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This interview was made possible in part by gifts to the UCLA Oral History Program from the Stafford Warrens and the UCLA School of Medicine,

AN EXCEPTIONAL MAN FOR EXCEPTIONAL CHALLENGES

Stafford L. Warren

Interviewed by Adelaide Tusler

VOLUME I

Completed under the auspices
of the
Oral History Program
University of California
Los Angeles

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NOTE: Pages 220 and 282 do not exist because of errors in pagination. There is no Tape V, Side Two.

INTRODUCTION

Why should a reader want to review the record of Stafford L. Warren as he himself has recorded the highlights of his long and distinguished services to education and research, to his country, and to mankind? Why was he called upon during World War II to consult with high military command concerning the effects of atomic bombing? Why was he chosen to be the founding dean of the UCLA School of Medicine, and how did he lay the academic and the physical foundations for what has become one of the great medical centers of the nation? Finally, what significant contributions to medical education and research did he make after his UCLA retirement in 1963?

Many insights into his long and brilliant career, and answers to these and other questions, will be found, we believe, within the three volumes compiled from twenty tapes that Dr. Warren recorded from March 1966 through February 1967 in his UCLA oral history interviews.*

Those who read through any one or all of these volumes may wonder why I happen to be writing this brief introduction to such an important record.

I first joined the Southern Branch of the University of California in 1928 as associate in economics, coming

* An additional twenty-one tapes (see Interview History) were recorded from February 1967 through February 1968.

from the University of Pennsylvania, where I was an instructor in finance in the Wharton School. I remained at UCLA (except for World War II special assignment in Washington, D.C.) until retiring from the university in 1962.

As the war was ending, I returned to witness firsthand the challenging postwar development of the young Westwood campus. Enrollments suddenly increased from a prewar student body of 6,175 in 1929 to 21,043 in 1964. New schools and colleges--medicine, law, social welfare, nursing, dentistry, fine arts, business administration, and others--as well as new programs and institutes were being planned. New buildings, equipment, libraries, and research facilities had to be financed, new faculties had to be recruited, new curricula and standards were being set, new student housing had to be provided, and a new chief campus officer had to be installed. For the first time in UCLA history, new authorizations were to be given to Clarence A. Dykstra as he left the presidency of the University of Wisconsin in 1945 to become a University of California vice-president and the provost of UCLA.

Thus were born the "Golden Years" of UCLA's growth and development, years that were to stretch from 1945-46 into the 1960s and beyond. I was privileged to play an early part in that challenging development.

During the Great Depression years of the 1930s (1934-39), I directed a comprehensive research study on the Economic Aspects of Medical Services in California. As a result of this study, my interest in medical and dental school training and medical practice had been sharpened. So one of my first priorities was to help in the organization and location of a new school of medicine and in the choice of its founding dean. With the expert help of Elmer Belt, M.D., distinguished Los Angeles urologist and a fellow medical school student of Stafford Warren at the University of California School of Medicine, together with the Dean of the UCLA Graduate Division Vern O. Knudsen, final approval of President Sproul and the regents was gained, and Stafford L. Warren was appointed in 1947 as founding dean.

Dr. Warren proved to be The Man, the perfect choice. The accompanying volumes of his recordings clearly reveal what kind of man he was. But in perusing these volumes, the reader will soon notice that his activities have frequently encompassed a wide range of events, though these events are not presented in chronological order.

For instance, Tape I, Side One starts with "Personal effort to gain Veterans Administration participation in Medical education--UCLA medical school's association with local VA hospitals." Tape VII, Side Two covers such

subjects as "Experimental works in X-ray treatment of cancer"; Tape X, Side Two reports "Japanese reactions to atomic bombings"; Tape XIII, Side Two discusses "University procurement problems"; and Tape XVII, Side Two sets forth Dean Warren's impressions of recruiting efforts to bring him to UCLA, selection of the site for the medical center, and the appointment of its faculty.

The objective in this introduction is only to portray some feeling for and understanding of Dr. Warren as The Man--a great humanitarian, scholar, colleague, dreamer, builder, and leader. He was what many (certainly I) have considered him to be: the perfect choice to serve as the founding dean of UCLA's medical center. Thus, this introduction is brief and attempts to present only a skeleton outline of the man.

Birth and Family. Stafford Leak Warren was born in Maxwell, New Mexico, on June 19, 1896, the older son of Edwin S. and Clara A. (Leak) Warren. Little has been published of his early childhood and schooling, but later, in May 1920, he married Viola L. Lockhart, who became his loyal partner and critic throughout the years until her death. Some of these years were dark and worrisome war years, years during which she and their three children, Jane, Dean, and Roger, waited anxiously while husband and father traveled secretly on highly classified missions to far-off

places. The family did not know where he went nor for what purpose until after the war ended.

Mrs. Dodd and I learned to know the Warren family well during their years after coming to UCLA. Later we realized that Vi's life would probably be shortened because of failing health. It ended in July of 1968, soon after which we attended a sad but beautiful memorial service for her in Westwood.

Later Staff talked quietly to me about his loneliness during the months following Vi's death. His deep sorrow began to lessen and his hopes brightened into full bloom again when an old friend and medical colleague, Gertrude J. Huberty, M.D., (whose husband, Professor Martin Huberty, had passed away several years earlier) announced their marriage on July 18, 1970.

With Gertrude's loving companionship and encouragement, life for Staff took on new meaning, and soon he renewed fundamental research in the cause of rheumatoid arthritis and other activities at UCLA and elsewhere. Later, in June 1981, my wife and I traveled to UCLA, where we attended a small and intimate birthday party at the home of Mrs. Louis B. Slichter to celebrate Staff's eighty-fifth birthday along with Gertrude and three other guests. He was in good spirits, though somewhat quieter than usual. Five weeks later we received a phone call saying

that the day before (July 26, 1981), after he and Gertrude had returned from their mountain retreat, Staff told Gertrude that he felt a bit weary and would have a nap instead of eating lunch.

He never awakened from that sleep; he had departed. But the story of his life had been tape recorded for what was to be his oral history. On the fourth of October, 1981, we returned to UCLA to attend, with Staff's and Gertrude's families and with countless friends and colleagues, another beautiful service. This one was held in the entrance patio of the medical center, which is a living testimony to The Man, the founding dean.

Education. Dr. Warren received a B.A. degree in 1918 from the Berkeley campus of the University of California and both a master's degree and his M.D. degree from the university's medical school in 1922. Many stories have been told about how Staff and his close friend, Elmer Belt, as premed and medical students at the university were seen spinning together over the streets of Berkeley and San Francisco on their motorcycles. This close association, in and out of classrooms and laboratories, continued throughout the years at the university's Hooper Foundation and later at Harvard and the Massachusetts General Hospital, finally reaching a peak at UCLA until broken by the death of Elmer during the 1970s.

Following Staff's studies at the University of California, he did postgraduate work at Johns Hopkins (1922-23) and at Harvard (1923-25). (He also received three honorary degrees: D.Sc. degrees from the universities of Rochester and Redlands and an LL.D. from his alma mater.) His medical internship was completed in Boston.

A special award came late in life to Dr. Warren. In 1972, soon after his happy second marriage to Gertrude, he received the 1971 Enrico Fermi Award of the Atomic Energy Commission in recognition of his many contributions to radiation safety and research. This prestigious award, presented also to Dr. Shields Warren (unrelated) in a double ceremony at the AEC's Germantown, Maryland, headquarters on May 18th was

For the imaginative, prescient, and vigorous efforts of Dr. Shields Warren and of Dr. Stafford Warren, independent yet coordinated, which made possible the early development of atomic energy so as to assure the protection of man and the environment, and for the establishment of a biomedical research program which has resulted in many substantial applications of ionizing radiation to diagnosis and treatment of disease and to the general welfare.

Earlier, on November 26, 1945, shortly after the end of World War II, Stafford L. Warren, Colonel, U.S. Army, had received another prestigious award, the Distinguished Service Medal from the War Department. The presentation citation read:

For: As Chief of the Medical Section, Manhattan

Engineer District, from November, 1943, to August, 1945, he performed exceptionally meritorious and distinguished service in connection with the development of the Atom Bomb. He was charged with the grave responsibility of safeguarding and maintaining at a high level the health and welfare of all personnel engaged in a new field of endeavor. His inspiring leadership, initiative and resourcefulness, his farsighted vision and perseverance, his professional knowledge and skill, and his unswerving devotion to his task contributed significantly to the attainment of successful results.

Stafford L. Warren--The Man. Staff began his academic teaching in the field of radiology under Dean George H. Whipple at the new University of Rochester School of Medicine and Dentistry in 1926. He remained at Rochester until 1946, though World War II found him urgently needed for important assignments for his country. Thus, in 1943 he entered military service as a colonel (Tape VIII, Side One) in the U.S. Medical Corps. He soon was appointed chief of the Medical Section, Manhattan Engineer District (Tape VIII, Side One) and advisor to the commanding general, Manhattan Project, 1943-46. Later he assisted in the organization of the Atomic Energy Commission (Tape XVII, Side One), of which John Von Neumann was an early appointee.*

* Von Neumann had accepted appointment as university professor at UCLA in the mid-'50s, but shortly before he planned to join the university staff he was stricken with cancer and died in Bethesda Hospital in Washington, D.C.

The war years required intensive service from Dr. Warren: living day to day without preschedule, rushing secretly from place to place, across the country, the Atlantic, and elsewhere, away from home and family. As chief of all safety radiation activities in a new world of atomic energy, his wartime military service to the nation could not have been met by more than a few, perhaps by none, with greater dedication and devotion than Staff gave.

Readers of these volumes will soon find that most of the following thirteen hundred pages report Staff's impressive contributions to radiation safety, both during the war and following the Hiroshima blast, which brought World War II to a quick world peace in 1945.

But peace in 1945 did not lessen his national responsibilities nor his contributions. In 1945-46 he was appointed chief of the Radiological Safety Section, Joint Task Force One, which organized and carried out the Bikini Test Project. Again his responsibilities were for radiation safety. From 1947 to 1948 he served as director of the Atomic Energy Project. Other peacetime public services included serving as chairman, Civil Defense Planning Board of California, 1949-53; special assistant to the president on the mental retardation program, 1962-65; member of the National Advisory Council of the U.S. Public Health Service, 1962-65; and member of

the Facilities and Resources Committee of the National Library of Medicine, 1962-65.

To all of those then within the University of California, however, (including President of the Board of Regents Governor Earl Warren, Chairman of the Board Edward A. Dickson, President of the University Robert Gordon Sproul, UCLA Provost Clarence A. Dykstra, and UCLA Dean of the Graduate Division Vern O. Knudsen), Staff's most valuable postwar contribution came from his acceptance of the appointment as founding dean of the medical school, which resulted in the establishment of the great UCLA medical center of today.

Dean Warren's acceptance of this assignment did not come easily. As the war ended, other opportunities opened up to him. Also, there were questions raised within the Board of Regents. One prominent member of the board had his special candidate. Moreover, there were other political pressures and financial problems.

What funds were required from the state legislature to start the medical school--to see it completed, and when? Would private funds be forthcoming, and if so, how? What about federal support? Where should the medical school be located? Should it be near the Presbyterian Hospital in Hollywood, in East Los Angeles, adjacent to the county hospital, on campus, closely integrated with the basic sciences and humanities? Would more campus land be

available to allow for full development of a great medical center without crowding out other badly needed campus growth? Would faculty members and others back the campus location of the new school?

Staff Warren was a dreamer and a builder; he was a man of action. Some of his associates and colleagues have criticized him--even severely--for being too much of a "builder," too much of a "one man" man of action. I have not found him so. I served with him and others on the advisory board of the medical school for several years after he came to campus. With Dean Knudsen, Staff and I worked together for over two years as the Administrative Committee of Deans, serving in the place of a campus chancellor after the sudden death of Provost Dykstra in May 1950, until Raymond Allen was appointed the first UCLA chancellor and took office late 1952.

I saw Staff in operation under every type of stress and strain. He knew how to dream and plan, to listen, and then to go forward enthusiastically. With his wooden block "models" of the buildings needed for the "step-by-step" development of the new school, he patiently, but persistently listened to suggestions and criticisms and answered questions until he had won over most of his critics and adversaries. Then he went forward--even to the regents and the state legislature--with proposals for

development of faculty, curricula, and facilities.

When confronted with budgetary cuts, such as he was when the UCLA per-medical-student costs far exceeded those of the university's San Francisco medical school, he yielded by agreeing to cut costs, in part by increasing the size of the first-year class of entering students. He soon learned the difference between securing urgent wartime procurement funds from the United States during time of war and obtaining faculties and facilities in the development of a new postwar medical school at UCLA, even during the early "Golden Years" of campus growth.

In starting to recruit a distinguished medical faculty, Staff wisely went, I think, first to the place and faculty that he knew best: to the University of Rochester. After independent campus faculty investigation, he chose three of the four founding faculty colleagues: Andrew Dowdy in radiology, Charles Carpenter in infectious diseases, and John Lawrence in medicine. Later, the fourth of Staff's founding medical colleagues, William Longmire, Jr., was chosen from Johns Hopkins, where he was known as "professor of difficult surgery." These four outstanding professors, chosen by Dean Warren after endorsement of independent faculty members and administrators, became, with their new dean, the cornerstone on which UCLA's medical school was to be built. One, Professor Longmire, still

gives full and distinguished service there.

Provost Dykstra's sudden death in the spring of 1950 left a void in UCLA's official campus leadership until Chancellor Allen's arrival late in 1952, but this void did not retard Staff's progress as founding dean.

In 1962 Staff resigned this deanship, but at Chancellor Franklin Murphy's insistence, he continued in full-time service at UCLA as vice chancellor of health sciences. Then, in July 1963, he retired as professor of biophysics emeritus but continued activities in his research office in Warren Hall and rendered other public services until his death some five weeks after his eighty-fifth birthday party.

Thus ended the extraordinary career of Stafford Leak Warren. He had served his country loyally during many of the dark months of World War II. He had compiled a distinguished academic and research record. His colleagues, students, and friends at UCLA and across the nation had lost a warm and understanding leader. His family had lost husband and father. And UCLA had lost its founding dean, The Man for the challenging assignment well done. One of the great medical centers of the world stands today as a tribute to his vision and effort.

To know The Man, to see him as he was, he must be seen

through his works. Read of them, and learn to know and understand him fully.

--Paul Dodd
March 1983

INTERVIEW HISTORY

INTERVIEWER: Adelaide Tusler, interview-editor, Oral History Program. B.A., Music, UCLA; M.L.S., UCLA.

TIME AND SETTING OF INTERVIEW:

Place: Warren's office, UCLA Rehabilitation Center.

Dates: March 24, 31, April 14, 21, 29, May 5, 12, 19, June 2, 16, 23, 30, July 14, 21, 28, August 4, 25, September 1, 8, 15, 22, October 5, 13, 20, 27, November 3, 10, 17, December 8, 1966; January 27, February 2, 6, 1967. Tusler conducted an additional series of interviews (Tapes XXI-XLI) with Warren between February 16, 1967, and February 15, 1968; its purpose was to record his comments on the UCLA medical school files, folder by folder.

Time of day, length of sessions, and total number of recording hours: Most sessions were recorded during the morning and yielded one hour of recording, but there were several sessions in which two hours were produced. Approximately thirty-eight hours of conversation were recorded in this series.

Persons present during interview: Warren and Tusler, except on September 1, 1966 (Tape XIII) when retired Colonel Stanley Stewart joined them to discuss his procurement role for the Manhattan Engineer District.

CONDUCT OF INTERVIEW:

In early 1966 Adelaide Tusler wrote to Stafford Warren at the suggestion of program director James V. Mink, inviting him to be interviewed as a person prominent in medicine and university history. Mink had assigned Tusler to conduct the interview. Then current program policy was that all interviews were conducted by staff, with some attempt to match interviewer expertise and knowledge with that of the interviewee. But with Warren's vast range of involvements and interests the assignment was a formidable one.

Consulting biographical sources, Tusler assembled a chronology of the major events and tenures of his life and career. She read Lansing Lamont's

Day of Trinity for a better understanding of the Manhattan Project years.

Instead of beginning chronologically with a summary of Warren's early life, the interview began with Warren discussing a recent trip to Washington, D.C., and his efforts at promoting legislation that would involve the Veterans Administration in medical education. He then shifted to a discussion of his appointment by President John F. Kennedy as special assistant to implement his mental retardation program. So, it was not until Tape III, Side Two, that the interview proceeded in a chronological fashion.

Before each session Tusler and Warren would determine the breadth of material to be covered in that day's taping. But the orderly flow of recollections was frequently interrupted by Warren with enthusiastic reports on the progress of legislation or other pet projects or with discussions sparked by conferences and site visits from which he had just returned. Tusler therefore functioned more as a guide than an interrogator, attempting to keep the interview on track.

EDITING:

Editing was done by Winston Wutkee, assistant editor, Oral History Program. He checked the verbatim transcript prepared by staff typist Cathy Adams, editing for punctuation, paragraphing, and correct spelling. Words and phrases inserted by the editor were bracketed. The editing was completed in July 1970, at which time Warren took only transcripts from the early interviews for his review. The bulk of the edited manuscript remained in the program office until 1975.

Wutkee had done a rather perfunctory verification of proper names, leaving that responsibility to Warren, not realizing that he had a known problem of getting names straight. Gertrude Huberty Warren (whom he had married after the death of his first wife, Viola) assisted him in this burdensome task. Throughout his recollections Warren had made innumerable passing references to persons, associations, institutions, and governmental organizations. Unfortunately in his review he often failed to supply full and correct titles and spellings.

Reviewed transcripts began filtering back out of sequence to the program in May 1977, with delivery of transcripts continuing throughout 1977 and into 1978. A review-edit of the first part was done by senior editor Joel Gardner and given to a manuscript typist for preparation. That section (pp. 1-409) was then proofread, and it was at this point that major unresolved editorial problems surfaced. These included inconsistent stylistic treatment (i.e., capitalization of names and titles, use of numbers), inconsistent or sometimes incorrect names supplied by Warren, and frequently misspelled medical and technical terms. Errors and inconsistencies existed in such number that it was decided to stop final processing and do a complete reverification of all proper nouns in the text.

To accomplish this undertaking, senior editor Bernard Galm searched the personal papers and medical school files that Warren had deposited in the University Archives. This became a difficult and time-consuming assignment because the collection was unprocessed and only a brief listing of the collection's immense contents existed. It required patient tenacity and considerable detective work to locate names and ascertain exact references made by Warren. Galm was often stymied, though briefly, by variations of the same name supplied by Warren. Sadly, Warren died in summer 1981 before he had an opportunity to review the final list of unverified names or to see the completion of his oral history. Gertrude Warren helped by directing Galm to individuals both within and outside the university who she thought might supply information.

Early on Stafford Warren established a fund for the processing of his oral history and over the years the Warrens made gifts to the fund. The UCLA School of Medicine also contributed \$1,000 toward processing costs. But these monies were quickly expended on the enormous cost of this longest of all oral histories done by the program. The edit-review and final typing were therefore often halted temporarily for lack of funds. The final push toward completion came with the start of fiscal year 1983.

Staff member Julianna Jenkins typed the bulk of the final manuscript and made the endless corrections

necessitated by the reworking of the text. The index and table of contents were prepared by Galm. Close friend and UCLA colleague Paul Dodd wrote the introduction. Principal editor Mitch Tuchman rode herd on the whole operation.

Photographs of Stafford Warren in these volumes were selected from a group supplied by Gertrude Warren and from the Warren collection.

Note: The final transcript remains in the same order as the original taped material. There is no Tape V, Side Two, or Tape XIV, Side One (see Supporting Documents).

SUPPORTING DOCUMENTS:

The original audio tapes and edited transcript of the interview are in the University Archives and are available under the regulations governing the use of permanent, noncurrent records of the university. Interview records and biographical clippings are on file in the office of the Oral History Program.

After Warren's death in 1981, the UCLA Library received his remaining files and papers. These included much material on the Manhattan Engineer District and Operation CROSSROADS, plus personal research notes. The Stafford Warren papers (Collection 987) now consists of 272 boxes and 13 oversize packages; access is available to scholars in the Department of Special Collections.

