THE BECKMAN CENTER FOR THE HISTORY OF CHEMISTRY

CLAUDE K. DEISCHER

Transcript of an Interview
Conducted by

John A. Heitmann

in

Philadelphia, Pennsylvania

on

27 April 1984

CENTER FOR HISTORY OF CHEMISTRY ORAL HISTORY PROJECT

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Claude K. Deischer
(Signature)

April 27, 1984
(Date)

Chemical Heritage Foundation
Oral History Program
315 Chestnut Street
Philadelphia, Pennsylvania 19106

CLAUDE DEISCHER

1903 Born in Emmaus, Pennsylvania, 14 October

Education

1925 B.S., chemistry, Muhlenberg College
1928 M.S., chemistry, University of Pennsylvania
1933 Ph.D., chemistry, University of Pennsylvania

Professional Experience

1921-1927 Public school teacher

Department of Chemistry, University of Pennsylvania
1928-1971 Instructor to associate professor
1952-1965 Assistant chairman of chemistry department
1955-1971 Acting curator, E.F. Smith Memorial Library
1971 Emeritus professor

ABSTRACT

In this interview, Claude K. Deischer discusses his life and his career as a chemist and historian of chemistry. Initially, Deischer recollects his childhood and early education. He then speaks about his undergraduate education at Kutztown State and Muhlenberg and his graduate and postgraduate research at the University of Pennsylvania. A discussion of his early teaching at Penn, his initial interest in the history of science, and the Smith Collection follows. Deischer then appraises his scholarly activities during and after World War II and his department and students. The interview concludes with Deischer considering the part that he played in starting Chymia, and his contributions to the American Chemical Society and the Moravian Church.

INTERVIEWER

John A. Heitmann holds a B.S. degree in chemistry from Davidson College and an M.A. degree in history from Clemson University. From 1974 to 1979 he worked as a chemist in the metallurgical industry. He then studied at the Johns Hopkins University under Owen Hannaway and received his doctorate in the history of science in 1983.

NOTE: The following table correlates the tapes of the Deischer interview with the pages of this transcript.

Tape 1, side 1.....pp. 1-7
side 2.....pp. 7-14

Tape 2, side 1.....pp. 14-21
side 2.....pp. 21-26

TABLE OF CONTENTS

1 Family and Childhood
Early years in Emmaus, Pennsylvania. The Moravian church. High school science. A summer job at the foundry. Teaching in a one-room school. Training at a teachers' college.

3 Undergraduate Education
Muhlenberg College. Scientific learning deepens. Additional experience in the laboratory. Chemical training at Lehigh.

5 Graduate Education at the University of Pennsylvania
Meeting with Edgar Fahs Smith. The chemistry faculty at Penn. A teaching job at Penn. The analytical chemistry course.

8 Postgraduate Research
Work with mercury. The gravimetric determination of the atomic weight of mercury. A discussion about apparatus.

9 Colleagues and Teaching at the University of Pennsylvania
Wallace McNabb. Ralph Connor. Philip George. Harry Alsentzer. Ernest Wagner. Initial interest in and early teaching of history of chemistry.

11 The Smith Collection
Mrs. Smith donates the collection to Penn. The background and contributions of Eva Armstrong. The collection is moved to the Van Pelt Building.

12 Activities during World War II
The teaching of analytical chemistry to army and navy personnel. Rationale for publishing papers in the history of science. Colleagues in the history of chemistry.

16 Postwar Research, Teaching, and Administration
Revitalization of Penn's chemistry department. Service as assistant chairman and member of various committees. Inadequate laboratory apparatus. Research interests of graduate students.

18 Association with Chymia
Henry Leicester's efforts. Early difficulties getting Chymia established. Some articles. Changes under Russell McCormmach.

20 Involvement with the American Chemical Society
Work with the national and regional sections. The diamond and centennial celebrations.

22 Activities during Retirement
Work with the Penn Chemists' Fund and The Catalyst.
Continued involvement with the Moravian church.

25 Index

INTERVIEWEE: Claude K. Deischer

INTERVIEWER: John A. Heitmann

LOCATION: Center for History of Chemistry
University of Pennsylvania
Philadelphia, Pennsylvania

DATE: 27 April 1984

HEITMANN: Dr. Deischer, you were born in Emmaus, Pennsylvania, in 1903. Would you kindly tell us about your early life. I'd like especially to hear about what your father and mother did, when you became interested in the Moravian church, and the effect of the church upon you in your youth.

DEISCHER: Well, I would be happy to share some of the details with you. We lived outside of Emmaus on a small farm. We owned only about twenty-five acres. My father was a carpenter and a pattern maker. My mother graduated from a two-year high school in Emmaus. She motivated her children to get an education.

HEITMANN: Were your parents born in America?

DEISCHER: Yes sir. My mother is an eighth descendent of the Knauss's. That's my middle name. The Knauss's came to this country around 1740 and founded Emmaus. They were Lutheran and Reformed; nevertheless, they soon embraced the Moravians who were in Bethlehem, a little town about five miles away. They did so because there was no pastor around Emmaus. The Moravians led simple and sheltered lives. Moving on to more recent times, I had two brothers and three sisters. All of us went to public school and then to normal school. We were allowed to attend the schools in Emmaus provided that we paid a dollar per person each month for tuition.

HEITMANN: What became of your sisters and brothers?

DEISCHER: They became public school teachers. After we graduated from high school my father worked for the Reading Railroad and therefore got us passes. We commuted daily by train from Emmaus to Kutztown and back. The tuition at normal school at that time was only eighteen dollars and fifty cents per semester. It was a very inexpensive way to get an education. The cost of meals at school was also inexpensive.

HEITMANN: Do you recall when you first became interested in science? Was it in high school?

DEISCHER: Not much in high school. We had classical subjects. When I got to Kutztown, however, I decided that I would like to learn some science and so I went to see the principal of the normal school. I wanted to substitute chemistry and physics for

some of the pedagogical subjects. I was surprised that he let me do that. I took chemistry and physics under Professors Stump and Deitrich. The courses were elementary ones, but taking them helped me a great deal. When it came time to do my public school teaching, I went to Kutztown High School and did practice teaching there. Each day I'd walk about a mile to the high school and teach for a while.

