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ERNST KNOBIL, PhD

Contributed by his wife
Julane Hotchkiss (Knobil), PhD

Telephone Interview conducted by
Adolph Friedman, MD
May 7, 2001

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ERNST KNOBIL'S FAMILY BACKGROUND AND HIS EDUCATION

Dr. Friedman: Dr. Hotchkiss, am I doing this with your permission?

Dr. Hotchkiss: Yes you are.

Dr. Friedman: The beginning of the primary part of this questioning is related to your husband, Ernst, whom you so generously provided me with this background. Now, I know he was born in Berlin, in 1926, but I don't know anything about his childhood identification, about his siblings, or anything about his parents. I understand his father [Jakob Knobil] must have been affluent from the way he traveled around.

Dr. Hotchkiss: Well, first, he was born in Berlin because the company his father worked for--which was an import/export trading business then based in Berlin--they never considered themselves Germans and actively disclaimed any association with Germany after the rise of Hitler. He had a brother, who was born in 1931, also in Berlin--just before they left and moved to Paris. The company moved to Paris as well. His brother's name was Ulrich, commonly known as Henry after they moved to the states. His early education was a Montessori school--probably in Berlin--but when he got to Paris at about the age of six, he entered the usual French school not being able to speak French, so he was tutored on the side until he got the hang of French.

Dr. Friedman: The name of the school was Lycée Claude Bernard.

Dr. Hotchkiss: Well, that was later. At the age of eleven, one had to take competitive examinations to go on into the Lycée.

Dr. Friedman: Was Lycée a public school or private?

Dr. Hotchkiss: It's public, but it's competitive. He passed his examinations to go to the Lycée Claude Bernard, not knowing who Claude Bernard was. He was the father of modern physiology, and it's rather ironic that he became a physiologist, subsequently.

Dr. Friedman: What about his parents outside of the fact that his father was in the import/export business? Was his father professionally educated?

Dr. Hotchkiss: I don't know. I really don't know what his educational background was.

Dr. Friedman: How about his mother?

Dr. Hotchkiss: His mother was a nurse. Both of them were born in Poland. They seemed to have met in Vienna, and she was a nurse after World War I taking care of children in an orphanage. They met somehow and married in 1922. Ernst's father--my father-in-law--was raised a Jew--a very orthodox family. His grandfather was a Jewish scholar, but my father-in-law somehow left the faith and married a schicksa.

Dr. Friedman: That's strange, because her name sounded Jewish.

Dr. Hotchkiss: No, she was a schicksa, Seidman. After World War I, he became connected with the same export business, and he traveled all over the place. He spoke Russian; he went to Mongolia--early IBM punch cards and trading for sheep guts to make sausage--and things like that. They did very well, but with the advent of Hitler, the company, which was a very small company, decided to move to Paris. Then the advent

of World War II--everything disintegrated. They lived in genteel semi-poverty, running a little chicken and egg farm.

Dr. Friedman: Is that what his father did?

Dr. Hotchkiss: Yes. When he came here, he was not employed for quite sometime, and they bought a little farm in Bound Brook, New Jersey, and they raised chickens and sold the eggs.

CORNELL UNIVERSITY
Admitted to the College of Agriculture at age fifteen

Dr. Friedman: According to the information you sent me, Ernst got into college at Cornell at the age of fifteen. That's quite an achievement.

Dr. Hotchkiss: When he came to the United States in April of 1940, he went to high school in New York City at Haaren High School; and after one year, he applied to the College of Agriculture at Cornell University. He was very interested in agriculture, farming and animals, and things like that. I found in his records that they turned him down in the spring of 1942. Then two months later, a letter came back saying, "We accept you."

Initially a poor scholar while supporting himself with babysitting and kitchen work

Dr. Friedman: Anything special about his career at Cornell?

