, because I didn't know how long I was going to live, really. Even at that point. They told me ... my life chart was 40. ... "We're going to have to rate you. Your ... life expectancy is 40 years." Well, I've long since passed 40. But when I got to be 50, I thought, "I'm going to ask these guys-- I've lived beyond my life chart. ... Now why don't you reduce my premium, so they did. They did.

The doctors always told me never to fly. Of course, in those days you didn't have pressurized cabins and all that sort of thing. They didn't know what the effect would be. The air, up and down, and sometimes how you get clogged, ... you get your ears clogged and all that. So I didn't fly for a long time. I didn't fly until 19--, oh it was around the middle '70s, I guess, or the late '70s. Well anyway, my wife got after me, why don't you go see a real ear man again. Maybe they can change it, maybe it's better now. All that sort of thing. Well it took me a long time to follow her advice, but I did follow it. I went over here in Highland Park. And I said, "Now doctor, I'm only here for one thing. I want you to tell me is it all right for me to fly, because I have this mastoid." Well, okay. He put me through the most thorough ear exam I ever had. [laughter] I guess he was examining me for a half an hour. He says, ... "I'm putting you under a microscope." I said "A microscope, my God." He put something in my ear and looked at it. After he got all finished, he said, "Now to answer your initial question. .. You can fly anytime you want. You will have absolutely no reaction, because you've got a hole in your head." (laughter) But it's true. I go up and down, and I never feel a thing. It's amazing. So I missed a lot of good flights. But to replace that, I took the trains, and I rode all around this country on trains.

KP: Really, up until the late 1970s.

MP: I know that Merck published a brochure on penicillin in 1945 or 1946.

CW: Who did?

MP: Merck. Did you have anything to do with that brochure?

CW: No, I had nothing to do with it. ... The only thing I wrote up was the experimental work we did in the laboratory. ... We all had assigned notebooks. Numbered and everything. Merck was very good that way. And all of my writings were in the notebooks. But I had nothing to do with the writing of that brochure.

MP: Who was this brochure aimed at?

CW: Well, it was aimed at the medical profession, the pharmacists. And just general bio-science.

MP: Did they feel they needed to educate everybody on what penicillin was doing?

CW: Oh, yes indeed.

MP: Because it was such a new thing, they wanted to take advantage of it.

CW: Yes, it was a new thing, it was a hot thing. I mean, it was exciting, it really was. And microbiology, the science of microbiology is completely transformed by it. It is entirely different. I mean, here, I graduated in 1940. By 1945 it was a new science. I mean it really was, because ... of penicillin. And the war effort, there was a tremendous effort put on. Merck made one mistake. They were offered, ... by the government, because the government was so interested in this, "We'll build you whatever kind of a plant you want. Cost, don't worry about it. Design it, we'll build it." And the management at Merck turned it down. I was appalled. I mean, at that point I was appalled. Because I figured, why did they turn this down? Merck figured they were going to synthesize it, and it would be cheaper. They had synthesized successfully, several vitamins very readily, and they were producing them in this synthetic fashion at that time. So they figured, penicillin will be no problem. We won't waste the government money. Anyway, that's hindsight. But it turned out that the synthesis of penicillin was much more difficult that they had anticipated. It wasn't until Dr. Joseph Alicino over here at Squibb, many years later found there was a sulfur radical, not just C, H & O. But there was a sulfur radical which nobody had thought of or even had seen until he had located it. But at what a cost. It was much too expensive to produce it synthetically. Which is unusual, because usually when you produce something synthetically it's cheaper. It didn't happen with penicillin. And they still, as far as I know, they still produce it in the tank. It's much cheaper.

KP: Were you there at the time they were making that decision at Merck?

CW: Yes, I was there at Merck.

KP: What did you think at the time about this decision? Did you agree?

CW: ... We didn't like it. I mean, we who were on the tanks thought, ... "Gee whiz, what a great idea. We could have a nice big tank house here and make lots of penicillin." ... We were very disappointed.

KP: What year was this offer made?

CW: I think it was probably 1943. I would say it probably wasn't beyond that. Because we had at that time, ten 500 gallon tanks. Now that's not very much. One 1,000 gallon tank, ten 500 gallon tanks. In the meantime, Squibb had a 10,000 gallon tank. They had one ... or two 10,000 tanks. And ... when you sterilize the media in these tanks, you have to vent it properly, otherwise you create a vacuum. Somebody over at Squibb forgot to vent, and the tank collapsed --

imploded, I mean it just went like newspaper. I remember, we were told that at Merck, and they said go down and take a look at the tank at ... Squibb that collapsed. This is when I was still at Merck. So we came down, and saw the thing just laying there like a piece of, just an old piece of metal ... all wrapped up. And ... our boss, "Boy don't any of you guys ever miss venting a tank, cause if you do, oh boy!" [laughter] There was another thing too, to talk about something else on this, is women could work all night. ... They waived the law where women ... couldn't work beyond ten o'clock, or whatever it was at night. And they said they could work all night. Because everybody was working on shifts in this penicillin business. You had to, because you can't shut off a fermentation and go home. Somebody has to be watching it all the time. So I had ... two laboratory assistants, both female. One of them would come in on the midnight shift, and one of them would come in on the ... second shift. One night one of these gals came in on the midnight shift and she was really under the weather. Too much to drink. I mean, I was very upset.

MP: How old was she?

CW: Oh, she was only 19, 18, 20, something like that. Her husband was off in the navy. And I said, this gal has got to go home. I called the guards and said, "Please come down and get this girl and take her home. She's not fit to work. And all I've got to do is have some trouble, and you're going to have all kinds of trouble." So I did the right thing, and I had to take over the lab for that night, because I didn't have anybody. [laughter]

KP: What about your other female assistant you had? Did you have any problems?

CW: No, she was okay.

KP: How old was she?

CW: She was a college grad. She was a little older. She was good. She happened to be a graduate of Rhode Island. Just turned out that way. She lived in the area, ... and she had a degree in microbiology. And she was good. ... I had some excellent female help, especially at Squibb and at Warner Lambert. They were good. These ... two colleagues at Warner Lambert, they would do anything. And if they made a mistake, they'd tell you right away if ... something went wrong. ... I couldn't say enough of them. These were both-- one of them was an English woman and the other one was from Bulgaria. She had escaped from the Communist regime over there. She came over here and didn't even know English. Very bright gal, she had some medical training, she had scientific training. And when she came over here, the government wanted her immediately to teach the U.S. troops the Bulgarian language. She could speak about six or eight languages: ... German, French, Spanish, Italian. ... She says, "Well I don't speak English." "Well you go to Columbia and we'll give you a course." ... She picked it up like that. ... These are great people. Salt of the earth.

MP: Another funny note, while I was researching for your interview, I came across in the brochure that Merck put out that in JAMA, Journal of the American Medical Association, they had put out an article about who made penicillin.

CW: Who made it?

MP: Yes, and they were worried that people would start making their own penicillin because they were desperate for it.

CW: I don't know how they would do that.

MP: They thought they could form it, because they knew it was something that grew on bread and cheese. And they were worried that they would go out and try to make their own.

CW: That would never work.

MP: Of course not.

CW: ... They couldn't possibly do that unless they knew the techniques involved, and what's involved. I mean, ... when you use [a] microbiological procedure, you have to be sterile. As sterile as you possibly can. ... That was one thing we never had. In those days, we didn't had sterile rooms. We had ... a little cubicle, and this would ... keep you out of the flow of air, ... and airborne organisms are all over. But now we have sterile rooms, they're a must now. Positive air pressure, everybody's gowned, everything is spotless, really. It's much, much different than it was. One time ... when we had to make up a batch of inoculant for a penicillin batch, we had to take our flasks, we grew it in flasks like so, and we'd shake them around, and ... inoculate a bigger flask so that we could dump it into the tank. One of the fellows who had this job, it was in the middle of summer, this was before air conditioning also, and it was very hot in the summer. (laughter) He went into this closet, ... and he started working with this cultures. He put on a burner, you have a bunsen burner, going. He was working away, working away. All of a sudden, ... the sprinkler system. The company has sprinkler systems all over the place. All of a sudden it got hot enough, the sprinkler system went off. (laughter) ... He got soaked, and, of course, ... it ruined the inoculant. So ... that's the kind of sterile rooms we had before we really had sterile rooms. They weren't sterile either. But they were better than nothing. As long as you weren't too hot. But it was in a hot summer day. Humid. ... Probably the temperature got up to 115, 120 in there. It was a low ceiling, and that burner going all the time, and he had a lot of bottles to make, so that's one of the little comical things that happened. He came out soaking wet.