HEITMANN: Do you have any recollections of those years at Kutztown State? Tell me about the students. Were the faculty members very close to the students?

DEISCHER: Yes, the students were close to the faculty. There were lots of activities, like debating and various social events. Day students like us were allowed to participate in these activities. Because we had to leave by four o'clock, however, we could not participate in all of the day's activities--unlike the boarding students who could. If we didn't get the train that brought us back home, we had to take a trolley that brought us to the main railroad, the Reading Railroad. We'd then arrive home around seven o'clock at night. I thought that the travelling was pleasant.

HEITMANN: How long did you stay at Kutztown State?

DEISCHER: Two years because it was a two-year program. We made the best of our time and enjoyed the experience.

HEITMANN: Did you work in the foundry in the summertime?

DEISCHER: I worked at the foundry one summer. I also did odd jobs around home.

HEITMANN: Tell me about your foundry work.

DEISCHER: I stayed with my aunt and uncle who lived in Kutztown and just did a regular day's chores. I was told what to do and I did it.

HEITMANN: Did you make any patterns?

DEISCHER: No. I did odd jobs, like getting rid of refuse and grass and unloading sand.

HEITMANN: Did you make molds?

DEISCHER: No, I didn't. Unloading sand was the hardest job because I wasn't used to it. I would have to pick up pieces of iron that were left after the mold was broken apart and take them someplace to be put in the next casting. I was kept busy and worked a very long day. It started early and lasted until about five o'clock.

HEITMANN: When did you become interested in chemistry?

DEISCHER: Two years later when I was employed in a one-room rural school and taught all eight grades.

HEITMANN: Where was this?

DEISCHER: About a mile from my home. The school was part of a Lutheran and Reformed church. I had to build my own fire and function as custodian. The semester was short and the curriculum limited. I taught seventeen children who came from local farms. We got along very well. I even played ball with them. Naturally, because I had eight grades all in one room, education was limited to ten or fifteen minute class periods. I had to give the children time for recess and other activities. It's a wonder that they did learn; but then they learned from each other. While some students were up front reciting, the others were listening or studying. It was a very small room, so we had a lot of fun.

HEITMANN: Education was considered to be very important?

DEISCHER: Oh, yes. I had only one difficulty. When families needed their children to help with the farm work, they would keep them home to work the soil. I had to keep track of their absences. If they were absent more than a certain number of times, they were brought before the officer of the school. Only once did I have trouble because of a child's absence. At that time I had to defend myself at a meeting held about five miles away. The parent who kept his children at home the most denied keeping them at home. The officer believed me and fined the father a small amount. Because he argued, however, the officer said, "Now I'll raise your fine from five dollars to seven and a half dollars." Finally, the father left. When it was time for me to leave I didn't know whether I wanted to go down the same street that he had. Fortunately, he didn't do anything to me.

HEITMANN: Did you support yourself when you chose to continue your education?

DEISCHER: Yes, indeed. I did it all myself. My parents helped me with meals and things of that sort.

HEITMANN: You were at Muhlenberg College.

DEISCHER: Yes. I taught at Emmaus for four years, the latter two years in the high school. When I was teaching in high school, the administration decided that I should teach chemistry and physics, probably because I was going to Muhlenberg and taking courses there. That was the best thing that could have happened to me. I was also athletic director in the high school.

HEITMANN: How many students were in the high school?

DEISCHER: Oh, there were about twenty-three in my high school class. Four years later, there were about twenty-seven to

thirty. The community was very small; the population was only about three thousand. I then went to Muhlenberg and that's where I studied chemistry with Dr. Fasig and Dr. Baillie. Dr. Deck taught physics and math. Dr. Schankweiler taught biology. Naturally, they had better equipment and more students, even though Muhlenberg was a small college.

HEITMANN: Was it a Moravian college?

DEISCHER: No.

HEITMANN: Tell me a bit more about Muhlenberg.

DEISCHER: It is in Allentown and I commuted there with a trolley. That was the only way I could go because I didn't have an automobile or bicycle. At Muhlenberg I took some courses in chemistry, math, and ornithology and got a B.S. Muhlenberg had a very extensive program and even though they gave me a lot of credit for courses at Kutztown, I still had to make up some of the courses which I did not take at Kutztown where I only received a teaching certificate. I had to take religion courses, for example, because Muhlenberg was a religious school. So, I went Saturdays and evenings and summers just to earn a few credits. All the while I had to travel back and forth. If I had a few extra hours I would work in the foundry in Emmaus.

HEITMANN: Did you get considerable laboratory experience?

DEISCHER: At Muhlenberg? Yes.

HEITMANN: Are there any particular experiments that you remember?

DEISCHER: I do not remember them. The courses and experiments were run-of-the-mill. We had a certain number of experiments to do. Most of them were, of course, in chemistry, physics and biology.

HEITMANN: You graduated in 1925.

DEISCHER: In 1925 from Muhlenberg. That's when I got the offer to teach in the high school in Emmaus. And I taught in Emmaus for two years. I then wanted to go on to learn more chemistry. I liked chemistry better than any other subject.

HEITMANN: Any reason why?

DEISCHER: I don't know. I decided I wanted to go to Penn. I had a cousin who had gone to Penn years before.

HEITMANN: You went to Lehigh for a while.

DEISCHER: Penn told me I couldn't enter until I took some more courses. That's why I went to Lehigh and that's when I took chemical calculations with Professor Long.

HEITMANN: Shorty Long?

DEISCHER: Yes, Shorty Long. I had Professors Smull and Babasinian in organic. These classes had quite a number of students because it was an engineering school. I earned the credits and was admitted to Penn as a full time student. I didn't do any teaching for one year.

HEITMANN: This was in 1927.

DEISCHER: 1927, yes. And that's when I met Dr. Smith. He was retired when I saw him in his library in the chemistry building. Dr. Smith asked me where I came from. He soon learned that we were both Moravian.

HEITMANN: Did you know who Dr. Smith was before you got here?

DEISCHER: Yes, I knew of him.

HEITMANN: His prestige.

