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SHIMON M. GLICK, MD

Interview conducted by
Adolph Friedman, MD
April 2, 2000

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FAMILY BACKGROUND

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

Dr. Glick: Yes, you are.

Dr. Friedman: Now, I understand you were born in New Jersey, in 1932. What were your parents' occupations or professions?

Dr. Glick: My father was a garment worker, who had immigrated to the United States about three years before I was born. My mother was a housewife.

Dr. Friedman: Where did your parents come from?

Dr. Glick: Poland.

Dr. Friedman: Did you have any siblings?

Dr. Glick: I have a younger sister, who is a schoolteacher.

EARLY INTEREST IN SCIENCE AND MEDICINE

Dr. Friedman: Did you have any particular interest going through school? Were you interested in science? Were you as good a student as you later turned out to be?

Dr. Glick: I was interested in science from childhood. I was going to be a physician from as early as I remember. I don't know whether it was put into my head by my parents or whether it was just part of me; but, as long as I remember myself, that was where I was headed for.

EARLY EDUCATION

Dr. Friedman: Did you do anything particular in school? I mean, were you an athlete or were you interested in music?

Dr. Glick: No. I was not an athlete. I was not a musician. I was basically a very good student. I was always the youngest in class. I was skipped repeatedly, so that athletics were really not very much in for me because I was most of the time a year or two younger than my classmates, and I was not very competitive in sports. I was always--almost invariably--the top student in the class. I was always interested in biology, nature, anything alive.

Dr. Friedman: Where did you go to high school?

Dr. Glick: I went to a Jewish high school in Brooklyn called Yeshiva Torah Vodaath. This was what they called a Jewish parochial school, or day school.

MARRIAGE AND INTERNSHIP

Dr. Friedman: Thank you. Now I know that you did get married, probably during your internship or the beginning of your residency.

Dr. Glick: My internship. The night before I got married, I worked the emergency room as an intern. I know the interns complain now, but in those days we worked every other night and every other weekend, and I worked all night in the emergency room, and the next night I got married. So it seemed to have worked out just the same.

Wife's career

Dr. Friedman: Did your wife have any special training? Was she involved in science?

Dr. Glick: No, no. She has a master's degree in education as a schoolteacher.

Dr. Friedman: Does she still teach school?

Dr. Glick: She did until about a year ago, when she retired.

Six children

Dr. Friedman: Now, tell me about your six children.

Dr. Glick: My six children. Okay, my oldest is a daughter who is a very talented young mathematician. She has a master's degree in computer sciences. She works part-time, not fulltime, but she has been working ever since she's been married--in the computer field--programming and that kind of stuff. She also has twelve children, so she's rather a busy lady and manages to do it all without any problems.

My oldest son is in rabbinics. My next son is a physician. My next son is a physicist working in electro-optics. My next son works for the Israeli government. He has a degree in education, but he's working with immigrants in their education. And my youngest daughter is an optometrist.

Dr. Friedman: Beautiful family.

TIME WITH THE PUBLIC HEALTH SERVICE

Dr. Friedman: How did you get involved with the Public Health Service, and subsequent to that, how did you get involved with Berson and Yalow?

Choosing diabetes

Dr. Glick: Well, I was looking for a field of medicine in which I was most interested. I actually chose diabetes. I picked that because I found that it contained everything in medicine. There was nephrology, there was endocrinology, and there was cardiology. And I wanted a field of medicine that really involved everything, so I got into diabetes. I spent a year with Dr. Martin Goldner, who was then at what was called the Jewish Chronic Disease Hospital. He was one of the old-time clinicians in diabetes. After spending a year with him, I was looking for a research fellowship, and one of the people who was working there said, "Why don't you go up and see Berson and Yalow, they're doing some interesting work in the field of diabetes." So I went up to meet them, and that's how it got started. I really didn't know what I was getting into, frankly.

BERSON AND YALOW

Dr. Friedman: Well, we'll come back to that later. I would like to touch later on some of your own personal interpretation of their personalities.

Dr. Glick: Okay, I'd be happy to.

Getting into growth hormone

Dr. Friedman: In 1963 and '64--although you wrote others--you wrote several articles on growth hormone. Now, from your bibliography, I would assume this was because you had an overall interest in growth hormone and that RIA (radioimmunoassay) was because that was what the whole lab was geared to.

Dr. Glick: Yes, well, it's an interesting story. When I came to Berson and Yalow, I wanted to work with them. We hadn't had a specific project, and they said, Well, look, we wanted to put down on your application radioimmunoassay for growth hormone; [however,] by the time you get here that won't be the project because we will have already solved that particular problem, but just to get started, just put that down. And that's what happened. By the time I got there, they hadn't really made any progress. In spite of their optimism, they were still stuck; and it took us over a year and a half, I think, until we got that one off the ground anyway. It wasn't that I was specifically interested in growth hormone and got into that; it was purely fortuitous.

Radioimmunoassay for insulin and growth hormone

Dr. Friedman: In 1965, you specifically got involved on the RIA of insulin and growth hormone. Now, I was under the impression that Berson and some of the earlier fellows had already worked on the RIA of insulin. Did you get involved in the combination because of the effect of growth hormone on blood sugar?

Dr. Glick: No. That particular article to which you are referring was sort of a gimmick. We decided that if you used two different isotopes, you could get a radioimmunoassay

for growth hormone and insulin with the same sample simultaneously by counting them differentially. It was sort of a gimmick, so we did that and it worked. We could take one sample of blood and instead of running two assays, one for growth hormone and one for insulin, you could run it on the same sample using two isotopes. It was sort of a "cute" thing.

Dr. Friedman: Yes, but it was fortuitous.

Dr. Glick: Well, it wasn't fortuitous; it was thought out in advance, and it could conceivably work. Of course, the techniques for radioimmunoassay have become so simplified now over the years that it has no real significance, but at that time it was a very interesting little project.

On Berson's choice of insulin: Mirsky's theory on the etiology of diabetes
Berson's discovery that injection of insulin stimulates production of antibodies results in controversy

Dr. Friedman: I was under the impression from previous investigation of this that Arthur Bauman had stimulated Sol Berson to get involved with working on insulin because he was working on proteins at that time.