MP: You talked about the army wanting to build that plant for Merck, but Merck refused. What other type of contact did Merck have with the army or the armed forces, because I know during that period they were trying to speed up the efforts for antibiotics.

CW: I really couldn't tell you. I just know is that they were constantly in touch with each other, the government. ... I was not in a decision making area for that, and ... I was really not privy to it. My big job was to make penicillin. And that's what I did.

KP: Ralph Schmidt who also worked for Merck, but doing DDT.

CW: Oh yes, oh Big Ralph.

KP: Yes, he mentioned at the time that the army, that there was a real push for production. That for example in his plant ...

CW: He was DDT.

KP: The initial equipment was not very good.

CW: That's right.

KP: What about in your case? Did you always have enough equipment?

CW: We had enough equipment, but like I said, it wasn't all that great, because we didn't know how to keep the batches free from contamination, until we learned how to run steam, flowing steam through it.

KP: But if you did need something, were you able to get it? Were you given a high enough priority?

CW: Yes I would say so. Because those industries that produced that kind of equipment got priority. ... We were never short of equipment. Now DDT, I couldn't tell you how to make that. ... But for penicillin, we had all the equipment we needed. We had the flasks, the pipettes, the plates, the burettes, the shakers. There was a little company, New Brunswick Scientific, here in New Brunswick on Burnet Street, who invented a shaker. When you make penicillin, you've got to have lots of air. And these shakers would go like this, and you could put these ... erlenmeyer flasks in these holders, ... and just turn on the shaker, and it would shake and shake and shake. Growth was rapid. ... That replaced the old surface cultures. When we had surface cultures, we would inoculate the flask and then just let it sit, and it took about a week. Whereas the shaker took at the most, 72 hours, sometimes 48 hours. So that was a big improvement. You could get an inoculum out quicker. ...

When Britain was initially making penicillin, they were using bedpans from hospitals, which gave them the flat surface. They didn't know how to do anything in a shaker. We were the first people over here to do anything in a shaker, or a tank. ... Can you imagine using a big bedpan? ... When you talk about it, it sounds kind of funny, but they were desperate. They used anything they could get. Bedpans were an ideal medium for a flat surface culture. The culture itself, the depth of the medium was never more than an inch, maybe two inches at the most. And then you just let it sit and that's the way it was produced. ... That could be sterile, no question about it, because ... there was nothing moving. Then you'd pour it out of the lip into a extraction bottle or whatever you were using to extract it, and that's the way Britain was first making it. That's what they did when they used this penicillin for the cop who didn't have enough. That's the only way they could do it.

KP: In terms of the workers you had, how much of a priority did you have in terms of the draft? In other words, did you lose any critical people to the draft? Or did you ever have arguments with War Department?

CW: In our Merck areas? No. Didn't lose a one. Not even an old gentleman who came in, and I call him old, he was in his ... early sixties or late fifties. He was a luggage salesman, but ... he was a patriotic individual. And so he went to Merck. He lived in Rahway I believe or nearby. Linden maybe. They hired him, and he ... was one of the guys on my crew manning the tanks. He was very good. He was not a mechanic. He had very low mechanical ability. But if you trained him, he was right. He would learn it, turn the valves this way, turn the valve this way, this way or whatever. He was good that way.

... We had a foreman who was very good at handling the men. He would make sure that they all did their job correctly. I can see ... that old fellow still walking around. He didn't like the steam. He didn't like the noise. But he was patriotic. I mean a fermenter house is noisy, believe me. Oh, you've got all the roar of all those motors going and the steam. And it's a noisy, noisy place. In fact, frequently you'd plug your ears, because it was too noisy. At Squibb ... they had ... 40,000 gallon tanks in a big fermenter house, that whole area. Every time you walked in there ... it was bedlam, noise wise. Because, at least half of them were running all the time. Then there's always occasional breakdown. You have to maintain these fermenters, because the wear and tear on them was terrific. You're sterilizing the batch of 10,000 gallons in one of these tanks. You build it up to a pressure of fifteen pounds which is 120 degrees centigrade and ... that's a lot of wear and tear ... on a tank. Then you cool it down, and then you incubate it at 20 to 22 degrees room temperature. The motors are constantly running. The shaft on the motors were huge, running all the way down from the top to the bottom. Three stories high. ... That was quite a place. That was a showplace really in a sense, because that was industrial fermentation.

KP: How many workers did work in your branch of Merck?

KP: How many roughly?

CW: Three shifts.

KP: And how many would be on a shift?

CW: Well, let's see there'd be myself, laboratory helper and four men and/or women. We had ... one woman on the fermenters who was just absolutely [great], she was like taking care of a baby. I mean she was that conscientious. So I had to have a crew of ... myself, laboratory and four people.

KP: Do you remember anything about the four people? Could you tell us something about the four people? Do you remember any details about them? You mention one of them who was older and ...

CW: The foreman was a tobacco chewing guy.

KP; Was he from Jersey?

CW: Oh yes. They were all right from nearby. Merck ... was a real focus for workers, because they treated them so well. We'd get Army E's ... every six months. They'd put them up on the flag and you'd get a pin. I have a half a dozen different Army E pins. ... The foreman was very good, very knowledgeable, very mechanically inclined. And he knew how to handle the men very well. But he was a tobacco chewing son of a gun and that to me is a filthy habit. There was Little George, he was a very conscientious, ... he came from somewhere near the shore I think as I recall. ... All these guys wanted to do a good job. They really did. ... This was a time in this country when everybody was helping everybody. It really was. It was amazing. They were all behind what was going on. We didn't like this thing going on in Europe and we didn't like this attack from Japan. And it really brought the country together there's no question about it. No matter what industry you were in, many people left the store and took a job that was more geared to the war effort. And, of course, many of them were drafted. I was never drafted, I was never even called. I always got a 2-B classification which was deferred for, every six months I'd get a card.

KP: Did you ever have to appear before the draft board or was it just automatic?

CW: No. Never. No, never ... went to the draft board.

KP: So it was widely known by your draft board that, how important penicillin was?

CW: Oh yes. The draft board had a civilian chairman. It was up to the chairman to get the data on the individuals. And he would, when your time came up, I don't know exactly, they must have had a roll over or something out so they knew when to call you again. When my ... time came up why he'd always check and see if I was still doing the same thing and that was it. Long as I was still doing it, why, that's it. Now, in 1945 I went to Squibb. By my contract with Merck, I could not work on penicillin, vitamin C and something else. I forget what it was. Anyway, I went to ... Squibb, and at that time it was tough to change ... industry. And I know that the ... War Board was a little upset that I was leaving Merck. But I was so miserable physically. That shift work after two years, I was a wreck. I really was. I'd lost weight. I was down to about 130 and I was having all kinds of migraine headaches and I just felt [terrible]. I mean there was no air conditioning and I'd come home, ... I would come off the midnight shift. I'd come home and I'd lie on the bed and hot and the kids screaming from school and all that stuff. I couldn't get enough sleep.

KP: What year did you leave?

CW: 1945. I finally, I'd said to myself, well I went to them and I said, "Look, you've got to take me off of ... this shift work. I'll work somewhere else, but I can't do this anymore."

MP: How long were the shifts?

