

Chapter 41

HELMUT SIMON (with Hildegard Simon)

Freising

March 15th, 1997

VM = Vivian Moses; **HeS** = Helmut Simon; **HiS** = Hildegard Simon

VM: So this is talking to Helmut and Hildegard Simon in Freising on the 15th of March, 1997.

Helmut, can we start by my asking you how you came to go to Calvin's lab. all those years ago?

HeS: Actually the reason was that in the beginning of the '50s the ideas of Calvin about the path of carbon and photosynthesis became known and, of course, the techniques were very interesting and so on the occasion that Calvin came to Berlin, I think in '55, I asked him whether there would be a chance to work in his lab. and he told me if I would find some money he would be happy to take me and so I applied for a Fulbright grant and it worked and so we arrived in '56 in Berkeley.

VM: What had been your own background up to that time?

HeS: I was trained as an organic chemist and in my thesis I worked on the synthesis of carbon-14-labelled compounds and also using these carbon-14-labelled compounds for solving some problems like biosynthesis of certain natural products, for instance such as pterines and so on.

VM: So you knew about Calvin's book on isotopic carbon?

HeS: I knew about this book, I think, from '47 or '49, I don't remember at the moment. I read it with great interest already when I started my thesis in '52.

VM: And where did you do your thesis — in Berlin?

HeS: No, I did my thesis in Heidelberg.

VM: So what were you doing in Berlin when you met Calvin?

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HeS: After finishing my thesis in Heidelberg, I went for half a year to Tübingen together with Professor Weygand and since Weygand went to Berlin afterwards I joined him. So since Spring '55 I was at the Technical University in Berlin.

VM: When you had met Calvin in Berlin had there been any discussion of what you would do in his lab.?

HeS: No, there were no detailed discussions about the work what I should go to do. Only he agreed that I can come to him.

VM: Right. And you were already married at that time?

HeS: We were married already.

VM: How did you travel to America?

HeS: That was a very interesting 10-day boat trip from Bremerhaven to New York. Then we stayed a fortnight in New York and then we flew from New York to San Francisco.

VM: And that was the first time you had been in America?

HeS: That was the first time that we had been in America, yes.

VM: What impression did America make, particularly San Francisco?

HeS: Of course at this time with the background of the destroyed Germany with all the restrictions there, and this wealthy country...that was a tremendous difference and we were extremely impressed about America.

VM: Had you been outside Germany before then?

HeS: Yes, but only in Europe, Switzerland and so on.

VM: So you came to San Francisco, at the airport. What did you do — was somebody waiting for you?

HeS: Yes, somebody was waiting for us but that we learned the other (*next?*) day. Actually the plane was too late, I think by about two hours due to strong head winds, and the flight was maybe thirteen hours or so at this time and we had the impression nobody was there so we took a bus and rode to San Francisco. We were extremely hungry. I expected, as I was used in Europe, that during such a flight food would be served and we had no food from New York to San Francisco — a lot of coffee and things like that but no food. So the first thing we wanted to have something to eat and we went into a restaurant or something like that (it was in the meantime maybe half past ten in the evening) and we sat down at a table waiting that somebody will come and ask what we want and nobody came. Since it was late we were the only guests for awhile.

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Then came a group of other people and we saw what they did. They took a tablet and had a self-service so to say. Then we knew what we had to do.

VM: So you were not hungry for too long.

HeS: Ja, but it was a little bit frustrating.

VM: Did you go to Berkeley that night?

HeS: No, we looked for a hotel in San Francisco. We thought about calling Professor Calvin but then we thought it was already too late and so we just looked for a hotel, stayed there and next morning we called him and he was really happy to hear us and told us he that sent Paul (*Hayes*) and then we heard that there he asked for Dr. Helmut by loud speaker but we didn't know it had something to do with us. And he told me we should wait for a bus in an hour or so and somebody would pick us up. Then we were brought directly to Calvin's house. It was at noon time on a Saturday.

VM: And you stayed with him for...

HeS: ...a couple of nights, three nights or so.

VM: And then somebody helped you find an apartment?

HeS: Ja. Calvin was very helpful and Mrs. Calvin. They drove us around and we looked at two or three apartments. It was actually a matter of two or three hours to find these apartments. It was extremely surprising for us — the situation in Germany was quite different as there it was a question of months to find an apartment.