DEISCHER: Yes. He began to show me some of the holdings of the Smith Library. He had exhibits and books all over the chemistry building. Some were in the ladies' room. Some were in the hallway in locked cabinets. Some were wherever they would find a place. He had his own system. At that time Miss Armstrong was his secretary. She took care of the library until about 1962.

HEITMANN: That's Eva Armstrong.

DEISCHER: Yes. It was she who helped me a great deal after Dr. Smith died in 1928.

HEITMANN: Did you spend a considerable time talking to Dr. Smith?

DEISCHER: Yes.

HEITMANN: Any other recollections?

DEISCHER: I went to his home. He lived in an apartment at Fortieth...

HEITMANN: I think it was Thirty-Ninth Street.

DEISCHER: Yes, Thirty-Ninth and Locust. I went there sometimes. Of course a lot of people visited him frequently. Some people that he taught travelled extensively. They had money and naturally they bought some books abroad. That's the way he accumulated some of his library. He also travelled; but after he retired as provost in 1920 he stopped travelling. By then he was interested only in his library.

Allow me to tell you a bit more about Dr. Smith's involvement with Penn. When he returned to the university in 1888 he was directed to revise the chemistry curriculum, hire

more chemistry faculty, and plan for the new John Harrison Laboratory. He soon became chairman of the department and then vice-provost in 1898 and provost in 1911.

HEITMANN: Who were some of the people in the chemistry department when you first came to Penn?

DEISCHER: Dr. Shinn. He was the head of the department at the time. Dr. Taggart was the organic chemist. Dr. Lukens was the analytical chemist and Dr. McCutcheon, who had studied abroad, taught inorganic chemistry. Soon afterwards, they brought in someone to teach physical chemistry.

HEITMANN: Dr. Wagner?

DEISCHER: No, Dr. Wagner was organic. It was Dr. Kilpatrick. Anyway, I started to take courses. We had only about fifteen graduate students.

HEITMANN: Then you did your work with Dr. Lukens.

DEISCHER: Yes, with Dr. Lukens.

HEITMANN: Any particular reason why?

DEISCHER: After I received my master's degree from Penn, I accepted a teaching position at Hammonton High School in Hammonton, New Jersey. I then felt secure because I could earn money. I came back to Penn on Alumni Day and also to attend the commencement exercises on the next day. Dr. Shinn asked me what I was going to do. I told him that I would teach at Hammonton. He asked me how much money I would be paid. I said, "Well, they told me I'd get eighteen hundred dollars per year." He asked, "Would you like to stay here?" I replied, "Oh, certainly," because I knew then that you paid no tuition if you taught. You also paid no breakage fee. I said that I'd love to stay at Penn and to teach. He said, "All right, I'll give you a teaching job in general chemistry." I worked quite hard that year.

HEITMANN: Did you have to lecture and do the lab?

DEISCHER: No.

HEITMANN: Just the laboratory?

DEISCHER: Yes. And quiz them and have calculations.

HEITMANN: Did you do demonstrations?

DEISCHER: No. I did not. They had someone else do the demonstrations. I taught general chemistry for a number of years. When Dr. Lukens became chairman, he said that Penn needed a man to teach analytical chemistry. I said that I would be happy to teach analytical chemistry.

HEITMANN: You taught general chemistry and analytical chemistry?

DEISCHER: Yes. I was also told that I would have to teach a course in chemical calculations that I had taken at Lehigh to the classes in analytical chemistry. It worked out very well. I was then transferred to the hygiene building* because student enrollment began to grow.

HEITMANN: When were you transferred to the hygiene building? Roughly mid-thirties?

DEISCHER: Yes. Sometime in the mid-thirties. Shortly afterwards they found a laboratory on the fourth floor of the anatomy-chemistry wing in the medical school. That's when I taught V12 and ASTP.**

HEITMANN: During World War II, did you make sure that the students had the proper unknowns? And did you grade the assay values?

DEISCHER: Yes. We made up the unknowns. Sometimes we graded them if they did not work properly. We also had to give them exams. We had a much more extensive course in analytical chemistry than previously. We taught boys from the army and the navy. Sometimes the whole class would disappear at one time if they were called away into service.

HEITMANN: Do you remember some of the experiments that you used in the 1930's in the analytical chemistry course?

DEISCHER: Well, we analyzed for metals in salts.

HEITMANN: Volumetrically?

DEISCHER: Volumetrically, yes. We had volumetric and gravimetric. And the volumetric were getting much more detailed because we were extending them into new areas. We also got some new equipment.

HEITMANN: Like what?

DEISCHER: Well, separatory bulbs, things like that.

HEITMANN: Separating funnels?

DEISCHER: Yes, volumetric flasks and newer chemical balances. See, Penn had a large collection of the apparatus from Europe.

*Now E. F. Smith Hall, home of the Department of History and Sociology of Science.

**These were courses in analytical chemistry taught to students in the navy and the army respectively.

Someone had bought a lot of apparatus and by the time some of it was to be used it was too fragile. I suspect that some of it was bought before the war. Some people said that some of the apparatus and chemicals were brought into Philadelphia by submarine from European countries before we were at war with Germany.

HEITMANN: Was this World War I or II?

DEISCHER: World War I. I guess that they had some apparatus stored underneath the Harrison Laboratory. We had the usual run of experiments. We usually had some of the better students look up some other experiments and work them out.

HEITMANN: You did postgraduate work with Lukens?

DEISCHER: Yes. I worked with mercury.

HEITMANN: Do you remember anything about that?

DEISCHER: Yes. He assigned that subject to me. I had to calculate the atomic weight gravimetrically. I had to redistill the mercury many times in order to get the zinc and other impurities of that sort out of it. It was a job.

HEITMANN: Wasn't it dangerous as well?

DEISCHER: Yes, but we didn't think much of it. There was a lot of mercury around and we had these little pellets rolling around on the floor. I guess it really was dangerous but we didn't take it seriously.

HEITMANN: Did you design your own apparatus?

DEISCHER: Yes.

HEITMANN: Did you make it yourself as well?