CW: Well they're eight hours. But you'd changed every eight days-- or every seven days. It had eight to four, four to twelve and twelve to eight.

MP: So it was never constant so you could not plan your life.

CW: You'd just about get used to one shift and you had to change. My whole physiological self was totally in turmoil. It just got me, and I wasn't the only one it got, it got a few others too.

KP; What about the workers? Did their shifts change as much?

CW: Their shifts changed the same, yes. ... Every seven days is too much. If you did it a month, that was much better. I know that I felt that it was too bad that they didn't do it for a month. Well anyway, ... at that point I was so sick. ... They said, "Go have a physical." So I went and had a physical. And I told the doctor ... how I felt. This was on the company. And he says, "Well, there's no reason why they shouldn't change you. I mean the condition you're in you're out more than you're in." And that was true. I was out more than I was in. ... One time I had a migraine headache, I was out for ten days I was so sick. I was miserable. I felt like I was dead. Maybe I should have been. But anyway, I finally told them, I said, "If you can't change me." This was one thing that annoyed me. My boss at that time was a guy I really didn't have too much respect for. And I think he probably felt the same way about me, but I told him, I said, "I can't stand this anymore. I've got to get a change. The doctor says I should change." "Well, you go back and work on the tanks. That's it. Period." So I said, "Okay." That's when I started looking around.

I went over to Squibb and the fellow over at Squibb says, "Well, are you sure you can get ... the War Manpower Board to change you?" I said, "I don't know, but I've got to get out of this job at Merck it's killing me." Well, they checked with the War Manpower Board and they said, "Sure, he can change. He's doing war work here at Squibb." Which I was. Because they were making tetanus toxin, influenza vaccine, smallpox vaccine, dysentery vaccine, all these things are war things. And like I said, my contract at Merck said I couldn't work for two years on penicillin or vitamin C and something else which slips me now. But I said, "That's all right. I don't care." They paid me one half of my salary to do that. That was part of the contract. So for two years I got that from Merck, plus the salary I got at Squibb. At Squibb I had never worked on vaccines. I had never worked on toxins. But it was easy. It was duck soup. I had no problem with it at all. ... The people were very nice and they seemed to like me. I had a nice lab. They gave me a lab with, oh must have had, let's see, I must have had five people in it making these vaccines and toxins and toxoids. I learned animal work, because we had to do all the testing in animals eventually for these vaccines and toxoids. You've got to make sure toxicity isn't there anymore. So you had to check it out in guinea pigs and rabbits and mice. I learned all that. I didn't mind working with animals, I kind of loved that. I had a good career at Squibb too.

KP: A lot of the people I interviewed spent their career at one company and then retired.

CW: Oh yes I know. A lot of people.

KP: Did you find you were exceptional for moving around?

CW: Well, no.

KP: Now it's very common. But at the time.

CW: Yes, I agree it was not that common in those days, but ... I felt each time I moved, I felt I hit a dead end. I was fifteen years at Squibb, and I didn't seem to be going anywhere. So I went to Ortho. I was only two years there because that was a total loss. I mean I did a good job I know but they promised me the sky and I got nothing. So I said the heck with this. And then I went to Warner Lambert. Warner Lambert boss says, "We need a microbiologist. ... Come on aboard." So that was that. ... I had a lot of nice opportunities at Warner Lambert, I really did. I got around a lot. I had many trips to [different installations]. ... Warner Lambert's a big company, a big corporation with many different installations. Foreign and even in the country here. We had a place in Lititz, Pennsylvania. We had a place in Chicago, Rockford, Los Angeles, Anaheim, San Antonio. I mean I got around to all these places. It ... was nice. And it was all involved with microbiology. So you see even though I was a microbiologist and I spent all my time in the pharmaceutical industry. People think, you must have been a pharmacist. Well, no I wasn't a pharmacist. I was a microbiologist. But the pharmacy people need microbiology. And the thing that ... surprised me at the Warner Lambert when I went there was the fact that ... microbiology was like a foreign language. (laughter) ... Some people were: "What do we need that for?" But my boss who hired me, ... said, "We need microbiology." He was right, he was a good boss.

----------END OF TAPE ONE, SIDE TWO----------

KP: This continues an interview with Mr. Carl R. Woodward, Jr. on April 21, 1995 at Rutgers University in New Brunswick, New Jersey with Kurt Piehler and

MP: Maureen Prado.

MP: I know that in the survey that you filled out for us that you said that you had helped out during air raids?

CW: Oh yes, ... I was an air raid warden locally in Highland Park.

MP: What did that entail?

CW: What did that entail? That entailed going out in the middle of the night in the pitch black, you can't have a light or anything. Its amazing how black it gets. Right now, with all the lights around the city and everything else it never gets that black. But in those days, all the lights were out, street lights were out, automobiles ... had their headlights painted half black, ... so they only had their lower part where it comes through, hardly anybody on the road at night. Very few people on the road at night. You wouldn't get all this reflection from those shopping malls and everything you get now. So when I walked out, and I had a neighbor down the street who was

also on the same street that I was, we just walked up and down the street to make sure there were no lights showing from any of the houses. Because even a match, we were told, don't even light a match. Don't have a little flashlight or anything. And, of course, everybody had to pull their shades down at night. I mean, it was a different style, lifestyle [than] they were accustomed to. I'm not kidding, when I walked out, as familiar as I am with Lawrence Avenue, I wasn't sure where I was. [laughter] Really. It's that black, you can't see your hand in front of your face.

KP: How long did the blackout restrictions continue?

CW: How many years?

KP: Yes.

CW: Oh I would say at least four, three or four years, they did. They turned all the street lights out.

MP: This must have been when you were traveling back and forth from work at night, right?

CW: Yes.

MP: So it must have affected your night driving, right?

CW: Oh yes, oh it did.

KP: Did you drive to work or take the train?

CW: ... Well I took the train during the day, but ... once I got on shift work, I had to have the car. Because the trains were so [irregular at night], and I wanted to move as quick as I could to get rest, and all that. But at night, it was tough driving. There were many close calls, so to speak. Because there were people who would walk along the road, and they would be totally black, I mean with black clothing on. When your lights are only half showing, that's not an awful lot of light out in front of your car. We never drove very fast, in case we would hit anything. ... And the gasoline in that day was terrible. They cut out the octane way down, ... it was almost like kerosene. I had to have ration cards, ration stamps for gas, but because I worked in a critical industry, I had no problem.

KP: So you got extra gasoline?

CW: Oh yes, I had plenty of gas. ... In fact, I had enough gasoline to drive up to Rhode Island. I mean you drive up during the day and drive back during the day. A couple of times I went up to Rhode Island, because I was only using the gas, basically, just to go back and forth from Merck. Now it was about 30 mile round trip-- 30 miles round trip from here to Rahway and back. ... I had a small car, six-cylinder Plymouth, and it didn't burn an awful lot of gas, but by today's standards it was pretty inefficient. [laughter] I mean, cars have really improved tremendously, as

have a lot of other things. But, you go out of the house now, you don't even need a light, it's so bright, you get all this reflection.

KP: You lived in Highland Park almost your entire life.

CW: I was born in Highland Park. I was born in the house I live in. The only time I didn't live in this house was the first six months of being married.

MP: You said you rented. Where did you live then?

CW: ... We had an apartment in Metuchen. A brand new building they had just built, and we were the first ones in our apartment. My wife was from Jamaica, Long Island, and I had met her through a mutual friend from camp, and I invited her down here in my junior and senior year to dances and so on. We had a good time. ... She was a pretty nice gal. I really liked her. [laughter] So we got married. We were married in the oldest Presbyterian Church ... that has a continuing session governing body. The oldest one in the country. It was in Jamaica, Long Island. It's over, ... by now its about 350 or 75 years old. We were married in that church. She was a member of that church, and I was a member of the Presbyterian Church here in New Brunswick. We were married in April, in fact next week is my anniversary, 54 years-- April 26. This is in '41, this is before the war started, for us, that is. We moved into this apartment in Metuchen. She was working in New York at that time, at the Bank of New York. She was a secretary. So she continued working for a while.