Dr. Hotchkiss: He had a disastrous career at Cornell. He said he really didn't have any idea what was going on. He had to work because his father couldn't support him--so he worked for his room and board. He lived in a faculty member's house and babysat; then mornings, lunches, and dinners, he worked at Alpha Phi, a sorority, as a kitchen boy

cleaning up the meals. He was fired from his babysitting job because they came home and found him asleep once when he should have been awake. The Alpha Phi housemother said that he ate too much, so he was relieved of that job as well. He didn't go to the classes that he thought were stupid. He managed to fail in his first two years: the course in hygiene, which was required; and in physical education, which was also required. At the end of his first two years in the College of Agriculture, his performance was not scholar, as we'd say. He tried to enlist in a service, but his father wouldn't let him because he was under age, but he enlisted as soon as he was eighteen, in September 1944.

MILITARY SERVICE

Dr. Friedman: In the material you sent to me, you said he wanted to enlist in France, but his father wouldn't let him.

Dr. Hotchkiss: Well, he was only thirteen when he left France, so--as you can imagine--his father didn't think very highly of that. He apparently tried when he seventeen to enlist--in the Coast Guard or something--to get out and fight in the War, but his father wasn't keen about that either; but when he was eighteen, he was like everyone else of draft age. They drafted everyone. You didn't have to be a citizen. In fact, he was the first person in his family that was naturalized; because when you're drafted, you go through basic training, and they naturalize you.

Dr. Friedman: One, two three.

Dr. Hotchkiss: One, two three. In Columbia, South Carolina, he was naturalized.

Dr. Friedman: Was there anything special about his military career?

Dr. Hotchkiss: First, he was in the infantry.

Dr. Friedman: That's not special.

Knobil's maturation in the US Army

Dr. Hotchkiss: That's not special, but when his group was through basic training and was sent into combat, he was not. He thought that was definite discrimination, because it seemed that those young men who had some college training were kept behind, and those who were just high-school graduates were sent overseas. But he became a staff sergeant and ran the information and education branch at Fort Dix in New Jersey. He apparently did that very well and had a wonderful time. He was very organized, and it was really the structured environment in which he flourished. As he got back to Cornell as a veteran, he just did wonderfully well. He just sailed through. It was a great experience. The Army really matured him.

KNOBIL'S SWITCH TO BIOLOGY AND LINK UP WITH SAM LEONARD

Dr. Friedman: Tell me how he got to Sam Leonard's laboratory after he graduated from Cornell.

Dr. Hotchkiss: He graduated from Cornell in June 1948, still having the idea of going into biology or agriculture or something like that. I think it was Sidney Asdell in the School of Agriculture who said, "Go into biology, go into that kind of science, rather than agriculture. That would be better". So he somehow linked up with Sam Leonard and did a degree in zoology with Sam Leonard in 1951.

CONNECTING WITH ROY GREEP AT HARVARD

Dr. Friedman: After that he got connected with Roy Greep. I understand he was Roy's first postdoc fellow at Harvard. How did he get from Cornell to Harvard?

Dr. Hotchkiss: Was he really Greep's first postdoc fellow there? I don't know that for sure, but he got there because Sam Leonard and Roy Greep knew each other. They worked together. But then I think they both worked for Squibb in New Jersey, so they knew each other very well. Their families knew each other. Ernst--when he graduated and received his degree--he figured he had to go and get a job. He had a job offer at the University of Kansas, but he decided he would rather go with Roy Greep, who he met at a meeting in Cincinnati, and Roy apparently said, "You're a promising young man; come with me and do a postdoctoral fellowship." And that's how he got to Boston.

KNOBIL'S CHILDREN

Dr. Friedman: You never told me--in the interim when you got married--about your children. I know he had two children from his previous marriage.

Dr. Hotchkiss: He was married in the summer of 1944 before he entered the Army. He eloped. That marriage was not made in heaven, I gather, but it produced very fine children: Erich in 1947, and Mark in 1951. But the marriage fell apart while they were in Boston. He was divorced in 1954. I met him as I was an entering graduate student at the Harvard Medical School in the Division of Medical Sciences in the fall of 1956. We married in 1959, and we had two children: Nicholas who was born in 1960, and Katherine [Katherine Knobil Shelly, MD] who was born in 1964.

Dr. Friedman: What do all of the children do now?