Dr. Glick: Well, the reason that I'm aware of Berson getting into insulin was not Bauman, but rather Professor I. Arthur Mirsky. Mirsky, who was then in Pittsburgh, was an absolutely brilliant scientist--a psychiatrist, psychoanalyst, and an endocrinologist--had the idea that diabetes might be the result of a rapid breakdown of insulin. The patients with diabetes would break down insulin more rapidly, and, therefore, they would have a problem with not having enough insulin. He knew that Sol Berson and Yalow were working with protein labeling, and he suggested that they examine radioactive insulin in diabetics with the idea that the falloff of radioactive insulin in diabetics would be much more rapid because the diabetics would be destroying it. So Berson said, "That's a good idea, let's try that." I don't know if he believed in it, but "let's try it." And when he did it, he found the opposite. He found that in diabetes, the falloff of radioactive insulin was slower. Now, Robert Williams, who was the editor of Williams Endocrinology[*Williams Textbook of Endocrinology*], did the same experiment almost at the same time. Robert Williams didn't catch on to what was going on, where Berson did. Berson made the observation that the falloff of insulin was slower, not in most all diabetics, but only in those who had gotten insulin. And also he looked into it and found that those psychotic patients who had gotten insulin shock treatment to produce hypoglycemic coma, also, had slower fall-off. And it clicked that there was something binding the insulin in those patients, which was the result of them previously having received insulin, which was an antibody. So he basically found that the injection of insulin into both diabetics and nondiabetics stimulated the production of an antibody, and that's where their first paper on that subject came from. That paper was famous, and it was rejected initially. They would not accept the concept that it was an antibody and had a big fight between the *JCI* (*Journal of Clinical Investigation*), I think it was, and Berson and Yalow because their reviewers, who were immunologists, said that insulin was too

small a molecule to make an antibody. So Berson and Yalow came to insulin assay on the basis of a wrong theory of I. Arthur Mirsky.

Dr. Friedman: I have copies of those letters.

Dr. Glick: Yes. Roz Yalow, of course, always has waved these letters and rubbed people's noses.

Dr. Friedman: In 1970, you wrote an article as you worked on a project of stimulation of plasma insulin and growth hormone in primates with R.A. Levine. Was R. A. Levine, Rachmiel?

Dr. Glick: No, no. This was a different Levine, not Rachmiel Levine.

Dr. Friedman: The reason I asked is because I had spent a year of my life with Rachmiel Levine.

Dr. Glick: No, no. Not guilty. I know Rachmiel Levine. Well--but no--it's not he.

Dr. Friedman: As I read more on the bibliography, I realized that subsequently you did RIA studies on almost every hormone.

Dr. Glick: Right. Different people who worked with me were working in some of these areas.

SLEEP, CIRCADIAN RHYTHMS, AND GROWTH HORMONE

Dr. Friedman: From the bibliography, I also got interested in your work on sleep and growth hormone. Was this sort of a parallel to circadian rhythms?

Dr. Glick: Yes, exactly. We were looking, and it was clear that some of the hormones have rhythms in twenty-four hours--different rhythms. And so we decided to look into that particular problem, and we did twenty-four hour studies and found that there was a rise.

Dr. Friedman: In what?

Dr. Glick: Basically, more growth hormone gets put out at night. We did not make the observation that it was correlated with deep sleep--someone else made that observation as it turns out. It's not entrained with time, but rather with the degree of deep sleep. If you fall asleep in the middle of the daytime, the same thing would happen.

OBESITY AND GROWTH HORMONE SECRETION

Dr. Friedman: The steroids I can understand, but how did you get involved with the study of fat affecting growth hormones?

Dr. Glick: First of all, one of the problems with one of the observations, which we made very early on, was that obese people had almost no measurable growth hormone. You couldn't stimulate growth hormones, so that if you did an insulin tolerance test (ITT) on an obese person to lower his blood sugar, you got very little rise in growth hormone. So the question was what was it among the obese people that suppresses growth hormone. And one of the possibilities was that there were free fatty acids, and we looked into that. There was also the question of what came first: the obesity, or the drop in growth hormones. That was another reason we looked into that area.

Dr. Friedman: What did you conclude on that?

Dr. Glick: Well, we concluded that free fatty acids could suppress growth hormone. To this day, no one really knows why growth hormone is down in obese people; it's still a question.

ENDOCRINE "COOKBOOKS": *METHODS IN INVESTIGATIVE AND DIAGNOSTIC ENDOCRINOLOGY; METHODS OF HORMONE RADIOIMMUNOASSAY*

Dr. Friedman: Now, I haven't yet been in the library to look up Berson and Yalow's books--there was *Investigation on Diagnostic Endocrinology* [*Methods in Investigative and Diagnostic Endocrinology*]--although I'm working on that.

Dr. Glick: Okay.

Dr. Friedman: But you wrote several chapters. Would you mind discussing them?

Dr. Glick: Basically, that was just sort of a "cookbook" of methods in endocrine research, endocrine measurement; and I was asked to write several of the chapters. The ones that we were doing at that particular time--growth hormone--I don't remember which ones we wrote, but we wrote several chapters for that book. It was a methodology book.

Dr. Friedman: Then you also wrote in Jaffe's book [*Methods of Hormone Radioimmunoassay*] on methods of radioimmunoassay.

Dr. Glick: Yes. Again, these are method books.

Dr. Friedman: Both the original and second edition.

Dr. Glick: Yes. These are basically cookbooks.

Dr. Friedman: "Cookbooks."

Dr. Glick: Cookbooks, basically--essentially, cookbooks. You could call them that.

Dr. Friedman: Now, I'm personally interested in adrenal insufficiency during any anticoagulant therapy. Was that a "cause and effect " or two concurrent problems.

A CASE REPORT ON ADRENAL INSUFFICIENCY CAUSED BY ANTICOAGULATION THERAPY

Dr. Glick: That was an article, which I wrote in an Israeli journal, a case report. It was a case report of a patient who had developed adrenal insufficiency as the result of anticoagulation therapy.