MP: Did she take the train?

CW: ... She took the train to New York, and I took it to Rahway, until I got on shift work. But I took the train to Rahway ... from New Brunswick here, too, ... before shift work, and I used to meet a few colleagues along the way, they lived in New Brunswick or Highland Park. We would walk over the bridge. They were a good bunch. There was ... always a train for North Rahway for Merck people. Merck had a way with the Pennsylvania Railroad like you wouldn't believe. They had a special train from Philadelphia that came to Rahway and stopped at North Rahway to let these people off and pick them up on the way back. There was a gang from Philadelphia who were a part of Rosengarten and something else company which Merck had merged with, or they had merged with Merck. These fellows didn't want to move, they were old timers. So Merck made arrangements ... with them, and Pennsylvania stopped the train at North Rahway for them. I mean it was a big passenger train. It was the only stop along the way. It didn't stop at New Brunswick. It stopped at Philadelphia, Trenton and North Rahway. ... I don't even know if they have trains at North Rahway anymore.

KP: They still do, the tradition continues.

CW: And then they'd come back from New York and pick these fellows up from North Rahway.

MP: Did Merck hire more people during the war? Did they have an increase in workers?

CW: Oh yes, they hired a lot of people. Because they needed to. Because people were being drafted. Not everybody who worked at Merck got a deferment. You had to be in ...

MP: Critical part.

CW: ... a critical part.

KP: In your area did you lose any workers?

CW: No, no didn't lose any. Anybody who was working on a critical project, they didn't have any trouble with them.

MP: I know that you had women assistants, did they hire lots of women to work to replace the men who were being drafted?

CW: Yes. ... They had women on, for instance, pyridine. I don't know if you ever smelt pyridine, but it is God awful smell. It's used in the manufacturing of sulpha drugs. Merck had a big sulpha building where they manufactured sulpha drugs, and pyridine is a basic, boy it just about knocks you over. I mean especially on a damp, wet day, I don't know how these people stand it, but they did. You get used to it, I guess. It's like ether. That's another thing that Squibb had, ... they had an ether house-- anaesthetic ether, which they don't have any more, because they don't ever use this. But you go by that ether house, and you think ... you're in a hospital. God it's terrible. [laughter] And that's a very volatile product. Fires, ... they were always alert to make sure there's no sparks or anything. ... Ether will go off like that. ... That's one of the disadvantages of anaesthetic ether, there have been explosions in hospitals where they did use anaesthetic ether, ... and they had a real problem with it. Because a spark will ignite it. The fumes from ether just evolve and they are heavy. And chloroform is another, but chloroform is ... not flammable. I was doing an extraction one time over here at Squibb on aspergillic acid, I think it was, and that was a chloroform extraction. ... I was in a rather closed area, bigger than this room, but nevertheless, I had to use a lot of chloroform, and I was working with this thing, and all of a sudden I felt like I was drunk. (laughter) Really, it really got me. ... All I could do to walk down the steps and go out and get some fresh air. That's how it affects you. But Merck took good care of their people. When I first went to Merck, you wouldn't believe it, and I couldn't convince any of my friends that this was happening, but every month we got a little bonus. Bonus was based on their sales for the month. Every employee got a portion of it. There was no union at Merck at that time. And it was just, ... well, for about two years I think that went on. Then the union came in and they did away with that. But that was a real neat little subsidy.

KP: Did the union come in when you were there or after you left?

CW: It came in when I was there.

KP: Was there any tension when it came in?

CW: Oh yes, there is always tension. And the same thing at Squibb. Oh! Squibb was much worse. Merck handled it much better than Squibb, I thought.

KP: What were the differences in the way they handled it?

CW: Well actually, that's why I left Squibb, because of the union. I was fed up, I was spending twenty percent of my time on grievances. That's a waste of time and ... it's totally unnecessary. For years and years, Squibb and Johnson and Johnson almost ran ... a competition as to who could hire the most, and who would get the best. Squibb finally decided they were going to get a union. They had voted it down twice already. You vote it down three times, and then forget it, that's it. They can't apply any more. But the third time they applied, there weren't quite enough votes against it. A lot of people didn't like it. Squibb was very, very good to its employees. They subsidized all kinds of activities: bowling, tennis, softball, bridge, knitting, a dinner everything month, you know, things like this, ... that's all gravy. (laughter) Then the union came in, and everything quit. I sat through two strikes, two or three. Two, I think. The first time was twenty some days. We were locked in. I spent my whole twenty some days in the plant taking care of the animals, because I was the only one who was left there to take care of the animals, and I had thousands of animals. I absolutely couldn't do it. I finally chloroformed a lot of them. The rabbits-- it was an interesting thing. Rabbits were used for chronic toxicity testing. ... Once these rabbits get standardized, they don't want to do anything to them. Well when this strike hit, this was in May 1958, no ... '56 I guess it was. We decided we'd put all the rabbits outside. We'd built a fence around the building and then we'll put the rabbits out, and then I won't have to [feed them]. ... I couldn't keep up with them. Couldn't keep up cleaning them or feeding them. Even though I was working all day. There were so many of them.

KP: This is the plant in New Brunswick?

CW: Yes, right here in New Brunswick. So we let the rabbits out, and then we fed them outside. You wouldn't believe what happened with the rabbits. Rabbits have a very brittle skeletal structure. ... They can snap their own backs that's how brittle it is. They are so strong, very muscular. We let them out and the first thing they were doing was digging holes. The love to dig. Dig a hole and go in the hole and they'd get stuck and break their backs. We had to pull them out and sacrifice them. Some of them dug under the fence. We had a couple of calls from neighbors in the area, "We've got some white rabbits running around our lawn. We think they must belong to you!" So we had to go and catch them and bring them back. Well after twenty days, everyone of the females, the does were pregnant. I had a friend ... over here in North Brunswick, who had a mink farm. He doesn't have the farm anymore, he finally gotten rid of it. But ... he was coming into Squibb to take all of the discarded animals, grind them up and feed them to the mink. And this was great. So I called him up. I said, "Art come on over and pick up all these rabbits, because I can't use them anymore." ... They were wild now, they weren't domestic anymore. That was after having been outside. He told me that everyone of those females was just about ready to lay their young. We would have had young rabbits running all over if the strike had continued. So that was quite an experience. But Squibb ... was never the same after the union got in. There were hard feelings, ... very much so. I don't know how it is

today, but from my friends and contacts I have over there, it's still not as great as it used to be. It was a great place, originally.

KP. Living in Highland Park and New Brunswick during the war, could you tell us something about the impact of Camp Kilmer? Because they put up Camp Kilmer very quickly in World War II.

CW: Yes they certainly did.

KP: What kind of impact did it have on this area?

CW: It took over. I'll never forget the night they opened Camp Kilmer. The town was just crawling with G.I.s, all over the place, they took over the town. ... I watched the construction, I'd ride by on my way up to Merck on the train. We were watching the construction of all the sidings that they were building, and all the barracks they were building, and it was taking over a big area. ... Well there's still some of it remaining. ... It had a big impact on the town. A lot of people were very upset over it, even though it was part of the war effort, because some of the men would get drunk, and they would make a lot of noise, and carry on. But on the other hand, there were a lot of guys, this was their last depot, and they were on their way across and never get back. So my wife at that time volunteered to work with the Red Cross over here. She just quit her job. So she worked with the Red Cross over here at Camp Kilmer for a while, which was an interesting experience. We even rented our house out to a couple of military people, a husband and wife. ... I mean a room, not our house. We had one fellow from the Red Cross who was one of the executives, he rented a room here, because they didn't know where they were going to be sent from day to day, practically. ... Well we got a little extra income from it, but that got to be kind of [difficult], one time I just had to throw the couple out. They refused to leave. I said, "Well we're having another baby coming along, and we need the room." I said, "I'm sorry, but you'll have to leave." "We're not leaving." I said, "Well then I'll have to call my lawyer, and have him come over. ... Whoever he sends over will through you out bodily and all your belongings." He didn't like that, so they left. I was going to do it. I had already made the contact. I said I'll tell you, if they're not out by tomorrow come on over. They were out, they left. It was incredible. [laughter]

KP: When you say there was sometimes trouble, what types of incidents, do you remember any incidents in particular? Were there any community meetings?