Dr. Hotchkiss: Erich, who is now fifty-four, is teaching physics and mathematics in a church school in Menomonee Falls, Wisconsin. Previously, he had been a computer wizard at Cornell, which is why he flunked out of college. Then he was in business with Texas Instruments and various computer-related businesses in the commercial world. He was laid off, maybe five years ago, and is now the chief financial officer and teaches physics and math and everything else at a school in Menomonee Falls, Wisconsin. Mark is a photographer. He's a freelance cinematographer--does stuff for *National Geographic*, *Nova*, *Discovery*, anyone. He did a great deal on the *Titanic* series. He's quite well known. He's married and lives in Pittsburgh. Erich is married and has two children, one in Menomonee Falls. Mark has no children. Nicholas is forty and manages a small firm in Maine. Previous to that, he was a freelance computer expert--Nicholas H. Knobil Accounting and Information Systems in Bodenham, Maine. He is currently divorced. Kate was born in 1964, went to Cornell, and became a serious student. She went to medical school. She graduated from Southwestern in Dallas and is currently the chief position in charge of chronic obstructive pulmonary disease at Glaxo Smith Kline in Raleigh, North Carolina. She's married and has one child.

Dr. Friedman: She was smart. She went into industry.

Dr. Hotchkiss: Yes, she did her residency at Ann Arbor and her fellowship at Johns Hopkins, then was going into clinical practice, but said, "Wait a minute." She went commercial as they say.

**APPOINTMENT TO THE FACULTY OF THE DEPARTMENT OF
PHYSIOLOGY AT HARVARD; DISCOVERING SPECIES-SPECIFIC EFFECTS
OF GROWTH HORMONE**

Dr. Friedman: I'm coming back to your association with Dr. Greep. It was after he was there for two years. He was appointed to the faculty of the Department of Physiology at Harvard. As I understand it, that's where he discovered the species specificity of primate pituitary growth hormone. Only the primate growth hormone was effective in primates including humans. Would you like to talk to me about that?

Dr. Hotchkiss: Well, while he was a postdoctoral fellow with Roy Greep, Roy Greep was appointed dean of the Harvard School of Dental Medicine, which was a curious job for an endocrinologist to fall into. He became extremely busy and the lab was languishing--Roy was really too busy to keep up with his teaching commitments, which was teaching endocrinology in the medical school because there was no endocrinologist over there. So he passed off a good deal of the laboratory responsibilities to Ernst, and much of his teaching responsibilities to Ernst as well. Ernst became associated with the Department of Physiology at Harvard while he was still a fellow of Roy Greep. When his two years as a fellow were up, Eugene M. Landis, Chairman of the Department of Physiology at Harvard, asked Ernst if he would join the department as an instructor at a salary of \$3,000 per year, as I recall. Ernst looked at Dr. Landis and said, "Well, actually, I'm receiving \$3,200 as a fellow." So Gene Landis said, "All right, \$3,200 a year." That's how he started as an instructor at Harvard.

Experimenting with bovine growth hormone in primates; testing monkey growth hormone in people

Roy Greep had a colony of monkeys in the dental school, and he was studying, among other things, the role of the adrenal cortex. They did adrenalectomies in monkeys and then watched them go into adrenal failure and die, and that's some of the first publications if you look at the list of publications. They studied thyroid activities in monkeys, and then Ernst became aware of a paper whereby there was something funny about the activity of bovine growth hormone. People have been trying bovine growth hormone clinically for years, and without much success. He became intrigued with the idea of what is it about the higher primates that [they] don't seem to respond to growth hormone of sub-primate origin. Armour [and Company] sent him lots of bovine pituitaries, and they made bovine growth hormone and then injected it into monkeys--did daily nitrogen balances--and it was true: monkeys did not retain nitrogen when injected with bovine growth hormone. These were hypohysectomized monkeys. They learned how to do that, too. Very soon it became evident that, well, maybe we should show that hypohysectomized monkeys will respond to primate growth hormone. So with the help of Alfred Wilhelmi, Chairman of Biochemistry at Emory for a long period of time--now dead of course, was a past president, too--the Upjohn Company, which wasn't then at that time collecting monkey pituitary glands by the thousands for him because they were using imported monkeys, developing kidney cells for the development of the polio vaccine--he talked Upjohn into saving the pituitary glands from monkeys. These were shipped to Alfred Wilhelmi to prepare primate growth hormone, which then was used to

see if you could get positive nitrogen retention in monkeys with primate growth hormone, because nothing else worked. Of course, the nitrogen retention increased immediately when treated with primate growth hormone. I believe it was John Beck in Montreal who did the bold step of trying monkey growth hormone in people to show that is caused nitrogen retention in people.