Dr. Friedman: Well, that's it.

Dr. Glick: Yes, that's it.

Dr. Friedman: As the result of--

Dr. Glick: It was the result of anticoagulation therapy. It's a phenomenon that's known--which happens to be part of clinical work with a patient who developed severe abdominal pain on the ward while on anticoagulant therapy--and we really didn't know what was going on. He was really sort of a character, and we thought that some of it was hysteric, but suddenly we noticed in the workup that his plasma sodium had fallen and then it "clicked." We found him losing sodium in the urine, and we realized that he had developed adrenal insufficiency as the result of anticoagulation.

Dr. Friedman: Well, probably in those days you didn't have the radiologic diagnostic facility to see whether or not it was hemorrhage.

Dr. Glick: Yes, exactly. But we made the clinical diagnosis, and we made the hormonal diagnosis; and as soon as we gave him steroids, he perked up.

Dr. Friedman: Did you assume it was hemorrhagic?

Dr. Glick: Well, if a man who is on anticoagulant therapy suddenly develops adrenal insufficiency overnight, that's a reasonable assumption. Uh! Okay. Well, it happens occasionally. It's a rare, but well-known event.

Dr. Friedman: Sort of changing the subject, again, as I said before--

Dr. Glick: Go right ahead.

CONEY ISLAND HOSPITAL

Contracts between teaching hospitals in New York and city hospitals

Dr. Friedman: Another question is how did you get involved with a study of patient care in municipal hospitals. It was sort of divergent from your scientific interests. These were written with Thompson.

Dr. Glick: Gerry Thompson. Right. Well, when I left Berson and Yalow, I took a job as chief of endocrinology at Coney Island Hospital. At the time, there were a series of contracts written between teaching hospitals in New York and city hospitals, which were not doing well. The city paired off city hospitals with teaching hospitals. We came in as a whole group from Maimonides Hospital, which was a teaching hospital, to take over Coney Island Hospital; I came in as chief of endocrinology and for three years I was chief of endocrinology and continuing an active research program in endocrinology with a training program. We had research grants from NIH. Then I became chief of medicine.

On becoming chief of medicine; improving patient care in municipal hospitals with Gerry Thompson

When I became chief of medicine, my whole career changed fundamentally--suddenly the added responsibility for a large medical service in a city hospital that was in atrocious shape and terribly under financed. The patient care was really bad, and so I found myself in a situation where you can't close your eyes to what's going on around you. I became interested in trying to change that, so we "shook up" the city for a few years. I became very interested in that particular problem of improving patient care in city hospitals. Dr. Thomson subsequently became head of medicine in Harlem Hospital and associate dean at Columbia, [and] organized all the chiefs of service at the New York Municipal Hospitals into an organization called the Society of Urban Physicians, whose sole purpose was the improvement of patient care in New York City hospitals. We were sort of an activist trouble-making organization.

Dr. Friedman: A year later, you wrote an article on primary care and the future of internal medicine. Was this in anyway pertaining to that?

MOVING TO ISRAEL

Founding chairman of the Ben-Gurion University Faculty of Health Sciences
Becoming dean of the medical school

Dr. Glick: Well, once I became chief of medicine at a city hospital from 1967 through 1974, then I moved to Israel and became the first head of a department in a new medical school, so we had different kinds of responsibilities. Then I became dean of the medical school--involved in a different orientation from growth hormone. That was another change of career, if you will, change of orientation.

Dr. Friedman: During 1978 to '80?

Dr. Glick: Yes.

CHANGING INTERESTS: URINE FLOW AND ANTIDIURETIC HORMONE

Development of a radioimmunoassay for vasopressin with Stanley Goldsmith

Dr. Friedman: You sort of switched your scientific interests to urine flow and antidiuretic hormone. Was this related to the interests of your staff?

Dr. Glick: Yes. Well, I'll tell you--right, right. Before I moved to Israel, I had developed a radioimmunoassay of vasopressin, which is probably--to this day--the most sensitive radioimmunoassay of vasopressin that's around. In fact, Gary Robertson, who has done most of the work in vasopressin in the world, has done most of his work with my antibody. So I was working with vasopressin physiology both in the United States and then when I got to Israel. At that point, I hooked up with one of the world's leading sleep investigators, and we began to look at rhythms of vasopressin during sleep. I had already worked on sleep and growth hormone and this was sort of a natural tie-in.

Dr. Friedman: Was that Dr. Krieger?

Dr. Glick: Well, Stanley Goldsmith was working with me at the time. Dorothy Krieger, I had worked with, a bit. Then Stanley Goldsmith, who is now chief of nuclear medicine at the New York Hospital, was working with me as a research fellow. We were doing work with growth hormone--the nocturnal stuff--when I developed the radioimmunoassay for vasopressin. We did a number of papers on that, and then when I went to Israel and met with the person who was really one of the world's sleep experts--he was interested in some of the sleep rhythms, and so we tied up and worked together on that.

Dr. Friedman: Is this in any way related to the urologist's comment that kidneys function more intensively in a recumbent position than when you're upright?

Dr. Glick: Well--

Dr. Friedman: In other words, the urologist says the reason persons with a prostate problem get up all night long is because there is increased renal blood flow during the night.

Dr. Glick: I don't think it's related to vasopressin. It's related probably to the fact that when you lie down, you basically get an infusion of fluids from your legs, and I think more cardiac output is going to the kidney and you certainly get more active at night.

ON HYPOPROTEINEMIA

Dr. Friedman: There are also two articles on hypoproteinemia. Again, is that mixed interests, or was he interested in reproductive endocrinology?

Dr. Glick: Yes, this was just something that came along. There was no major interest in mind.

Dr. Friedman: In other words, you nurtured your staff.

Dr. Glick: Well, there are people around who were interested, and we had a laboratory, but it was not really an interest of mine.

ON BECOMING MORE PHILOSOPHICAL WITH AGE
Compassion and the responsibilities of physicians

Dr. Friedman: Here again, I'm changing the subject. It seemed to me that you suddenly became a philosopher.

Dr. Glick: Yes. That's when we get older.