CW: Oh, ... I don't think there was any kind of community meetings. But word of mouth was there was a lot of noise. ... It was kind of like over here at Rutgers, a lot of noisy students. That bothers a lot of residents, especially when they're trying to sleep. So, I would say that's about the extent of it.

KP: Any concern about the safety of women?

CW: At that time?

KP: Yes.

CW: I imagine there was, but it's nothing like it is now. I mean now, ... it's incredible how it's mushroomed. At that time, I'm sure there were a few people who were upset about the women, but I really don't remember any violent episodes. I mean, now you have the Shollar case and so many others. ... It's just incredible, these guys think they can do what they please. And that's more upsetting than anything that ever happened during the period that they were here. There weren't here all that long, but there was a continuous flow. In other words here's a bunch of 5,000 that came in and they took over the middle of the city. Which they did, you couldn't move. They were all over. They were looking for bars and they were looking for restaurants, and theaters. We had a lot of theaters then, movie theaters. We don't have them now. But that 5,000 would be on its way, another 5,000 would come in, or whatever the number was. So they were constantly moving, but there was always a flow. So nobody was-- only few people would stand around very long. They would be out, and ship them overseas.

KP: You mentioned you had no problem with gas rationing, but what about other rationing? Did you ever have a problem?

CW: ... We had ... food problems. We had problems with that. Butter for instance, sugar, meat. Meat was terrible. I mean you were lucky if you got meat, really. And you had to have coupons. You could stand in line for an hour before you'd get waited on. The minute they would announce that there is ... a shipment of sugar coming in, the people would hear about it, and they'd be in the store, and they'd bring it in and it's gone like that. Sugar was a real problem, it really was. I love sugar. ... Let me say this. Even though this sounds in a sense sort of facetious, it's really true. We as our family, we were never short of good nutrition. Fruits ... were always available. Canned vegetables were always available. Canned soups, these sort of things. But fresh meat, butter, no trouble with milk. Sugar. Those were the big ones. Flour was a little scarce, for baking purposes. That's the ones that I remember anyway. I used to do the marketing quite a bit. ... Sometimes we'd both go over so we could get in line. But we had to have the coupons, you couldn't get it without coupons. You'd go up there and say, well, I'd like to have a hamburger. Hamburger, we haven't got any hamburger. You know, a simple thing like that. So ... it was tight, very tight. Bread, we always had bread. No problem with bread. Maybe it wasn't as good as it is now, but ... it was there. Cold drinks, always cold drinks. We had plenty of that. Alcoholic drinks, which we don't use ... much, but beer was always available. ... That's about it.

MP: Since you had remained in Highland Park, there must have been a lot of people that you had known growing up who had gone to war, and perhaps they had some families that had remained in Highland Park.

CW: ... Oh yes, there was a lot of them. A lot of them got drafted.

MP: How was the relationship between families who got drafted?

CW: Well the relationship was ... okay. No, there was a good relationship. ... You always felt sorry for somebody being drafted. I know how it was with my son when he went to Vietnam.

That was the first time we had any experience with that. ... Even though he was in the legal profession, he still was subjected to who knows, bombs or pipe bombs. And ... he had to go out on missions, and inspect. He would fly in helicopters. Have a pilot take him. ... He and his colleagues were in charge of construction that they needed to build over there in Vietnam, and then they'd fly out to, say they were in Saigon, and they'd have to fly ... to the bay of, whatever they are. I don't remember all those names, but he said some of those helicopter flights were pretty hairy. They weren't sure if they'd get shot down. Because they don't really have much defense. But he came through it all right, and he kept in touch with us. We'd get a tape every once in a while in the mail. He took ROTC here at Rutgers, so he was graduated as a second lieutenant, and he ended up being a captain. But he didn't want to stay in the service. They wanted him to stay, but he said, no. He'd had it. ... He's in the legal profession now. But it's tense. You always wonder if something's going to happen.

MP: Was there any sense of helping out the families, the wives, who had kids?

CW: Oh, I suppose there was. I don't really know that. But I have a hunch there might have been. You mean from the government?

MP: No, no. Just from the community itself.

CW: Oh, the community. I don't really know. That was World War II you were talking about.

MP: Right, yes.

CW: I know that Vietnam was a disaster. My secretary at Warner Lambert had just been married to a marine lance corporal. That's the lowest you could be in the marines. She was a lovely girl and a very, very efficient secretary and I liked her a lot and she got along well with me. They went on a honeymoon, and when they came back from the honeymoon, he had to go. That was it, never came back. She got word within a month he was gone. So she was pretty upset. ... It was terrible. ... That affected our office staff ... [terribly], that incident, because she was the only one that had anybody over in Vietnam. ... It took a while to get over it, it really did. You feel it, something like that, when you're in that close proximity working with someone.

KP: President Clothier would also lose his son in World War II.

CW: ... Oh yes. Clothier lost all three of his children.

KP: Yes, I had only read one account, I had not realized he had lost more than that.

CW: Well, his daughter committed suicide. She married a friend of mine, they moved to Boston. I knew them very well. I used to date her as a matter of fact. She was a lot of fun. She was very athletic. Liked to hike, liked to play tennis, all that sort of thing. ... She was a nice gal. She married a friend of mine from Highland Park, and they moved up to Harvard, Cambridge or somewhere around there. He was a teacher there. ... He was a bright boy and very scholarly. I have a hunch he taught English or English literature. Although I'm not positive of that, but I

know that was his field. She had two or three children, and then we got word that she'd blown her head off-- depressed, manic depression. My cousin lost a wife like that. And I should say, ... he lost a son like that, his only son. Very depressed. ... It's sad, that something gets into you. Ernie Pyle's wife was that way. She tried to commit suicide and didn't. She was cut all over the place and bleeding like crazy. She was in and out of the hospital for years. Manic depression. And then he was killed, and six months later, she just died. So ... it's a serious mental ailment, which some people are very highly susceptible to. But there are medications now that have worked ... marvelously, they can save you a little bit. ... Do you know the name Valium, the term Valium? That's a tranquilizer.

MP: Yes.

CV: Well that originally came out as Milltown. Because it was made over here in Milltown. That was the original name of it, and then they changed the name of it. Well, it got to be that everybody wanted Milltown. They'd go to the doctor [and say], "Give me some Milltown, because I just can't stand it any longer." They were prescribing this like crazy. They called it, "Don't give a damn pills." (laughter) And this the way you got, so you relaxed, and you weren't tense. It really was good. ... There are incidents when valium is very helpful if you have sleep problems. Doctors will prescribe it if you have a sleep problem. And pharmacists will recommend it ... as a very good sleep item. Help you get a good night's rest, make you feel better in the morning. But you ... don't want to lean on it. That's the only thing.

KP: I wanted to take you back to your Rutgers years for a little bit.

CW: Okay.

KP: Did you think about going elsewhere besides Rutgers?

CW: No. No, I had no idea I would go anywhere else. I loved Rutgers, ever since I was a kid.

KP: So you just assumed and wanted to go?

CW: Oh sure, yes.

KP: Your father did not have to notion to send you up to Cornell?

CW: No, no, no. He said Rutgers? Fine. ... My father was one who would advise, but he'd never really put pressure on you if you didn't want to do it.

KP: So if you had said to your father you wanted to go elsewhere?