Dr. Friedman: It worked.

Dr. Hotchkiss: It worked, but there were so many more people around than there were monkeys that then began the pituitary collection of human pituitaries at autopsy and the great hey-day of saving human pituitary glands and isolating all of the human hormones [that] were used in humans for all the various reasons--until 1983 when Creutzfeld-Jakob problems arose.

**DECISION TO MOVE TO PITTSBURGH; FIRST RICHARD B. MELLON
PROFESSOR OF PHYSIOLOGY AT THE UNIVERSITY OF PITTSBURGH;
FOUNDING CHAIRMAN OF THE DEPARTMENT OF PHYSIOLOGY AT THE
UNIVERSITY OF PITTSBURGH**

Dr. Friedman: Now we were talking about how he got to Pittsburgh.

Dr. Hotchkiss: Ernst was then appointed as an assistant professor in the Department of Physiology at Harvard in 1956, which is when I got to know him. Then--in about 1959 or 1960--Harvard had a very strict policy on promoting people; most people knew that you had to leave. They offered to give him a ten-year position as an associate professor in the department, but he thought it was time to move on. In 1960, he had two offers: one from the School of Hygiene at Johns Hopkins to be chairman of something, and an interesting offer from the University of Pittsburgh to become their first Richard B.

Mellon Professor of Physiology in their School of Medicine. Previous to that time, they had a combination of physiology and pharmacology departments. They split them into two and had a complete departmental vacancy in physiology, and a complete vacant floor. It was wonderful; you don't get an opportunity like this everyday--to become chief and do all your own hiring, build your own laboratories, build everything from scratch--and he took it, and we moved there in 1961.

Dr. Friedman: And he was the first chairman of the department, also.

Dr. Hotchkiss: Yes, and if you can imagine it, there is *now* a *second* chairman of the department. For fifteen years or more after he left, they did not replace the department chairman. The guy that is now chairman of that department was a graduate student in Ernst's department.

Dr. Friedman: That's very nice.

Dr. Hotchkiss: Yes, it was kind of nice.

MOVING TO TEXAS, 1981; KNOBIL APPOINTED DEAN OF THE UNIVERSITY OF TEXAS MEDICAL SCHOOL AT HOUSTON

Dr. Friedman: How did he get from Pittsburgh to Texas?

Dr. Hotchkiss: Well, after twenty golden years in Pittsburgh--it was really terrific, a good functioning department, many fellows, lots of good work going on--he began to think, "If I don't do something now, I'm never going to do it; I really should be doing something new." One of his old medical students at Harvard was president of the University of Texas Health Science Center at Houston, and they were looking for a dean

of the medical school. For some reason, he felt that Ernst should be dean and finally talked him into coming down to Houston. He agreed, but he brought his lab with him--his lab, his fellows, his equipment, monkeys, the whole works--which was good because, in fact, the deanship lasted for three and a half years, and he was fired--or agreed to leave, or something like that. He had some very serious difficulties with the president of the Health Science Center. It was a control problem: who is going to be the dean, the dean or the president? So he washed his hands of that and went back to being a fulltime professor of physiology and running the laboratory for neuroendocrinology.

Dr. Friedman: That was in what year?

Dr. Hotchkiss: He came as dean in July 1, 1981, and he left the deanship in May 1984.

ON KNOBIL'S SCIENTIFIC ASSOCIATION WITH HOTCHKISS

Dr. Friedman: Thank you. Now, I have one question, here. How come your work in association with Ernst was so spotty? For example, it is in the bibliography that there was a paper in 1964, and then none until 1968; then 1968, '69, '71, '72; then 1973-76 you did a lot of work together; then there was a lapse from 1976 to 1982; then 1982, '85, '87, '90, '91; then again 1994 to 1998. There seemed to be interruptions to your work. Was this because you were doing research of your own special interests during that time?