VM: Exactly the same for us when we came around the same time. When actually did you arrive in Berkeley? Do you remember which time of the year it was?

HeS: It was maybe the end of July or August.

VM: Did you start working straight away?

HeS: Ja.

VM: How did you decide what to do — who did you talk to?.

HeS: Calvin made a suggestion. He had an idea that the biosynthesis of glutamic acid, that is glutamate, may be influenced by an antibiotic (that was azaserine) and the idea was to prepare glutamic acid in illuminated *Chlorella* in the absence and the presence of azaserine and degrade it and to see the difference was the carbon-14 labelling.

VM: How much experience had you had of this technology before you arrived there?

HeS: To this kind of technology I was used — degradation of products and determining carbon-14 distribution . That was due to my thesis.

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VM: But did you prepare your own photosynthesis experiments in order to get glutamic acid which had been made in this way?

HeS: Ja. I did my own experiments, ja.

VM: So you had to learn the whole Calvin-type of photosynthesis techniques.

HeS: That was what I had to learn.

VM: Did you work closely with anybody while you were in the lab.?

HeS: Not in the first couple of months. I was concentrated on this glutamic acid-glutamine business. Later I came in cooperation with Metzners and partially also with Otto Kandler.

VM: Was Nel van der Meulen also not working on this azaserine problem?

HeS: As far as I know not at the time when I was there.

VM: Was she there at the same time as you?

HeS: I don't remember her.

VM: Maybe she took it later. Well we'll see her in a few weeks' time and we'll talk to her about it. And so, did you work on this problem the whole time you were in the lab.?

HeS: I think maybe after about six or seven months (altogether we were there eleven months) this problem faded away and I did more and more experiments together with Metzners.

VM: Yes. On methyl phosphate.

HeS: On such an unknown labile compound which is formed by illuminated *Chlorella* cells.

VM: To come back to this glutamic acid and glutamine, what happened with the work that you did? Did it show anything, anything interesting?

HeS: Not a very clear result. Actually, Professor Calvin wrote a paper and delivered it, I think, to BBA (*Biochimica et Biophysica Acta*) but they didn't accept it as it was and they suggested a couple of more experiments. But in the meantime I was already back in Germany and Calvin sent me their reply and asked me whether I could do these experiments but there was no chance for me to do these kind of experiments in Germany so nothing happened, actually.

VM: You worked, as I remember, in the Old Radiation Lab.

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HeS: Yes, in this old...

VM: In the big lab., with other people?

HeS: In the lab. before this big room with the centre table, ja.

VM: Do you remember who else was in the room with you?

HeS: Actually I don't know exactly who was where but the people who were present in the Old Radiation Lab. were the two Englishmen (Vivian Moses and Bob Rabin), then the Swiss...what was his name?

VM: Utz Blass.

HeS: Utz Blass. Then van Sumere and there was a Chinese Ph.D. student but I forgot his name.

VM: You mean Ning?

HeS: Maybe Ning.

VM: Ning Pon.

HeS: Oh, ja, Ning Pon. He was a little bit older, I think. He was present but there was also an additional younger...

VM: Mel Look.

HeS: Maybe, ja.

HiS: And Rosemarie...

VM: Oh, Rosemarie Ostwald?

HeS: Rosemarie Ostwald? Wasn't she working in the Donner Lab.?

VM: I think she was in the Donner Lab.

HeS: She was in the Donner Lab. working, ja.

VM: And do you remember the secretaries there?

HeS: There was a young girl and her name was...

VM: ...Dea Lea Harrison.

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HeS: Ja. Dea. Ja. Actually for quite some time we had a motor pool together; one week I was picked up by her and one week I picked her up to save some money for the parking lot at the University.

VM: Yes I remember that where you lived was quite some distance. You told me earlier you lived on Berryman. You remembered the number even.

HiS: 1820.

VM: 1820. And so that was half an hour to walk or so, and so you had a car pool with Dea. What do you remember of the social life at the time?

HeS: Actually I was very impressed how the newcomers to this group were taken up by Calvin. We were impressed; we stayed with him, as I mentioned already, and he took his time to find an apartment for us and also all his co-workers were very open and friendly to help us to start the work there.