DEISCHER: No. We took the design to the glass blower in the medical school and then he would make the apparatus according to our directions. If we had to modify it, we went back again. The apparatus had to be carefully ground and fired so that it would be airtight. To condense the salt in a portion of the tube I had to surround it with dry ice. I got the dry ice at 34th and Market from an ice cream manufacturer. I fetched the dry ice myself. They didn't deliver dry ice at that time. It was a chore. Very often it took us a long time to get results.

HEITMANN: Was your determination done volumetrically?

DEISCHER: No. I had a special balance, the best balance the department could buy at that time. That's the only way I could do it. I wasn't able to isolate isotopes. The results would have been better with the isotopes. It was a difficult experiment.

HEITMANN: After you graduated you also worked with Wallace McNabb for a while.

DEISCHER: Yes.

HEITMANN: In analytical work.

DEISCHER: Yes. Some analytical work.

HEITMANN: Do you have any recollections of your work with him or of Dr. McNabb as a chemist or coworker?

DEISCHER: Yes, he was a very good coworker. In the beginning he did the lecturing in analytical chemistry and then later on when the enrollment became larger I took one course and he took another course. He would lecture on a Saturday perhaps, and I would lecture on regular days. We would periodically switch teaching assignments. That's the way it went along. He was a wonderful person.

HEITMANN: Where did he come from?

DEISCHER: From a small community near Penn State. He was a Gettysburg graduate. Some of his work was at Gettysburg, and then he came here and got his Ph.D. degree. We took some odd jobs like determining metals. We had a project on oyster shells. One of our graduates was involved with a company that had a lot of oyster shells. He wanted to know how much iodine was in the oyster shells, as a feed for chickens. Apart from a few things like that we didn't have much opportunity to do extra work. We taught most of the time.

HEITMANN: I think that you were appointed assistant professor in 1936. Who were some of your close faculty friends in those early years?

DEISCHER: Dr. Alsentzer. Also, Dr. Connor. He taught organic.

HEITMANN: You say it was Connor.

DEISCHER: Ralph, yes. And Dr. Wagner came in then also. Phil George was in our department at one time.

HEITMANN: In 1935 or so, you began to teach the history of chemistry.

DEISCHER: Yes.

HEITMANN: Can you tell me how you got drawn into this?

DEISCHER: Yes. I had done some work in the history of chemistry section at the American Chemical Society. Miss Armstrong had encouraged me. She had also helped me because she knew Dr. Smith's library. We had even written a paper or two for different meetings. When Dr. Taggart, who was then teaching the

history of chemistry, became ill, Dr. Lukens came to me. He said, "I saw you in Dr. Smith's library a number of times and we need someone to teach history of chemistry." I said, "Well, I'll be glad to do it, but I know very little about it."

That's when I started to learn the history of chemistry in a serious way. I worked harder than the students. It was a required course. Gradually, we increased the number of students in the course. I wanted them to do some library work and therefore assigned them subjects like biographies and short clinical topics. I brought them to the Smith Library and taught them how to use the library's card catalog. I wanted them to research some of the topics themselves. I also showed them a few of the important volumes and explained why they were written and how new ideas evolved. In time, I even taught them something about patents because I was beginning to get some engineers in the course. They liked all of that. As time went on, however, more new courses, like organic, physics, physical chemistry, and mathematics were introduced. Some of the non-required courses had to be dropped.

HEITMANN: So the history of chemistry had to be dropped.

DEISCHER: Yes. It became an elective.

HEITMANN: I was wondering if you wanted to share your opinion of Miss Eva Armstrong at this time.

DEISCHER: Well, she was very able and very helpful. Sometimes she would help me get some information together. She finally had a full-time job when Chymia came into being. Dr. Browne and Dr. Tenney Davis were editors of Chymia.

HEITMANN: That was in 1946.

DEISCHER: Yes.

HEITMANN: When you came in 1927, Miss Armstrong was Dr. Edgar Fahs Smith's personal secretary.

DEISCHER: Yes. When Dr. Smith died, she was unemployed for a while. But she was brought back to take care of the library. She received a very small stipend I understand. Mrs. Smith subsidized her.

HEITMANN: How did the university get the collection?

DEISCHER: Well, for a while it was just closed. Then when Mrs. Smith came down to see Miss Armstrong in the chemistry building, she...

HEITMANN: Didn't Miss Armstrong, or someone else, have to go through a long process of convincing Mrs. Smith?

DEISCHER: Oh, yes. At first, Dr. Lukens, and, of course, Miss Armstrong particularly, and I thought that the collection would

be sold piecemeal. Dr. Lukens was very much interested in the collection because the library was still here and because he had known Smith very well. In order to forestall the possibility of the collection's leaving the university, Dr. Lukens talked to Mrs. Smith and then to Mr. Bell, a friend of Mrs. Smith's who advised her about her investments. (Dr. Smith had not taken any interest in money except to buy books.) Mrs. Smith apparently made quite a bit of money through Mr. Bell. We talked to her over and over again. She would then go downtown and talk to Mr. Bell. Finally, it was agreed that the library should stay at Penn. Then we had to talk Mrs. Smith into giving us some money. She had quite a nest egg because the Smiths from York and Lancaster had money. We eventually induced her to contribute to the maintenance of Miss Armstrong and to the care of the books. She donated seventy-five thousand dollars. She wouldn't give any more although she had a lot more. The net result was that Dr. David and...

HEITMANN: Dr. David was the director of the library?

DEISCHER: Yes. Dr. David and Dr. Rudolph Hirsch talked to her many times, telling her of the collection's importance to the university and to research. Oftentimes, Dr. David or Dr. Hirsch used Mr. Smith's donations to purchase a book or two for the Smith Library. They also used these donations to raise Miss Armstrong's salary. She was taken care of until she had to retire.

HEITMANN: What was Miss Armstrong's educational background?

DEISCHER: She was self-educated. I considered her a very able person and very sharp.

HEITMANN: She wrote some very good papers.

DEISCHER: Yes, I thought that she was excellent. She had an excellent family background. I only met her sister. It was wonderful the way she knew the details. She was very able until she passed away in 1962. Then they brought in a part-time librarian to take care of the Smith Collection.

HEITMANN: After she died?

DEISCHER: Yes.