Dr. Hotchkiss: Part of that time, I was doing research of my own, which was quite different from what he was doing. When the time would come, he would say, "Come on, give us a hand here. Do you have time to do this?" I then joined his lab--partially--and where I contributed something to the work that was going on, then my name was on the

paper, but if there were things that he was doing that I didn't contribute to, it didn't belong, and it wasn't there. Actually, about eight years--1961, we moved to Pittsburgh--I didn't get my degree until 1962--I was still writing my thesis in the first year in Pittsburgh--I had to go back to Harvard to pass my exam. [So] I started work in the fall of 1962, but only halftime. I had a small child--then I had two small children--I said I'd work, but halftime. So about the first maybe eight or ten years, I worked halftime until I went into him--because he was my boss--and said, "Wait a minute, I'm here everyday; I work as hard as all these other people sitting around here. How come I don't have a fulltime appointment?" He said, "I wondered when you were going to think of that." Then I had a fulltime appointment.

SUCCESSFUL CAREERS OF KNOBIL'S FELLOWS AND EARLY ASSOCIATES

Dr. Friedman: Dr. Hotchkiss, how many of the fellows and early associates became heads of departments or chairman of departments in the future? I think you said there were sixty-nine fellows.

Dr. Hotchkiss: There were sixty-nine fellows and six graduate students, seventy-five in total. Ten of them became medical school department chairmen--seven in physiology, one in anatomy, two in obstetrics and gynecology--in this country; one in Sweden, and one in Japan. Ten became medical school department chairmen--eight of them in this country, and two foreign.

Dr. Friedman: Among the things that strikes me and makes me interested--because I've gone through this before when I was out in California interviewing people--is how many

Asians there were. We're talking about Texas and Pittsburgh, which are far [to the] east, and [yet] a tremendous number of Asians were associated with him. That just goes to show you the drive for education that the Asians have had.

Dr. Hotchkiss: All the Asians who were fellows--mostly Japanese, two Chinese--were from China or from Japan. They weren't immigrants or first or second generation.

THE ENDOCRINE SOCIETY: CONCERN REGARDING GROWTH OF THE SOCIETY; JOYS OF FELLOWSHIP

Dr. Friedman: I'd like to again change the subject. We've already discussed the fact that Ernst was president of the Endocrine Society, and he was awarded both the Koch and Oppenheimer Awards, but what I was interested to ask you is--to the best of your recollection--what part of his association with the Endocrine Society did he seem to enjoy the most?

Dr. Hotchkiss: That's such a tough question because I think he enjoyed the Endocrine Society from the time he joined it, up until about 1985--before the Society got huge. The best days of the Endocrine Society were when the meetings had a single session and everybody went. The Society was small and you knew everybody, and it was great fun. When it got big, the thyroid people went one way and it became fragmented; it was less enjoyable. He enjoyed working with all the various committees of the Endocrine Society that he worked on. He was especially pleased with the *Endocrine Newsletter*, or something like that. What was it?

Dr. Friedman: Well, there's the *Endocrine Newsletter*, and there is also the *Journal of Clinical Endocrinology* and the journal called *Endocrinology*.

Dr. Hotchkiss: Then there was a very small thin one.

Dr. Friedman: That was called the newsletter, but maybe you'll think of it later, because I'm going to send it back to you for correction.

Dr. Hotchkiss: I guess he enjoyed working for the Society and all the people in the Society and the endless discussion that he got into with everyone on scientific matters-- the fellowship of the Society.

PRESIDENT OF THE AMERICAN PHYSIOLOGICAL SOCIETY; PRESIDENT OF THE INTERNATIONAL ENDOCRINE SOCIETY; ADDITIONAL HONORS

Dr. Friedman: I was also impressed with the number of other associations he had. He was president of the American Physiological Society, president of the International Endocrine Society; and it takes a lot of time to do all these things.

Dr. Hotchkiss: Yes, he was very good at doing a lot of things at once.

Dr. Friedman: He also had many honorary professorships, honorary lectureships. I was impressed with the number of foreign countries who recognized him.