Dr. Friedman: There's about a half a dozen articles on the component elements of physician compassion--Jewish physician--and its values, and responsibilities of physicians to society, and several *Health Policy, Ethics, and Human Values.*

Medical ethics: changing from scientific research to medical education

Dr. Glick: Right. I've gotten involved in teaching of medical ethics. I've gotten involved in areas of patient care, which actually goes back to my work in city hospitals. I think I became interested in broader aspects of patient care and the human aspect of patient care in the medical school, which I'm attached to. Ben-Gurion University has made this one of its major foci, in other words, doctor/patient relations, communication skills, compassion--all of these things, and I have had a major role in that. So I began to follow that path and became involved in writing on the subject, lecturing on the subject. And once you get to speak at one place, they invite you to another place, and the next thing you know--I spend more time doing that now then anything else--teaching medical ethics, lecturing on medical ethics. I'm on the National Advisory Committee in Israel on ethical problems, and that is now my major focus of interest.

Dr. Friedman: In other words, your interest in research--scientific research--has waned.

Dr. Glick: Yes. I've done research in the last ten years in medical education but not in endocrinology. It's become quite clear--when I became head of a new department of medicine--that I really wasn't going to be able to keep up with research, and that I would just be kidding myself. And so--little by little--I found myself in other areas.

Dr. Friedman: Well, apparently you're not unhappy.

Dr. Glick: No, no. I'm not unhappy. Every position that I've had so far I've enjoyed, so I have no regrets. I've turned down many other positions that would have taken me still further away from medicine. I've been offered presidencies of universities and

things of that sort, which are not my cup of tea, but within medicine some of the policy areas are of interest to me.

PATIENT COMPLAINTS AND THE GROWTH OF ALTERNATIVE MEDICINE

Dr. Friedman: Well, there's no question that the communication between house staff physicians and patients has had to have a boost. Its been severely lacking. It's obvious here that there is so much interest in what tests you're going to do and how many tests are used for diagnosis. They don't talk to patients.

Dr. Glick: Right. It's a very serious problem, and that's the major complaint by patients. And that is also the major reason for the tremendous growth of alternative medicine and all of the other things because patients somehow want a doctor who talks to them besides ordering tests on them.

Friedman expresses dismay at the state of patient care at both Johns Hopkins and the Mayo Clinic

Dr. Friedman: It may not be of interest to you because you may already know, but I personally have been upset and surprised at the dissatisfaction patients have experienced at Johns Hopkins and at Mayo. I know several incidences at each of these institutions.

Dr. Glick: Really.

Dr. Friedman: At Mayo because of its reputation and Hopkins because of its proximity. But a personal friend and physician is involved with Hopkins now because he has glioblastoma.

Dr. Glick: Yes.

Dr. Friedman: And he's not even being treated like patient "number forty-six." He's being treated like patient "one thousand."

On the global problem of breakdown in doctor-patient communication

Dr. Glick: Yes. Well, I am now the ombudsman for Israel's national health service, so all the complaints against doctors come to me. And a very high percentage of them begin with communication problems. Even the ones where ultimately the complaint is "he killed my mother" usually start off with a communications breakdown. So it's a major problem throughout the world.

Dr. Friedman: What do you do to correct it?

Dr. Glick: Oh, that's a good question. We have to educate the students from day one to a different orientation.

Dr. Friedman: Do they appear to respond?

Dr. Glick: Yes. We have data; our graduates are far better at this than graduates at the three other medical schools. We've done surveys of all of the department heads in Israel, and seventy-five percent of them have said that our graduates are better, or much better, than the other schools. So it can be done.

COMPARING DIALYSIS AND TRANSPLANTATION PRACTICES IN THE US AND ISRAEL

Profit motive leads to high rates of dialysis in the United States

Dr. Friedman: Now, another thing that came up in my mind was [that] you had articles on dialysis/transplantation in Israel, and I wonder how much different is it from the United States, as far as you know. And--in the same thing--I read an article on the ethical aspects of organ transplantation.

Dr. Glick: Well, I was invited to speak about transplantation in Israel at some conference. Not that I'm an expert in transplantation, but I'm interested in the ethical aspects thereof. We have very high dialysis rate in Israel. I would say that if you look at Israel's gross national product, we probably have a higher dialysis rate than a country of comparable economic expenditure. I think the tradition or the ambience of Israel is to give up less on patients--the kind of thing that happened in England where if you're over sixty-five, they don't dialyze; and this would be unlikely to happen in Israel. So we dialyze a high percentage of patients. We do have a problem with transplantation, as in most countries, because there are not enough organs, and people in Israel give less organs than any other countries, so that's a problem. That's basically where we stand. We don't dialyze as much as the States because, I think, in the States there's a very good moneymaking aspect of dialysis, which stimulates dialysis.

Dr. Friedman: I would imagine so.

Dr. Glick: Yes. Where in Israel, we don't have that inducement; so there's no profit motive to dialyze. Whereas in America, once the Congress passed the law where they fund private dialysis centers, then everybody gets dialyzed. But other than that, we have a very high dialysis rate, and we do very well. We have some good nephrologists.

Ethics, ageism, and transplantation

Dr. Friedman: Well, what's your position?

Dr. Glick: About?

Dr. Friedman: What's your position over there in terms of ages and transplantations?

Dr. Glick: There are no outside official limits. I think most countries in the world, nevertheless, discriminate against older people. There's no question about it. Maybe it's

not an official policy, but I think there's an unwritten natural discrimination. Every survey that has ever been done in most western countries shows the group most discriminated against is the old. So that an older person, I think, is much less likely to get a transplant than a younger person.

Dr. Friedman: Actually, that does make common sense.

Dr. Glick: Well, in a certain way. If you look at it in terms of how many years he has to go, but then you're always going to favor a younger person. It's a very difficult question. The older guy wants it just as much as the younger fellow.

Dr. Friedman: Yes. Well, if he has a few years to live versus twenty-five or thirty.

Dr. Glick: Yes, but you know one year of Einstein's life may be worth fifty years of some drunken bum; depends what he's going to do with those times.