HEITMANN: Dr. Deischer, you were curator of the Smith Collection.

DEISCHER: Yes.

HEITMANN: For some time, about fifteen years.

DEISCHER: Yes, for quite some time. This other person would come in, maybe two or three days a week. In 1945, no, rather in

1952, Dr. Price, an organic chemist, came from Notre Dame to become chairman of the department. He wanted to use the office that housed the Smith Collection. But Dr. Price had to wait until the collection was transferred to the top floor of the then Hare Building where it was kept under skylights, without any air conditioning. It remained there until it was brought here to the sixth floor of the Van Pelt Building.

HEITMANN: This was in 1965, I think.

DEISCHER: Yes, 1965. It was through the efforts of Rudolph Hirsch and Dr. David that this space was reserved. That was a hectic period. I was not here that summer. I was abroad doing some travelling and some research. The library survived. I am happy that it is now air conditioned and not under a skylight. The library was staffed by part-time help. The collection was kept under lock and key most of the time. I had a key. I guess I still have one. We would bring classes over here--history groups and high school groups.

HEITMANN: Did you buy a lot of books for the collection?

DEISCHER: No. Rudolph did. Rudolph looked over the booklets and pamphlets, and decided which to buy. I was happy about that because he knew what would be suitable and whether we could afford to buy these books.

HEITMANN: Now, could you tell me again about your activities during World War II?

DEISCHER: Well, I was in charge of courses in analytical chemistry that we taught to navy and army personnel. That was all. That's when we were over on the top floor of the medical school, in the anatomy-chemistry wing. I never had army or navy service.

HEITMANN: You began to publish papers in the history of chemistry during World War II.

DEISCHER: Yes, and the reason for that was that the navy and army groups that I taught were sometimes abruptly ordered away from here and sent abroad or put into a research laboratory. At those times, I didn't have anything to do for a while and that's when I was susceptible to induction into the armed forces. You see, I was still young enough to be inducted. But the university kept me here while I wrote about the history of science. I was thankful for that.

HEITMANN: So that's when you started publishing.

DEISCHER: Yes. But then I had more teaching to do. I was over in the medical school for about ten years and over in the hygiene lab before that. I had to take care of all of the chemical apparatus.

HEITMANN: Did you have to make sure that the glassware was totally clean?

DEISCHER: I didn't have to clean that. The students did that as long as they were able. But I had to see that the lab was kept clean and that things were in order so that if the lab was inspected by some authority of the university it would pass inspection. I had an automobile at that time and so I had to transfer a lot of apparatus and chemicals from Harrison over to the medical school. I would park in the back and then cart the material to the fourth floor.

HEITMANN: Where was your office, in the chemistry building or in the med school?

DEISCHER: In the med school, in the anatomy-chemistry annex.

HEITMANN: But your department was chemistry.

DEISCHER: Yes. We were a dual department for a while, chemistry and chemical engineering. That's why some of the chemistry was in the Towne School, some was in the Harrison Lab, some was in hygiene, and later on, when we had to get out of there, we were over in the medical school. I spent a lot of time transporting things back and forth with my automobile.

HEITMANN: You mentioned earlier that you began to get interested in the history of chemistry during the thirties.

DEISCHER: Yes.

HEITMANN: You began to get to know some of these other people who shared your interest. I just wanted to know your impressions of people like Charles Browne and Tenney Davis.

DEISCHER: Some of those men were very able.

HEITMANN: Like Charles Browne.

DEISCHER: Yes, and Tenney Davis. Van Klooster, I believe, was another one.

HEITMANN: Is there anyone else you remember?

DEISCHER: Yes. When I attended the ACS meetings I met some of these people in the Division of History of Chemistry. That's when I also got to know the stature of Tenney Davis, Charles Browne, and many others who were much better educated than I was in the subject.

HEITMANN: Why was Tenney Davis interested in the Chinese language?

DEISCHER: He was interested in Chinese because he evidently

had a desire for history. Also, some Chinese students who had studied at MIT brought some manuscripts from China with them and translated them for Dr. Davis. They collaborated with him to get the details of Chinese alchemy. He wrote quite a number of papers on Chinese alchemy. That's when I got to know Dr. Davis. He came down to use some of Smith's library. He was excellent I thought. He also invited me up to his home and sent a few books down with me.

HEITMANN: He was quite a book collector in his own right.

DEISCHER: Oh, rightly so. And we have quite a number on Chinese alchemy, and some others too. He died shortly afterwards. I think he was editor of Chymia for one or two years.

HEITMANN: He was an eminent chemist, wasn't he?

DEISCHER: Oh, yes, definitely.

HEITMANN: Of great reputation.

DEISCHER: Yes. He was a gifted chemist. He was terrific. I felt as though I was just a tiny little person compared to him.

HEITMANN: What about Dr. Browne?

DEISCHER: I had known Dr. Browne earlier and he was very kind. He reminded me so much of Dr. Smith because both of them had the idea to found the Division of Chemical Education at the Chicago meeting. Dr. Browne came to Philadelphia rather frequently. I don't remember whether his work brought him here. I never knew him that well. He knew Miss Armstrong far better than he knew me, probably because Miss Armstrong was present when he was around. I thought he was a very nice person. I didn't know anything of his work. I had my hands full with what I was doing at that time. So there were a number of men in both divisions, education and history of chemistry, who were very able. That's where I met Mary Elvira Weeks.

HEITMANN: Where was she from?

DEISCHER: The Midwest. More specifically, from the University of Kansas.

HEITMANN: I thought Mary Elvira Weeks was associated with the crowd that included Davis and Browne.

DEISCHER: Yes. They were quite a large number of historians.

HEITMANN: There was Denis Duveen from New York City.

DEISCHER: Yes. Edelstein would also come once in a while.

HEITMANN: But that was later, in the forties.

DEISCHER: Yes. These were people who took an interest in history. I never was that close to them because they had many other interests. I guess they were more involved with Miss Armstrong.

HEITMANN: Miss Armstrong also did a bit of reference work during the thirties and forties.

DEISCHER: Oh, yes. She helped the people from Du Pont and from that German firm...

HEITMANN: Rohm and Haas.