The transcript of an interview with Viola Lockhart Warren (Warren audio Tape XIV, Side One) has also been deposited in University Archives. Tusler conducted the interview on September 8, 1966, in the Warren home, and in this one-hour session Mrs. Warren gave her observations of life at Oak Ridge.

TAPE NUMBER: I, SIDE ONE

MARCH 24, 1966

TUSLER: Dr. Warren, instead of starting today with the biographical background, I understand you've just returned from a trip from Washington with rather interesting results; so why don't we start out talking about that. Tell me something about that.

WARREN: All right. Yesterday was the culmination of a long effort on my part to establish the authority of the Veterans Administration to participate in medical education with cooperating educational institutions, chiefly medical schools, around the country. They already have been supporting medical education, but in effect, this was being bootlegged.

This effort goes back to 1947 and 1948, when General [Omar] Bradley, who was the administrator of the Veterans Administration; General [Paul] Hawley, the medical director; and Dr. Paul Magnuson, his deputy, issued what was called Memorandum Number Two. This was a letter of intent, directing and authorizing the local managers of veterans facilities to undertake a training program for doctors returning from World War II who had not had their residencies. This was part of the GI Bill. But since the VA did not have any educational staff, arrangements were agreed upon that the nearby medical schools would provide the

supervision and the staff. Deans' committees were set up with the dean and the faculty and the Veterans Administration's local staff. The men were chosen to head the various departments of the veterans hospital, were scrutinized and appointed by this committee, and in turn given appointments on the medical school faculty.

I had a great deal of trouble in getting these appointments regularized while setting up the UCLA medical school. We derived great benefits from our association with the Veterans Administration, particularly that facility under the command of Dr. [Ernest V.] Edwards of the VA Birmingham Hospital in the San Fernando Valley. He offered us research laboratories and staff assistance in what was then the Birmingham VA Hospital which we could not obtain on our own budget. UCLA had no facilities at this time where we could set up our research and our new people.

TUSLER: This was right after the war?

WARREN: This was in 1947 and 1948. Shortly after that, the Birmingham Hospital was closed and moved to Long Beach. We then continued our association there. Our association was fostered by the great energy and imagination of Dr. Edwards, who violated lots of VA old-time rules. Since he was first assigned to space in temporary buildings, and then later in a revamped navy hospital, he had space that he could utilize for research while Sawtelle did not. Sawtelle was essentially an old-line veterans

facility, overcrowded and understaffed. It has taken almost twenty years to get it up to its present level.

Over the years, this relationship had not always worked very satisfactorily. The Bureau of the Budget would recall funds, the so-called unexpended funds by the agencies, about the first of March or April. In the Veterans Administration, since the stipends paid to consulting and attending men were not under contract, they were, in a sense, vulnerable funds. So there could develop the unhappy situation in various places around the country where the attending men's stipends would be cut off for the last three months of the year. In anticipation of this happening, I would go to Washington in February and essentially pound on the table; [laughter] thus we prevented this from happening to us very often.

In those institutions that did not go to Washington and pound on the table, there were quite serious cuts. This was bad for the consultants, because these were practicing doctors who came into the clinics and wards of the Veterans Administration, five mornings a week, sometimes more often, sometimes every day, to supervise the care of the veterans. Actually, the stipend didn't mean much to them financially. It was several thousand dollars a year, but it did reimburse them for the cost of their office while they were absent. This was an important factor. They would have to rearrange their patient appointments

for almost a whole year ahead to get this block of time to be away. Then when they were cut off, they were quite justifiably angry, and about the second time this happened, the VA lost their services. So you had not only the morale problem, but you had the loss of professional talent throughout the system. The medical schools could replace this talent to some extent, but there was a limit to that, too. You could see great unhappiness with the relationship developing in the Association of American Medical Colleges. This is the deans' organization, which had been working for some time to get this arrangement changed.

Last year, while I was still a special assistant to the president, I had great opportunity to talk with congressmen and senators. I got well acquainted with Congressman Olin Teague, "Tiger" Teague from Texas, [laughter] who is chairman of the Veterans Appropriation Committee in the House. Mr. Teague had just conducted a study on the construction in the Veterans Administration centers of education and research facilities. I had the opportunity to point out to him that he was condoning something that was illegal, namely, the educational aspects of his proposed construction, and that I had a proposal. I had written a small paper on the small medical school as a quicker source to develop medical manpower. I had found thirty places in the country where there were VAs in towns of 100,000, with about 400 acute hospital beds,

with a small college, and with community support. I pointed out that one of these was in Amarillo, Texas. It was not in his district, but this was all right; there are only two senators from Texas and just a few representatives.

Mr. Teague immediately put in the bill, which incorporated the ideas we had talked about. Unfortunately, I suggested that they put in a cost-plus, fixed-fee arrangement, like that which industry had with the federal government. (Whenever the federal government builds something for the space or defense industry, there is a five-year amortization, with a fixed fee for the work done, and so on.) Unfortunately, starting during the war, universities wanted to make their contribution to the war effort, so at first they did research without any attention being paid to the cost to the institutions. This was to be their contribution. But later they began to suffer from this and an overhead--at first of 15 percent, and then 20 percent--was established. This supposedly represented the fixed cost and the hidden cost which the universities had when they accepted a research contract. Now, this was never quite enough and was quite a drain on the budget of the university. The government contracts or grants for research contributed as high as 50 percent of the operating funds of many universities, and certainly represented the main research support of most of the medical schools. So a fixed-fee arrangement, which was negotiable, would be a

much better arrangement. There were precedents within the government for this. The Atomic Energy Commission had this kind of a contract with us and with others.

This turned out to be a hot potato, and later on in the year, last fall, Mr. Teague came up with another bill. That bill, which I just described, was HR-9069, but the final bill which he wrote was HR-11631. This bill was very simple; it just stated the fact that in order to more effectively carry out the functions imposed upon the Department of Medicine and Surgery, the VA administrator shall carry out a program of training and education of health service personnel in cooperation with schools and educational institutions. Then it established an advisory committee. That's very simple, but it's comprehensive and sweeping. This went through the House a couple of weeks ago without a dissent, which means a unanimous vote, and then was referred to the Senate, where it fell to Senator Ralph Yarborough's Subcommittee on Labor, Health, and Public Welfare. Senator Yarborough's subcommittee is a committee of the big committee, so I got acquainted right away with his staff man, Mr. Alan Mandel, and his legislative staff man, Mr. Cooper. Last week, when I was there, we had a long discussion on the chances of this bill or something like it getting through.

In the meantime, Senator Yarborough, with Senator Mike Mansfield's assistant, had created another bill which

was called the "Yarborough Bill" by Senator Mansfield and the "Mansfield Bill" by Senator Yarborough. [laughter] This was really a special bill providing for the post-graduate education of doctors and nurses, all the other health personnel. It would link outlying veterans facilities with the more sophisticated ones in metropolitan areas, and set up television, radio, and seminar programs. Now, this is a very valuable and desirable thing, of course. This was, in effect, an offshoot of Senator Mansfield's vigorous attack on the Veterans Administration early this spring when they attempted to close a group of outlying veterans hospitals and old soldiers homes.

TUSLER: Why did they attempt to do that?

WARREN: Well, I can give you the hearings. [laughter] They were inefficient. Take Miles City [Montana]. It's a ninety-six-bed, nice little hospital. Miles City has only about 11,000 people. There aren't very many veterans in the area, but the hospital serves a very important role in taking care of the veterans. Otherwise, the veterans would have to go to Salt Lake City or Omaha, five or six hundred miles away. Particularly at a time like now, when they've got fourteen inches of snow and a real blizzard, it would be a very difficult problem.

The senators and congressmen from the areas affected were very angry, and, of course, the administration had to back up. There were lots of hearings, which are in this

April 1965 report. Well, now, this means that all of those congressmen and senators who were involved in that rebuttal are behind the improvement in the veterans services and are very much interested in this educational and postgraduate training move. Mr. Mandel, the staff man of Senator Yarborough, was convinced that they had adequate support to get something like this Teague Bill and other things through the Senate. It's interesting that they didn't want to bring up a new bill, because it would have to be fought from the beginning on its merits, but they wanted to take the Teague Bill as passed without dissent in the House and refer it to their committee for study and recommendations.

Last week, Mr. Mandel, Mr. Cooper, and Dr. Joseph Meyer, from the Veterans Administration's legislative and political branch, sat in Mr. Mandel's office and worked on the agenda. It's just as simple as that. This is a democratic process, although it is also subject to abuse by lobbyists. (I have to admit that I'm a lobbyist.) [laughter] Although I was a consultant to the VA, yesterday I testified as an individual. This plan was agreed to by the staff and by Mr. Mandel, who was preparing the agenda--Senator Yarborough's hearing. The hearings then occurred a week later and yesterday.

Certain amendments were recommended for the Teague Bill, but the procedure would be to present the Teague Bill to the committee in executive session after the hearings to make certain amendments to clarify its language. The

Yarborough Bill would be added as an amendment because it provided for an extension of education, and then maybe to clarify other things that were needed and requested by the Veterans Administration administrative officers. In that way, they would have a single bill that would have a great chance of passage without having to create anything new. Then it would go out as the Veterans Administration Bill with Teague and Yarborough Amendments of 1966. That's the way it would be called, or something like that. They would have a Public Law [beginning with] 66.

TUSLER: Senator Yarborough didn't oppose anything that was in the Teague Bill? It was just a question of adding to it?

WARREN: Yes, that's right. This is probably a mean little thing to say, but it really isn't. When you come right down to it, they all admit it. Each representative in Congress hopes to find a little arbeit that he can call his own and by which he will get known. He would like to get a bill or two passed with his name on it. Then he can go home and he can say, "Look, boys, I represented you and I got thus and so. And this will mean so-and-so to us here at home." Now, this fits very well. Mr. Teague is on the House side, and now Mr. Yarborough can pick the bill up, and by coloring it a bit, he can not only get his name in, but he can also get it passed.

Yesterday I saw this working. I went into Senator Yarborough's office Tuesday, the day before, and we

reaffirmed the agreements that had been reached the previous week on the agenda. I called on Mr. Mike Mansfield, and since technique was interesting, I will describe it a little bit in detail. It shows the technique that works. I have found out how to use it. I knew it instinctively, anyway, because it works in California.

I phoned Senator Mansfield's office, saying I was consultant to the Veterans Administration and would like to talk to Mr. Mansfield about the Mansfield-Yarborough Bill. His secretary, after a little consultation, I suppose, with the senator, said, "Fine, come at one o'clock." Well, I had a date with another fellow at one-thirty, but it was in the Senate cafeteria, so I said, "Fine, I'll be right over." It was now twelve. So I hopped in a cab and went over there and got into his office about twenty minutes to one. It was early, so I sat there. She said, "You're early." And I said, "Yes, but I have nothing at the moment, and I don't want to miss the senator, so I'll sit right here." She said, "Fine, there's a bunch of books you can look at. I'm sorry to tell you that the senator, in the meantime, had made another appointment before I checked with him, and he won't be able to see you until one-fifteen." I said, "That's all right." Not more than two or three minutes had elapsed when the door opened to the inner office, and out comes Senator Mansfield with a pile of newspapers in his hand. He'd been reading the morning

editorials to see what the public pulse was like. He looked at me, came over by me, put the papers on the desk, and stood there. And he said, "I'm not supposed to see you until one-fifteen. You're early." I said, "Yes, sir, I'm going to wait." And he said, "Come on in." So I went in.

TUSLER: Had you ever met him before?

WARREN: Yes, I met him about a year and a half earlier on some mental retardation things. It shows you the flypaper memory these men have for people and names.

TUSLER: He recognized you?

WARREN: Oh, yes, right away. I said, "I'm an individual. I've been working for the Veterans Administration on this education bill. I've been a dean, as you may recall."

"Oh, yes," he said, "you're from Los Angeles." I don't know how much he actually remembered, but he made a good case. I said, "I want to know whether you will help support this educational effort of the VA or whether you're going to be neutral or whether you're going to be against it because I've heard enough about you to know you'll tell me yes or no." And he said, "Oh, yes, have you checked with Mr. Yarborough?" I said, "Yes, I've been working with their staff people on this." And he said, "Well, you continue to check with Mr. Yarborough. I will see that things go as well as they can." So I said, "Fine, that's all I need to know and that's all I want to say." And in less than five minutes I got up and went out.

TUSLER: That's all there was to it.

WARREN: That's all there was to it. He followed me out to his luncheon engagement, which I would have had to wait through if I hadn't been there early. I said, "I am sorry, Senator, I cannot do anything for Miles City and a small medical school. The population is too small. It's only 11,000." (That's the one that he was worried about.) And he looked at me with a big grin and said he guessed that he would have to be satisfied if they just kept it open. And I said, "Yes, it's a very important link in your chain of cities, and it's worth keeping open, even though it might cost a little more per bed than some others." He said, "I'm glad to hear that." [laughter] And I said, "Well, I owe you a favor. If it gets in trouble, I'll try and help keep it out of trouble." He thanked me for that and went on. I can go back, you see, anytime on this. I could go back on other things, too, but I've got an opening. He's got a reputation of remembering everything. You have to be careful because he's like Earl Warren: three years later he can continue the conversation just where it left off three years before. But that's fine, because then you don't have to keep building up the background, and you can do these things quickly.

I went back and told Mr. Mandel that Mr. Mansfield was going to be in the group, and that was fine because he was the man that conducts the agenda and was the big wheel

in the party. I didn't have time to go to see Senator Thomas Kuchel; but after hearing Mr. [Paul] Fannin's rebuttal from the opposition I don't think there's going to be any Republican opposition.

Yesterday, the hearing was opened in the absence of the rest of the committee. This is conventional because everything is taken down by a recorder. After an introduction in the usual way, stating the fact that these seven or eight bills are up for discussion or hearing, then the discussion begins. This is a public hearing; anybody can come and present information or evidence for or against the various bills. The committee would like to hear it. About that time Mr. Fannin, the senator from Arizona, walked in, and sat down. The others on the committee are [Peter] Dominick and the two Kennedy brothers, interestingly.

TUSLER: Oh, they're both on it.

WARREN: They're both on it. They didn't show up yesterday, although they appeared on the House's side of Mr. Teague's hearing on that bill in favor of it.

TUSLER: Is Mr. Teague a Democrat?

WARREN: Yes.

TUSLER: And Senator Yarborough?

WARREN: He's a Democrat also. Usually they're lined up. The Labor and Public Welfare Committee has Senator [Lister] Hill, chairman; Senator Yarborough, chairman of the small committee and a couple of other subcommittees; and the two

Kennedys; and then there's one other Democrat in on it, who was not considered to be important by Mr. Mandel, so I didn't put his name down--although they have his vote. He's going to rubber stamp. Then on the Republican side, there are Senators Jacob Javits, [Winston] Prouty, Dominick, [George] Murphy from California, and Mr. Fannin. I took Senator Murphy's room number and phone number down, but I didn't get a chance to go down there. I haven't met him yet; so I don't know how effective he might be one way or another.

The veterans staff reported their position on the various laws and stated their agreement with the Teague Bill, the Yarborough Bill, and the Permission Bill that had been put together, giving the VA permission. It wasn't authored solely by anybody. It apparently had been created as a result of conferences between the VA and the staff and two or three other people like myself who had come in. Then there was one bill authorizing the payment of \$100,000 in the research budget to work on spinal-cord injuries.

There were two paraplegic gentlemen there in wheel-chairs--World War II veterans--and Mayor [F. V.] Wallace and his two companions, who were there in Washington to worry about the closing of the air base in Amarillo. They came when I tipped them off to be here at the hearing. There were maybe a dozen other people whom I didn't know in the room. There also were the Veterans Administration people--Dr. [H. Martin]

Engle, chief of medicine; Dr. Benjamin Wells, his assistant chief of medicine; and their legislative officer (I've forgotten what his name is, but he's a controller, too). Anyway, their testimony took about an hour. They had questions from Mr. Fannin, who put in a lot of press items that were, from his standpoint, derogatory. This turned out to be a good thing, because then Dr. Engle and Dr. Wells could say, yes, these hospitals are not properly equipped and funded to be useful to the local medical schools. We have not had any budget for those hospitals; but in this year, for the first time, we have gotten \$50 million more, and we expect to improve them. We haven't got enough to do this. He could say this, you see, but he couldn't say our budget has been cut; but he could say, we have had an increase, and we will attempt to get these improvements. He thanked Mr. Fannin for his interest and hoped this interest continued because this meant that he would watch the budget. Mr. Fannin kind of committed himself not to cut the budget, which was the Republican position, you see. And, of course, Mr. Fannin had a grin on his face. He knew what was happening, and he was being kind of a party to it.

They asked the blunt question, "Has your budget been cut?" And Dr. Engle hesitated and said, "Do you know I've only been in office since the first of January? I was not here when the budget hearings occurred. But," he said, "I

do know that we have an increased budget this year, a fairly healthy amount, the first time in a long time, and I appreciate this." And then he went on. You see, everything they have said was cleared by their own administrator, Mr. W. J. Driver, and it also was cleared with the White House.

You see, they're just like a department in the university: they couldn't make statements about their budget if they were up before the legislature. Only the president and the regents are, from the administrative standpoint, really in a position to say things about the budget. Now, many men do take that risk and speak out.

In the hearings of the Department of Health, Education, and Welfare, Dr. [James A.] Shannon, who runs the National Institutes of Health, has, by experience, been backed so often by Senator Hill and this same general committee on appropriations for that department, and by Mr. [John] Fogarty, Mr. [Oren] Harris, and Mr. [Wilbur] Mills on the House side, and the key committees of the House, that he has dared in the last five years, every year, to complain about the cuts in his budget, and they have restored them. Now each year he gets on a little more delicate ice, you see, because if the president happened to be mad about this, he would lose his position. They couldn't fire him because he has civil service (he's a commissioned officer), but he could be transferred.

TUSLER: Yes, just moved out of the way.

WARREN: Yes, transferred upstairs, in Alaska or Hawaii or someplace. [laughter] He could suddenly get a foreign tour of duty.

The hearing went very smoothly and the paraplegics made a nice impression. They were informed that more money than what they were asking for was already being spent--it was a very difficult problem--and if they could find any researchers who came up with a new idea, to please let the administration know, because they would see that they got support. This means that I'm going to suggest to Dr. Leonard Marmor, who's working upstairs here on the transplantation of nerves and the regrowth of nerves that have been severed in accidents and cuts, that he might get some more support for his work. This is the advantage of going to Washington: you get a lot of tips and information about where additional support may come.

TUSLER: Yes, only with that personal contact can it happen.

WARREN: Yes, you know what they're thinking. However, you can't say, "I'll come in next week with a proposal." It takes much more than that. You have not only to have the idea, but you must get your organization lined up to create a program and budget and to get permission through university channels to apply for it. All this takes four, five, six months--sometimes longer--and then it has to go through the granting agencies--the National Institutes of Health, the

National Science Foundation, the AEC, the Veterans, etc. They have their own committees, procedures, and schedules. Actually, if I asked for money in March 1966 to support a program, I probably couldn't get it until July 1967 because it has to go through these procedures. The request has to be in by September. Then it has to go before a council and study section, or at least it has to have a site visit in October or November, then go to a big council meeting in December or January. It is then that you get the money for it or you don't. This is why I'm broke: I wasn't on the site in the right time. I couldn't get it started, but they might not have given me the money anyway. There's always that problem.

To return to the hearing, along about twelve o'clock everybody cleared out except Mayor Wallace from Amarillo and Dr. Elmer Belt, who had come in to witness the hearings, and myself. Senator Yarborough said that he had cancelled his luncheon engagement to finish the hearings today, asked if there were any of us who wanted to testify. He invited Mayor Wallace and me to come and sit at the microphone, and so we did. As the mayor had to go rather soon, and also because I thought it would be an advantage if he made his statement first, I suggested that he be heard first. He gave a very compact, clear statement of Amarillo's desire to have a medical school and the resources they had for it, and hoped that this legislation would pass so that this

would be possible. Then he thanked Mr. Yarborough for his courtesy and said that he would leave it to me to fill in details.