OVERUSE OF ULTRASOUND: OVER DIAGNOSIS OF THYROID DISORDERS AND UNNECESSARY FEAR

Dr. Friedman: You have a point there. I liked the article, again the title, which you mentioned on thyroid nodules.

Dr. Glick: Yes.

Dr. Friedman: It can't be felt if it isn't there.

Dr. Glick: Well, we have such an overuse of the ultrasound, and such an over-diagnosis. They scare the hell out of the patients, and the doctor does an ultrasound for no earthly reason. They find a 2 millimeter nodule, then the patient gets sent to the endocrine clinic; he waits--for whatever period of time--and by the time he gets there, he's sure he has cancer. And there wasn't any need for the ultrasound in the first place--just a waste of time. It's very hard to discourage a doctor from doing it. It's very easy to check ultrasound, and the patient's happy, and then he gets very unhappy.

Dr. Friedman: Well, let's not kid each other. A 2 millimeter nodule is not going to be palpated.

Dr. Glick: That's right.

Dr. Friedman: Right. So, you may have been a little facetious, but on the other hand I started my training with Rachmiel Levine; then I went to Astwood, so I'm pretty engrossed in thyroid. And in all the years that I was in practice with this, which was forty-eight, my fingers grew to be very sensitive.

Dr. Glick: When did you graduate medical school?

Dr. Friedman: I graduated medical school in 1943; then I went into the army. But, I was more fascinated by the aspects of thyroid disease than I was about diabetes, although the two of them made up the bulk of my practice.

Dr. Glick: Okay.

Dr. Friedman: Well, what I was going to say is, as many times as I felt nodules, the patient would go to someone else for a second opinion, or go to a surgeon; they couldn't find them. And then if they did an ultrasound, they found it. So I mean that's also what made me interested.

Dr. Glick: Well, the question is there are a lot of people with thyroid cancer, and only a small percentage of people die of thyroid cancer, and you drive a lot of people crazy unnecessarily.

DOCTORS INADEQUATELY INFORMED: ADVERSE AFFECTS OF X-RAYS ON THE FETUS

Israeli restrictions on abortion

Dr. Friedman: There was another article, which interested me, on the fact that doctors were inadequately informed on the adverse affects of X-rays on the fetus.

Dr. Glick: Yes.

Dr. Friedman: I thought that was publicized long ago.

Dr. Glick: Well, I'll tell you what happened. Within a two-week period, I had two phone calls, one from a neighbor of mine, and one from a fellow member of the faculty of the university. In Israel if you want an abortion, you have to go before a committee. There were a certain number of restrictions; you have to have a reason for the abortion.

Dr. Friedman: Even in an unorthodox environment?

Dr. Glick: Yes, this is a national law. The committees are very liberal, but you have to have a reason. So the lady goes to the committee because she had taken some aspirin or some trivial thing or trivial infection. She went to the committee and the committee approved it. She lived right above me. She calls me up one day, and she says, "You know, I went to the committee, and I'm going to have an abortion, what do you think?" I said, "Did you go to the committee because you wanted an abortion, or don't you want an abortion?" She said, "No, I don't want an abortion, but the doctor scared me. The doctor told me not to take a chance." I said, "Well, from what I know of what the recommendations are, what you had--she took aspirin or had a cold or something--that's not an indication of an abortion. If you're looking for an excuse, go right ahead." She had the baby. About two weeks later, a member of the university, a professor's wife, called me with almost the same story, and I realized that doctors don't really know what the medical indications are. I'm not talking about social indications. So we did a quick

survey, and we took family doctors and gynecologists and asked them, Which diagnostic X-ray that a woman undergoes during pregnancy is an indication for an abortion. The correct answer is "none." Both the X-ray societies and OB society say there's no diagnostic X-ray which is an indication for an abortion. That's an international recommendation--the unanimous view. About fifty percent of the doctors--if the woman had an X-ray--say that she should have an abortion. We published that because of that degree of misinformation.

ON JEWISH AND CATHOLIC POSITIONS REGARDING EUTHANASIA *V.* THE SECULAR POINT-OF-VIEW

Dr. Friedman: The next question that I had listed here was--the Jewish and/or the Jewish versus Catholic approach to living and dying. And where's euthanasia, which you also wrote in a separate article, fit into the whole picture? We're interested in more information on the difference and point-of-view between different religions, if there is any.

Dr. Glick: Well, that paper was part of a symposium organized by Georgetown University, which had both Jewish and Catholic scholars. Actually, the Jewish and Catholic point of view is not all that different. Both of them are opposed to active euthanasia. Both of them have a reasonable acceptance of withholding treatment on a terminally ill patient. So there's isn't that much of a difference between the Jewish and Catholic point-of-view, but they're both different from what is a growing secular point-of –view, which is increasingly, in many parts of the world, coming out for active euthanasia.

Dr. Friedman: In favor of this.

Dr. Glick: Yes, right. Netherlands. There are bills coming up in Belgium, France, Australia, and Oregon, also.

Dr. Friedman: What about the religious aspects?

Dr. Glick: Well, most of the Catholic and the Jewish point-of-view are opposed to active euthanasia.

Dr. Friedman: What is the difference of the correlation of the thoughts on living and dying?

Dr. Glick: The Jewish point-of-view probably places a greater value on human life per say than almost any of the western religions, and maybe that's why we're still around as a people. That's more or less the thirty seconds summary of what goes on.

Dr. Friedman: Since we sort of got to the point where the rest of the discussion would be about your community studies and your community work, I'm more interested in your

scientific concerns. What part of the scientific work that you did, did you enjoy the most?

DEVELOPING A RADIOIMMUNOASSAY FOR GROWTH HORMONE

Dr. Glick: Well, we started off developing functioning radioimmunoassay for growth hormone, which we assumed would be a very simple task. In fact, as I had mentioned to you, Sol Berson told us that the job will have been solved before we get there, that we wouldn't even have to work on it. As it turned out after we got there, they hadn't gotten off the ground, and it took Jesse Roth and me a year and a half of solid day-in, day-out work--and night-in and night-out work--before we really got an assay that was reliable. There were times we thought that we would never get there--and this was with Berson and Yalow's help, working day and night, every single day.