Dr. Hotchkiss: I think the countries that he associated with most were France and Italy. You remember, of course, he could speak French, so that the French were absolutely delighted that he would come and speak to them in their language, which was a great help. His first honorary degree was Bordeaux, I think. He was absolutely thrilled by that. He was also elected to the French Academy, which is pretty good for a boy-endocrinologist, as he used to say. [laughs]

DOING TRANSLATIONAL RESEARCH

Swift translation of basic research on GnRH in primates to the clinical treatment of amenorrhea in women

Dr. Friedman: Is there anything else about Ernst you think I ought to know that I haven't asked you?

Dr. Hotchkiss: There's a story about the relationship between basic science research and clinical applications, which is illustrated by work that Ernst did in the laboratory in the late 1970's and 1980 when he was working with monkeys who had been made artificially deficient--that is, with hypothalamic amenorrhea--making them ovulate again once they were given pulses of gonadotropin-releasing hormone (GnRH) once every hour. We had a fellow in the laboratory at that time named Ludwig Wildt, who was Gerhard Leyenbecker's [collaborator], in Bonn, Germany, and soon as ovulation was induced in the first monkey, Ludwig called his boss in Bonn, Germany, who was an obstetrician gynecologist treating infertile patients, saying, "Boss, you've got to try this GnRH in your women with amenorrhea and see if they ovulate." Of course, they did. So that was an immediate application of basic science research to the clinical arena within hours.

KNOBIL'S PERSONAL ATTRIBUTES AND SCIENTIFIC INSIGHT

Knobil's confidence in his deductive abilities: pulsed GnRH *will* trigger ovulation in immature monkeys

Dr. Friedman: That's fascinating! Is there anything else you think I should know about Ernst?

Dr. Hotchkiss: I can't think of anything. One of the attributes that he had, which I thought was particularly remarkable because I did not see it in very many people, was

[that] he could look at a scientific idea, and--within a few minutes--he could figure out how it could be tested and figure out [that] if the results are this, then it means this.

There was never any of this, "Let's try this and see what happens". He knew before he started.

Dr. Friedman: What the answer was.

Dr. Hotchkiss: What the question was and the interpretation of what the possible answers were. So there was no guesswork. Amazement? No! He knew ahead of time. One of the things after he ovulated monkeys with hypothalamic amenorrhea--he said if this works in the adult monkey, one should be able to bring about puberty in the immature monkey. The fellow said, "Oh, that's ridiculous!" He said, "No, it isn't ridiculous. This is the evidence and it follows from what we know--that intermittent GnRH should work to cause puberty in immature monkeys." The fellow still said, "We don't believe it." He [Ernst] said, "It's going to work, and the first author on that paper is going to be me because you don't believe it". They took tiny baby monkeys--nine months old--put them on the intermittent GnRH pumps, and--within a matter of weeks--these animals went through puberty, developed the signs of puberty, began to menstruate and ovulate.

Dr. Friedman: In the monkey what would normally be the time period for this to occur?

Dr. Hotchkiss: In about two and a half years.

Dr. Friedman: In other words, they sped it up by two years.

Dr. Hotchkiss: Yes, then you stop the GnRH pumps, and they go right back to being baby monkeys--being pre-pubertal.

Dr. Friedman: Very interesting.

Dr. Hotchkiss: We have this all on film: baby monkeys and the monkeys that are being infused. Of course, you can't see them ovulate; you can only see the setup.

HOTCHKISS'S CAREER

Turning down Harvard Medical School

Graduate studies in physiology at Harvard

Dr. Friedman: I'd like to change the subject. I'd like to hear a little bit about you.

Dr. Hotchkiss: I was born in Albany, New York, raised in Boston, graduated from high school, and went as far away to college as I could imagine, which was Cornell University, which happened to be the same place that Ernst went, but we did no overlap at all. I arrived in 1952 as a freshman in college, and he had already left with a PhD in 1951. I majored in zoology and, as a matter fact, even had a course with Sam Leonard in endocrinology. I graduated with a degree in zoology and was planning to go to medical school, and was actually accepted at the Harvard Medical School and got "cold feet," which I think was probably the biggest mistake of my life, and told them that I wasn't coming. When it became evident after I graduated from college that if I didn't know how to type there were no job openings, I began to see the light. I talked to the ex-chairman of the Department of Biochemistry at Harvard when I was hunting for a job. He said, "Don't do that. Go sign up in my Division of Medical Sciences at Harvard and you'll like it." So I signed up as a graduate student. In the fall of 1956, I entered, and I had no idea what I was going to do with this, but it became evident that physiology was really by far

the most interesting of the medical sciences: anatomy--phooey! biochemistry and pathways, who needs those things?