I had to state right away that I had been a consultant to them, but that I was appearing as an individual, a vice-chancellor emeritus, and I could speak with some experience--seventeen years of it in fact--in working with the Veterans Administration hospitals. I could state categorically that without their help we would not have been able to get the UCLA medical school really launched as soon or as well. I said that I appreciated their help very much and also that I could point out that it took seventeen years to build the UCLA medical center and that it wasn't through yet. It would take another two or three years to finish the construction. By that time the state and others would have spent about \$90 million. Fifteen new medical centers like UCLA were named in the president's health plan and committed to go ahead now. They couldn't deliver many trained new students before 1970--this was '66. A lot of these centers were going to have problems in funding. I had a thought that maybe there was another way to do it, and that both methods ought to be done. With population increases we couldn't provide enough if everything that I suggested plus the other fifteen medical centers were built. I was proposing that many small medical schools be developed. Then I said I had written a report while I was still

special assistant, and I would now request permission to put it in the record. He said, "By all means, let's have it for the record." So I got that in. Then I summarized the requirements and stopped. By this time it was a quarter after twelve, and I said, "I think I don't want to presume any more of your time." He said that was the first time that he had heard about the small medical school idea. I said, "It is unusual, and it will probably meet considerable resistance at first, but I think that this is a very useful concept. If a little town grows, it will have had experience. It will know what it will cost to get a bigger school building, and it will not have much to throw away. If you build a one-story thirty-year-life building out of concrete and glass and so on, in ten, twenty, or thirty years, if you wish to, you can tear it down, you can remodel it, or you can abandon it, and you haven't lost a great deal. In contrast, if you build one of these skyscrapers, it costs almost as much to revamp it as it does to rebuild it."

[laughter] To tear it down costs an awful lot of money.

The only thing that saved that little [University] Religious Conference building over there is the fact that it's going to cost about \$50,000 to tear it down.

TUSLER: Just to tear it down?

WARREN: Yes, it's concrete. [laughter]

TUSLER: What is it being used for now?

WARREN: Well, [the School of] Dentistry is moving out,

and I guess [the School of] Public Health is moving in, because their building will start now. It will be three years before they can get in, and they need more space than they can get in the Home Economics Building.

Well, to finish this up now, the senator will, as he said, work with his staff and some of the people in the Veterans Administration. He also invited me to come as an individual to help them put together some wording in a composite bill amending the Teague Bill, and then this will all be presented in executive hearings to their own committee and then be referred to Senator Hill. The senator will review the hearings, and if he is satisfied, then in executive session it will go through the whole roster of the Committee on Labor and Welfare and be presented to the floor and voted on and then referred to the Conference Committee of the House. If the Conference Committee of the House accepts the amendments, the House is asked to pass the bill with the amendments. If it's acceptable to their committee and to the Conference Committee, it goes through pro forma.

TUSLER: So there doesn't have to be a big presentation of it?

WARREN: All that formality's gone. This is a very nice way to have things go. Now, if there had been a big controversy from some others like the AMA, or if the Association of American Medical Colleges had come in and said

"This is rank socialism; we can't have it. This is terrible; this'll spoil medical practice; this will hamper medical care and the VA"--then the reporters make a big play about the opposition, and then anything like this comes to a halt.

TUSLER: Has the AMA taken any interest in all of this?

WARREN: Yes, they were sampled by Mr. Teague, and the AMA's position and that of the deans' organization is that it is permissible to let the VA undertake education. But you see my little medical school idea didn't get in that part of the deal. It only creeps in here in the hearing. I hate to disclose the machinations. It never became a part of the principle that education is something that the VA ought to undertake, and I only suggested it as a refinement and suggested that a couple of pilot areas be set up, like Amarillo and Boise. Being now in the record of the hearings, these are guidelines for the VA, since there was no dissent; and if none transpires, the bills will progress through the Congress.

Now there's no money available. The VA can probably squeeze out \$100,000--\$50,000 for each place--to do a little planning to get the drawings together. But these places have got to get a dean or a director of the new program. I'll have to get on the phone this afternoon to check with them to be sure they're going right ahead. Boise has already employed Dr. Raymond White from the

American Hospital Association, and he comes on April 1. He was in Washington yesterday, and I just missed him by a hair's breadth. He left Dr. Engle's office just as I went around to the VA to bid Dr. Engle good-bye and congratulate him on a nice performance.

I think there'll be cooperation with the small medical schools by the Department of Health, Education, and Welfare through Wilbur Cohen. They've got construction money that requires matching. They've got training money, research grants, and a lot of things. In fact, these small schools could be built with not much more than \$100,000 of local money. They would need about \$3 million for buildings if the VA or local hospital had no space for the basic sciences and the library. The local college can't put up anything; it has no budget and no resources, especially the ones in Boise, which are private.

Now, I also had good luck the night before last, which pleases me very much. Dr. Raymond Allen and I had dinner together. He had just taken Dr. Elmer Belt to meet some Leonardo da Vinci scholars. We sat talking in the Cosmos Club lobby, and in came Dr. Joe [Joseph B.] Platt, who is president of Harvey Mudd College. He is an old Rochesterian friend, and well indoctrinated into the problems of medical school financing because he was on the Committee on Higher Education that Governor [Edmund G.] Brown appointed some years back. He had come to my rescue several times on budget

and other problems.

We wanted to know what he was doing there in Washington, D.C., and he wanted to know what we were doing. Of course, Ray Allen lives there now and is the research director of the Pan-American Health Organization. But Joe was in to advise the President's Scientific Advisory Committee of the President's Committee on Communication and Information of the Office of Science and Technology. Dr. [Donald F.] Hornig is the director. We got talking about the computerizing of the library, and I promised to send him my proposals on the national library system. Then he wanted to know what I was doing, so I brought up the idea of small medical schools, and I added that he was one of the few people in the country who had kept his student body down to a proper relationship with the faculty. He had kept his organization small, and I would like to see somebody with his determination and his kind of a board take on a small medical school and keep it within the resources of their organization. I said, "Would you be interested in taking over the San Fernando VA, which they are willing to put in the 'pot,' and work out a contract with the Veterans Administration for support and other things? The supervisors for the medical education could be at Olive View, just about a mile away. This would give you the acute hospital and the chronic hospital and the site and buildings. I think the VA would remodel and set you

up in business, with equipment and staff and everything if you would supervise it." Ray Allen chimed in and said, "Yes, how about a humanistic medical school? Have it heavy on sociology, anthropology, psychology--not psychiatry necessarily--but the whole human being in his environment. This is lacking in medical schools." We all agreed it was; Joe Platt got quite excited. He promised to read my material and then maybe come over and have a luncheon.

Last night, getting off the plane, there was Joe getting off the same plane. He had a student with him, and I asked him if he was premed. "No," he said. He was going into math or something. As we walked down towards the discharge of the baggage, Joe Platt said, "You know, I was interested in your conversation. Do you really think that this might be done? How much money would it take?"

I said, "I'll advise these two places--Amarillo and Boise--to collect \$3 million for an endowment so that when the present personalities disappear, there's still the endowment in trust which would give approximately \$100,000 a year. First, with the income, hire a dean. And then gradually, as they get the dean's salary on some stable budget, use the endowment income for contingencies and for over-scale salaries and things of this sort. But this could be the focal point, the strength, the private enterprise part. He said, "If you couldn't get the \$3 million,

what you're talking about is \$100,000 a year for x number of years." And I said yes. "Well," he said, "that's not too impractical." So I said, "Well, you're willing to talk." And he said, "Yes." Now, if I can pull that off right here, I could watch it develop and help now and then. You see, the trouble is that the University of California, or at least the state of California, has got to build resources to put out a hundred more doctors about every five years. Now, if they do it the way I've had to do it, and the way San Diego is going to do it, the pattern of a big state institution with a large mass of students-- 2,400 or more students of all kinds in the medical center-- then you've got a great big factory costing about \$100 million, and a large research budget. This is like a General Motors production. Now if you keep it custom-built, you don't need such a big investment, and then you can have lots of them, wherever there's the resource. Now in California--there's Fresno, which hasn't been touched yet; Long Beach, because it has that big VA hospital down there, a state college in its backyard, and the Memorial Hospital just a half a mile away. We've got a lot of places in this state where this could be done on a small scale. Then as the population increases and the resources and experience increase, then it it could be made bigger.

TUSLER: Would this make it cheaper for the student himself?

WARREN: I don't think this will change, unless somebody

is willing to put up the extra money for the student. In fact, as I think I showed you on the chart in the other room, our first cost per student per year at the thirty-two-student level was nearly \$12,000 a year. The big factory will bring it down to \$7,500. Stanford and USC, I think, cannot get below \$9,000. I predict that we can't do much better than \$11,000 or \$12,000 in Boise and Amarillo. But you get a lot of goodies for that, too; you get service to patients and you get nurses and others trained who then go out into the community. They cost the same amount, though this is an average figure.

TUSLER: Where is this \$3 million that will constitute the endowment fund going to come from?

WARREN: From local people. They already have \$2 million in Amarillo in just a month.

TUSLER: Just by tapping the--

WARREN: Yes, they just collected \$5 million from the High Plains Baptist Hospital and were donated the 400 acres, essentially, right next door to the VA. They have a common fence line right on the outskirts of Amarillo. After I talked to them a bit, they are now raising \$2 million to put the laboratories and other things in the hospital and will make some changes that a subsequent study indicated they needed in order to improve the design. They're now facing a \$7 million hospital construction, and have all the money pledged, plus the \$2 million pledged towards

the \$3 million endowment which the Amarillo Foundation has. The interest from that will be donated each year by contract to the West Texas State University, which is in Canyon, fourteen miles or fifteen minutes away, where they now have 7,000 students, a fair premed curriculum, and a beginning graduate division, as well as the Kilgore Research Institute, which is physics and chemistry. So they're well started, and with this \$100,000, or whatever is needed, the Amarillo Foundation will give the West Texas University enough to start. Now, the question is: do they ask the state for any money, or don't they? It can almost all be done with no state money, which would be a triumph. However, it makes the federal contribution very high.

TUSLER: What is the advantage of not asking the state for money?

WARREN: Well, there's a political advantage right now, because the state has three medical schools, San Antonio being the last. Just last week they got the money to build the laboratories for the medical school, \$9 million from the state and I think \$20 million from the federal government. Senator Yarborough said he was going down there next week to the inauguration, when they were going to lay the cornerstone. Almost ten years ago, I was a consultant down there to the site, and you see the long time it takes.

Now, Texas is in a funny situation; their taxing procedure is very inadequate and inefficient. So in spite of its large population and its great wealth, the state government is on its uppers most of the time. Do you know how their state capitol was built? They made a deal with a British corporation. They gave them about a million acres of land, and the corporation came in and built the capitol building, so that no bonds were required. Now, how they had the authority to give the land away, I don't know, but it was done. That's why so much of the land right down through the center of Texas is held by outside people and foreign capital. These are all contiguous, touching groups--townships--just all lined up down the map. But you see, by doing it this way, they didn't establish any precedents or find any need to create laws to raise the money properly.

But now when you have a big need for building schools and institutions, it's difficult. They are out of the habit, and there's no more land left to make the trade--or I guess there isn't any. And all kinds of conniving goes on. [laughter] This is part of the reason why there is so much conniving, because it's easy to do.

TUSLER: Did the money come largely from single individuals who were very wealthy?

WARREN: Yes, big gas holdings. [Mary E.] Bivins gave a children's psychiatric building for the new medical center; I

think it was \$2 million. She also built the library in the little town. It's not much to look at but it was built four or five years ago when she got her first gas well. Prior to the finding of gas, you could have bought that land for maybe five dollars an acre. If you stand up on the hood of your car, you can see well beyond twenty-eight miles, the curvature of the earth. It's just flat, high plains. The wind blows all the time. [laughter] Once in a while there's a riverbed and a canyon from the erosion, some of which are very beautiful. It's in one of these, just fourteen or fifteen miles out of Canyon or Amarillo, where they have found the three-toed horse. They have found a big boneyard of 50-million-year-old animals. That's why they have a nice little archaeological museum at the university and a very strong geology department.

TUSLER: Amarillo is up in the panhandle, isn't it?

WARREN: Yes, it's northwest Texas, and then going south is Lubbock, and then you go south and west quite a ways until you hit El Paso.

TAPE NUMBER: I, SIDE TWO

MARCH 31, 1966

TUSLER: Dr. Warren, I believe this morning you have some things to say on the subject of the development of mental health clinics in the state of California.

WARREN: That's right, I think we can take up this subject, along with that of mental retardation. They're intertwined a great deal in the way they developed here in California, and of course the same personnel are involved. Our business in the medical school is to train professional personnel in the health sciences.

When I arrived here in 1947, there was in existence a mental hygiene society and a mental hygiene association. Mrs. Warren and I joined both of these, for it was our custom to join all of the movements in the community that had some relationship to the health science field. The reason was partly to get acquainted with people in the community who were interested in these fields, but also partly to gain and build up the political support for the medical school's development in these areas. It was quite obvious in the beginning that the medical school could not get adequate funds for construction and operating budgets if we depended entirely upon the university administration to provide these things. The amounts of money required and the size of the operation was never clear

in the minds of either the regents or the administration. Perhaps even President Sproul didn't realize what he was taking on, although by this time he had a pretty clear picture of the ultimate size of the medical school in San Francisco and others around the country. There were similar health associations and societies in other parts of Southern California. There was a strong one in Pasadena. And, of course, San Diego had one, and [so did] Fresno and San Francisco.

TUSLER: Who were the sponsors of these organizations?

WARREN: These were all private associations, nonprofit, dues-paying, politically oriented associations. The American Cancer Society is a similar one. There are probably forty or fifty different disciplines represented in these associations and societies in the country. All of them originate around some dedicated person, usually a former woman patient. She may come from an experience in Parent-Teacher [Association] or League of Women Voters and wants to do something for the community. They may get the bylaws from the national organization and set up a local program. I think if you could punch Mrs. Warren when she was asleep and ask her what the constitution and bylaws are, [laughter] she could almost tell you chapter and verse for any of these societies and associations. This is particularly true for the volunteers here at UCLA. She has written maybe fifteen or twenty

constitutions and bylaws for local associations, in the county and metropolitan area.

TUSLER: How did she get into that?

WARREN: She's a League of Women Voters graduate from Rochester, New York, and of the Cub Scouts and Boy Scouts and all these PTA things. These are wonderful training relationships for the young married woman who gradually gets more and more chance to get out in the community.

There was, for some little time, a schism between these two Los Angeles mental health associations and societies. Both were trying to play the most important role in the community and to enroll as members the majority of the interested people. I forget the names--but as we go to the files, I can probably furnish them--of the doctors and the prime movers and the women and the men who furnished the muscle in these organizations. Eventually, of course they began to think about fostering research and improving training and facilities in the community.

About this same time, around 1952 or '53, the national institutes were organized, including one for mental health. Drs. [Robert H.] Felix and [Seymour D.] Vestermarck were the leaders in that organization at the federal level. They had a great influence in the developments all around the country, and set the political groundwork that was to support the total program.

TUSLER: Were they the faculty here?

WARREN: No, they were federal employees in the Public Health Service, career men, but both psychiatrists. Dr. Vestermarck has since died, and Dr. Felix has gone to be dean of the George Washington University medical school in St. Louis. Now, in 1947 there was enough momentum in the state and enough complaint about the mental health department's program that Governor Earl Warren organized a mass meeting in the spring of 1948. The chairman of this was Lee DuBridge. Members of the staff of the state Department of Mental Hygiene did the organizing. This was extremely well done, covering all of the disciplines concerned with the diagnosis, treatment, and care of the mentally ill. The department staff was very much ahead of the department's program. They were well oriented and therefore modern in their point of view, but Mrs. Dora Heffner, the director, and her medical chief, Dr. [Lawrence] Kolb were unable to get the support of the legislature in building the required hospitals.

Part of the trouble was that they were thinking at that time, and for several years thereafter, of 5,000-bed mental health installations, costing in the neighborhood at that time of \$18 [million] to \$20 million apiece. It became apparent that there was such a large backlog of patients that were waiting to be admitted that it would be necessary to build one of these almost every year, which would be quite a load on the taxpayer. The

governor used this huge financial investment--the building costs and care problems--as a reason for holding this mass meeting.

TUSLER: Who was the governor at this time?

WARREN: Earl Warren.

TUSLER: Did he support the program himself, aside from the problems involved?

WARREN: He knew that this was a bad situation, and he wanted something done; but being an astute politician, he wanted the consensus of the leaders in the state behind him before he went forward with expensive construction and other plans. Three hundred people came. This was almost all of those invited; many were not invited. They came at their own expense and spent two and a half days in Sacramento. This was in the spring, I think about April. They were all divided up into sections and were very active. There was a lot of discussion, and everybody had something to say.

TUSLER: You were there?

WARREN: I was there, and I was on the committee that dealt with personnel problems; being a medical school dean, training was one of the elements that I was supposed to be interested in, which I was. We dealt with such things as the reason for lack of personnel at the attendant level and at the nurse level and, of course, the shortage of psychiatrists.

We therefore soon got into the salary levels, because they were very low. Our section recommended that salaries be increased in keeping with the salaries in other parts of the state in private mental institutions and educational institutions and that training programs be set up. The Department of Mental Hygiene up to this time had had no training program to speak of. This was frowned upon by the legislative auditor, of whom I will speak a little later.

This meeting resulted in a great many recommendations, and Mrs. Heffner, who was a political appointee, felt that she couldn't carry out these recommendations, so she resigned. The governor then made a committee of the three deans of the medical schools, and we chose Dr. [Frank F.] Tallman, who is now on our faculty, to be the new director of the state Department of Mental Hygiene. Dr. Tallman came in with the promise of the governor's complete support in reorganizing the department and modernizing it.

In order to make this stick, the governor appointed a citizens' advisory committee, which is still in existence. This had the medical deans, many of the presidents of the smaller universities, and quite a number of psychiatrists. There were people like Arthur Will, who was then county manager of Los Angeles. He had come up through the ranks over a long period and was a very fine and dynamic person. Judge W. Turney Fox was chairman

for many years, and then Judge William Neeley. I think I can find the roster. It's worth recording, too, because this has been forgotten, more or less.

The director of the department met with this committee at monthly intervals, preparing an agenda, answering questions, taking the recommendations back to the governor, who could reflect them in his budget and his requests to the legislature. The committee did not report to the director but to the governor, so that this was an important element in its influence.

I can remember going to sit with Dr. Tallman in the hearings of his budget. One of the first things that he wanted was an increase in the food budget. He was told by Mr. [A. Alan] Post that these people were helpless, so why feed them and prolong their lives? All Dr. Tallman was asking was a budget sufficient to get food in amounts equal to that fed to inmates of the penitentiary. This was just a perfectly cold-blooded fiscal approach, and the overt intent was to have these people die as early as possible. I say this without any hesitation, because Mr. Post is still there and is using the same derogatory tactics against the development of the medical school in San Diego. He used the same arguments against me, and he hasn't changed his attitude one bit.

TUSLER: What is his official position?

WARREN: He is the legislative auditor, employed by the

legislature to be the devil's advocate to knock down and destroy the arguments of those proposing an increase in budget. But the man has gotten so habitually conditioned that he sometimes does not have any humane approach. Although he is a fine, upstanding citizen in his own right, he is the ogre in the otherwise fairyland of life.

[laughter] That's not a very good simile.

Dr. Tallman was in the state system for about four years. Then he came to join our faculty, after he had reorganized the department and gotten it on a good basis..

About a year after I arrived here, when I was sitting in the temporary buildings, I had an appointment with a Mrs. Edna Reiss and a representative of Mrs. [Bennet] Davis. They were organizing the Reiss-Davis Clinic, which officially got off in 1950, but they were in my office before this, trying to find out how to get going, where to locate, and whether some help could be gained from the new medical school.

At that time we had no students, we didn't have an assured program yet, but we did have this piece of property called at that time the C and H Tract (we'd just got this from the Veterans Administration), so the three of us talked a great deal about the possibilities of their raising funds to build a children's psychiatric clinic on this piece of land.