Looking for a stimulus to growth hormone; finding insulin hypoglycemia produced a rise in growth hormone

A new paradigm for growth hormone: moment-to-moment regulation

Berson and Yalow's lab was one that didn't take too many periods of time off. But then, when we got the assay working, we began to look for a stimulus to growth hormone. That was the key thing. That was something the two of us came upon. This wasn't Berson and Yalow. We did a whole lot of tests, and when we found that insulin hypoglycemia produced a rise in growth hormone, that was like hitting the jackpot. That was a real breakthrough because people had not anticipated that growth hormone was a kind of hormone that was involved in moment-to-moment regulation. Growth hormone was assumed to be for growth--a slow moving kind of hormone. And here we were showing that within minutes you'd get levels of growth hormone at the level of acromegaly. When we found that, we really went at that very quickly: (a) to find out what other stimuli also worked, and (b) to try to find out what was the cause of it, whether it was the insulin hypoglycemia itself, or whether it was glucagon, epinephrine, et cetera. Within two to three months, we literally ran hundreds of experiments, and almost all of the work for which we got a lot of credit and fame and recognition was done in a relatively short period of time. It was incredible. A year and a half, we were just "puttering around" trying to get the assay working. That was the most exciting part--once we made this discovery--filling in all the pieces of what makes growth hormone. That was a very, very exciting period of time. And when I presented the paper at the American Society for Clinical Investigation--it was selected for the plenary session--when I presented it, it got a standing ovation. Then there were a lot of questions. And after I finished the question/answer period, it was really extraordinarily well received.

Dr. Friedman: It was very gratifying, like putting icing on the cake of your work.

Fruits of success

Dr. Glick: Right. And within that next year, we were invited everywhere. We were on the circuit. Everybody invited us. We received job offers.

ENDOCRINE SOCIETY

Dr. Friedman: As far as the Endocrine Society is concerned, all I have been able to find out was you did the work on editorial staff. Did you ever participate in the committees or administrative branches?

Dr. Glick: Of the Endocrine Society? No. I got some NIH grants. I got some training grants of NIH but had no function in the Endocrine Society, except I was on the editorial staff of the *JCEM,* one of the people on the head of the editorial staff.

MORE ON BERSON AND YALOW

Dr. Friedman: How about your relationship or your opinions of the Berson and Yalow group, your feelings about the people you worked with? I'll give you at least thirty seconds.

Berson's intellect

Dr. Glick: I'll give you more than that. First of all, Berson is probably the brightest person that I have ever met.

Dr. Friedman: I've heard that from a lot of people.

Dr. Glick: He was several orders of magnitude beyond what we call bright professors of medicine. When we began to work there--I'm speaking both for myself and Jesse--Jesse and I became very close. Jesse Roth came to visit me before we started to work. He was coming to work from Bronx, and I was from Brooklyn. And one evening he called me up and said, "You know, we're going to be working together; let's get to know each other," and he knocked on my door, and we became very, very close. When we first began to work with Berson and Yalow we--I got an inferiority complex very quickly because Berson was so smart that it was beyond comprehension. He was a renaissance man; higher mathematics for him was like ABC. He would go away on vacation and take along five books on higher mathematics that he hadn't read before. He was a violinist. He was a connoisseur of the arts. He was a phenomenal chess player. I mean he was just an unbelievable guy. So, for a while, I had a terrible inferiority complex, but then as visiting people came through the lab--you know, very prominent professors throughout the United States--and I saw where they were compared to him--they were in the same boat that I was. He was just a couple of heads above everybody else and most normal smart professors. You know, they were smart but they weren't anything like he was. So, gradually, we began to realize that it wasn't our fault; it was just that he was just in the--another planet. He, for example, decided we were going to learn mathematics--which was incredible. He wouldn't use any textbook. He wrote his own notes. He wrote handwritten notes, which he mimeographed for us--for Jesse Roth and myself. Once a week he gave a three-hour discussion on the differential equations. For him, this was so simple that it was ridiculous. We would go home and work for a week just to try to hold our heads above the water. Every week this went on. He used to get all the papers from

JCI which had mathematical problems. They were sent in for review. It was just unbelievable.

A symbiotic team working in tandem

But he and Yalow were like a symbiotic team--very hard to dissect out who was what. They worked in tandem. They threw ideas back and forth at each other, and they were just a remarkable pair. It was hard to dissect out who was what. He was obviously brighter than she was. Very few people were as smart as he was. She was much more stable. I don't mean he was neurotic, but he was flying high, and she would bring him down--be more rational and organized. She would also keep him out of trouble, occasionally, because he was a trusting guy. He would trust everybody, and she was much more careful and much more circumspect.

They had a capacity for work, which was beyond human belief. They would come back from a trip to Europe, land at 10:00 PM at night, go the laboratory, and work all night. Something like that was quite frequent. There was no day, and there was no night. The other thing, which was crazy and insane on their part but which had some positive features, was they did everything themselves. Every single pipetting was done by them. Every single test was done by them--to the extent that when they had all the chromatographic strips to be put together and put on the machine, they pasted them together. I think I was the first person in the laboratory that ever had a laboratory assistant. They did everything themselves, which in many respects was a waste of time; but, on the other hand, they noticed things nobody else would have noticed were the technician doing it, so that had a great impact.