DEISCHER: Yes, Rohm and Haas. These are the people that are influential and very much interested in the Smith Collection. Rohm and Haas especially was into plastic, glass, and things of that sort. She did a lot of work with dictionaries. She also looked up some references. Of course we had had a member of the chemistry department, Dr. Ralph Connor, who went to Rohm and Haas. Dr. Horning was another organic chemist, and he went to the National Institutes of Health, I believe. Dr. Carmack went to the University of Indiana. Some of these people received grants from certain companies and institutes so that some were employed...

HEITMANN: On consulting? A lot of consulting work was done by the Penn faculty. Did you do very much consulting work?

DEISCHER: No. No. I did not.

HEITMANN: Did you involve your students in consulting?

DEISCHER: No.

HEITMANN: Now, in the mid 1950s, Dr. Price came with the intention of revitalizing the department. At the same time you were given the duty of being his assistant.

DEISCHER: Yes.

HEITMANN: What were some of the things you did then?

DEISCHER: Well, I had served two years as assistant chairman with Dr. Krieger who was an interim chairman. The authorities then chose Dr. Price and asked him to revitalize the whole curriculum. Then I was kept on for thirteen more years and I was in charge of curriculum, advising and representing the department on various committees.

HEITMANN: In the meantime you kept teaching analytical chemistry.

DEISCHER: And history of chemistry until the university

initiated its own program in the history of chemistry. We in chemistry, along with math and physics, were then required to become part of the college. Until then, chemistry was part of the engineering school. When we became part of the college, we changed some of the courses, accepted more college people into our courses and accepted more women as well, especially those from the school of nursing.

HEITMANN: So you had a dual role, to administer and to teach.

DEISCHER: Yes. I became a member of the schedule committee and all sorts of other committees. It was just too much. So I served until '65 and then I took a leave of absence. That's when I went abroad for nine months.

HEITMANN: A number of historians have said that the great changes that took place in chemistry during the 1950s and 1960s were not so much in theory as in instrumentation.

DEISCHER: Oh, definitely.

HEITMANN: Would you want to comment on that. You went through that.

DEISCHER: Yes, I went through it, but we in chemistry did not get a lot of money from the administration for equipment. We did not compare to many other schools where they could go out and buy spectrometers and other things.

HEITMANN: This was before Charlie Price.

DEISCHER: Yes. We just had to do the best we could. If a graduate student in the department wanted a new piece of apparatus he was told to build it himself. There was nothing else we could do. We didn't have the money to buy it. That's why some of our work didn't progress as rapidly as it should have.

HEITMANN: Then Charlie Price came to Penn.

DEISCHER: Yes. And that's when the administration moved to give chemistry a new building.

HEITMANN: Did you do a lot of work with early instrumentation yourself?

DEISCHER: No.

HEITMANN: Did you have any graduate students?

DEISCHER: I had two graduate students who worked with gallium. A number of others worked on newer projects. We had an Engineers Day here at Penn. Every year in the spring, engineering students put on a show in chemistry and physics and sometimes biology. We would bring in high school students and show them what we did.

We would direct our students to build experiments for the high school students to observe. By doing all of this, we hoped to increase the number of incoming science students. We spent two or three weeks sometimes, working up little experiments in different areas of the department. We would then run them on Engineers Day and have some of the graduate students explain their principles.

I'd like to speak a bit more about chemistry not getting very much funding. It began, I think, when Dr. Smith, who had directed the chemistry department of course, tried to avoid the appearance of favoritism to chemistry while provost. Older members of the chemistry faculty told me that things that should have been done were left undone.

HEITMANN: Very good observation I think. Probably very true.

DEISCHER: It was true. But we nevertheless did not lose out because of Dr. Smith's actions. By the time that he died I was told that he had bequeathed about a half million dollars for scholarships and fellowships. Chemistry did get to use some of that. For instance, some of the chemistry graduate students received several hundred dollars to study and experiment during the summers of the 1920s and the 1930s.

HEITMANN: After four decades at Penn you must have some notion about when you think the students were the most interested and serious. Some people say this was right after World War II when all the veterans enrolled.

DEISCHER: Yes, that was the period that was the best, I think. There was a time when there were not many students.

HEITMANN: During the Depression?

DEISCHER: Yes.

HEITMANN: I'd like to go back for a second to 1946, when there was a drive to form an advisory committee to extend the influence of the Smith Collection. Chymia began from that effort. Who was involved in these efforts and what was accomplished then? Was Leicester involved in that?

DEISCHER: Henry Leicester, yes. He and others sent out letters. They also formulated an advisory committee of quite a number of persons. Not all of these activities advanced the Smith Collection. Leicester came frequently. He must have been a man of some means because he would come East and do a lot of letter writing and solicit papers. I don't think that they gained much in finances.

HEITMANN: Was it the wrong time for that? The history of chemistry seems to have been in a real decline after World War II. Was it the wrong time for this effort?

DEISCHER: I guess it was because we had difficulty getting

Chymia going. I know that we went a number of times to the publisher in New York City. We sold few volumes. Some colleges and universities didn't have money to buy new journals. We never sold a lot of issues. I don't know whether we still have some here. I guess we do.

HEITMANN: You were on the editorial board.

DEISCHER: Yes, I was. I helped the editors and Miss Armstrong.

HEITMANN: One of your students wrote a paper that appeared in Chymia as well.

DEISCHER: Yes.

HEITMANN: About the Owl.

DEISCHER: Yes, that was one of my undergraduate students.

HEITMANN: Joseph Rabinowitz.

DEISCHER: Yes, Joe Rabinowitz. He was a very nice fellow and one day I said to him, "I like some of the Owls that I have seen on some of the title pages in our old volumes. How about helping write it up?" So he did. He got a big kick out of it. Yes, Joe was a very able person.

HEITMANN: He was later a graduate student in chemistry?

DEISCHER: Yes. Quite a number of them who wrote papers were in the history of chemistry group.

HEITMANN: That was your class.

DEISCHER: Yes, that was the class.

HEITMANN: It was hard to get good papers for Chymia at first wasn't it?