In 1950 they hired Dr. Rocco L. Motto as their

director, and he is still their director. He's a psychiatrist. We could not respond. I had great trouble in getting the regents, and even the president, to agree to initiating these minor elements that could support the program of the medical school. They were very much afraid of these expansions, particularly Dr. [Howard C.] Naffziger, who later became a regent.

TUSLER: What form would those expansions have taken in the actual facilities or in the courses?

WARREN: They would have built a building here on the tract, and, jointly, we would have appointed their staff on our teaching program. They would have picked up the service costs and the handling of the children. We would have picked up the educational costs, or if they were well enough off to do so, they might pay the whole thing, although we would get appointments to the staff.

I forget the location of the first program; it was in rented quarters. They then went to some more rented quarters on Vermont Avenue about eight or nine years ago, at which time we had active discussions about their coming here, but we fell out over their philosophy, I guess you could say, of their approach. They wanted to be completely free to do rather bizarre experimental work with untrained people.

There are lots of lay practitioners in these fields who have no college training. Some of them have been

very successful in dealing with excited children. These people were taken into the Reiss-Davis. We could not put them on our faculty. Their doctors felt that they could not abandon these people. They had great loyalty to them because they had worked through the hard years, but they were doing things that were unsubstantiated and unpublished.

We finally decided, or agreed without any prejudice, that we would appoint those members of their staff that had the proper qualifications to join our teaching staff; and that we would send some students and residents to them. They would not insist that all their staff be on our staff. This is not now an officially affiliated institution.

Later--I'm not quite accurate about the date, but somewhere in the neighborhood of 1958--we moved out of the Marion Davies Clinic and moved the program into the medical center. The Department of Pediatrics had used that; I'll talk about that at some other time. The Reiss-Davis board then purchased the Marion Davies property from the university. It's down on Mississippi [Avenue] just above Olympic; it comprises about two acres there. They have gradually developed greater and greater strength through their board and donations from a lot of private individuals, and they have started to do some research. In fact, Dr. Bernice Eiduson has been working on the computerization of psychiatric history. I have been very much interested in that. When I went to Washington, she came in, and I

tried to get that funded by the National Institute of Mental Health. They weren't convinced that she could do it until last year, and so she lost about four years in progress. But, in the meantime, she has improved the approach so much that she told me the week before last that she now felt very confident that she could get in simple language a psychiatric-history-taking program for the computer. She's got a two-year grant now, a fairly good sized one, which will get her on the road.

I was invited to return to the board of Reiss-Davis, which I accepted as one of the few [outside responsibilities] that I'm taking on in my return to the university. They asked me to speak the night before last--March 29--before their first annual dinner. I can submit for the record that the agenda made a very interesting meeting. They had the black-tie affair in the Beverly Hilton Hotel in a big room. There were about 900 who must have paid twenty or twenty-five dollars apiece, which meant quite a sum for the clinic.

Milton Berle was the master of ceremonies and Art Linkletter was there. Mr. [Robert L.] Feldman is the president of the board, and they have quite a powerhouse now in the board. If they can keep up these annual dinners and keep this same group in Los Angeles supporting them, they will do all right.

TUSLER: Do Mr. Berle and Mr. Linkletter have a particular

interest in this field?

WARREN: Linkletter, you know, has been interviewing children on the radio for many, many years, and he has adopted children from other nations--a Philippine boy, and I guess a Vietnam girl, a Japanese, and a German, and a French child--I think six. In his radio program he runs across excited and disturbed children, so he's gotten interested in this. He's a very fine man in his community relationships. I don't know what Mr. Berle's personal contact with this is, other than the fact that he's community-minded.. Of course, a lot of the artists and actors and actresses are. They're emotionally sensitive, and they understand these things better than many other people do. Some of them, of course, have problems themselves and are familiar with psychiatric programs.

It turned out very well. I claimed equal time. I was given twenty minutes, and the rest of the program added up to twenty-one. These men all went over; they each one had a minute, as you can see by the program. [laughter] As usual, the Reiss-Davis board awarded plaques of commendation for donations or for work by some person in organizing or funding a new program, or actually working in the clinic. They honored a gentleman who worked for the Peace Corps, and Joe P. Maldonado, executive director of Economic and Youth Opportunities Agency of Greater Los Angeles. This latter is the group

from which a lot of disturbed children come, and this man was very active in getting these children referred to the clinic.

Now they've raised enough money and been able to get some matching [funds] from the federal government from the National Institute of Mental Health, so that they're going to open a kind of a day school for agitated schoolchildren. They will have some rooming-in facilities, but most of the program will be daytime, where they'll actually have a classroom situation but organized in such a way as to calm the child down, to try to get at the problems that bother him and to learn why he is frustrated. Is he the kind of child that has a very high IQ, where he's been so far ahead of his own age group that he gets bored, and then he takes it out in pinching Josie and pulling ears and just raising the devil all the time? [laughter] Or is he retarded and so on?

Now, let me go back a bit. I pointed out that Dr. Tallman returned to the Department [of Mental Hygiene] as director in 1949. In 1953, our medical school program got along far enough so that we began to organize a department of psychiatry. We appointed Dr. [Norman] Brill as the chairman of the Department of Psychiatry, and then he and I, for the next five years, had a bitter fight with the regents (chiefly Dr. Naffziger), on the role of psychiatry in the medical school. This is what it really amounted to.

Dr. Naffziger's opposition to the design of our program was aided and abetted by some of the regents, chiefly Mr. [Edward A.] Dickson, who felt that psychiatry did not belong on the campus.

You have to remember that Mr. Dickson was a reporter in his younger days in Stockton. Stockton had an insane asylum of the old type. He was in and out of that institution in his early days and saw the attendants beat inmates. Inmates were actually chained because they were so violent, and they were so destructive that they couldn't have linens, so they bedded them on straw. They used hoses to clean the cells. This was just a primitive insane-asylum type of thing.

Of course, Mr. Dickson visualized that sort of institution on campus, and some of his friends among the faculty women were worried about the fact that these insane people would break out and go up and down sorority row or run naked into Bullock's and all this. You can imagine the problems that this brought up in explaining modern psychiatry, where we were not going to have bars on the windows, and where we were not going to have locked wards. All of the things that he worried about, he thought we apparently were ignoring and overlooking, and yet we said we'd take any referred patient, no matter how violent or what the problem was. But we did not want cases assigned by the court.

We wanted to do what they had done tentatively and partially in San Francisco. We wanted to join hands with the state department. In San Francisco, the medical school and the state department had joined hands, and the Langley Porter Clinic was built by the state department just across an alley at the Parnassus site. Dr. [Karl M.] Bowman was both professor of psychiatry and superintendent of that unit, and so we wanted the same thing. But it took us five years to hammer out a contract that the regents would accept. Finally it was achieved, and the state department asked for the money and transferred it to the regents, who then designed and built the NPI, the Neuropsychiatric Institute, here.

TUSLER: What year was this?

WARREN: In May 1958 the contract was signed, and then it took a year to get the drawings approved. In the meantime we had gone right ahead and designed it and gotten it all ready. Dr. Tallman helped a great deal in that effort. He was followed by Dr. Walter Rapaport, with whom we made the final arrangements. There were very fine men in the state department who helped in the maneuvers. The legislative auditor, when this came up in the legislature for funding, said the state department sold its soul down the river to the university and made all kinds of mean remarks like that.

TUSLER: This was Mr. Post again?

WARREN: Mr. Post again. He didn't want the university to be in there in the first place. He thought it could then point to deficiencies in the state department that needed budgetary support and would then support the department's budget. Now, the arrangement was that the state department in turn would appoint Dr. Brill (our chairman) and several members of the department as members of the state Department of Mental Hygiene. So Dr. Brill is the superintendent of the facility. The state department is given occupancy permit, and we use state civil service payroll for nurses and so on.

This is another thing that the university administration said wouldn't work. And they ferreted out every disagreement there had been in San Francisco to throw at us. But it has worked well. Nurses know, when they come to work for Dr. Brill's program, that down the hall from the other beds they may get a dollar more a week one year and another year a dollar less a week. But it doesn't make any difference to them because they want to work for the program and a dollar either way doesn't make very much difference. The other fringe benefits are the same--the retirements and the sick leave and care and so on. So we have no stone wall or iron curtain. You can go anywhere in the center and it doesn't matter whether you're in the NPI or not.

Dr. Rapaport gave us this name in the budget; it just

appeared the first year in the operating budget as the Neuropsychiatric Institute. Once having been printed, we couldn't very well change it. But it is not an institute in the usual university sense. It's the state department's budget for the superintendent's program, in support of the patient's care. It was given the name, Neuropsychiatric Institute, to distinguish it from the Langley Porter Clinic in the north. Whatever name was given to ours had to be distinguishable.

But we got in the hair of the Academic Senate, by the way, because it's not an institute. An institute is an interdisciplinary organization that works on some programmatic area, like cancer or space or geophysics or something like that. We had considerable chitchat for a while, but then it was finally explained that this would only appear officially in the state department's literature. Of course, once it got used there, it's now known as the Neuropsychiatric Institute. [laughter] This complicated things because the Brain Research Institute is right next door to it, too, and it's all integrated, department by department. As a matter of fact, the Neuropsychiatric Institute is really an institute now. It has Department of Education and Department of Psychology members who are working with the patients, along with the psychiatrists and the neurosurgeons and the neurologists; so it turned out all right. [laughter] But it was never officially

organized as an interdisciplinary thing.

Now, the next breakthrough was about 1960, when the Short-Doyle Act was put through, after many bitter fights and attacks by a Pasadena group who claimed that this was a Communist effort to brainwash the citizens and that all psychiatrists were Communists and all kinds of crazy things. You have no idea how bitter and stupid this was.

TUSLER: In what year was this?

WARREN: About 1960. It took two years to fight it through. Here again, the Association for Mental Health was a very important element, because by now they had united and had a common front. All of us went around stumping the state on the benefits to be derived from the decentralization of the mental hygiene department's program. This would provide clinics to which the family physician and others could refer their patients for diagnosis and interpretation and maybe some treatment. Or the patients could then be referred for treatment somewhere else.

About that same time, our open-door policy was made more and more effective by the discovery and use of ataractic drugs. These are drugs that suppress and relieve emotional stresses; reserpine and now promazine and many others have come in. This has made a revolution in the care and treatment of those who are emotionally disturbed. One of the things that began to happen was that, almost within a year, the discharge rates from the

state department mental hospitals increased almost exponentially, so that it was no longer necessary to build a new institution every year. The savings because of this in the first year of the Short-Doyle Act were more than sufficient to pay for the new clinics that were put around the state.

TUSLER: The Short-Doyle Act was what?

WARREN: It implemented the creation of psychiatric diagnostic clinics in the counties in various regions in the state. Finally, after about 1961 or 1962, enough of them were built and staffed so that patients could reach them from almost any part of the state without very much travel. Between the two things--the new drugs and the open-door policy--a great deal of the fear of involuntary commitment disappeared.

I was told a couple of days ago, in talking with Dr. Brill about this, the voluntary commitment to the state institutions now involves probably more than 50 percent of the inmates, because they know that they're not there permanently. They can go and get relief, and the benefits will be sufficient so they can return home. They know that this is the place where things are quiet, where they can get care away from their own environment, which is full of the irritations and frustrations triggering their problem. There's still a big group of schizophrenics who aren't as readily influenced, but are helped some by

these drugs.

TUSLER: Of course, the drugs don't really effect a cure, do they?

WARREN: No. They don't do anything more than remove internal stressful feelings. They have a calming effect. The number of violent patients is almost reduced to zero now; there are relatively few. It's not really zero, because there are some that are probably going to be permanently this way. But the problem is much less than it was ten, fifteen years ago, and so much better handled. Prevention now is one of the great objectives, a breakthrough, for the disturbed child, the disturbed adult or adolescent. Witness the fact that we have fifteen psychiatrists on our student health roster. This is a time of the adolescent turmoil of the college age.

TUSLER: Are their services available to all the student body?

WARREN: Yes. But fifteen! When they came here, into the medical center, Dr. [Donald S.] MacKinnon had this idea. We conspired together. We almost secretly put every one of our psychiatry consultant group on his staff. [laughter] Finally this program began to be accepted. One of the problems was the university police, of course. The problem of homosexuality and promiscuity has always been a problem. The adolescent will experiment in all kinds of things, and he may then get into

trouble. We finally made arrangements with the judge over here in Santa Monica that these cases would be released to the student health instead of brought up to court and exposed to the community. If you don't make a scar, the student was probably experimenting and is not a homosexual at all, you know. But if he gets a felony on his record, he never really recovers from this.

TUSLER: It just sets him in the pattern, actually.

WARREN: That's right. And in the community's mind. Somebody always remembers this in his hometown--"He got into trouble. This is a dirty boy and he's not going to marry my daughter, nor go around with her!" This is a very unfair thing. Well, we haven't got it all solved yet, but at least the machinery is open now so that the campus police take them to student health, if the system works out all right. Otherwise, they would have hauled them right downtown to the jail and next morning the court would have them. It's then on the police blotter and the reporters are there because he's a university person. When I first came here, the Santa Monica [Evening] Outlook used to have stories about them, the names and situations and everything. Occasionally, there are slips now, but you don't hear about it anymore. These cases are handled discreetly and have immediate psychiatric care if needed. Many of them have gone into the neuropsychiatric unit voluntarily. Usually it's something that can be dealt

with; the shock of the episode solves the problem many, many times.

TUSLER: To what extent can care then be offered to the students? Can it be very much of a long-term arrangement, these sessions with the psychiatrist?

WARREN: Oh, yes, in the student health clinic, sure.

Let's not mix these up with homosexuality. There are all kinds of psychiatric problems. Many of them are sex adjustments, this is true, but there are also adjustments to campus living, to life in general, to interpersonal relations, to all kinds of things. You know the turmoil at that age and the sit-in stuff. It's all part of the same thing. The kids are having fun with this. This is exciting. They don't realize that it's antisocial, and suppose it is.

TUSLER: Well, they've got to do a little bit of rebelling. I mean this is the time to get it out of their systems.

WARREN. Sure. [laughter] And anybody that's running an educational institution looks at this with a quite different eye than the people out in the community.

TUSLER: Has there been very much opposition throughout the community that you are aware of to the development of the Neuropsychiatric Institute here?

WARREN: No. There was before it was built. There was a citizens' group in Bel-Air, stimulated by M. Hunter Brown, the doctor who is our antagonist in the local

medical society. They came and testified before the regents just before they were about to approve our construction. They said that this would bring 100,000 more people into the parking problem they already had, that the building would stand up so they wouldn't see the ocean, that anybody knows that these crazy people would get loose and cause mayhem around and so on. The regents thanked them for their trouble and time and went ahead and approved it like the good boys they were.

I got a majority but not a unanimous approval, because Mr. Dickson was opposed to it. Mr. Dickson had pneumonia and died about that time. He had gotten a pledge from Mr. [Edwin W.] Pauley to fight the location of the NPI on the campus. Mr. Pauley liked Mr. Dickson very much, so Mr. Pauley made subsequent attempts to remove the neuropsychiatric program from the campus site to a site on the west medical campus, as recently as four years ago, after it was all constructed. He wanted to put the rehabilitation unit where the NPI is and rebuild this rehab building for the psychiatric department to get it off the campus in order to protect the student body and the sororities and Bullock's.

TUSLER: But there haven't been any incidents in which it has been proven that they need this protection?

WARREN: No. Three years or so after we opened up, one of the well-known actors, whose name I've forgotten, who

was an alcoholic, came into the village and caused a disturbance and then went over to one of the churches and caused a disturbance, but he didn't come on the campus and he wasn't our patient, thank God. But that's all. I think we've had less than the usual disturbance from disoriented persons in the village and on the campus, because they know this is here and they don't create their disturbance on the campus. They either stay away from here or they go immediately to the NPI clinic, willing to seek help. If they're rational enough to know about it, they stay away or they seek help. I think this has helped us rather than hindered us.

When Dr. H. W. Magoun joined our staff as chairman of anatomy, we had no space for research for him, so he started in Long Beach to set up his research and to train instructors in anatomy because these were all in short supply. We used the research device and grant applications and salaries for trainees as a way of training our instructors, teaching assistants, and our junior professors. Our assistant professors have almost all come up through that line either here or somewhere else.

He organized a very comprehensive attack on the central nervous system, and he collected around him others from other departments as well as his own group. Dr. Jack [John D.] French began to be more and more involved. He is a neurosurgeon, formerly on the VA

staff as their neurosurgeon chief.

To make a long story short, the Brain Research Institute was organized (with Dr. French as its director), through the influence of Dr. Naffziger (he did good things too, as well as bad things, from my standpoint). [laughter] He was able to persuade the regents that Dr. Magoun's program should be backed, so some state money was deflected by the NPI to the research part, and then matching funds were obtained and the northwest corner of the medical center was built to house the Brain Research Institute. That is an interdisciplinary program. Every department in the medical school and the Departments of Psychology and Social Welfare from the campus are represented there. It's another way for gaining support for the department's programs as well as having a concerted effort in understanding and studying the brain from all directions. Now it's very famous all over the world for its accomplishments and its training.

TUSLER: What was Dr. Naffziger's particular interest?

Did he have that kind of background himself?

WARREN: In research, no, but he thought research was all right. He objected to psychiatry. He did not like Dr. Bowman, the psychiatry department chairman and director of the Langley Porter Clinic in San Francisco. Dr. Naffziger has been one of the trustees, along with Dr. Robert Langley Porter, of that unit. He and Dr. Bowman

did not want to have much neurosurgery in the unit. There was no authorization for it and no room. So they came to blows, and these blows were reflected in his policy towards us. I think that he could not understand my making an attempt to standardize every department and every subdivision with a faculty roster, in a pattern.

In the university, you won't find any pattern for staffing any of the departments on the campus. But every specialty that we have--and there are forty-two of them in medicine, which creates a terrible problem--is standardized. If it's an important subdivision of a department, as neurosurgery is, then it should have a chairman, an assistant professor, and an instructor; a chief resident, an associate resident, an assistant resident, an intern, and four medical students.

This means that you must have sixteen beds as a minimum for this training hierarchy. Each one above trains in a pyramid fashion downward, you see, so that the medical student gets a great deal of education from this experience in each specialty. He has an assignment to care for up to four beds for his six weeks in that special field, such as orthopedics or neurosurgery or whatnot.

Adding all of these elements together is how I come out with the space that's required. Each division requires sixteen beds on the clinical side; each faculty

person requires 1,500 square feet of laboratory space. In that space his residents do their research, and hopefully he recruits a medical student and gets him a space for research there as well. He may stay there the rest of his medical student days as an intern resident. It's a built-in procurement device--a trap, you might say. [laughter] But it also adds to our student count because the residents and the graduate students are in this space.

Dr. Naffziger could never understand this; he never really looked, because in his experience, his residents never saw labs. They didn't make provisions for laboratories for the staff up in San Francisco until we got well along down here. Then we had a big blowup. Finally it was found, to the horror of the boys in the north and of Dr. Naffziger, that we were within 5 percent of the same amount of space in our planning for both centers, which I thought was very interesting. It was very pleasant to find this out.

Now I've brought both psychiatry, or mental health, and the research program behind it up to date, and I'd like to point out that in about 1959 enough interest and momentum was generated (due to the influence of the parents of retarded children and their widespread organization of associations for retarded children across the country) that President Kennedy, who had a sister [Rosemary] with retardation, thought it was a good time to take this

program on. He could get support politically for it. So he appointed a panel to study and make a report on mental retardation. This was chaired by Dr. Mayo Soley and our Dr. George Tarjan as cochairman. The panel was comprised of about fifteen people from all disciplines in this general field. At the end of the year, namely in the fall of 1962, they made their report. For reasons I don't understand, except that probably Dr. Tarjan suggested I was about to retire, I was called into the president's office and told to take on the responsibility in November of '62. I said no, and I came home expecting the chancellor to say no, because the building program was so near done that I ought not to go. But I had the program in good shape. I was vice-chancellor then, and we had Dean [Sherman A.] Mellinkoff, and everything seemed to be in good shape, so Chancellor Murphy suggested that it was my duty to do this. I found also that there was no way out; I was drafted. So I was appointed December 22, 1962, and arranged to travel every other week to Washington, to set up an office and do whatever was supposed to be done.