CW: Well my brother did. My brother didn't want to come to Rutgers. He went to Amherst. But that's all right. He did well. Amherst is a-- he wanted to be in a smaller school. My brother is fifteen years younger than I. So, ... he's like another generation, basically. My sister went to Douglass, she went to NJC.

KP: And your mother went to NJC?

CW: No. My mother never went to college.

KP: Oh okay.

CW: ... She went to high school, graduated from Freehold High School. But no, I always loved Rutgers, ever since I was a kid. ... I mean, I spent time over here. I used to come to the reunions with my dad. Those days they weren't so big. I mean, you could feed them ... in the barn up here, maybe 200 people. ... I used to really enjoy those. And sometimes they had tents up around College Field, where the different classes would meet. ... It was a much smaller group, much smaller. He would introduce me to a lot of his classmates, whom I knew well, and see around up until the time that they would pass on. But ... nobody survives [in] the Class of '14 at this point. But I really enjoyed it. And I'd go to the ball games, ... he would always take me to the football games. My father loved football. And I would go the other games, like basketball or baseball. He didn't care much for them, but he liked football. He would cheer his head off. I can hear him yet. ... And the whole atmosphere here. I was into the tradition of it, if you might say. I appreciate the tradition. I think Rutgers is a remarkable institution in the fact that it has, it is the only land grant college that is a colonial college. And that is a real, ... I think that's a real thing.

I heard a talk last night up at the seminary by a fellow from Holland from Utrecht. Rutgers has a connection with Utrecht, as you well know, I hope. (laughter) When we were over in Utrecht we saw this, and I was really thrilled. Anyway he gave a talk last night about this woman who married Frelinghuysen. Theodore Jacobus Frelinghuysen. She was Dutch, Dutch, Dutch. She didn't know if she wanted to come to America. But she finally was persuaded. Her father didn't want her to go to America. But she came. She was a remarkable woman, she really was. She was a God fearing person. Make a wonderful wife for a minister. The two of them-- this fellow reviewed her life last night, and she's buried here in the cemetery of the First Reformed Church. He spoke for three quarters of an hour on her life, and what she went through. The connection with Rutgers and Queens and Utrecht. He brought that all in. Now the tradition, to me tradition means a lot.

I mean, I just feel kind of a thrill over the tradition that exists here. The other day, my wife and I went to a movie to see Jefferson in Paris. Thomas Jefferson spent four or five years in Paris, and he had part of his family. His wife had passed on and he had a couple of his slaves. The movie itself, I was disappointed in. But since I came back from the movie, I decided I was going to reread the biography of Jefferson that I have. And I started rereading it, and I had forgotten some of the things. He went to William and Mary. ... He was a brilliant man. He went to William and Mary and in two years, he had taken all the courses they could offer. The professors and the administration there was just thrilled with him. They knew he was a brilliant man, there's no question about it. ... I was glad to reread that, because I had forgotten that. ... William and Mary is a colonial college you see. In fact, there were only two other colleges at that time. Yale and Harvard, and he didn't want to go to Yale or Harvard. He wanted to go to a southern school, so he went to William and Mary. ... There's that tradition, you see. ... I was brought up with

tradition, so I'm into it. And I try to teach it to my kids. Now my daughter works here at Rutgers.

MP: Does she?

CW: She's in research and funded projects, where somebody wants to get a grant, funded grants. ... She graduated from Rutgers. She's ... 28 years here, something like that.

KP: So there is a on-going tie with Rutgers?

CW: (laughter) Well, my mother used to go along to the football games, but she didn't really enjoy it. But ... I never thought of going anywhere else. ... I applied to Rutgers, and that was it. If I didn't get into Rutgers, I don't know what I would have done. But ... I was certified by the principal of the school at that time. ... I didn't have to take any college exams, any boards. But I did have to take Latin. Rutgers wouldn't let me in without Latin. I had to take at least two years, and I took three years of Latin, because I wanted to be in a scientific curriculum. The requirements were two years of Latin, period.

MP: I know you went to New Brunswick High School. Was there a reason you did not go the the Highland Park High School?

CW: ... Yes, ... there was no high school at that time. Highland Park had Franklin Junior High.

MP: Is that the one on 5th?

CW: It's up on Fifth Avenue. That was Franklin Junior High when it was built, and it went the 10th grade. So all the Highland Park kids, at that point had to go to New Brunswick. ... New Brunswick High at that time was a regional school. Way before its time. When you talk about a regional school now, you wouldn't think about it like New Brunswick. But there were three shifts. ... I was on the early shift for two years. The early shift was eight to one. Then there was 9:30 to 3:30. Then there was 10:30 to 5. Those were the three shifts, depending on ... where you came from and what they put you on. Well we came from Highland Park. A lot of the Highland Park kids really liked it over there. I thought it was excellent. I know there were many parents in Highland Park who were very upset that their kids were going to go to New Brunswick to be mingling with lesser lights as they called them, Polish and Hungarian, etc. ... To me this was, I was never brought up like this. Everybody's good. And I've met some great people, some real good friends over there. My best two high school years were in New Brunswick, not in Highland Park. [laughter] ... They came from all over around here: Edison and Browntown, Middlebush and Milltown, and North Brunswick and South River. They all went to New Brunswick, aAnd they did a great job of this. People today now just don't understand this, how we ever did that. ... It was very efficient. We had good teachers.

KP: You lived at home while you were going to Rutgers, but you did join a fraternity.

CW: ... Yes, I was in a fraternity, and I was active with the fraternity. I played on their teams, and did some of their things.

KP: But you did not want to live in the fraternity house?

CW: No, not particularly. I was content. To tell you the truth, I might not have studied as much. [laughter] I admit that. I don't know that I would have been all right or not. But I was so close to it. ... I think another thing too was expense. I had to pay my own way. My father said, it's all right, I'll be glad to help you, but I think it'll be good if you pay your own way. So I did. I would work, I would earn the money, I paid my whole way.

KP: Where did you work?

CW: Oh, I worked mowing lawns, shoveling snow, washing windows, anything, working in a store. Wherever I could find an odd job. I made enough money. It was very cheap in those days. I mean it was ... expensive for me, but to live in a fraternity would have cost me much more than what I had to pay. Now we didn't have all that kind of money. My father was not a wealthy man at all. Even when he retired as president of Rhode Island, $16,000 as the president, 1957. That's not an awful lot. (laughter) Now what do these presidents get. It knocks your eye out. ... I enjoyed commuting. I had a bike, and most of the time I'd ride my bike back and forth. Whenever I had to be at the fraternity, I was there. I helped them doing whatever they needed to be done. I enjoyed playing on their teams, intramural. ... I always enjoyed the fraternity. Fraternities are are a lot different now than they were then, though. We used to have very nice house parties. I don't know what they do now. The formal dances we used to go to. The big dances at Rutgers, oh the Junior Prom, the Soph Hop, ... they were gala events. Everybody dressed up formal, they had corsages and they looked nice, and everybody had a good time. And it cost us three to five dollars and you'd get the top bands in the country. Duke Ellington, Glen Miller, all of these people, Tommy Dorsey, Glen Gray, Gene Krupa, etc. We had it real nice.

KP: Maureen and other students have gone through the Targum from the 1930s and the 1940s. And invariably Paul Robeson would be invited back to the campus.

CW: Oh yes, that's right.

KP: How did students feel about Paul Robeson?

CW: Then? Oh, he was a hero. They loved him. He gave several concerts in what's the Barn now, and that's what he would do. They kept calling him back and calling him back for more encores, and he always obliged. He was very athletic, a big guy. One time he admitted, ... after about four or five encores, he said, you know, this reminds me of an end run, because he played football, you know. (laughter) Great football player. I never saw him play, but my uncle did, and my father, both of them saw him play. They said he was massive. My wife and I saw him in the theater in Princeton in the role of Othello. I've never seen it better. I've seen it several times. But he was-- he dominated the whole thing. He was a great actor, he had a rich voice, he could

sing, and he could fill that barn with his voice. I mean, he had a big voice. ... And a deep voice, a rich deep voice. No, he was a hero, no question, in those days.