VM: This was not something you had experienced — this was not the German style to do things?

HeS: You see in '56, I had no experience in Germany. At this time we didn't have foreigners coming to our labs.; that was due to the special situation after the war.

VM: What was the relationship with people at your level and the Professor in Germany, before you went to America?

HeS: Of course, there were more formal things. My Professor in Germany never called me by my first name.

VM: He didn't?

HeS: No, it was at this time not the case. Later it changed but not at this time. That was a big difference that Calvin called me by my first name.

VM: Immediately?

HeS: I think immediately, yes.

VM: It is interesting that nobody called him by his first name.

HeS: Of course I learned that he was called "Dr. Calvin".

VM: Yes. It was much later, maybe ten years later, that people began to use his first name — and then only some people. Not the people who had been his students. So Dick Lemmon and Al Bassham took another ten years still before they called him by his first name.

In the lab. itself, how did you interact with the other people working with you?

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HeS: I think there was very intense interaction. At first, of course, I had to get acquainted with all the techniques, the places where to find what. I was, for instance, extremely impressed by the fact that carbon-14, which was at this time in Germany extremely expensive, was for us freely available. And on the other hand, in Germany it was not a problem for me to get something done by the glassblower but to get by the glassblower in Berkeley needed, I think, the signing by one of the leading scientists, maybe even Calvin. So there were big differences between Germany and Berkeley.

VM: At the time you first arrived there, how good was your English? Did you understand everything that was said?

HeS: Oh no, we had big problems. In Germany during the war English was not taught. In my school in '43 it was stopped to teach English. So we had big difficulties in understanding the people and also to express ourselves.

VM: But you had learnt some English because I remember when I first knew you I'm sure you spoke English to people in the lab.

HeS: Of course I knew some English but we had especially problems in understanding.

VM: Was it difficult? Did you learn quickly? Because you were by then twenty-something years old.

HeS: Ja, but I don't know. I am sure I am personally not very gifted in learning languages. I think after a few months I was able to go along in the lab. and to discuss with the people and to understand and so on.

VM: I remember one story with your English, which I have never forgotten, and it relates to the book I brought you, that you described the Golden Gate Bridge once as the "So-called" Golden Gate Bridge — and it is an exact translation from German but you cannot say "so-called" Golden Gate Bridge in English because it means it is not really the Golden Gate Bridge it is really something else. That's all I remember. Otherwise I remember your English, as far as I know, was perfectly understandable and there was no difficulty talking with you.

HeS: Thank you.

VM: And I am sure it has become much better since as well.

Did you mix in the social life? What did you do in the evenings?

HeS: One problem especially with respect to learning English was, of course, there were many German-speaking people there like Kandler, like Metzner and so on, and a couple of weeks after we arrived in Berkeley also a friend of us, Achim Trebst, came to Berkeley working with Arnon. And we visited each other also in the lab. but after a couple of weeks, when Calvin met Trebst and I introduced Achim Trebst to him, and

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a day later Calvin told me he would not like that co-workers of Arnon would stay too often in his lab.

VM: Did he say why?

HeS: No, he gave no reasoning for this but there was a clear statement.

VM: I have never entirely found the reason for this problem between Calvin and (*Arnon*).

HeS: These people were working on so different aspects of photosynthesis so I didn't understand it either. Nevertheless, it was a fact.

VM: So Trebst did not come to Calvin's lab.?

HeS: Of course, we changed the things, ja.

VM: Did you go to Arnon's lab.?

HeS: I was several times in Arnon's lab. and I never heard from Trebst and I met Arnon there. I never heard that Arnon did say something similar to Trebst.

VM: I think Calvin, for some reason which I say I have not yet discovered, was very sensitive and I may have some possibility of finding out but I haven't done so yet.

VM: So you spent much of your social time with other German-speaking people?

HeS: Especially during the weekends, of course, we made excursions to Yosemite and other places and usually we did it with Germans since they didn't know these places and so on, and they were interested to see them and that was the reason.

VM: Metzners had no car, I remember. I don't know whether Kandler had a car.

HeS: Kandler had a car, ja.

VM: So you used to go out collectively for the weekend with these people?

HeS: That was usually the case, ja.

VM: What about during the week? Did you work late in the lab.?