TUSLER: Now, you were in charge of this committee?

WARREN: This, I'll have to explain to you in some detail because the president insisted that I come. He handed me this report, and he said, "I want you to implement this." And I said, "What authority and what money do I have?" And he said, "You don't have any money, but you work out

of my office." He told me that Mr. Myer Feldman was hatchet man and Mr. and Mrs. [Sargent] Shriver and Bobby [Robert F.] Kennedy would be my immediate advisers and generals, and that they would set me up in an office.

On January 2, 1963, I showed up and had an office in the old War and State Building, which is across the alley from the White House (it's connected by tunnel and it's not in the White House itself)--that great big rookery, you know; it was built in President Grant's time. I had the office that former President [Franklin D.] Roosevelt had when he was assistant secretary of the navy. Then, former Governor David Lawrence of Pennsylvania, who nominated President Kennedy, had the office across the little alleyway. He was working on housing.

The bills were then in the hopper, and I was told by Mr. Feldman that it was very simple. I was just to help get the bills through Congress by going over and talking to the various congressmen, that since I was from California, there were twenty-seven votes in the House and two in the Senate right there if I could pull them off, and it was up to me to get them. And who did I know? Well, I knew Senator Hill and Mr. Harris and a few others. Well, this was fine, because these were the key people. So I would spend a week doing that and accumulating a little staff, secretaries and things, and a deputy. I inherited Dr. Bertram Brown, who had

been the staff man for the panel. He knew all of the ins and outs of the panel, and I had a hard time getting approval to appoint an advisory committee. Finally it ended up that I did not have an official one, but I had an ad hoc unofficial one, and I had Dr. Mayo and Dr. Tarjan and most all of the members of the panel for my advisory committee.

TAPE NUMBER: II, SIDE ONE

APRIL 14, 1966

TUSLER: Dr. Warren, today we're going to talk about your work that President Kennedy asked you to come to Washington to do in the mental retardation program. How did he approach you originally on that subject?

WARREN: Well, I was coming back from Washington before Thanksgiving in 1962, and I was in the Baltimore-Washington airport. I heard a page for me on the loudspeaker; so I went to the phone, and the operator said, "The White House wants to talk to you. Hold the line. I'll get them back." I said, "Well, my plane leaves in five minutes." And she said, "Well, it is the White House." And so I said, "All right." [laughter] So I waved to the American Airlines man and said, "Can you put me on the next plane?" By that time he knew it was the White House calling also, so he was very helpful and put me on another plane. Finally a voice answered the phone and said, "Hello, is this Dr. Warren?" And I said, "Yes." He said, "This is Mike Feldman, President Kennedy's assistant, and he'd like you to come in and work in his office on the mental retardation program." And I said, "Well, I'm sorry, I'm busily engaged, and I don't think I can do this. I would have to know more about it, too." And he said, "Well, where are you now?" I said, "I'm in the

Washington-Baltimore airport on my way to Los Angeles." And he said, "Well, he'll call you." So I said, "Fine, anytime. I'll be home tomorrow." I gave him my phone number and the phone number of the dean's office (I was then vice-chancellor).

So I came home and was a little bit upset, as you can imagine, because I didn't think that it was true. I thought that somebody was pulling my leg; I had never heard of Mike [Myer] Feldman. Anyway, nothing happened that day. It was about the first of the week, so along towards the end of the week, Thursday, the week before Thanksgiving, the phone rang and someone said, "Just a minute, the president wants to speak with you." And I said, "Fine." He came on the line and he said, "I want you to work for me on the mental retardation program. The panel has made a report, and I want you to carry it out." And I said, "Well, I have a job. It's true [that] I'll be done in six months or so, but it's kind of awkward to leave now. I'm in the process of finishing up a big building program for the medical school, and I don't feel I can leave." "Well," he said, "that's all right. We can fix that up. I want to see you." I said, "Well, I'm coming to the Kennedy Foundation dinner," (I guess it was in the first week in December or very soon thereafter) "could I talk to you about it at that time?" And he said, "Yes, that will be very fine. I will get Mrs. Lincoln to get you

an appointment. Now, I want you to do this." So I said, "I'll do the best I can."

So I went up to the chancellor, and I said, "I'm in a spot. I don't want to leave in the middle of the fire, as it were." And he said, "Oh, this is a fine thing, and you're stuck. You're drafted. You can't do anything about it." I expected him to help delay this or do something, instead of which he made it very convenient. I was a little bit disappointed, as a matter of fact, that I wasn't more necessary to the campus. It would appear that way, because it was so easy to get rid of me!

[laughter]

He said, "You're going to retire anyway in July, and you've got some extra vacation coming to you. Maybe an arrangement could be made so that you could move there in April but go half-time between now and April." So with this tentative arrangement, and not any enthusiasm for the new commitment, I went to Washington (Mrs. Warren and I did). Of course, we arrived during a snowstorm, and it wasn't very pretty, and we viewed this with some distaste. But Dr. Janet Travell was an old friend of ours. She'd been out here quite a bit earlier and was now the president's doctor. She had heard about his proposal and tracked me down at the Statler Hotel. We went over there the next morning and had breakfast with her. She talked with [Evelyn] Lincoln, and we made an arrangement for three

o'clock that afternoon to talk to the president. She was very much intrigued and knew all about it and wouldn't tell me--or couldn't--how my name had got into consideration. She said that by all means I should do it. And I said, "I'm no psychiatrist. I'm no mental retardation specialist." And she said, "Well, it isn't that. It's an organizing and administrative job." Then we waited around in a state of shock until three o'clock. Viola went to Janet Travell's office, which is downstairs in the White House.

TUSLER: Whose office?

WARREN: Janet Travell. She had become famous for her study of referred pain and trigger mechanisms and had been very successful in low back pain, so this is why she is there to take care of the president. She, incidentally, took care of most of the president's relatives and friends and most of the White House staff, too, in spite of the fact that there was an official medical attaché, Dr. George G. Burkley, later Admiral Burkley, a very fine physician. He had a complete staff and an emergency program in the White House itself.

I was ushered into the front of the White House and sat in the lobby. Then we went into what was called the Fish Room, which was a room where conferences were held very often, and there I met Mrs. Shriver and Sargent Shriver. They were very much interested. Since neither

of us had seen the other before, we had a rather strained conversation, but they kept urging me to take this assignment. I said, "Well, you don't know anything about me, whether I'm the right person for this. I may not do the job the way you'd like it done." And they said, "Oh, no, we have heard all about you." They didn't say where. And I asked, "How did you get my name?" And they said, "Well, we have ways of doing this." Which didn't help at all because I had no way of getting my foot on anything, you know.

TUSLER: You didn't know what the connection was?

WARREN: No, I didn't. After maybe five minutes of this boxing match, we went across the corridor to the president's office. At that time, he had two seedy-looking greenish davenports facing each other about six feet apart. Near the end of them he sat in his rocking chair, and the people that he was interviewing or talking to sat on the davenports. So the two Shrivvers sat on one, and I sat on the other one.

TUSLER: Was your wife with you?

WARREN: No, she was downstairs with Janet Travell, biting her fingernails, hoping we wouldn't have to move.

TUSLER: May I ask, was this the first time you had met President Kennedy?

WARREN: Yes. I had no connection with him or the Shrivvers before. As a matter of fact, I didn't know who the panel

were and I had not yet received a copy of the report. The president handed me a copy and said, "This is what I want you to implement. This has been done by a very fine group of people, and it has recommendations. We've got legislation on the way to implement it, but we want somebody to bird-dog it through." And I said, "Well, while I've been around in Washington for about thirty-five years, I'm no skilled lobbyist." He said, "Well, you won't actually have to do the lobbying. You'll just have to go around and acquaint the various congressmen and senators and the governors and others with the program, so that we get it moving fast. Our office people will help you--that is, the men that work the Congress--and Mr. Cohen and HEW will."

TUSLER: This was a program that the president himself had devised?

WARREN: Yes, he had appointed the panel in the fall of 1961. I'll give you a report of this, if you want it for the record. They had reported in October 1962, and he had actually read it and accepted it and thought it was fine. He got the legislation started; Mr. Wilbur Cohen was drafting it. Mr. Cohen was also drafting the health message and the message for the mental retardation program. The health message would come out in February, but they usually started to get things in mind along October and November of each year.

TUSLER: This is a yearly thing?

WARREN: This is a yearly thing. President Johnson just issued one this year. The health message gives a general point of view of his program and its intentions for the year in the health field. Then there's always a special message for legislation to be passed or "greatly desired." These two things are in keeping with the message. I'll give you this. This is Document 58, "Mental Illness and Mental Retardation Message from the President of the United States, Relative to. . . ." This goes to the Congress. Now, this is followed almost immediately by presentation of the legislation to either the Senate or the House committee, whichever is most appropriate. Usually they start in the House. The Committee on Labor and Social Welfare, Mr. Harris's committee, is the one that usually initiates these things.

The first act was to go over and meet Mr. Harris again and get acquainted with him. I had testified a year before for medical education and research facilities construction, so that I was not unknown there, and I knew Mr. Lister Hill, too, and many of the others. The president said that he would follow up--I'm still talking about the initial interview--on the proposals by legislation enactments, which he felt would pass, but they would need some help, and I should go over the other recommendations in the panel report and see that they were carried out, as

much as I could. I said, "What kind of money is available?" He said, "Well, for your purpose, none." I said, "What authority?" "None, but you'll be a member of my staff and you'll work out of the White House." They all laughed at this and I said, "Well, it seems to me it's just like being a dean; you don't have any money and you don't go anywhere much, except on your own." They said, "We heard that you've done pretty well on that, and so this is why we would like you to do this. Now, when could you come? How about tomorrow?" This was about the tenth of December, you see. So we argued a bit. I said, "I can show up on January 2 and come every other week until April, when I can move here. That will give me a chance to close up at UCLA. The chancellor has made arrangements for me to do that." So they said, "Fine, we'll appoint you right away." So they appointed me on, I think, the twenty-second of December, 1962. I actually came to work on the second of January, 1963.

Now, in the meantime, there was the big Kennedy Foundation dinner with the president speaking. It was very interesting, at least for me, to see close at hand for the first time some of the important members of his government. Mr. [Adlai E.] Stevenson was important in this; he gave a speech, and there was a lot of chitchat back and forth. Shriver was the master of ceremonies. There was quite a bit of humor, three-way barbs between

Shriver, Stevenson, and the president. Stevenson had just been challenged in the United Nations, and the question was whether the president was going to keep him there. There were two or three others. Mr. [Hubert H.] Humphrey, of course, wasn't in the picture at that time. Mr. Johnson showed up for a few minutes and then left, because it was a Kennedy thing and was not an official presidential party. Then they had the awards; this was the first one where they gave national awards with any great publicity. We met a lot of old friends.

The next morning, before breakfast, I happened to see Dr. Mayo and Dr. Frank Fremont-Smith, an old friend. I had never talked with Dr. Leonard Mayo, who had been the chairman of the panel; so Frank Fremont-Smith did the introductions, and we had breakfast together, the two wives and we two men. By this time I had looked at the panel report, and I saw that George Tarjan was the vice-chairman. So George Tarjan apparently was the one who had convinced them that I was the person. He is on our psychiatry staff and has the exceptional children program, which has influenced the mental retardation programs. He and I had worked together to try to get this priority in the budget and in the program.

TUSLER: Did you later find that that was true, that he was the one who had?

WARREN: He would never admit it. They were all quiet

about this. I learned how some of these things worked later and the reasons why they kept quiet. I was rather uncomfortable because I thought, in looking at the report, that the president should have picked Dr. Mayo to do this. He was very prominent in the crippled children's foundation and had an enviable reputation for a good organizer and good speaker and, heck, he had just been through the mill on this. But he said, "No, he felt that it would be better to have some new blood." And I said, "Well, I don't want to be in your way if you want it, because I'm not anxious for the job. In fact, I would rather not come, if other things were equal, although it would give me a chance to get out of town when the new administration here at UCLA took over." (It's a good idea for the so-called father figure to disappear and not be a handicap. So from that standpoint I felt very good about it.) He said that he would help. And I said, "Will you be chairman of my ad hoc advisory committee or the advisory committee?" And he said yes. And I asked, "Do you think many of the others would?" And he said yes. So I said, "Could we get together then if I come in January, and will you come down and explain your organization?" So he agreed and urged me to take this. I felt very good about this meeting because I could have gotten off, as so many people have done, with a very bad start, you know. The people who had done the work, who had made the proposal, were

not considered very often. This is a very crazy thing. In fact, it's stupid not to take advantage of the experience of these people.

TUSLER: Right, of course.

WARREN: Particularly when the program is accepted.

TUSLER: Was it your responsibility then to appoint the advisory committee?

WARREN: Well, this is a very interesting thing. I don't think anybody has ever had the kind of experience I had from then on. Mike Feldman was President Kennedy's hatchet man. I saw President Kennedy, I think, only four times between then and the assassination; most of my dealings were with Mr. Feldman. Mr. Feldman had been with him ever since he started to be a senator, so it was a long association. They saw eye to eye, apparently. Feldman said, "I would like it if you would consult a great deal with the Shrivvers, Mrs. Shriver particularly. The president's sister is heart and soul in this and, of course, is very interested in the whole thing." I said, "Fine, do you think I had better put her on the committee?" He said, "What committee?" And I said, "Well, I'd like an advisory committee, with almost all the people from the panel." And he said, "That's all right, but we don't want to have any great big committees." He was thinking of the [President's] Committee on Employment of the Handicapped and things like this.

TUSLER: Which is very, very large?

WARREN: It is very large and has a big budget and has become one of the independent agencies over the years. He didn't want to set up an agency. So I was clear on that. I said, "I don't want to either. I'm only going to stay here until the immediate job is done, and I don't want to get into operating a long-term thing." And he said, "That's exactly right. We don't want you to either." So I said, "I'll stay about two years." And he said that was fine, that I ought to be able to do it, and so we had the agreement on that.

They did not want to have any kind of a permanent setup, and I found out gradually that also they did not want any image to come between the president's office and the Kennedy Foundation. It's all right for the president to have the interest, but let's not have a committee or an office that gets in the public's eye as the important element in this. I found this a very important feature in the whole business.

TUSLER: For a political reason.

WARREN: Yes. Well, too, they wanted the Kennedy Foundation's name to be the important thing in mental retardation, even more important than the parents' organizations or even the operations in the government. It's a human thing to try to make the family name as important as you can, and of course as you know, they acted as a whole unit, as a

family. Every brother and sister was after the main point, and they were very competitive with each other, and very competitive with everybody else, and ruthless, too.

TUSLER: Was that foundation started before President Kennedy became president?

WARREN: Yes, it was, but it hadn't done very much. Sarge Shriver came out here four or five years earlier to talk with Cardinal [James Francis] McIntyre and Sister Mary David over here at St. John's Hospital about a construction grant. At that time I had talked with them about Dr. George Tarjan and the endowment of a chair in the mental retardation study.

TUSLER: Here in the medical school?

WARREN: Here in the medical school. We spent about a year and a half discussing with the cardinal a joint relationship, which fell through because he didn't want any outside agency, namely the medical school, to have any say on the quality of his staff. This is where you break down in dealing with the Catholic organizations in hospitals, clinics, and so on. If you have an educational institution that is responsible for the quality of the educational content and the research, they have to have a veto power, just as the other side has, on the appointment of the staff. It's a joint arrangement. Well, they couldn't agree to this. Shriver left with the promise to give only the smaller clinic--a cut-down-size clinic--to

St. John's, and we've had only an informal relationship since.

When I first sat with the Shrivvers in the president's office, I wondered where in the heck I had seen him, and then I realized that this had been the case. So he had seen me a couple of times earlier, in the connection with George Tarjan, and when you put it all together, their interest in me was not too illogical. I was about to be retired, so that it wasn't completely out of the question to take me a little bit earlier.

As it turned out, the president and all the family would meet, particularly in the summer, at Hyannis Port over the weekend. This would often involve me in the next week. At ten minutes after nine on Monday morning, Mrs. Shriver (Eunice) would call up; she had gotten the children off to school and she now would report what the family had decided over the weekend about mental retardation, adding the statement that the president had approved. At first I tried to implement what she directed, but it turned out when I would call up Mr. Wilbur Cohen at his office in Health, Education, and Welfare, at first he would sort of grin over the phone--I could almost hear it--but later he would chuckle, and we had an understanding that I would convey the information Mrs. Shriver had given me to him. If it was something that his agency could do, they would do it; if not, he would call Mike Feldman, who supposedly

had been at the same meeting. He would clear it with Mike or say that he wouldn't do it because it was contrary to agency legislation.

Now, this went on week after week after week for about the first six months, and then she began to realize that the president might have agreed to something in the family confab without thinking. Then she would interpret this as a green light for her to go ahead and get it implemented. Of course, she would then find that there was no legislation. She was asking for things that were to be in the bills which were coming up, but the agency couldn't do a thing about the authorizing and the money. For example, she would want to give grants to certain places which had become interesting to her. She traveled extensively and spoke a great deal and worked very hard to do a good job. I have to admire her spunk and initiative and energy, even though I don't admire her judgment. The whole group were this way--they shot from the hip too quickly. The president usually had a staff that could quick like a flash come up with the right things, and then he might have to undo something--but not very often. The president was a very well disciplined person and had cut his eyeteeth on the political mill, so he knew pretty well what he could do and what he couldn't do. Also, he was quite well aware of the legislative traps and the things that were needed and the things that were not done. So he didn't get

himself or me into any trouble, but Mrs. Shriver and Sarge were impatient and wanted things done now, or yesterday, and "Why couldn't you?" And they tried to get things done through my office that were not appropriate for my office. I finally found out after fighting windmills for about six months that a presidential assistant works in a special field as a representative of the president. He runs scared and lives dangerously all the time because he has to be careful not to commit the president to something the president doesn't want to be committed to; so he can't shoot his mouth off about a lot of things, but he must stay right in the narrow channel of his field and carry out the policy that the president wants. Sometimes it is difficult to find this out.

It wasn't until Mr. Cohen got the legislation into the first draft that it began to be clear what we were talking about. Then this first draft came over to our office and was taken on by Mr. Mike [Michael] March in the Bureau of the Budget.

Mike March was a very interesting man, about forty years old, who came to the Bureau of the Budget after the war, right out of college, and was put to the job of writing up the history of the Veterans Administration. He had six volumes to show for this, a very detailed compilation of all the ramifications of the Veterans Administration. The Bureau of the Budget used this

as their source material when General [Omar N.] Bradley, General [Paul R.] Hawley, and Paul Magnuson overhauled the VA right after the war and set up the educational program. Ever since the writing up of this study, Mike March has been the man who writes all the background for all the health bills for the Bureau of the Budget. Now he was answerable to Mr. Hirsch, who was answerable to Mr. [Kermit] Gordon. Of course, that meant that Mike March was third down, but he also had had a role in writing the panel report. He had sat in on the panel's activities as a representative of the Bureau of the Budget in order to keep an ear out and also to keep them from going hog-wild.

It turned out that they were very conservative, and in many cases--so Dr. Mayo and Dr. Tarjan told me later--they had wanted to restrain Mike March's recommendations rather than having him restrain them. I thought this was an interesting commentary. The advisors were more conservative, actually, than some of the budget people were when it came to these things. I found this pretty generally true. The Bureau of the Budget is not just a fiscal agency; it's one of the advisory arms of the president in all of his planning. He needs to know how he's going to pay the cost of things. So they're in on all of the plannings of the president, and they have specialists across the board who sit with the various agencies. Many of them have

been trained by and come from these agencies to be on the Bureau of the Budget. Sometimes they're sympathetic, and sometimes they're not. Sometimes they are people who have been at odds with their former chiefs or their present chiefs in the department, so the department has a hard time. But in general, they're neutral and very good, and look at the whole thing. They now have got the economic advisors right handy in the Executive Office Building.