Their policy of no research grants; on the generosity of Berson and Yalow

They were also proud of the fact that they didn't take any research grants. They lived very frugally. They didn't waste money in the laboratory, and they were very proud that they didn't have any grants. They were extraordinarily generous with their information to people coming from all over the world to learn in their laboratory, and they received them with open arms. They didn't hide things. They were also extremely meticulous about credit. Berson would go to the library if he was writing a paper, and he was giving credit. He would check if two articles appeared in the same year to see which came out first, so he would give proper credit to the person who got it first. And they were extremely generous towards their fellows, and they took none of the credit for anything. They always gave us the credit. They didn't cut in on anything of ours, and God forbid if anyone attacked us at a meeting, at a presentation; the lion and the tiger would suddenly jump towards the fence and would just "crush" them. It was just unbelievable. When I presented a paper at the American Society for Clinical Investigation and I answered some of the questions, but then Berson got up and he creamed some of the guys. They were unmerciful towards people who they didn't think were either correct or honest. When they thought they were right, they were uncompromising, and I would say non-generous. If you were wrong, they just clipped you. No mercy. It was an exciting place. I mean, they really were brilliant, full of ideas, but to work as research fellows there was great

because they didn't bother you. They let you do your thing. They didn't get on your back. If you needed help, you always had them. But they weren't the kind of people who stood over you and watched everything. The only time that we had problems was when Yalow was away and Berson was at loose ends. When he was at loose ends, he would come and check on what we were doing. So we would wait and be thrilled when Yalow would come back. Then he would go back and do his own thing and not bother us. She was away for one month, and he was everyday checking what we were doing with the results. When you're running your own thing, you like to have independence, which we had all year long except when one of them was away, the other one would become a little restless and begin checking on what we were doing. It was a great fun place.

His friendship with Jesse Roth

First of all, the two of us had a great relationship together, and we were always there to help each other. We were completely like brothers and there was no question. We also had the same kind of good humor. We both had a good sense of humor and knew how to keep out of the way of the bosses when they had a "bad day." That was a skill, which we had learned.

Dr. Friedman: You learned that the hard way.

Dr. Glick: Well, no. Actually, both Jesse and I had very domineering fathers, and so we knew how to deal with that kind of situation. When we saw that when there was something they were mad about, we just closed the door and let the storm go by. The worst thing you can do in a laboratory--and I don't know if we ever did--was contaminate the "well." If you got some radioactivity into the well, then that was a "capital crime," and so we were very careful about that.

I remember the first day in the laboratory. They were going away in July, and I came up before just to see what was going on--so, when I start in July, I'd know what was going on. The first day I was there I remember following them around. They didn't walk; they ran. Everything was on the run, and I was running around all morning. And here comes 12:00 PM--1:00 PM. And nobody eats; I'm starving, dying of starvation, and I finally said to a technician, "Charlie what goes on around here? Doesn't any one eat around here?" [laughs] Of course they have cookies in their offices, and when they would go into the office they would grab a bite to eat. I didn't know about that. I was just standing there starving to death. They had the inner sanctum where they hung out. It was interesting.

Glick, Roth, and no other fellows

Dr. Friedman: Who else was there with you and Jesse?

Dr. Glick: We were the only two people really. Actually, when we came there, they told us humorously, but somewhat seriously, that they used to alternate years where they have fellows and not had fellows, and usually things were much better when they didn't

have fellows. They used to say that the fellows held them up, but they took us, and I think they were pretty happy that we were there. There was nobody else. The two of us were the only two there. We had a lot of people who came from elsewhere, but really we were the only two people there fulltime, and we had the place to ourselves.

Dr. Friedman: Did you know this fellow Marc Rothschild?

Dr. Glick: Marcus Rothschild?

Dr. Friedman: Rothschild.

Dr. Glick: Yes, he was there before we were. That was the previous pair: Bauman and Rothschild. We didn't really work with them in any serious way.

Dr. Friedman: I'm trying to get to interview him. I met him. I can't seem to get together.

Dr. Glick: Yes. We met him, but we didn't have that much contact with him. They were gone. There was a gap between when they were there and when we came.

ON YALOW AS A PERSONALITY

Dr. Friedman: You mentioned a lot about what a terrific guy Berson was.

Dr. Glick: Yes.

Dr. Friedman: What about Yalow?

Gender and racial issues in science

Dr. Glick: Yalow treated us superbly--okay--while we were there. She was extraordinarily bright. She was a tough gal. I would say almost that she was the "masculine type" among the pair. I mean she was strong. Say that some noodnick came along and started bothering them at a meeting and Berson couldn't get rid of them; she managed to get rid of him--that kind of stuff. She was tough. She had this tremendous complex. She was raised in a time when women were not really recognized in science. She was a Jewish girl who got into physics when there was no such thing as Jewish women in physics. She was a real pioneer, and she also had to prove herself that she could also be a real Jewish housewife. So she would run home to cook lunch and come back. She would do this kind of stuff to show that she could juggle both things simultaneously. She was very possessive of Berson.

The politics of Mount Sinai

As a matter fact, when Berson moved to Sinai--actually, when Berson was going to move to Sinai, she was very much opposed to it. In fact, when we heard--Jesse Roth and I--that

Berson was going to move to Sinai to become chief of medicine, both Jesse and I made a special trip to try to persuade Berson not to do it because we felt that he was really not cut out for the politics of Mount Sinai. I was a resident at Mount Sinai in my younger days, and it was a real rat race. It was a kind of place that you didn't turn your back on somebody because they would stab you. That was the kind of place it was--very highly competitive. And Berson was extremely honest--both Yalow and Berson. They had no concept of politics. We felt they would have eaten him up alive. Yalow very much resented Mount Sinai because, basically, at VA they were alone. They had each other scientifically, and Mount Sinai represented a sharing of Berson with the rest of the world. That's the way I looked at it from a psychoanalytic point of view, and she had a real thing against Sinai, which she kept to her dying day. And, of course, he had a heart attack and died there. He had a terrible time at Sinai with the politics. There were guys there like Wasserman and all these big shots at Mount Sinai, who wouldn't give him the time of day, and each had their power base, and they didn't want a chief of medicine over them cutting into them.

More on Yalow as a personality; her falling out with Jesse Roth

So Yalow was a very protective mother for us. She was very solicitous and very protective. What happened afterwards--I don't know how well aware of this you are--she and Jesse had a falling out. I don't think Jesse was at fault in any manner, shape, or form. I don't know what happened, but she got into an irrational behavior towards Jesse for some reason, which I will never figure out. I don't know the reason why. The only one that may give you a reason why that might have happened is Gene Straus. He tried to explain it to me. You try to speak to him. Is he on your list?

Dr. Friedman: I want to get that book.