HeS: Sometimes I returned to the lab. after going home, having dinner and I drove back to the lab. There was also no problem to find a parking place anymore in the evening at seven o'clock or so and that was the case, ja.

VM: Did you make any trips to other places, apart from the local trips around California? Did you go further than that anywhere?

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HeS: During this time, during Christmas, there was a big tour together with Kandler, with Trebst, Provis (*spelling?*) (Provis was a scientist from France working in Arnon's lab.), and Chris van Sumere. We had two cars and we were travelling, I think, roughly a fortnight to New Mexico, Death Valley, Grand Canyon, and so on.

VM: So you saw all the things that people ought to see when they go to the West Coast>

HeS: That's what we did, ja.

VM: Did you find the style of living of the Americans very different from what you had been used to?

HeS: Of course, it was extremely different. It was such an easy way of living. Usually when I was asked what are the main differences between old Germany and the States, maybe I heard it or I don't know whether I invented it, but I answered usually the most different thing is the following: in the States one is shopping only once per week and taking a shower every day. In Germany one takes a bath once a week and goes shopping every day. (*Laughter*)

VM: That's very nice, yes. I see what you mean.

Hildegard, you have been very quiet so far. Can you tell us something about what your life was like in Berkeley in that time?

HiS: Ja. My English was much poorer than Helmut's. He had acquaintances in Colusa, California, only by letters, and Mrs. Davidson came to see me and asked if I would need something and so. I thought I would like to work a little bit. Then she told me she had a lady, a secretary somewhere at the University, she has two children, a pair of twins, not married, and if I could take care of the twins? So she introduced us and then I worked in the house, in the apartment of Dell (*spelling?*). The twins were a boy and a girl about 2 years or 2¹/₂. I came in the morning and I made lunch for the children and I put them in bed after lunch and I walked with them when the weather was nice and I talked with them and I made mistakes because I said, for instance, "this is a cock" and in America it's "rooster"; something like that. (*Laughter*) When they were 3 years old (she had not much money and so she paid not much); then, when he was 3, they put them — she wanted that they go to the kindergarten. Then I had to go in the morning to pick them up and bring them in the kindergarten which was a few houses beside ours and I picked them up...I don't know: noon or later, brought them home and stayed until the evening Dell got home.

VM: Did you drive?

HiS: I didn't drive. I learned it...but the kindergarten was close and the apartment of Dell was also very close; I have forgotten the name of the street. This was what I did and I had magazines to complete my English and things like that.

VM: Did your time in America change your style of life when you came back to Germany.

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HiS: What we did before, we had lunch every noon and then Helmut said “it is not so good, you are so full after lunch” and then in Berlin he came home in the evening but he didn’t come home for lunch and I cooked in the evening.

VM: That was different from the normal German style?

HiS: This was different and was also very different for me because we at home we always had a warm lunch at noon and in the evening we had tea, bread, cheese, sausage, like that. Then we changed this and only when Helmut was in Weihenstefan and he came for lunch home. But in the evenings we also had a warm meal because he likes it.

VM: These are significant factors in your life.

HiS: Other things didn’t change.

VM: And you worked with these children for most of the time you were in Berkeley?

HiS: I don’t know when it started?

HeS: About nine months of the year.

VM: I remember that you came, of course, to all the lab. parties that we had there — Christmas parties and when people went away we had parties. Did you have a party when you left Berkeley?

HeS: Yes, there was a farewell party.

VM: And that was in the summer of 1957?

HeS: Ja. At the end of June, or so.

VM: How did you travel back?

HeS: Going back was an interesting thing. We bought a car right after we arrived in Berkeley for \$80 and since we observed that it used a lot of oil I went to the widow — actually the widow asked me how I am satisfied with the car and I told her it uses too much oil so she gave me \$5 back. So we had the car for \$75 and we used this car during the year. And then we drove back from Berkeley in a zigzag across until to Allegheny State Park in the East. The last day from the Allegheny State Park we had the idea to go to New York again and the car was not to start any more. So we had to go to the bus. But nevertheless we had, I think, about 15,000-20,000 miles on this old car.

VM: Not bad for \$75 plus a lot of oil.