The other arm, which is the more recent one, is the Office of Science and Technology, which Mr. [Jerome] Wiesner headed first and now is headed by Mr. Hornig. I found that when we began to look at the legislation from the standpoint of our office, it was well to get Mike March down and get some of the other individuals in the other offices interested, although we didn't work much with anybody else but Mike March. That whole six months, you might say, was devoted to getting acquainted with the legislative channels and spending a lot of time in trying to get the committee organized and to get it to meet and to get some sense out of the panel's recommendations.

TUSLER: Was the panel still going?

WARREN: The panel had been discharged at the end of October and was given a great commendation by the president when this happened. He did not, though, call them in and give them the red-carpet treatment in the White House as he did for many.

TUSLER: So the people that you were working with really were your advisory committee?

WARREN: It turned out that it was called the ad hoc advisory committee. Now, one of the things that was difficult, and interesting, too, was the budget. I was told by Mr. Feldman that the president's office doesn't want to show any administrative costs, so they tap an agency. Usually, they ask an agency to transfer one of their men, including his secretary, and continue paying his salary.

Since I was a new hire, I was given two appointments: I was appointed as assistant to the president in the Executive Office of the President, and I was given a budgetary appointment in the secretary's office of the HEW (Health, Education, and Welfare). My secretaries were on that budget, too, and the money for travel and the activities in my office also came out of HEW. They had to scrounge around and rob various groups of a salary here and a position and a salary there and some travel money, although they were not yet authorized to set up any offices and activities because the legislation hadn't passed. It could be done, and there is no great problem. All agencies recognize this.

However, I soon came to understand that from the Department of Health, Education, and Welfare's standpoint, I was viewed with considerable alarm and some distaste,

although they liked me because I'd been a consultant to them for thirty years or more. They were always very helpful and so on, but I sensed the fact that I was an unnecessary entrepreneur. But, when they found that I had no desires to stay, nor did I want to move in, then this alarm quit, and we had a very good relationship. It took about six months for that information to get around so that they really believed it.

TUSLER: Was this the period of time in which you were traveling back and forth between here and Washington?

WARREN: That was when I was traveling back and forth. We moved there in April. But still, you know, it takes quite a while. I had an entirely new set of people to deal with. In the federal government I had no problems, because I knew most of them already. Every state had a state association of children's groups; most of the populous counties had county and [there were] some city associations. These and the National [Association for] Retarded Children were entirely new to me. The man who was the executive director, Gunnar Dybwad, I put on my council early. He was a member of the panel, too, and a very able man. I learned a great deal from him, and he did a lot of very useful things for me. He did them originally for the association and then sent them on to me. This was exceedingly helpful. He distilled the recommendations of the panel into ninety-five

recommendations, so that this was easy. I got my ad hoc committee to accept this as the list of things that we were going to try to work on. But you can imagine, it was like the general getting on his horse and riding off in all directions at once. There was just no rhyme or reason to the recommendations in some ways. They got to be too much. They were very diffuse.

When you realize that 3 percent of the population are retarded, without including the culturally deprived who are brain-damaged as a result of their cultural deprivation, and when you realize that they come from families from all walks of life, you can understand the size of the problem. These children are a problem in the preschool or pre-kindergarten period, and all through their lives they continue to be a problem. If they aren't too badly damaged, they live a normal life expectancy, but they have been badly misunderstood and mishandled. As President Kennedy said in many speeches, "They were warehoused in the back of the mental hospitals." They weren't violent and were mostly very peaceful people, so they were just put there where they caused no trouble. They just lived as wards of the state. Now the idea was to get them out, to see if they couldn't be trained to do something useful, and so to improve the situation.

TUSLER: That was what the bills were to implement.

WARREN: Yes. The bills were to create research institutes,

and to furnish the construction and operating money in about ten or fifteen medical schools. These institutes were to increase the production of scarce manpower across the board--pediatricians, neurologists, psychiatrists, teachers, clinical psychologists, social workers--all of these people we are so short of anyway. Then the bill was to provide construction money and to implement improved kinds of day care and other almost living-in-school situations as well as special education teachers on a big scale.

There were two bills, and it doesn't matter how they were divided. These were finally finished and put in the Senate and the House in January of 1963. (This is the time when they first meet. The first hearings usually are in the main committees in February.) So I spent a lot of time during that period going around and getting acquainted with all the people who might have some relationship to it, working with people like Mr. [Paul G.] Rogers of Florida, who was against it, and in general working among the Republicans. The Democrat group in general would vote yes, since it was the president's program and therefore theirs, too.

TUSLER: Not from any party policies, particularly, but simply because they were behind the president's program?

WARREN: That's right. That's quite a good distinction to make, because right now President Johnson is having

problems with his own program. This is not quite as was stated in the planks on which he was elected, and there are little dissensions within the party. But if the chips are down, then the party votes as a party. You can count on opposition from the Republicans on anything that's issued by the president's office. It's automatic.

A lot of the difficulty came in convincing these men that 3 percent of the voters had children or relatives who, when you added them all up, came to something like 80 million people directly or indirectly affected by the 6 million or so who were directly retarded.

TUSLER: That is just fantastic.

WARREN: Well, if you have one retarded child in a family with maybe two or three children, you have the parents, the grandparents, the relatives, and then the neighbors affected as well. Then you add these all up, and it represents quite a sizable chunk of votes and that counted a great deal with these gentlemen. I was very fortunate in having permission to have Bert Brown assigned to me as one of the staff preparing the material for the panel. He was a career Public Health Service officer, an MD with AMA board certification in psychiatry and pediatrics. This is unusual. He is a very sharp young man, just as quick as you can imagine, and with a very good memory.

TUSLER: And he was from the panel?

WARREN: He had been with the panel as a staff man on

loan from the Institute of Mental Health. So after twisting Dr. [Robert H.] Felix's arm a lot, he agreed that Bert could stay with me for the rest of the year of 1963. This was very helpful because he knew all the people in government who had been contacted, and he knew most of the retarded children's associations state presidents, or who they were if he had not talked with them. This enabled us to begin to have conferences with the various elements in government.

For example, what stake does the Department of Labor have in the mentally retarded? Well, one of the first things is to get to the labor unions, so first the Department of Labor and all of their connections, and then the Department of Commerce, and then [the Department of] Defense.

We found that there was something like 15,000 retarded children whose fathers were in the armed forces. If the father was stationed in Europe, what did he do with his child? Did he leave the child here while mama would go there with papa, or did he take the child there and what kind of schooling or care was available there? So we had to get into that.

Each one of these little segments, such as the military's problem abroad and at home, carried us into very wide explorations, and each little segment by itself was interesting, too. We got all entangled with the Bureau

of Indian Affairs group. We had eight of them over. They were the most frustrated-looking people I have ever seen, and they had been fighting for a long time for something for the Indians. Some of them had been in the government for twenty or thirty years. When they found that I was interested, I said, "What do you do for these retarded children of the Indians on the reservations?" "Well, nothing." They asked if we would please have an interest in this whole thing because education was very poor; schooling was not available to thousands of Indian children, except in those reservations where they had struck oil or had uranium and had money in the treasury. Under those circumstances, they had built things on their own, which they should, but these were limited to just a few areas in Oklahoma and Arizona. But in the rest of Oklahoma and Arizona, the maternal mortality and infant mortality was high, and disease was rampant. As we went into it more and more, it just got to be fantastic. There's almost every disease except leprosy on the Indian reservations. There's no malaria at the moment, but there is cholera and diphtheria, and all the diseases that you think are gone are there.

TUSLER: This was related to mental retardation in the way that it affected the children?

WARREN: The children didn't have any schooling; their parents had no education; there was rarely radio and

no newspapers; the parents maybe couldn't read and write and spoke broken and little English. Now, they were well indoctrinated in survival in the desert, but this is not considered a cultural asset. [laughter]

TUSLER: No, not anymore.

WARREN: It doesn't lead to giving the child the opportunity to learn a skill, even farming. There's so little rain that the goat or the cow has to walk a long distance just to eat enough to survive each day, and actually a great deal of the land they hold is not suitable enough to raise cattle or even goats. I think you have to have ten acres per animal.

TUSLER: So you were interested in all these forms of mental retardation--not just the genetic ones, or whatever you call it, but also the culturally produced ones?

WARREN: Yes, wherever they hit.

As our meetings began to get under way, coincidentally, the polio foundation [March of Dimes] began to have less and less to do about polio, and took on congenital deformities and handicaps because they had physical medicine facilities and other things that had been used in the treatment of polio which now were not used. They took on the cerebral palsied and the handicapped and the congenitally damaged. They had a big symposium on that for three days, which brought together a lot of people. I was asked to speak. This was one of my problems. Each one of these meetings

which had the slightest contact with mental retardation had available a free dinner speaker, because I could pay my own way. I required no stipend. I couldn't take any money. Also I had a per diem, so I'd pay the hotel bill and the rest. All the program chairmen in the country woke up to this fact. [laughter]

This also gave us the opportunity to be heard, because we soon adopted a routine procedure. This was to accept an invitation for a state or a county or a big-city parent organization for the retarded children. We would get them to get us an appointment with the governor and a couple of the members of the state departments of health and of representatives of mental health. If there was anybody who looked as if he or she were going to be picked to be Mr. or Ms. Mental Retardation, we wanted him or her. Then we would accept, and on that day we would get permission from the governor to talk to his department of health or the department of mental health staff. This is protocol. Anybody from the president's office, you see, can't get into these places. Even an agency has to go through its own regional people by legislative act and can't go directly to talk to the department of health. The regional people observe protocol and are very shy about this because they've got three or four states and they're not always sure that they're welcome.

I think one thing we did, particularly at the end of the summer of 1963, we had a governors' conference on mental retardation. We asked each governor not to come himself but to send four people from his state government. We hoped this would include the man that was going to handle the mental retardation program, but personnel from public health, mental health, mental retardation programs, if possible, and education were welcome. This was over-subscribed. Some of them bootlegged five or six people in, and we had a hard time feeding them at Airlie House. Airlie House is a George Washington University project, like our Lake Arrowhead Conference Center. It is a conference center, but forty miles out of town. We had a three-day session there, and it was just mobbed. It was the first time that many of these state people had seen or talked to each other.

As you may know, the chief of the educational program in the state is elected usually, not appointed by the governor. He's frequently at odds with the governor-- witness Mr. [Max] Rafferty and Governor [Edmund G.] Brown right here, right now. A governor would smile wryly and say, "Oh, yes, you can go and talk to Mr. So-and-so in education. Give him my very best." Then he usually had an advisory board of some sort, which was not willing in general to get on [your] side until it was pointed out that there was money for special-education training, construction,

too, and eventually a lot more.

TUSLER: You mean federal money?

WARREN: Federal money, yes. That would awaken the interest, of course. It was the key to the whole business, because without the money there is no action, even though they have to match half or three-quarters. Well, this governors' conference was addressed by President Kennedy by telephone [and heard] over loudspeakers on the grounds. Everybody was eating lunch, and it was a nice, balmy spring day. We had a great big circus tent, a colorful one. We had gambled, because we had had a terrific thunderstorm a few days before which had just flooded the place, but we had, just then, the most beautiful clear weather you can imagine, just like today. It was warm and everybody took off his coat and relaxed and, as I said, talked to each other. We did an unusual thing, at the suggestion of Frank Fremont-Smith, who is an old hand at conference design. We had sections, but we had in general four sections at a time, so one from each state government would be in each section. The people from each state were not together, but they were with others on the same appointment level and field. Then on the second day, we mixed them so that mental health discussion would have the health department man, and then on the third day, it would be education and mental health. This method resulted in a random mix, which was very interesting.

These education fellows had never talked to health department counterparts or to the mental health or mental retardation personnel and vice versa. This really worked out. I don't mean to make an awfully big thing of this, but this initiated a pattern, so that when we went home the ice had been broken and they began to talk together. The new legislation [went into effect] the following July; you see, the bills were signed in late October just before the president's assassination.

TUSLER: Of 1963. And the conference was the summer preceding it?

WARREN: Sixty-three, yes. Right away, you see. It cost us \$28,000 for travel. We paid very little travel; the states paid their own. But even so, it costs quite a bit, because we had to hire the tent and we had speaker systems and all this.

TUSLER: And you were really responsible for all this?

WARREN: Yes. Our office organized it, and then we got the help of Mr. Cohen and Mr. [Anthony J.] Celebrezze and the surgeon general. They all came to speak at different times, as did Mary E. Switzer and Frank [Francis] Keppel.

TAPE NUMBER: II, SIDE TWO

APRIL 21, 1966

TUSLER: Last time, you were just finishing telling me about the governors' conference that you had in Washington, D.C., that summer--I guess it was 1963--just before the bills were passed.

WARREN: That's right. President Kennedy was so confident that they had the majority in Congress and could pass the legislation that we went right ahead to organize a governors' conference. I think I finished up last time by saying that we asked the governors to send four representatives of their state governments who would be most directly or indirectly concerned with implementation of the bills on mental retardation. Then we added members from the state associations for retarded children and occasionally other associations that had important roles in their own states in advancing the programs for mental retardation, mental health, cerebral palsy, and other groups who had damaged children. Under our definition, any injury to a child that interfered with its progress in keeping up with his peers meant he was retarded to some extent. This covers very wide clienteles.

Everybody up to this time had made an estimate that 3 percent of the population was mentally retarded. About the time I arrived in Washington, this was expanded

to include the culturally deprived. Of course, at first, there was a big argument about whether people being born with high intelligence who were not stimulated mentally or intellectually by education would have their brains developed. To make a long story short, it has since been shown that the weight of the brains of rats and monkeys kept in isolation from birth is lower than that of those allowed to associate with their peers and given tasks to do and to have play opportunities and associations.

TUSLER: Can this be changed by teaching?

WARREN: You can show that in the growth of the youngster-- at least in animals--that this difference does occur. Now, whether you can change it later is a moot question right now. However, there have been many instances where culturally deprived children have been reintroduced into the social atmosphere with very remarkable results. Many of these children have been able, under the right circumstances, to catch up with their peers and take their rightful place in keeping with their intellectual capacity.

There has been a good deal of thinking that actual development of brain cells does occur. There is no proof yet that there is an actual increase in total number, but perhaps these cells swell and increase their power. Certainly, the electroencephalographic evidence is good that children whose brains are not irreparably damaged by

measles or by other toxic substances can progress, and do progress, rapidly. Therefore, and this was one of the recommendations of the panel report, every opportunity should be taken to stimulate the development of the child's brain from the very earliest time. This is based on the belief (later fairly substantiated) that the longer you delay this stimulant, the less benefits you will achieve. This is probably because of the social pattern into which the child has fallen during the time when it was not able to be stimulated. These are habits that are hard to eliminate.

It is my concept that if you could take the teenagers in Watts and put them back through school, starting in the primary grades, you would still have some trouble unless you were able to develop in them the imagery that is required to read, to understand the alphabet, and to use numbers. The fact that this imagery has not been developed in a great many of these individuals is the reason why they are dropouts. If the school system can recognize this early and go through the maneuvers to develop that imagery, even though it is time-consuming at first, it is the key to the situation.

TUSLER: What do you mean by imagery? The picture?

WARREN: These are abstract concepts of letter--a, b, c, d; and c-a-t means cat and not something else. Mrs. Warren didn't understand this either until she taught remedial

reading. There were ten- and eleven-year-old colored children in grade school given her to teach who were backward in reading. They had never seen a rope, did not know what r-o-p-e meant, and could not distinguish between the bark of a dog and the bark of a tree, and things of this sort. They're fine distinctions to the white, but they're conceptual things. You can understand that if a child is born in a hovel, sleeps in rags, with chancy food, with one child [born] after another, with no stability in the marriage--there's a common-law relationship very frequently--with no radios, no newspapers, no TV, no conversation, except the basic conversation that revolves around no money, no food, no whiskey, and [around] sex problems, [he will not be able to make the fine distinctions necessary to keep him above the level of mental retardation]. Also, the child, in general, is told to get out, because he is a nuisance under foot. So the child goes out on the street in the city or out in the brush in the country.

This [way of life] isn't confined to the colored, although it's most obvious and easiest to see with them. It occurs within the so-called Mexican-Indian group. It occurs [among] the Scotch who live in Harlan County, Kentucky. It occurs in any depressed group. It certainly is true in Harlem, New York, and in Watts also. It will be found in any area with a very low economic level, where

schools are inadequate and the resources of the community are inadequate and there's no work.

We discussed all of this pretty frankly at the governors' meeting. These ideas were presented by various people chiefly from the Department of Health, Education, and Welfare. Mr. Celebrezze was there. The surgeon general talked. Mary Switzer talked; [Ellen] Winston, commissioner of welfare, spoke; Mr. and Mrs. Shriver spoke. Governor Sanford spoke on behalf of the governors and pointed out what their problems were in dealing with all of this. We had a very nice three-day session. I think I described the composition of the program--the way it was organized physically--last time.

This pattern was taken back home, and many of the governors' committees used it, too. It led to the mixing of the various state public relationships. The first move on the part of the governors after the signing of the bills in October of that year was to apply for the \$50,000 which each state was allowed for conferences and for state planning. These moneys were to be matched by the state governments, not necessarily in cash, by assignment to their committees of secretaries taken from state departments and by recruiting community-minded people who were authorities in the field. This was rather easy to do, and a conventional way of doing these things.

About a third of the states responded immediately, so that by January, after the government and the people had

recovered pretty well from the shock of the assassination, these committees were pretty well organized.

I might say a little bit about the assassination. This essentially shut down the government for about two weeks. The shock of its happening right in the full stride of the man's career, under the circumstances, was very deep. I think probably I had better make the time of the assassination, the funeral, and all of that a special reel because there are a lot of things in there that might be said that wouldn't be quite in keeping with the timing of this discussion.

TUSLER: You were right there in Washington through the whole business?

WARREN: Yes, that's right. All those in the president's staff submitted their resignations with the statement at the end that until notified they would continue to carry on their previous activity. There was a period of several months where almost all of the special assistants of one sort or another weren't sure whether they were going to be kept on or not. During this time, we were assured (I was by the Shrivvers and by Mr. Feldman) that we should go right ahead as if nothing had happened. Finally, word came down that Mr. Johnson wanted us to continue and go on as we had.

By this time, my first deputy, Dr. Bertram Brown, was ending his period of release from the National Institute of Mental Health. They were getting a little restive and

wanted him back. On the recommendations of Dr. Brown and with the concurrence of the advisory committee, I was able to find another deputy and appoint him. He was Dr. Alanson Hinman, a pediatrician with psychiatric training from Chapel Hill. He spent the next six months with me, and traveled about, and helped organize the program. [He] was followed after six months--the longest period I could steal these people--by Dr. Patrick Doyle of the HEW secretary's office. At the end of about six months he transferred, too, to the Office of the Commissioner of Vocational Rehabilitation, as Mary Switzer's deputy. Then I had Dr. Edward Forgotson, who stayed with me for the rest of the time. This was a little over a year, due to the fact that he was not going to continue in government. In fact, he became associate professor of public health at UCLA. Also, since we were going to fold up the office on July 1, 1965, there was no reason for changing deputies with just a few months to go.

In the meantime, the election came along, and there was a big shift in personnel. [Pierre] Salinger, [Arthur] Schlesinger, and others shifted out. Mr. [Bill D.] Moyers became more prominent in the president's group. Mr. Feldman left. There was nobody after that who had a special line to the president. Of course, the Shrivvers kept their important role, but it was less direct. There was none of the consultation over the weekend that I described last time. You might say we were running a little

bit without direction. However, for the first time, my office was able to function more effectively than it ever had before, because we could plan and meet commitments without plans being made by kinfolk at some conference the family had had over a weekend. I hate to say [it] since the Shrivvers are such fine people, but they are disorganized, [laughter] in the sense of steady step-wise planning.

During this period, too, Mr. [Daniel] Moynihan, secretary of labor, left to go back to teaching. There we lost a highly interested individual with whom we had worked very closely. While Mr. [Willard] Wirtz always was interested in getting information from us, his people didn't pay much attention because no one in the office was vitally interested. And Mr. Wirtz, being a political appointee, didn't have a hierarchy behind him of the sort he needed for all of these things, although he had a good relationship with his department.