DEISCHER: Yes, you bet it was. We had trouble. Sometimes the issue was small--not many papers. Sometimes the author wanted us to publish a long paper. A few of them were on pharmaceutical topics and we just didn't want a lot of pharmaceutical papers. Dr. Abrahams tried to interest us in publishing Jewish history.

HEITMANN: Jewish history?

DEISCHER: Yes, Jewish history. Not that we didn't like that but we felt that it wouldn't have chemical appeal.

HEITMANN: Did you feel at the time that it was just very, very hard to campaign for the history of chemistry when no one seemed to understand why you were doing what you did?

DEISCHER: Yes. We just couldn't get it going for some reason or

other. I don't know why.

HEITMANN: Of course today, Chymia publishes articles that deal with historical studies of the physical sciences.

DEISCHER: Yes.

HEITMANN: It is a very important journal.

DEISCHER: Now, yes. It changed when they changed editors.

HEITMANN: Russell McCormmach.

DEISCHER: When Russell McCormmach became editor it started to change. It broadened its base. By then more people had acquired a background in the history of chemistry.

HEITMANN: Before Russell McCormmach became editor, was there no full-time historian of science here at Penn who could somehow or other help out with the formation of Chymia and make sure that it was a quality publication?

DEISCHER: No. And that was the sad part. Of course, Henry was editor for quite a while, but he was on the West Coast. So we just didn't have it. By then, Miss Armstrong had gone and those part-time librarians did very little.

HEITMANN: Were these graduate students?

DEISCHER: No, they were retirees from the library, or partial retirees. They would work a day or two each week.

HEITMANN: For quite some time you have been active in ACS affairs. Way back in the 1930s you participated in the Division of History of Chemistry and Chemical Education. I guess I want to ask you about the ACS and what you did with it and then, more specifically, to talk about the work that you did for the 1951 celebration and then the 1976 centennial celebration. First I just want your general comments about your service to the ACS.

DEISCHER: Well, I've been a member of the ACS for more than fifty years.

HEITMANN: Now you've done quite a bit of local section work as well.

DEISCHER: Yes, I was in office in the Philadelphia section throughout this period of time. I also helped some of the national committees when they were run by the sections. When, later on, the ACS ran the national committees, I did some of that too. Currently, I'm still an officer of the ACS's chemical educational projects of the Philadelphia section. We sponsor projects and give awards.

HEITMANN: Don't you also visit high schools and talk about chemistry?

DEISCHER: Yes I have been going to about ten to fifteen high schools a year for many years giving illustrated talks.

HEITMANN: Do you still do this?

DEISCHER: Yes. I use these slides and I have to be brief. The high schools don't allocate much time so I cover some history of science--not just chemistry, but science. Well, I served the section for a long period of time and I'm still serving. I also became involved in the national society. I was supposed to solicit advice from people who were in the Division of History of Chemistry, about what kinds of exhibits they would like to show at the national meeting and in the travelling display.

HEITMANN: That was in 1976.

DEISCHER: 1976, yes.

HEITMANN: Did you have anything to do with the celebration of 1951?

DEISCHER: Yes.

HEITMANN: That was the Diamond Jubilee of the American Chemical Society.

DEISCHER: Yes. I wrote articles about analytical chemistry and things of that sort.

HEITMANN: You were going to be pretty much in charge of the planning of the exhibit that ended up as a travelling exhibit.

DEISCHER: Yes, but then I had nothing to do with it once it left New York.

HEITMANN: Do you remember what was on exhibition. I never saw it.

DEISCHER: I would have to get my files.

HEITMANN: At any rate it travelled as a major exhibit.

DEISCHER: Some of the things that were exhibited were not to be sent around and others were. They had to design them and guard them and everything else had to be done so they'd go from one end of the country to the other. The exhibit lasted for well over a year.

HEITMANN: Did you go down to Washington to help?

DEISCHER: Yes, I went down to Washington quite frequently. We were planning these things not just for the exhibit in New York,

but for everything that had to do with the business of the centennial for 1976.

HEITMANN: It also involved the Franklin Mint. Tell me about that.

DEISCHER: One day I got a telephone call from Mr. Stannerson and Jim Stack. They asked if I would participate in designing a centennial medal. I said that I'd help. I don't know who had done this before, but Washington said it was not satisfied. They made arrangements for me to go out to the Franklin Mint and talk with the woman there. I was told to add whatever I wanted and to discuss it with her and the designer and then come to a conclusion. They would then send it to Washington. Mr. Stannerson would then approve it or disapprove it and then they would mint the medal. So it was back and forth for quite a time. They finally minted it. I think there's one here. I was commended for it.

HEITMANN: Now, in 1971 you retired from the University of Pennsylvania.

DEISCHER: Yes.

HEITMANN: But you are professor emeritus here.

DEISCHER: Yes sir.

HEITMANN: What have you done in the last thirteen years? What are your activities? We talked about the exhibit preparation.

DEISCHER: Yes.

HEITMANN: What else have you done?

DEISCHER: I have been treasurer of the Penn Chemists Fund. We use the funds that we collect from that fund to buy books for the chemistry library. That's a long, drawn-out affair where money comes in small sums: ten dollars, twenty dollars, one hundred dollars. We keep the money in a separate fund and when they buy books they bill us. We have about eight or nine thousand dollars now. We don't spend it all at once. We also use some of the money to subsidize the "Penn Chemist" leaflet which contains short biographies and some historical items that I put into it.

HEITMANN: Do you write frequently for the "Penn Chemist" leaflet?

DEISCHER: Yes. Little abstracts, things of historical interest. Sometimes, I'm called upon to get something for The Catalyst. I'm their custodian and historian. And then I got word from Stannerson and Stack and special commendations for work from the ACS. I also attended some of the ACS's special meetings in New York.

HEITMANN: Have you also remained active in the Moravian church?

DEISCHER: Yes, although not as active as I used to be. In the past, I did a lot of work on committees and boards but now I don't do much of that because once you get to be above a certain age they want younger people.

HEITMANN: Were you ever involved in synods?

DEISCHER: Synods? Oh, yes. I was a trustee of Moravian College and of Linden Hall and I went to Salem representing the northern province of our church and to a General Synod of the church in Czechoslovakia in 1967.