On being a graduate student of Ernst Knobil

Dr. Friedman: Even those who go through medical school react the same way to those two courses.

Dr. Hotchkiss: Pathology and microbiology are great disciplines, but they didn't appeal to me, and physiology did. I signed up with the current physiologist who was teaching that course--who was Ernst Knobil.

[So I became his graduate student, says Dr. Friedman. (laugh)]

Dr. Friedman: That was the beginning.

Dr. Hotchkiss: That was the beginning! H. M. Goodman, now chairman--the longest acting chairman of a department of physiology anywhere in the world, I guess--he and I were graduate students together. We both signed up with Knobil as graduate students, and we went through that period of time together. I got to know Dr. Knobil very well--married him, in fact--at which time it became very "sticky" in the department at Harvard because of our personal relationship. So my mentor became Eugene Landis who was chairman of the department. He took over my responsibilities for me. Basically, he had not a clue as to what I was doing because I was practically through my thesis work, and I had to explain to him what I was doing.

Dr. Friedman: When did you get married?

Dr. Hotchkiss: The summer of 1959.

Dr. Friedman: He was still at Harvard?

Dr. Hotchkiss: Yes, he was still at Harvard. We left in June 1961.

Dr. Friedman: What happened between 1959 and 1961? Did Landis put you to work?

Dr. Hotchkiss: No, he let me finish what I was doing because I was working almost totally independently. When Ernst had graduate students--and he had very few--he always had them on a project which was totally separate from what his laboratory was doing because it had to be a project that a student could do with their own two hands without any help from anyone else.

Dr. Friedman: Well, it develops independence.

Dr. Hotchkiss: It develops independence and you learn an awful lot by having to figure out ways of doing things and having a project that you yourself could do. You didn't have to have three animal men, a stable full of monkeys, and all this stuff around to do your work. You had your own animals, your own project, your own equipment, and you were responsible for the whole thing.

Dr. Friedman: And you also become self-reliant, then.

Dr. Hotchkiss: Yes, but it's kind of lonesome in a way because you get stuck, and you think, Gosh! I need some help here. It would be nice to have an extra pair of hands to do this.

Dr. Friedman: Well, you were still permitted to go in and talk to the boss.

Dr. Hotchkiss: Oh, yes. And you could always say to a technician in the lab or one of the fellows, “Hey, help. Put your thumb on this while I do something.” Then when we went to Pittsburgh and he was developing a faculty--he had no faculty--so he hired me and said, “Get your degree because I need you to work in the department.” So I had a ready-made job, which he paid me very little [laughs], and I worked halftime in teaching and research. I had my own project because I had an American Cancer Society grant that I was working on.

Dr. Friedman: It took a long time before research scientists were recognized. I still think they're not; because you still see all these people today leaving jobs that are heads of departments and going to work for industry.

Dr. Hotchkiss: Yes, that's true. It's a very funny world these days. Good jobs are hard to come by--so that's how I got started.

Family background

Dr. Friedman: What about your family; were there physicians in your family?

Dr. Hotchkiss: No. I have two sisters, neither one of which was in science. My father was an engineer and my mother was a social worker. I had the “plain Jane” American upbringing. Nothing interesting. Now, what else?

Dr. Friedman: Well, I don't have your CV or bibliography as a means of basing my questions.

Dr. Hotchkiss: [laughs] Well, just don't worry about me; Ernst is the main man here and I'm just a small potato. I got all the fruits of being associated with him. When he went some place, a lot of times I would go too, so I met all these people. John Beck, Maury Rabin, Clara Szego--I met them all through him. It's been wonderful.

Dr. Friedman: Well, thank you very, very much for your time and the effort it took you to put all the material together which facilitated my interview.

Dr. Hotchkiss: Well, you're very, very welcome.

End of Interview

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