It is quite clear to anybody in my position that there is a big hiatus between the cabinet, the political appointees, and their departments and the old guard working down below. A lot gets said about this, but it is true. This is one of the reasons many of the people who come into government work only for two years. This is about the time it takes to end the momentum they have achieved. They get those things they came to do for the president or themselves done in the first

few months or first year. After that, things taper off.

This isn't altogether true of the people who have been in the president's immediate environment as confidants and supporters. And Mr. Wirtz, of course, has stayed, as have Mr. [Dean] Rusk, Mr. [Robert S.] McNamara and Mr. Shriver. It's very hard to understand how Mr. Shriver weathered all of this because of the fight between Mr. Johnson and Mr. Bobby Kennedy, which was very bitter and very deep.

TUSLER: Did you ever have any dealings with Bobby Kennedy for any reason?

WARREN: Yes. One of the things we did when Bobby Kennedy was in the Department of Justice was to talk to Mr. [Nicholas] Katzenbach about the problems of juvenile delinquency, the immigration problem, and the immigration bill that has just gone through. This was partly written by Dr. Forgotson and gives a better interpretation and more flexibility to the immigration of families who have a retarded or mentally ill member. The fiscal guarantees are still there, but the interpretation is not now so subject to whim as it was formerly. I could never feel, in dealing with Mr. Kennedy, that he understood what I was talking about, nor that he was listening.

The younger brother, on the other hand, is inexperienced in making his way and has many attributes of his late brother in personality. He's much more attractive and outgoing. Of course, he would listen to me. After all, I was twice his

age, practically.

TUSLER: You mean Ted Kennedy?

WARREN: Ted Kennedy, the senator from Massachusetts. It was quite a surprise, I think, when both Kennedys got elected, one from Massachusetts and one from New York. I had the feeling from what was said that they must have spent a fortune on their elections--just a tremendous amount of money. This left kind of a bad feeling around--among a lot of us, anyway--that if you had enough money you could buy your way back in spite of everything.

TUSLER: I'm afraid that's true.

WARREN: I am, too. Well, anyway, we've gotten now to the period of the election. The secondary bills in '64 were put in. The timing on the legislation was about the second of January. At this time the administration advises the various members of Congress what the new program is going to be, and this is launched by a series of messages. The health message starts the lineup. The gathering of information and the establishing of policy starts during the previous October. It's pretty well drafted by the Thanksgiving holidays, and it must be finished before the Christmas holidays so that the wheelhorses in Congress can examine it and get it ready for legislation.

The administration's bills that I was concerned with--and I found this was true for many of the others--were written by the legislative representative in the agency. In our

case, this was Health, Education, and Welfare's Mr. Wilbur Cohen. We, of course, worked very closely with Mr. Cohen, as did Mr. Shriver, on our subject. The big one for that year was the Vocational Rehabilitation Bill to improve the workshops and broaden the base. Prior to this time the bureau was directed for the most part toward the reeducation of the handicapped and was not involved with their medical problems, usually the base of their handicap.

These are now included so that the rehabilitation program in an institution like the one in which we are now sitting can benefit very much more from the support of trainees, from training programs for pilot demonstrations, and from the general support of the injured and damaged people who need rehabilitation. This broadened base in rehabilitation has been extended into the welfare code under Medicare and covers heart, cancer, and stroke problems. A lot of special legislation is possible now to take care of a great many of the medical problems of people who are not working and self-supporting, or are not able to get around. It's unfortunate that it has had to be achieved in this way, because every one of these bills puts money in a specific category. This means that this categorical classification has to be reflected in the state's legislation so that the state can get the matching money. Most of these moneys are matching, except for the education and some of the pilot programs. This means that

unless the grassroots--represented by the state--responds in proportion to the need of its own area, the federal government does nothing. The legislation just makes it permissive to do this.

This is good bait because we found, as we went around to see the governors during the first year, that they were very anxious to get the \$50,000. This helped them politically as well as in many other ways. It helped them, too, in relation to their legislatures. By appointing representatives from legislatures together with prominent citizens and people from the state departments on their committee, things would go fairly smoothly thereafter.

This is an old pattern. Governor Warren was using it here when I first came to California. It was quite obvious that a great deal of Governor Warren's success at that time was due to the fact that he was able to protect the public's interests by the committee structure that he set up in these big public meetings and hearings. These were anathema to the legislators because they couldn't buck them, or play politics with them.

President Johnson is a very shrewd person and uses many of these same maneuvers. Of course, one of the things that he insisted on was that nothing go forward unless he could count all the votes and be sure it was going to pass. He might have a feeler in his message--the health message, for instance--and would make certain recommendations. He

would sample the newspaper reactions and the reactions from political personages. Then he'd know whether to go ahead quickly or whether to delay the action on the bill or bills.

TUSLER: Until he could round up proper support?

WARREN: That's right. And of course when he went in on this landslide, the first year was very good and easy. Then in '65, he began to recognize that there were going to be some problems.

About this time, I was able to get a science writer-- a man found by Mr. Shriver, as a matter of fact. (This is one thing I have to hand those Shrivvers: they have an excellent capacity to find good people and to stimulate them.) He was Crozet J. Duplantier, of a French New Orleans family, who had been working on the New Orleans Gazette, I guess it was--anyway, it was a prominent newspaper down there. He had a retarded child and knew all of the problems. He was a very able person on his feet and was an excellent writer. He began to write our speeches and began to help in setting up the radio and TV talks.

Mr. Shriver was able to convince the Advertising Council--a nonprofit corporation set up by all the news media (TV, radio, and newspapers)--to use our material. They could take on some community problem and give it nationwide coverage.

We had a very difficult time in getting an agreement between the Kennedy Foundation (which was going to put up

some money for out-of-pocket costs) and Health, Education, and Welfare. It required about \$20,000 a year for things like billboards, rent, and so on. The Advertising Council only supplied the channels and a certain amount of free time. I'll give you a complete packet of the materials that were prepared for the Advertising Council program. These consisted of cards which went on post office trucks, buses, streetcars, and things like that. The money that we had to provide paid for, for example, the postage of these things to the post office and to the bus companies and other places. It sounds funny, but this is so.

[laughter]

At first, the foundation insisted on hiring a public relations firm, which tried to write these things; but they were little by little eased out of the picture, and Mr. Duplantier ended this last year writing most of the stuff that was released. It, of course, was circulated around and hammered at by a lot of people, but in general most of this public information that goes out over the Advertising Council's name is his.

TUSLER: What was the purpose of this?

WARREN: Well, there was a picture of President Kennedy and the Retarded Child of the Year. It says, "Three percent of the population is retarded. Something can be done for the retarded. There is hope." We have the little disk in which Grandmother Kennedy talked about her own daughter.

I felt that the first TV showing of that was just wonderful. She looked like any middle-aged grandmother, sort of breathless at the business of speaking, and making a very appealing pitch.

TUSLER: I remember having seen that.

WARREN: Well, you didn't see the original. The original was more than what you saw, simpler in every way. Eunice Shriver didn't like the way her hair looked; mother could do a lot better than that. [laughter] There had to be some flowers or something in the background. It was just a plain wall, you see. So after great trauma, it was done over. It cost \$10,000 to do it over, and the Kennedy combination said, "All right, we'll put the money up. We don't like grandma that way. We want her this way."

[laughter] Well, it was still appealing, but I don't think it was as appealing. She's a glamour girl now. She's made up, and she's a little stiff, and it's letter perfect. But at the time I was kind of mad about it. She had appealed to me as an older man. Here was a grandma with a retarded granddaughter, and, dammit, she was being courageous about it, you know. You just sort of felt this emotion. When I saw the second one, it didn't have all that.

TUSLER: All slick and bland and Madison Avenue?

WARREN: That's right. But of course it wasn't very effective anyway. I think I've got a copy of the disk in which this is repeated. I tried to get all these

things because I knew they would be historically valuable to somebody if ever I can go find somebody! [laughter]

TUSLER: Well, this is the sort of thing they'd like to have in [the Department of] Special Collections.

WARREN: Yes, well, I hope so, and I've just got an awful amount of these things.

TUSLER: The purpose of all this was to present the information about what was going on before the people so that the Congress would have to feel the pressure of the public?

WARREN: Well, yes, to get the information before the public and have it reflected right back. If you recall, President Kennedy talked about the fact that they didn't want these children warehoused anymore. They made it as shocking as possible. It was true, too, so he wasn't exaggerating a thing. All of this continual pressure from all the news media--all the speeches and everything else--was gathering momentum so that now you can go around and find that the states that haven't built better, more modern institutions are a little bit ashamed. They know they're not doing what they ought to do. The worst problem, I think, is the school boards who have not kept up the resources of the schools to meet the needs of their communities.

There was a lot of momentum with the development of technical high schools before the war. This became dormant, and after the war these schools were allowed to close up, or they were not enhanced. Therefore, the school dropout, or

the child who is not going ahead academically but needs a skill, has no place to be trained in any of the skills.

If he has difficulty reading and writing anyway, then has no skills, he's just a drag on the market.

TUSLER: And can't even get a job.

WARREN: There you are. In going around the country, I made a great point in talking about the responsibility of the local school board in picking out the retarded child--the preschooler was the time to start. Many of these places had no arrangements for what used to be called a nursery school or kindergarten. Now it's called a preschool training program. There were no places where the working mother could leave the child in an educational environment--even a preschool child. So I think we have had some effect.

My belief is that many of the members of the school boards are retired people who are living on annuities and who don't want to have their taxes increased. They're right there living in the community, and the taxing authority is not far enough away to be free of [their] influence. It's even difficult at the state level, where the state Department of Education does not carry out its obligations adequately.

It's a very shortsighted policy because it not only prevents these children from going ahead, but it also increases the probability that these kids are going to be a drag on the market in the end. We'll have to pay for them through increased policing and jails and other things.

I was much interested in the Bruin this week where a psychologist (whose name I shouldn't have forgotten because he has a nice idea) got a grant to go down into Watts and get the worst characters among the juvenile delinquents--those with the greatest arrest records--hired at a dollar an hour to come in and tell him why they were dropouts or delinquent characters. After about a year of this, or after some time, he found that gradually the point of view of the individual changed. He got back talk from these kids like, "Why should I work for you for a dollar an hour when I get two dollars an hour down there as a welder?" You see, when he started out with this kid, this was the furthest thing from the juvenile's thought--that he could earn money. And, of course, this is one way of achieving an entry into the resistance which the juvenile has built up against any kind of interference with his ability to be an independent, as he sees it.

There are lots of devices that have come out of all these studies and maneuvers, and if one could get them all together and applied--all of them that are good--I think that the results could be quite spectacular, as you can see. I have not dealt with the Watts situation. I feel that I have done my stint in this area, and it's really not my particular flair; so I haven't inquired, but I think that a great deal should come out of all this.

To get back to this other business, we had ninety-five

recommendations in the panel report, and we made a great effort to see that as many of these as possible were at least looked at. You couldn't ride off in all directions at once.

Very shortly after I arrived in 1963, I talked with my committee about this, and they suggested that I contact as many federal agencies as possible where there was a lead in their program into one of these recommendations. For instance, the Indian reservations were deficient in schools. It was suspected that there was a high level of mental retardation, a lot of disease, and so on.

I invited the representatives from the Indian Bureau down to the office and gave them coffee, and we had quite an interesting chat. As it turned out, there were three men and three women, career people, who for twenty years had been frustrated, fighting for budget, and fighting for the Indian reservations' programs. With the exception of those reservations on which uranium or oil had been discovered, they had been powerless to do much. I didn't achieve much--it was in the Department of the Interior--but I did succeed in cheering them up a bit, because of the fact that I was interested. I suggested that they ask for a bigger budget. Then I wrote a letter to the Bureau of the Budget, which I think helped a little, but they needed some young firebrand in there really to light the torch and go ahead and fight for it. It was a shame

I didn't know then what I know now about what to do. In Washington, the Okanogan Valley has a large Indian reservation on the east side of the valley. I talked about it with a lot of local people and some judges. Only one, a judge who was an Indian and had gone to law school, came from the tribe. Well, what could you do? The land was poor for farming, was not suitable for cattle, and could sustain a few sheep. There was a continual battle between the old tribal rules and customs and today's customs. Alcohol was a bad problem. The Indian was continually pressed by our amoral and unmoral businessmen, who were trying to make a fast buck to the disadvantage of the Indian. The Indian was not as prepared to meet that as were other depressed groups. You can't have Big Brother or the Great White Father around too much. Yet there are enough loopholes so that he can be exploited. I think this is so partly because he is a ward of the state or the government. I have no solution for this, but we did find there was a higher incidence of mental retardation and a higher incidence of disease among the Indians on the reservations than there was in the rest of the country.

TUSLER: Even among the other minority groups?

WARREN: Yes. Oh, yes. I talked to a young obstetrician who was just finishing up his Public Health Service military tour in the Taprock Indian Hospital. He said that he saw more disease of all kinds than he'd ever seen elsewhere in

the United States. He didn't see any malaria or any leprosy, but he saw schistosomiasis--how it got there he didn't know--a lot of typhoid, dysentery, malnutrition, and toxemia of pregnancy. A pregnant girl might walk twenty miles to the hospital and might not arrive in time. So she'd have her baby beside the road or the trail. The water situation was bad. They would carry the water a long way in barrels or jars. They had no toilets, of course. They rarely had an outhouse, and their hygiene was bad, so that it was easy to spread these intestinal diseases. There were lots of flies and no sanitation. But if you looked at the place they lived in, you didn't wonder. They lived in a hogan out in a desert place where there wasn't anything. And, of course, they would resist being moved, [laughter] so what do you do?

TUSLER: You knew something special about this because you grew up in that country?

WARREN: Yes, it was my children's disappointment that I was not born in a hogan. [laughter] I was born in a hotel, of all the silly things.

Last year, we traveled very extensively just to help inform the people of the state that the legislation was through, that there were funds, that they had to get legislation passed to get matching money, that they had to clean up their school district, and that they had to improve the custodial aspect of their wards. We were urging that

foster parents and private groups get interested, and that boarding houses for the trained retarded adolescent be set up in metropolitan areas so that they could work.

A lot of these began to get started. The Lambs in Chicago was a very successful one. A few parents got together and bought a little supply store where they sold mice and guinea pigs and little chickens on Easter and things of this sort. This gradually amounted to quite a business. They were going to take a piece of land outside of Chicago on the crossroads of the freeway and build a \$100,000 plant there. There was a barn there that they were going to revamp into a big animal obstetrical operation. There were high walks so that children could come to look. They had a cafeteria, run all by the retarded, and a gasoline station.

TUSLER: This was for the purpose of employing their people?

WARREN: Employing and training and making them self-supporting. They had a dormitory set up so that these children could live there throughout their adolescence-- and later, too, perhaps, but they haven't got that far yet. That was possible because the originators of the program were a couple of schoolteachers, and they and the parents were involved with fifteen- to eighteen-year-old children. But soon another problem would have to be faced. What do you do with a thirty-year-old

mentally retarded person? So we had long discussions about this and the need for some kind of a trusteeship.

We wrote a paper called "The Householders," which we circulated widely, in which we suggested that a club like the Lambs Club take on a thing like this. They could form a nonprofit corporation with a board composed of a couple of businessmen, a lawyer, a doctor, and a banker. The corporation could buy an old boarding house on the fringe of the industrial district and hire foster parents to run it. The man could work and the woman could run the house. This probably would be a childless middle-aged couple. They should have ten retardates in training, hopefully all in one skill, like janitors or gardeners. There were some very successful gardeners' groups trained, particularly in Larvana. In fact, one group was so successful that one of their first graduates came back and offered a teacher of one of the technical grammar schools twice his salary if he would run the group. They now had a couple of trucks and hoses and lawnmowers and things. The retarded boy who was in charge of it wasn't quite up to organizing it and keeping it going, you see, so he needed somebody. But I thought this made a wonderful sob story. [laughter]

TUSLER: Were these places, then, financed through these matching funds?

WARREN: No, this was all private. The small corporation took care of the mortgage and the down payment and the

earnings. Ten adolescents were earning, at a minimum, \$1.25 an hour, working steadily. And their absentee record is better than the normal. Well, it's a great triumph for these individuals to be able to work; you see, they are providing something to themselves and the community. They have succeeded in getting a job that's within their capacity, that requires no judgment. It is just routine, which is the thing that a normal person hates after the first year or so.

These kids aren't bothered by a lot of problems that the normal kid has. Contrary to a lot of folktales, these retarded kids are low-key, in general. They're not highly sexed. They are not full of all the drive to get out and raise hell or excitement. That sort of thing confuses them and they don't like that. They want and like to be quiet and to listen to the radio or just sit. So you don't have the problems that you would have with many so-called delinquent kids who are neurotic and high-strung and who must have excitement.

Ten of these retardates living in such a house--who are trained, say, as janitors--could service skyscrapers. One of these big buildings has a constant janitorial problem. There are so many rooms to service. It's a very simple and straightforward procedure. The kids could come on the bus and go back on the bus. There's somebody at their home to pay attention to them on the weekends. Part of the weekend would be spent in keeping up the house, doing their own

laundry, cleaning, bed-making and -changing, and fixing the yard, if that's necessary. It would be like Cheaper by the Dozen. I think this is a wonderful book. It's exactly what I'm talking about, in that everybody pitched in and did his stuff. These kids could clothe themselves, pay board and room at a reasonable figure, buy insurance, and medical insurance--and set aside an annuity. You realize that they're starting out at twenty years of age and will probably live a full sixty-five. They could retire at whatever time is necessary--sixty, sixty-two, sixty-five. They would then have paid for the house. With a twenty-year mortgage, they'd be done paying halfway through.

As soon as [these retardate groups] got stablized, with the service club behind them, they could have the bank take over the mortgage. The service club could then start another one. For every 100,000 population in a town, or a fraction thereof, you have about ten of these kids every other year. For a town of 100,000, you need a new one of these institutions every two years. Some of these should be for boys and some for girls.

I went so far as to say, let's let them get married. Sterilize both the men and the women, and you will find that this would be a very comfortable solution, I think. They would have a normal exchange of relationships between the boys and the girls and the men and the women. It would be at a very low key. They would probably not ever be

divorced. There would be no children as a problem. If something arises that makes it important that children be available, the surgery could be undone. This is something that has not been taken into proper consideration. I would not depend upon any kind of contraceptives in this situation, but only upon the surgery--cut and tie the cords and the tubes.

I found out by experience in talking about this problem with the older parents' group that they want to do something about their child's security. The parents might die in, say, ten years. "What is Johnny going to do? I don't want him to be a ward of the state." Well, the state automatically will be his guardian, but the parents could make arrangements.

There are several foundations that have arisen to serve as trustees for this, such as the Hoag Foundation in Seattle. Mr. Hoag happens to have a retarded sister. He has gotten quite a group together now, as trustees, and I guess by now they probably have a couple of million dollars in trust. They go to visit the retardate once a month in whatever institution he's in or she's in. These are for the more severe ones who are never going to be able to get out of the institution. They're in an institution or under some kind of residential care and can and should be trained. They can help wash the dishes; they can make beds; they can clean; they can feed others. I saw very many

illustrations of this.

It was tragic to see in a state like Tennessee that they were building another conventional warehouse. There, the mongoloids and the more severely damaged inpatients were just sitting on a ward, most of them badly trained, badly toilet trained, and practically just vegetables. And then we would go to another institution, like the one in Nampa, Idaho, near Boise, where the director was a retired doctor, Dr. Sage from San Francisco. He said he didn't know anything about it, but said, "Well, I'm just going to try what I think."

He went all around the country looking, and he couldn't find anything he thought was good, so he said, "I'm going to do it my own way." He got some middle-aged women in, mostly widows, but women who were still energetic and had had families. He had one good nurse, and one clinical psychologist, and three or four doctors who had volunteered their time. He had something like 5,000 on this dairy farm. He had taken all of those with problems of some sort and put them in a new building. This was built with concrete block and was beautiful, with color everywhere and with background music. He told these women, "Take care of these children as if they were your own babies. I want everybody to help everybody else."

I saw mongoloids sitting on the floor with what we formerly would call an idiot or an imbecile; that is, a

child of ten completely out of contact with the world.
Such a child would be incontinent, not toilet trained,
had to be held to be force fed.