HEITMANN: You kept very active in your church throughout your entire career.

DEISCHER: Yes, that's right.

HEITMANN: You also have an interesting hobby that we talked about.

DEISCHER: Yes, I have hobbies. Of course music is one of them. But my chief hobby is making beeswax candles in old molds. Pure beeswax. I get the beeswax from the beekeeper, then process it, filter it, get the proper wicking and molds, and then cast different lengths of candles.

HEITMANN: How did this come about?

DEISCHER: Well, about fifty years ago the church in Emmaus used to buy white candles from Atlantic Refining. We got them by the thousands because we'd have many services during Christmas time and give each person a candle. Atlantic Refining discontinued making paraffin candles, however. Having become aware of this, one of the sacristans of our church who was a pattern maker made a candlemold out of wood and tapered it just like a little candle. Since we were a very closely knit group, we bought beeswax and then practiced casting a few candles every month.

The first candles that we cast cracked when they solidified because we cast them at too high a temperature. They just broke apart. We practiced a long time until we perfected the casting. We then made more molds and soon could make twenty-five, fifty, or even a hundred candles. We also had a tinsmith make some candlemolds for tapered candles. So that's the way we made the candles.

It's still being done that way, but a younger person is doing it now. I then bought a number of old candlemolds, which were for large candles, twelve to fourteen inches tall. The most difficult thing to buy was not the beeswax but the wicking. I couldn't get the proper wicking. Candlemakers wouldn't sell me wicking because they thought that we wanted to make candles to compete with them. I got some wicking from a company in Ohio. I went to some candle companies in Philadelphia. I got wicking from some companies but not from others. So that's the way I got

into making candles. It was a lot of fun. By the way, we had to let the candles solidify over night. If we tried to take them out of the candlemold sooner, we'd stretch the wax or break the candles.

HEITMANN: When were you married?

DEISCHER: In 1929.

HEITMANN: So you married while you were still a graduate student. Your wife's name is?

DEISCHER: Dorcas.

HEITMANN: She was also from Emmaus.

DEISCHER: Yes, both of us lived in that small town. Emmaus's population has since grown from three thousand people to about fifteen thousand.

HEITMANN: Did she have a profession before she became your wife?

DEISCHER: Yes, she taught school. She went to the same normal school but graduated a year later than I did. We got to know each other and married in 1929. She came down here with me and we have been here ever since.

HEITMANN: You have one son?

DEISCHER: One son, yes.

HEITMANN: What is his name?

DEISCHER: Harry.

HEITMANN: Harry went to the University of Pennsylvania.

DEISCHER: Oh, yes. He has his bachelor's, his master's, and his doctorate in education from here. My wife has her master's from Penn and she got her bachelor's here also. So we have been loyal Pennsylvanians.

HEITMANN: I would like to conclude our interview in the following way. What would you say if someone asked you, "What is the value of the history of chemistry?"

DEISCHER: I would say what Dr. Smith told me before he passed away. "Whenever you look in any book, a book in the history of chemistry or a book in chemistry or any other book, be sure you read between the lines. You will find that there are so many details that make up an education that it is unbelievable what will help you. It's not just one or two or three things, it's the composite of education." So I think that reading, even just for the sake of reading some of the history of science--even though you are not a scientist--lets you learn. It will bring to

your attention things that you don't think of normally--in food, medicines, in everything. I think it broadens your horizon. I have always felt that way ever since Dr. Smith mentioned it to me.

HEITMANN: Thank you very much, Dr. Deischer. I appreciate your time and your cooperation and I'm very grateful for your coming by today to give us this interview.

DEISCHER: Thank you very much.

INDEX

A
Abrahams, Harold J., 19
Alsentzer, Harry A., Jr., 9
American Chemical Society (ACS), 10, 14, 20, 21, 22
Armstrong, Eva, 5, 10-12, 14, 15, 19

B
Babasinian, Vahan S., 5
Baillie, John, 4
Bell, (?), 11
Browne, Charles A., 10, 14, 15

C
candlemaking, 23
Carmack, Marvin, 15
The Catalyst, 22
Chymia, 10, 14, 18, 19
Connor, Ralph A., 9, 15

D
David, Charles, 11, 12
Davis, Tenney L., 10, 14, 15
Deck, Luther J., 4
Deischer, Dorcas, 23-24
Deischer, Harry, 24
du Pont de Nemours & Co., E.I., 15
Duveen, Denis, 15

E
Edelstein, Sidney, 15
Emmaus, Pennsylvania, 1, 3, 4, 23

F
Fasig, Albert C., 4
Franklin Mint, The, 21
George, Philip, 10
Gettysburg College, 9

H
Hammonton High School, 6
Hare Building, 12
Harrison Laboratory, 6, 8, 13
Hirsch, Rudolph, 11, 12
Horning, Samuel C., 15

I
Indiana, University of, 15

K
Kilpatrick, Martin, 6
Krieger, Knut A., 16
Kutztown State College, 1, 2

L
Lehigh University, 5
Leicester, Henry M., 18, 19
Long, James (Shorty), 5
Lukens, Hiram S., 6, 7, 10, 11

M
Massachusetts Institute of Technology (MIT), 14
McCormmach, Russell, 19
McCutcheon, Thomas P., 6
McNabb, Wallace M., 9, 10
Moravian church, 1, 22, 23
Muhlenberg College, 3, 4

N
National Institutes of Health, 15
"Penn Chemist", 22
Penn Chemists' Alumni Fund, 22
Pennsylvania, University of, 1, 5, 6, 7, 8, 12, 16-18, 21, 24
Price, Charles, 12, 16, 17, 18

R
Rabinowitz, Joseph L., 18
Rohm and Haas Company, 15

S
Schankweiler, John V., 4
Shinn, Owen L., 6
Smith, Edgar F., 5, 6, 10, 11, 14, 17, 24
Smith, Mrs. Margie A., 23, 24
Smith Collection, 1, 6, 10-12, 15, 16, 18
Smull, Judson G., 5

T
Taggart, Walter T., 6, 10

V
Van Klooster, H.S., 14

W
Wagner, Ernest C., 6, 10
Weeks, Mary Elvira, 15