KP: So he was widely admired.

CW: Oh, very widely admired. There was a lot of upset when he went to Russia, or made a few remarks that people didn't like. The State Department rejected his ... passport for a while, which ... I can't figure it all out. But that's the way it was in those days. Now, I have a friend from Notre Dame, who is a colleague from Warner Lambert, who is a great admirer of Paul Robeson. He's my age. A little bit younger, but still my generation. There was an article in the ... Newark paper, I think it was, or one of those papers, which he cut out and sent to me. It was a synopsis of Paul Robeson and what he had done. He sent it to me, because he knows I'm from Rutgers. He even sent me a couple of books on Paul Robeson which he had, he didn't want them anymore. ... There are those who think he got a raw deal, and I can't agree more. I think he got a raw deal too.

KP: From Rutgers or from the rest of the country?

CW: Both, both. I think he got a raw deal from Rutgers. But, they finally have tried to ameliorate it and make up for lost time, but there was a time when the people around here, I don't know what was the matter with them. But they just ...

KP: They wanted to ignore him?

CW: Yes. He was a real hero, he really was. ... He would come down here and give a concert anytime we wanted. I mean, ... he loved the university. His father was a minister, ... and he told Paul what it is going to be like before he came here. He says you may be the only black man on the campus, which is true. He says, you're going to be harassed and all that. He told him, now here's what you do. So he told him what to do, and Paul did it. ... He was Phi Beta Kappa in his junior year, valedictorian when he graduated. His father, one time, he took his marks home, and one time he had a B. (laughter) "What Paul, what's that B doing there? You're supposed to get A's." They marked then A, B, and C then. ... This is small talk, but that's the way it was. ... His father was a big influence on him, because his father was a fine man, a real fine man, and Paul was a real fine man, too. He was a hero over in England, and he was a hero over in Russia. They loved him over there, and he liked it, he thought the people were good.

----------END OF TAPE TWO, SIDE ONE----------

CW: Well, ... that was Robeson. ... My uncle was infirmed and I was taking care of him in Philadelphia, and he's since passed away, at 98. ... In fact, this ... June he would have been 100. But, he used to talk to me about Paul Robeson. Because Paul was in the Glee Club, ... and my uncle was in the Glee Club. He remembers going to-- when they did concerts here in town, of course, he was there. But when the Glee Club traveled, they used to travel around the state, and they'd go to the girls' schools or some other school, and perform a concert, but he wouldn't go.

He said, ... "I'll stay home, you'll go without me." It was too bad, because he had the best voice in the Glee Club, according to my uncle.

KP: In 1939, President Clothier right after Germany had invaded Poland, he made a note that America should stay out of the war. But then in 1940, he joined a group supporting Roosevelt's policy of all-out aid to England. Did Clothier's attitude match up with the other students and the other faculty?

CW: I really can't comment on that, because I really don't remember. I know that the general populace was against going into the war. That I remember. But this individual case, I can't comment on.

KP: We noticed in the Targum there were a lot of stories in 1940 over the draft.

CW: Over the draft.

KP: Over the peace-time draft. How did your classmates feel about the peace-time draft, because we weren't even in the war yet.

CW: I know, they didn't like it. They didn't like it at all. And, they were worried, they really were kind of concerned. I know that I didn't really care for it, and yet, ... I talked to a couple of people in the ... military, and knowing my physical condition with my ear, they said you won't have to worry, you'll never go. You could never protect yourself against gas. And, of course, gas was a thing they worried about, because of what happened in World War I. ... After I had talked to them, ... so we'll have the draft and I guess I don't have to worry. [laughter] But I got into this industry, which was critical, so I still didn't have to worry. But, he said, if you're ever called, you'll be rejected, I'm sure, no problem.

KP: Did you participate in ROTC when you were here?

CW: For two years I did, yes. We had to, that was required. I didn't elect to take the next two years. I don't know if I could have passed the physical for that. You had to take a physical for that, and I'm sure this ear would knock it down. So I didn't go, I was glad I had the two years, though. I thought that was good. It was good to have the discipline. I was in the Boy Scouts all my young days.

KP: What rank did you make?

CW: I made Life. I had a whole string of merit badges. I was a junior assistant scout master at one point. I liked the scouts. I went to camp, ... and we went to all the rallies we could have, and we learned the Morse Code and the semaphore code. I enjoyed the scouts. I thought they were great. The first merit badge I took was bird study. Believe it or not, bird study was a required badge in those days. One of the professors from the farm over there, was my examiner. I know him very well, and ... you're supposed to show a list of at least 40 birds that you've identified. That was one of the requirements. I had on there, mockingbird as one of the birds. I had a list of

about 60 birds, but I had written mockingbird. He says, "What's this mockingbird?" I said, "Yes, there's a nest of them over there, where what is now the Rutgers golf course, there's a nest over there." [He says], "Oh no, there's no mockingbirds up there, that's a southern bird." Well that's true, it was a southern bird, but its migrating, its up north now, and this is back in the '30s. I said, "It was a mockingbird." [He said], "Oh no, no. We can't have that." He struck it off. He says, "Describe it to me." I says, "Well it's about the size of a catbird, its gray, it has white stripes on its tail and its wings." "No you mistook that for a catbird, there's a lot of catbirds around." And there were, I agree, a lot more catbirds than there were mockingbirds. But he wouldn't take my word for a mockingbird. I said, "I'll take you and show you the nest." "No, it's not." He wouldn't even do that. Oh boy, my opinion of him went like that. [laughter] Been watching birds ever since I was up at Cornell. ... It was one of those incidents.

But I did enjoy the ROTC, I really did. We used to march every Tuesday. Had to march around the streets, and if it was raining or something, we'd go inside in the gym. And we learned all about the rifle, we had to take it apart, put it together. Learned how to shoot. ... We had target practice down in the basement of the old gym over there. I don't know if they still have it. But, maybe they do. ... I thought that the colonel was good and Captain Cook I liked. ... Captain Colette, he was good. They were all good. ... There were all good guys. They took us with a grain of salt, I think. [laughter] "These guys, they think they know it all."

KP: You never played any sports did you, but you managed the wrestling team.

CW: ... I managed the wrestling team, ... and I went out for the baseball team. ... I was in the reserve for a baseball team, but I got badly hurt, very foolishly, and I had to really quit. I was on Nielson field, which was anything, but level. And I was running in the outfield, and I stumbled and I kicked the back of my left knee with the heel of my right foot, came right up like that. I didn't think anything of it at the time, and I fell. I got up and I continued to play. That night, even before supper, my left leg got hot, and it was stiff, and I couldn't walk. ... I went back home, and I didn't know what to do. I could sit down, I was all right. But the minute I stood, it just ... pulsated, ... real hard. So the next day I went into see Greenwood, who was the school physician at that point, Dr. Greenwood. And he says, "You've got phlebitis." I said, "What's phlebitis?" He said, ... [laughter] "You've aggravated your blood vein there somehow. It's swollen and enlarged." He said, "The best thing for you to do? Go home, get in bed, put ice on it." ... I was in agony when I was in the library that night. So I went home and I went to bed and put the ice pack on. I was there for three days trying to take that thing down. He said, "Don't put heat on it, it'll only make it worse." But he was right, the ice did take it down. So I didn't go out for baseball after that.

I would like to have played tennis. I went for tennis also. I had made the tennis team in New Brunswick High, I was on their team. I went around a bit and played with the high school kids. I was for the tennis team here, you had to go through a tournament. I went through about three or four fellows, and I won. But then I came against this one guy, who was just about equal, ... we were very close. And he finally beat me after about five sets, so I didn't make the team. [laughter] That was it. It was different then, than it is now, but that's the way it was. I enjoyed it. I loved tennis, I play a lot of tennis. But I couldn't play now though.