HeS: But, of course, I learned then. In the lab. there were rather a lot of people, experts on old cars, gave me such a tank, an empty tank, and told me I should buy old oil, that would be good enough. So I had always in the trunk maybe five gallons of oil.

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VM: Yes. So when you finally went from New York did you go back again by sea to Germany?

HeS: Ja.

VM: And you came back to the place where you had been working before in Berlin.

HeS: In Berlin, that's correct.

VM: Briefly, what happened in the rest of your career?

HeS: In Germany?

VM: In Germany, yes.

HeS: Ja. I was surprised when I came back to Berlin. Weygand, my boss, told me he will very probably leave Berlin. He had at this time three offers, one to Hamburg, to Bonn and to Munich. He selected Munich and from Berlin in spring '59 we moved to Munich and in '58 I had my *Habilitation* in Berlin and then I left Berlin and came to Munich. In '64, then, there were to do some decisions. In this year I got the offer from Arnon as Associate Professor in the Unit for Plant Physiology.

VM: In Berkeley?

HeS: In Berkeley. And another offer was from the University of Lausanne in Switzerland and a third one from the Technical University at the Agricultural Faculty. There was a chair for chemistry. So, after some negotiations, I selected the last offer and there I stayed for seven years and then I got a call back to the Faculty of Science, in '71, of the Technical University in Munich and there I stayed until the rest of my time.

VM: In your earlier period in Munich you said the University of Munich. Is there more than one university in Munich?

HeS: In Munich we have a Technical University and the University of Munich, or the exact name is Ludwig Maximillans Universität.

VM: And which one were you at before?

HeS: I was always at the Technical University.

VM: Did that used to be in the city or was it always in Garching where it is now?

HeS: No, that was in the city; we moved to Garching, I think in '77.

VM: And so you also moved to Freising at that time?

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HeS: No, we moved to Freising when I had the position as a Professor of Chemistry on the Faculty of Agriculture at (*indecipherable*) which is in Weihestefan and Weihestefan is a part of Freising.

HiS: That was in '66.

HeS: That was in '66.

VM: There is something I am not clear about: since you know the American system you can probably make the connection. What is *Habilitation*, approximately, in the American scale of ranks?

HeS: It is a difficulty to compare. In Germany if you want to make a career at the university, and you are not an engineer or something, then you have to do it via industry to get a certain position in industry and then you may come back to university. If you don't do this, and there is some kind of an exception, at the university about four to eight or ten years after your Ph.D. studies, you have to submit another kind of work which we call *Habilitation*.

VM: That's research work?

HeS: That's research work. And then after you fulfil all the things supplying this and taking examinations and so on you are allowed to give lectures. Then you are *Dozent* and then you are able to get offers on professorships from other universities.

VM: And during the period of *Habilitation* how do you get paid? You have a salary from the university?

HeS: Of course, *Habilitation* doesn't mean a position so what you need is a laboratory where you can find a place and facilities to work with. Besides this, a position — scientific assistant or so — and you have to fulfil, of course, duties and when those things come together then you have a chance to reach your *Habilitation*.

VM: During this period you do only research?

HeS: Not only research since you have to have a position for which you are paid. You are not paid for doing research.

VM: So what do you get paid for doing?

HeS: For instance, as a teaching assistant or so.

VM: So you can't give lectures.

HeS: No, like courses and things like that — seminars.

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VM: Is that still the system in Germany?

HeS: That is still the system in Germany.

VM: I think the last thing I would like to ask you — but there may be more things that you can think of — the last thing is the building in Berkeley, the Old Radiation Lab., the wooden building you worked in. Many people think that was an important factor in the way the lab. worked because everybody was thrown together in one place. What is your view of that?

HeS: Ja, I think that was really an important thing, this Old Radiation Lab. Every newcomer was integrated very fast and I remember the mornings at ten o'clock the coffee round on this big table in the centre of the lab. and I think it was well known to set out with the idea to reconstruct, so to say, in the later building the so-called Calvin Circus.

VM: It was the idea. Do you think it looked successful in the new building?

HeS: Of course, I was only one or two times briefly in the new building but I think one tried, as far as one can do it from the building construction, to keep this idea that people come together, that people cooperate, and I think it worked but you should judge.

VM: How did that sort of interaction compare with your other experiences before you went to California and later during the rest of your career? Do you find German labs. like that?