Dr. Glick: He doesn't detail that in the book, but he can tell you that in his discussion. See, when Berson died, Yalow had to prove herself to the world. It was clear that when they were alive that they would probably get the Nobel Prize. It was in the offing. When he died, many people said, Well, that's it; she's not going to get a Nobel Prize. And then she had to redouble her efforts to prove herself: that it wasn't just Berson; that it was Yalow herself could do it. She got the Nobel Prize. And she went into four times the effort to prove herself as a scientist. Now, apparently--from what Gene Straus tells me--there was some remark that Jesse made to her after Berson died, which she interpreted--probably erroneously--as sort of saying that she wasn't going to get the Nobel Prize. Since that time--there was a period of time when she was completely cuckoo on the subject. I mean she would go around lecturing and half of her lecture was devoted to disproving Jesse Roth for no reason. Jesse is one of the most decent people floating around in American medicine. I don't know how well you know him.

Dr. Friedman: Yes. I know him. I can't say I know him well.

Dr. Glick: He's a real gentleman of the first order and a superb scientist. He is such a decent guy. There's nothing he could have done to her in any manner, shape or form that could justify what happened. I to this day have no explanation.

Dr. Friedman: Well, she's a relatively insecure person.

Dr. Glick: Yes, but there is no reason. Jesse made it big. There is no reason why she couldn't have basked in his glory. He's her student. He made it big. She should have been proud of his findings and not try to tear them down. It makes no sense. If your student goes on to win a Nobel Prize, you don't knock him down. I have no explanation, no explanation for it. She always treated me in an enormously positive manner. For example, when she retired, there was some money left at Berson lab at Sinai; she transferred that money to me in Israel. So I actually had a perfectly wonderful relationship with her, and I think she's an unusual person. I think that Nobel Prize, of course, went to her head a little bit. When you get a Nobel Prize, you become an expert in everything. You can get a Nobel Prize in mathematics--they want your opinion on philosophy, sociology, education, and she generously gives her opinion on many subjects. And, of course, as a woman--a Nobel Prize [winning] Jewish woman--she's been very popular in many respects, and she sounds off on subjects not always within her area of expertise.

Dr. Friedman: Until I saw her at home, she was still wearing what they call a housedress.

Dr. Glick: Yes.

Dr. Friedman: I've never seen her at a time since she got the prize that she wasn't wearing it around her neck.

Yalow's falling out with Mimi Berson

Dr. Glick: Yes, right. She flaunted. For example, this business with the letter--that she rubs peoples noses in the ground with a letter of rejection. That kind of stuff is a bit gross, I would say. She's an aggressive, tough gal--makes no bones about it. She had to get up the hard way. I think you should read the biography. It's a remarkable book. I'll show you the book. I brought it along. It gives you an insight into her personality and into her family. She's married to a very nice man, Aaron Yalow, who is a physicist in his own right. He worshipped the ground she walked on. It was just unbelievable. Then, of course, there's the relationship between Berson and Yalow. Berson was married, and she was married, and they spent day and night together, which is also a very unusual kind of situation. Mimi Berson, who died recently, was a wonderful person. After Berson died, she and Yalow had a falling out as well. Although Yalow gave Berson credit all the time, I think in the constellation that we're talking about--having lost her husband--I think if Yalow said a hundred times a day that Berson deserved the Nobel prize, then Mimi would say why didn't she say it a hundred and one times--that kind of stuff. It was never enough. We were very close to Mimi until her death.

Dr. Friedman: Well, there were always criticisms. Yalow didn't invite Mimi to Sweden at the time she got her prize.

Dr. Glick: I'm not sure. Is that true? Really?

Dr. Friedman: She got the prize. She didn't invite her.

Dr. Glick: We were very close to Mimi. In fact, Mimi used to send us clippings from the New York Times all the time of things that used to interest me, for years. Then she gave me Sol Berson's sweater, which was very moving.

Dr. Friedman: Sol Berson's what?

Dr. Glick: Sweater.

Dr. Friedman: Oh.

Dr. Glick: We're very close to her. But I'm in good relation with Mimi and Roz Yalow and with Dorothy Krieger. She and Dorothy Krieger were also not on good terms. Dorothy Krieger represented Mount Sinai, which was another--

Dr. Friedman: I think Dorothy Krieger was--maybe I'm using too broad a term--less self-centered.

Mount Sinai festschrift to Yalow

Dr. Glick: I wasn't there. You see I wasn't actually there to see the interaction of the way the antagonism arose, but it arose, and it was quite clear. I don't know why, but it was just one of those unfortunate things. There's a festschrift to Yalow at Mount Sinai. Have you seen that?

Dr. Friedman: To Yalow or to Berson?

Dr. Glick: To Yalow when she retired.

Dr. Friedman: No, I haven't seen it.

Dr. Glick: In fact, I have a paper in my CV devoted to Yalow, which you should take a look at if you're interested in the Yalow business. Here. This paper here is in a volume of festschrift to Yalow at Mount Sinai when she retired at the age of seventy. Jesse appeared in that, too--journal of the Mount Sinai Medical Center *[Mount Sinai Journal of Medicine]*.

Dr. Friedman: Research in the hierarchy?

Dr. Glick: Yes. That's a paper that I presented at that particular festschrift, but there was a whole volume devoted to Yalow.

Dr. Friedman: Probably can get it in the library

Dr. Glick: Yes. You can get in the library. Any library will have it. It's a standard journal.

Dr. Friedman: Is there anything else I should know about you that I haven't asked you?

Dr. Glick: What you should know about me? I'm modest. I'm teasing you. I don't know what to tell you. There was a piece also that you may be interested in. We wrote it--Jesse and I--in *Current Contents*. That has these frequent quotes--they wrote to the people who wrote the articles--to reminisce about the background of the work frequently cited.

Dr. Friedman: In reference to whom?

Dr. Glick: In reference to one of our earliest papers on growth hormone. "Citation Classic," it's called. We did a short piece on it. It's more than five years ago, we wrote it--between five and ten years. If I can find it, I will send it to you. It should be around somewhere.

Dr. Friedman: Well, I guess there's nothing more you can tell me.

Dr. Glick: Okay. Anything else you think of later on, and you want to contact me, you know where to reach me.

End of Interview

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