KP: Is there anything that we have forgotten to ask you about.

CW: I don't know. It seems to me you've done pretty well! ... Oh my father, ... when my father died in Rhode Island, he became president emeritus, and then ... when he died, why we dedicated-- ... we gave all of his agricultural library collection to the University of Rhode Island's Agricultural College, and it's called the Carl R. Woodward Agricultural Library. He had a collection of a large number of books which I had appraised, it was worth about six or eight thousand dollars, as I recall, something like that. ... He had been collecting all of these old agricultural books. Because, he was really an expert in agricultural history. And he loved that. ...

KP: All three of your children went to Rutgers. Are there any grandchildren who went to Rutgers?

CW: My grandchildren aren't going to Rutgers, I'm sorry to say. (laughter) My grandson, the oldest one is up at Syracuse, he's finishing up his sophomore year, my granddaughter, I don't know what she's doing. She's applied to six colleges, she was accepted at Rutgers, he was accepted at Rutgers. She was accepted ... at Brown, Cornell, Rutgers, Johns Hopkins, William and Mary, and Washington University at St. Louis. Why any would apply to ... six college boggles my mind. ... I mean she's a very bright student, no question about that. But ... I told my wife, I think she's on an ego trip. (laughter) Anyway, my other grandsons, my three grandsons in Virginia aren't of college age yet. I'm not sure what will happen with the oldest one, Philip, is totally deaf. He was born that way. But he gets along very well. He's a brilliant kid, he's an A plus student, and a very nice person, personality. ... Andrew, he's got three years yet before he'll go, and Stephen, he's got at least five years before he'll go, so. That's my youngest son.

He, incidentally, Richard, is one of the top administration down at the Virginia State Museum of Fine Arts. He's got a very nice job and he loves it down there. ... He really knows his art history. I love to hear him talk. He can speak and speak, and speak, and I listen. I never cared much for art, but I love it now. [laughter] Only because he makes it sound so good, so interesting. He's a very, very interested, talented speaker. My wife, every once in a while says to him, "Gee, Richard, don't you think you're doing too much?" ... He says, "Mom, don't you worry, I love it." ... He's very personable. And then my other son is a lawyer, he's the one who was at Vietnam. I guess that's about it.

KP: Actually I have two questions that just came to mind. One was Tom Frusciano gave me two clippings on you that noted that you ran for council in Highland Park.

CW: Oh yes, I ran for council four times. [laughter] I'm in the wrong party.

MP: Yeah that's true, it's pretty Democratic over there still.

CW: God, yes they're solid. When I ran, though it was still a mixed bag.

MP: Was it?

CW: Yes it was, fortunately. And unfortunately it's changed now. ... Actually, even when I was a kid, it was all Republicans, there were no Democrats. The Democrats didn't put up anybody, and the Republicans would always win. ... It was total Republican, all the way, mayor and council. Now it's the other way. But I started running in 19, first year, I think it was '57, '55 or somewhere in there, I forget. But I ran four times. One of my classmates was telling me, he says, "You've got to run seven times, you know, Lincoln ran seven times before he was elected. Who gave you that? (laughter)

KP: Tom Frusciano.

CW: Oh, he did? Oh, he found that?

KP: It was a clipping. And one point, you wrote a letter to the editor, protesting the plans by Rutgers to develop the Kilmer reserve.

CW: Absolutely. Yes, I was very much upset over that. Because that is a great place, and the university should hang onto it the way it is. ... I made Bloustein a mortal enemy, because of my stand on that. He was always very friendly to me, until I told him what I thought of that. That was the last I heard from him, and that didn't sit well with me. I mean, after all, I have my right to my opinion as what you do with that. ... That was a gift to the university. What are you going to build a shopping mall for? We've got too many of them now. I had lots of support with that, and that's one thing I really got into. Also I got into the Great Swamp, when they wanted to ... build the airport there.

KP: So you opposed that too?

CW: Oh, did I. I mean, I was working at ... Warner Lambert. I would ride across that every day, and back and forth, that was part of my commute. Great place-- ... national reserve. And they wanted to make an airport out of it. You know, these wetlands are very, very valuable. ... Some people think so, some don't, they don't care. Well I remember in Highland Park, Donaldson Park. You know Donaldson Park on the south side? That used to be a wetlands, a good part of it. When I was a kid, we used to go sleigh riding down 3rd Avenue. South 3rd Avenue, there's a long climb, ... all the way down, and we'd go out onto the meadows there. That was a great place to sleigh ride. In those days they used to block off the streets when it snowed. They didn't plow them. They block them off and the kids would sleigh ride. Even Lincoln Avenue, same thing. Well anyway, I used to go .. birding down there in that wetlands and that was great. There were marsh wrens in there and woodcock, and many other species of birds. They came along and they wanted to fill that thing in. I raised a fuss over that, but ... that didn't even make a dent. But I did make a fuss over this thing with Kilmer Woods and fortunately they listened. I even went down to Trenton one time. ... The Great Swamp, I wrote letters on the Great Swamp, and fortunately they didn't make an airport out of it. ... But there still is a lot of feeling about they should do something with the Great Swamp as far as development is concerned.

KP: I also should say I grew up in that area, and I hope they stop developing.

CW: It's terrible what they're doing. I mean, they are gradually encroaching on it and it's filling in. It's a shame. ... Where did you grow up?

KP: I grew up in the Roxbury, Mount Olive area.

CW: Oh yes. ... Well the great swamp of Morris County, that is a gem. ... That's a jewel, and I think it should stay there. Of course, I think this Kilmer Woods is a jewel over here. ... I can go over there during the bird migrating season and there's a lot of warblers go through there. Although I will say there are less going through now than before. The warblers are having a tough time in South America, and Central America. Go down there in the winter and there's no place for them to stay. Bird migration is a fascinating subject. I gave a paper on bird migration once, when I was in college.
[laughter]

KP: It sounds like if you had a choice of doing another career, you would probably be an ornithologist? Had you ever thought of it?

CW: Well, I could do it. I could do it. I mean, I have been in so long. ... Actually, I remember Leon Hausman. He was a professor at NJC. He taught zoology, but he also taught a course in ornithology. And he was a great birder. I said, "I'd like to take a course with you, what could I do." "Oh!" he says. "You don't need a course with me. Gosh, all I do is teach them a little bit about birds." He said, ... "You already know all that stuff." I said, "Well." [laughter] I didn't get very far with that. But, ... I'll tell you, two things I like, history and like you say, ornithology as another subject. Although I loved microbiology and I did well in it, I've really become a history buff. Especially ... since I've retired. Reading nothing but history, practically. And I just love it. We went to England in 1971 as a wedding anniversary, and ever since I came back from England in 1971, because our antecedents all come from England, I've done an awful lot of reading of English history. Monarchs and government and all this sort of thing. ... I really love it. ... I added up my books one day and ... I think I have about 150 or 160 books of nothing but English history. (laughter) ... And I haven't read them all yet either. But anyway I do love it. ... I keep active, I work with RU-ALL, that's kind of an interesting-- I really enjoy that. ... I get to meet a lot of nice people. ... Keep active, it keeps you thinking. And when you turn your brain off, then you might as well be planted.

KP: I wish we could have interviewed you father and your uncle. It is a shame they did not have oral history projects earlier.

CW: Oh gee, yes, ... this is really quite a project you're in. I look forward to reading the results of it.

KP: You will be reading the transcripts, probably hopefully sometime this summer, Maureen will be done sooner, but I will take some time to get reading them all.

CW: I guess so. Are you going to be doing the typing of it?

MP: Yes. It takes a long time.

CW: I know. And you have to listen to all of this chatter.

MP: It's worth it, but trying to figure it out sometimes is what is what.

KP: We'll probably have yellow slips for you, some of the microbes.

CW: Okay, whatever. Be glad to help you. It's been a pleasure.

MP: Thank you.

----------END OF INTERVIEW----------

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