HeS: By the experience which I got especially in Calvin's group, I was influenced to try it whenever it was possible to use some of these ideas in Germany. In Germany we have the tendency to put borders between things and in organic chemistry, organic chemistry, own institutes and so on, and I think there should be no borders and there should be cooperation between physical chemists, biologists, geneticists, botanists and so on and that this cooperation, this can be successful I learned in Berkeley and that was a long-lasting sense and maybe a very important experience which I got in Berkeley.

VM: In your own group, later in your career when you were a professor, did you have such an open arrangement yourself?

HeS: I was always interested to work somewhere on borderlines and in my group, not always at the same time, but, of course, there were chemists, a physicist and usually I had always one or two microbiologists in my group and that was, I think from this aspect, at least fruitful.

VM: Did you also have foreign visitors here?

HeS: Of course. I had during the years many foreign visitors. Actually most of them came from Japan. For a series of years from the '70s until the end of the '80s I had a series

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of Japanese post-docs. but also Japanese companies sent scientists, young scientists, with their families to Germany. The man can work in my lab. and often these people were not chemists; they were, for instance, were again microbiologists called them biotechnologists.

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VM: It seems like your experience in Berkeley, from the organisational point of view, had a long-lasting effect on your own thinking about it.

HeS: That was definitely the case. I was also impressed by this Friday morning seminar and to hear things from so many different scientists in respect to science they are representing. I thought these things were started rather late in Germany and sometimes they are today not started actually.

VM: So did you run seminars in your own group when you had a group?

HeS: Of course, yes.

VM: In the same style of easy, open seminars?

HeS: Ja. We did this in a similar way and, of course, also our guests usually they came invited to give a seminar just to tell in which fields they are experienced and they want to learn and so on.

VM: You must have found it difficult to give a seminar in Calvin's group because Calvin was always interrupting people. Was that difficult for you?

HeS: I think I was talking twice if I am not mistaken. Once Calvin asked me to talk a little bit about my work in Germany and also, based on this, he wrote to a series of laboratories to which I was invited to give seminars on our way back from Berkeley to New York. As I mentioned already, we were up on the Eire Sea and down to Oklahoma so it was on a zigzag like...

VM: Down on which sea did you say?

HeS: The Eire Sea.

VM: Oh, Lake Eire.

HeS: ...and once I gave a seminar on work which I did in Calvin's lab.

VM: I am very glad that you remembered so much and I am very interested to hear that the time you spent with Calvin has been reflected in your own career as you went through. I think many people who spent time in that lab. were very impressed with the way it was organised, particularly the enthusiasm which, for Europeans at that time, was a very unusual experience to meet that. I guess, like the rest of us, you enjoyed your time in Berkeley.

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HeS: Definitely. Actually, at the end of my stay Calvin offered me a grant for another year — it was about two fold the amount of money I got from Fulbright. I asked my boss in Berlin and he answered me if I stay a second year he cannot guarantee my position in Germany so that was the reason that we returned after one year. Actually, we would have enjoyed it to have stayed a second year there.

VM: But you were not, clearly, ready to risk your position in Germany.

HeS: That is right, ja.

VM: Had you ever thought of emigrating to America?

HeS: Definitely, when there was this offer from Arnon's lab. but actually they wanted a definite decision, yes or no, after a fortnight. That was too fast for us. When I got this letter from Arnon and of course the first days we thought about it and talked to our parents and then after a week we started to talk to a company what may it cost to deliver your equipment and furniture from Germany to Berkeley and, after a fortnight, I got a letter astonished I didn't answer yet. Of course, I told them that I received this letter and so on but I didn't tell them my decision. And after a fortnight they wanted a decision. And after another week we decided that is too fast so I decided to stay in Germany.

VM: But if they had been more patient, if they had given you another few weeks, might you have gone?

HeS: The probability is rather high, I would say, more than 50%. Berkeley was still a place which we liked extremely and we had such an interesting time there so the chances were high to...and also the scientific living on the campus, that was so impressive. But we couldn't decide in a fortnight!

VM: I understand, yes. I think I have asked you enough questions and thank you very much for everything you have told me.

HeS: You're welcome. I am really looking forward to what your book will look like.

VM: So am I. Thank you.