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WARREN: Normally, these severely and profoundly brain-damaged children had to be force fed by attendants. They had to be lifted on a table with considerable effort as they grew older to have their diapers changed. Usually, they were placed in cribs and just lay on the mattress, looking around vaguely and occasionally giving some kind of animal-like cry.

When I went to the institution in Nampa, Idaho, I saw an entirely different treatment and situation. The mongoloid, who has an IQ of between 40 and 50, is a typical case who, with proper training, could be useful outside of an institution. Most often, however, the family has repudiated him enough so that he or she is kept in a state institution. Now, what Dr. Sage had done was to put these mongoloids to use by assigning each one of the three who were there to one of the crib cases. These were the severely and profoundly damaged cases.

I arrived there about noon and saw all three of the mongoloids sitting on the floor with the head of the crib case between their knees, a bowl of gruel beside them on the floor, and a large spoon. The key to the whole situation was the fact that the mongoloid was giggling all the time. The mongoloid would fill a spoon of gruel and giggle, and

the crib case would open its eyes, follow the spoon, and open its mouth. The mongoloid would put the gruel in its mouth and the recipient would close its lips and swallow. Now, I had never seen this happen before. Usually, the attendant would sit on a chair, holding the crib case in his or her lap, and somebody else would hold the head and pry open the mouth and put the spoon in. The child would drool or spit it out or inhale it. This would create all kinds of problems.

Well, here was a successful effort by a mongoloid: three mongoloids at a time feeding three of these crib cases. These cases were of varying severity and ages. Now, if this was all accomplished, and if the mongoloid succeeded in improving the situation, the mongoloid was given a piece of candy, and so was the crib case. The crib case considered this a great reward and looked forward to it, and so did the mongoloid.

The first thing in the early dawn, the mongoloid hopped out of bed and went over and got the crib case and sat him or her on the toilet--three of them in a row. They had three toilets side by side, and they had a little strap like a car safety strap attached. They would strap the crib case child up against the back of the toilet. Pretty soon they would flush the toilet, or all three toilets. And if by this time they had moved their bowels or had emptied their bladders, they would get a piece of candy

as a reward. If they hadn't, then there was no candy. This became quite a thing, and within six months, believe it or not, these three crib cases were toilet trained. They began to be fed this way.

But the mongoloids had to be big enough to carry these kids around. Everything they did was accompanied by giggling. Now, there's good evidence to show that a newborn baby nursing at the mother's breast feels and hears the heartbeat, and that part of the baby's response is due to the fact that it feels the heartbeat of the mother. Their sense of security is there. This is demonstrated in the monkey. There are good movies taken on it, some of them taken right here in our Neuropsychiatric Institute. So the giggling, the physical vibration of the giggling, together with the noise made by the mongoloid in the giggling process, I think, is a big factor in bringing the crib case to a sense of reality and to being conscious of what's going on, and gradually to responding to a routine.

TUSLER: Now, how old were these crib cases?

WARREN: Oh, one of them was three. They were about three, five, and seven. The mongoloids were eight or nine-- between eight and ten years old. They were twice the size of the crib cases, of course, and so they could lift them, carry them around, and deposit them.

Maybe this was just chance (I saw this about a year

ago), but it's been maintained, and I know that Dr. Sage has got a couple of more crib cases and is handling them in the same way. Whether he got some more mongoloids, I don't know. But he probably was able to get mongoloids out of the rest of his institution because the older ones were assigned work around the farm. Mongoloids are pretty competent if they're shown exactly what to do and if it's done always the same way. They can feed the cows, or they can stack hay, or they can do various things in the yard or the gardens of the institution. They could mop or clean and sort laundry.

TUSLER: But their IQ is way down--where did you say--around 50?

WARREN: It's between 40 and 50. Anything above 50 presumably can exist out in the community. But there must be supervision for persons who have IQs under 70.

TUSLER: But a mongoloid could never be anywhere except in an institution for any length of time?

WARREN: Let's say "protected." A mongoloid could work in one of these householder's things I just described. My associate, Mr. Duplantier, had a mongoloid who is now, I guess, eight. He has learned to take the bus. They moved from New Orleans to Washington and live out in the Arlington area, near a school, but he has to take a bus to get there. One of the children, or his mother, sees him to the bus and waits for the bus at night. He has

gotten lost only once; he got off at the wrong place. But the driver, knowing he is mongoloid, helps him. The child goes to special classes, you see. Most of the children on that busload are from these special classes, and this mongoloid boy is able to do that all right. He goes with a dime and can buy his milk and, I guess, has an apple or something for lunch.

He's made the transition from his former home to the new home and done this pretty well. And he doesn't get overexcited. The family has handled the situation very well. The six other children are all adjusted to him, take care of him, and are very fond of him and he of them. It's this affection and security that he has that makes the thing go. If he doesn't have that, then he will become a problem very shortly, because he would be confused and frustrated. This is what has got to be avoided.

TUSLER: They can be very sweet people temperamentally, can't they?

WARREN: Oh, yes. But they have to have the security and the tender loving care. With those two things, their dispositions are wonderful. As I said before, they are not highly charged emotionally. This is all a low-level business. This is why there's quite a difference in the mentally ill. There are a lot of mentally ill who are retarded; that is, they are behind their peers. But there's quite a difference in the excited mentally ill

person. Of course, not all of the mentally ill are excited. You just look at these retardates as less and less intelligent, having no judgment, but having some ability to learn and enjoy life. What can be done with them is shown in some of the state institutions where they have been treated with tender loving care. David Ray was the director of an institution just out of Little Rock, Arkansas, at a place called Conway. They had 500 children there. The oldest was about seventeen. All of them had IQs below 50. I guess they had a dozen crib cases, even though they tried not to take crib cases because of the large number of personnel required per case. You really have to have three people on duty all the time for, say, two or three of them. I don't believe you can do any more for them.

When I first came to California, I went out to Spadra, before George Tarjan became the director there. I saw 150-pound diapered adult individuals who had to be lifted off the floor and put on the table by three great big husky people. While they were squirming, they had to change the diapers. They had developed a whole routine. They must have had thirty or forty cases. I thought then euthanasia was the answer for this. Maybe something more can be done for them, though they're so badly damaged I think that they can't be rescued beyond a certain point.

These crib cases I'm talking about in Idaho make a

fine illustration. We ought to go ahead and see how much further they could be brought. Maybe they could become ambulatory. You see, the whole business of carrying them from the crib or the bed to the dining room requires so much additional care. Now they can be taught to sit up, and eat strapped to a chair. Dave Ray had accomplished this much at Conway. Therefore, I think they might be able to get them to develop some coordination--if they have any left--and perhaps they could walk. That's a great achievement, you know, in the reduction in the care, as well as in the satisfaction it might give to the individual if it were that much aware of the situation.

TUSLER: Was this situation in Idaho a sort of pilot case? I mean, has it turned out all right?

WARREN: Yes, for us it was taken as a pilot case. Everywhere we went, we talked about it. And, of course, nobody believed it. It seems like one of those things which is impossible. Well, it might have been accidental, but I bet in a hundred of those retarded below the IQ of 50, there are three or four who might be spurred this way.

TUSLER: The kind of homes you were speaking of as being sponsored by some sort of local organization, did they catch hold? Has a great deal of that been done, to your knowledge?

WARREN: Not a great deal. There is a former nurse in Dallas, Dixie Jones, who, to put it bluntly, wore out

three husbands. Each of them died leaving her more and more money. [laughter] She had purchased some nursing homes. When she heard about this program, she converted one of the nursing homes into a nonprofit corporation and got quite a respectable and powerful group of businessmen in town to be the trustees. Last year she supposedly opened it and started filling it with retardates from the local institutions who would then work in town. How it's going I don't know. If I ever get a chance to go to Dallas, or maybe if Mr. Duplantier has the chance to go, we could find out. It would probably take a year or more to fill it and to get it going. The most difficult part that I can see is getting the foster parents--the right foster parents.

In North Carolina, around one of the state institutions in the southern part of the state, four boardinghouses arose which took on these kids who had been trained in the institution, and who were allowed to leave, to work in the community at some distance, but who could stay in the boardinghouses. We asked a lot about this. Though I didn't get down to see them, I was told by the state director of mental retardation that one was run by a widow and the rest by older couples who had charged eighty dollars a month for board and room. I think they had about six or eight in a boardinghouse.

The boardinghouse keeper was paying the taxes,

paying the mortgage, and making a living. They might be either a single person or a pair, a widow or a couple. I don't know how this would have worked out if someone had hired them to do this. Each one of these retardates had his own corner of a large room--I suppose 20 x 20--part of a former mansion, with great big high-ceilinged bedrooms.

One of the things that struck the state director was that in two of the places one of these working retardates had amassed enough money to buy himself a TV, which he put beside his bed. He sat there in a rocking chair watching, rather than going down in the living room to watch the common TV. He had status, you see. [laughter] He had his own TV. [laughter] He was buying his own clothes and paying board and room. Well, if he were making a couple of hundred dollars a month, eighty dollars was going for board and room, so he could save quite a bit. Over twenty or forty years, this would amount to quite a decent living and security for his older age. And I think that it's financially feasible.

TUSLER: Did this idea grow out of your work in Washington?

WARREN: Yes, this came out of our office.

TUSLER: But it wasn't implemented in any way by the bills, of course.

WARREN: Not by any legislation. However, the nonprofit corporation could borrow or even get a matching amount, I think, by calling it a day-care institution. But then

the state would have to put in 25 percent of the amount. The federal government would put in another quarter, and that would be half against the other half. This is pretty feasible if the service club could put up \$5,000 as a down payment and get another \$5,000 or \$6,000 to pay half a year's salary for the custodians--the so-called foster parents, who shouldn't be custodians.

Gradually, the children of this artificial family could begin to pay enough board and room to take care of the foster parents' salary, amortize the mortgage, pay the interest and the taxes and the rest of it, so that within two or three years of stable existence, the bank ought to be willing, as part of its community effort, to take this project on and have relatively little to lose. The service club would continue to be the sponsor. In other words, they would cosign the mortgage. On the other hand, the bank might even be willing to pay back the initial investment to the service club. But I think the service club could afford \$1,000 a year to pay down on the mortgage of \$5,000 on a house that was selling for \$20,000. Then they could start this cycle again. If you have three or four of these organizations in a town of 100,000--there are more 100,000 cities than there are big ones--you can begin to get this whole problem taken care of without having the taxpayer pay for these people to be sitting in a custodial institution doing nothing.

TUSLER: Well, now, earlier, you spoke of supplementary legislation that went through under President Johnson's administration, but I don't think you completed your remarks on that.

WARREN: Well, that had to do with the rehabilitation of handicapped people. It provided workshops, pilot programs, education of physical therapists and others related to the field, including special social workers, clinical psychologists, and so on. It strengthened the educational and research areas in all the fields of the handicapped. Then, again, in the social welfare legislation which came along the following year--last year--more assistance was given, particularly to those age groups not included in the first legislation.

That did not categorize these individuals quite so much into groups, such as cerebral palsy, epilepsy, and this kind of thing. My objection to the category is that it's often attended by a stigma in the public's mind, and social problems arise. Secondly, they're not all pure categories; this is one of the troubles. If a state department or county department is issuing money in a categorical sense, there are problems that come up in its utilization because the individual concerned doesn't always fall completely into a category. If they are retarded and happen to have an epileptic attack, why, they're in a different category--or if they're an alcoholic, or if

they have arthritis and epilepsy, or something.

You see this in the medical school, in the clinics; it's quite common. It's better to deal with a child who is part of "children" rather than a "child with cerebral palsy." Dr. Margaret Jones, upstairs, has much less of a problem in dealing with a handicapped child if she doesn't have to say that it is a cerebral palsy child, but rather that it's a handicapped one.

The social agencies, as well as the parents' groups, have a great deal of difficulty with this because they have fought so long to get recognition for the problem that they don't want to give up the category. But I think this is easing a lot. Before I left, I was successful in getting the officers of the Cerebral Palsy Association together with the officers of the Retarded Children's Association. They had a common meeting last year in which both fields were on the agenda together. Now, this might not stick too long, but on the other hand this might be a beginning.

I think we successfully started arrangements for healing the breach between the parents of the retarded and the mentally ill with the mental health and mental hygiene associations.

The mental retardation people felt that most of the directors of state institutions were psychiatrists and therefore had paid no attention to the mentally retarded kids and had tended to put them in the back wards and

just let them sit. Well, this practice wasn't because they were psychiatrists so much as it was because of state policies: lack of funds, lack of recognition, and no resources. Actually, it was the psychiatrists, more than the pediatricians, who came out and tried to do something about it. But you can't tell an embattled mother who has a retarded child sitting in the back ward in an institution that that psychiatrist-director didn't militate against her Johnny.

One interesting sidelight occurred in Cleveland when the mayor, who was running for governor at the time, went to visit the state institution near there. He came out and vomited on the curb after he'd been in the kitchen and seen the rats and cockroaches and the terrible food that was given to these kids. He said, "This food is not even up to what is fed to the animals in the zoo." This got into the papers, of course. Well, he didn't win, but who do you think became the mayor to succeed him but the former director of the zoo. We thought this was very appropriate. [laughter] We now can look forward to improved food! [laughter]

I heard Mr. [Alan] Post argue with Dr. [Frank] Tallman, when Dr. Tallman was the state director of mental hygiene. I was on the advisory committee appointed by Governor Warren, so I went up to support Dr. Tallman. Mr. Post said to Dr. Tallman, "Why do you want more food for these

people?" Frank said, "Well, I want them fed at least as well as those fed in the prisons and the [California] Youth Authority. That's all I'm asking. I'm not asking to give them any better, although to give them more protein would be in the direction of helping them get over their mental illness." Mr. Post said, "Well, anybody knows today that you're not going to get these people out; and the shorter their lives the better." And Frank said, "You mean, you want me to starve them?" Mr. Post said, "Well, I didn't say that." Frank said, "Well, I insist on having this budget." So finally, after a long hassle, he was given the budget.

This was the beginning of the reorganization in the mental health program in this state, and it was in Dr. Tallman's first years that he got Dr. Tarjan on the mental retardation program and sent him down to Spadra. Dr. Tarjan then reorganized that whole effort and brought in volunteers and foster parents and began to bring in educational things for those kids. A lot of them went home with great benefits. He's now with the medical school and is in charge of the exceptional children. That includes the geniuses who are out of step with society and their families, as well as the retarded, all of that kind of child. He was one of my best advisors; he knew more about the field, and he had a practical point of view. Many of the people on my committee were specialists in their area but couldn't give

me very much advice outside of it, as Dr. Leonard Mayo and Dr. Tarjan could.

TUSLER: How large was your advisory committee?

WARREN: Well, I can submit a photograph of it. I think we had ten, a relatively small number. As I said earlier, they didn't want me to have a big committee that would create an image. I don't know why they were afraid that it would get away, but I guess experience with people in this kind of thing was that they tended to build what is called an empire, and they didn't want this.

TUSLER: The panel which you superseded had been much larger than that?

WARREN: Yes, it had about fifteen. I took Dr. George Tarjan, Dr. Mayo, Dr. [Robert E.] Cook (from Johns Hopkins), Mike-- oh, what was his name? Isn't it funny that I have a block on it--[Gorman]. And also Reginald S. Lourie from Washington, a pediatric neurologist. I had had Dr. Alanson Hinman on the panel, who became my deputy.

Gunnar Dybwad was the executive director of the [National] Association [for Retarded Children]. He was a Hungarian [German--ed.] who had built up the American association for mental retardation from nothing to a very powerful force across the country, with good state organizations. He had a wonderful method of circularizing all the latest information, and he and his wife practically dedicated their lives to this.

Each year I reappointed some members, dropped some and appointed some new ones. Harrie A. Chamberlin, a pediatrician, was one. Of course, I had people from HEW there very often. Mr. Cohen was always invited, but he rarely came. Well, anyway, I will have to get you out a list.

TUSLER: Yes, I would like to have all of those names for the record, eventually.

WARREN: Well, I can give you photographs with them on it. They were all there when Mr. Hubert Humphrey came to thank us. Instead of the president coming, the vice-president came. Of course, we had almost been inactive those last few days.

TUSLER: What do you mean, when the thing finally closed its doors?

WARREN: Last June, when we closed up my office--I had resigned as of July first--we had the last meeting of the committee. I asked the president to come, and he said he couldn't but that the vice-president should. Then we asked Mr. Humphrey. Well, Mr. Humphrey has a grandchild that is retarded, so he's always been very much interested anyway. He came down with several of his staff, and we gave him a very poignant little statement that I can give you. I'll give you that and the National Association for Retarded Children's testimony. I don't know whether I should hang that at home or give it over to you folks. What do I do with things like that?

TUSLER: Well, we would love to have it, but if it's something that you want to keep, why, I wouldn't blame you for keeping it.

WARREN: Well, as I said to you, we don't have enough house space to handle all these darned things. When we finish this subject, why don't I get it over to you as quickly as possible--the material about that subject? Then you and Dr. [James V.] Mink can argue about what to do with it. [laughter] It would be interesting to know what he wants out of this stuff and what he doesn't want.

TUSLER: What actually happened to the bills when they got to the Congress? Was there any controversy about it, or did they pass with considerable ease--the original bill and then the supplementary bills?

WARREN: Well, in each case, all the members of my office plus many of my advisory committee plus representatives of the retarded children's association, mental health, and often several other community groups--even the American Cancer Society or the heart association--would come down for the hearings. Usually, as was the case here, the bill came up in the House and would be heard by Mr. Harris's committee. Then we would go around and see all the individual members of the committee. In a sense, they were influenced by the number of people who came around to talk to them ahead of time. This is just obvious. And, of course, they were influenced by the people that were

represented there and the number of votes that were possibly represented, and by the fact that 3 percent of the population--which meant about 6 million people--were retarded. These were all ages, from babies up.

When you counted the parents, the other members of the family, the grandparents on both sides, and the neighbors, this meant about 20 or 30 million people across the country. So, actually, the [National] Association for Retarded Children represented quite a large voting strength. This was particularly true where the local organization was talking to their congressmen and their senators at home as a result of all the tripping we had done and the speeches we had made on radio and TV.

The House bill would have been given a number (I'll give you copies of all of the retardation legislation) and hearings would have been set. The same thing then would be done later in the Senate. The Senate bill number would be posted, and the hearings would be set. Now, the clerk for the committee or the staff for the committee would set up an agenda. You could go around, if you wished, or some one from the retarded children's association, for example, could go and say, "I want to speak for my association at the hearing." They would then give them an appointed hour. Of course, the chairman of the committee would open the hearings. There might be half of the committee there or only one or two, but there was a stenotypist, and everything

was taken down. You could submit material for the record, and your testimony, of course, would be printed, plus that material if the chairman accepted it.

Sometimes these hearings would last several days; sometimes they'd be over in a little while, depending upon whether there was any opposition. To most of this testimony there was no opposition. The only opposition was from the Bureau of the Budget, because they didn't want the budget to go up too much. But that is usually settled in the president's office with the negotiating person from the agency--usually this would be Mr. Cohen in the case of Health, Education, and Welfare bills. Mr. Celebrezze didn't get into the picture much. He was the director of the Department of Health, Education, and Welfare. So it was left to Mr. Cohen. I gave no testimony at any time because I represented the president's office, and I officially did not appear in any of this.

So we did a lot of discussion--we didn't call it lobbying--beforehand, and of course we attended the hearings to see how it was going. If there was opposition by any member of the committee--like Mr. [Paul G.] Rogers from Florida, for instance, who was against the bill on political grounds--we worked on him rather heavily. We had some people from Florida come up at their own expense to talk to him about this. We never did get his vote, but we calmed down his speaking against it, which is important.

You see, if he had gotten up on the floor and said, "I'm diametrically opposed to this. I think it's a horrible piece of legislation. It's going to increase our costs all down the line, and it ought to be voted against," it would have been bad.

TUSLER: It would have opened up a whole area of [controversy].

WARREN. Yes, and it would have swayed two or three doubters, and if you didn't have a large majority on your side, then every single vote counted. Of course, in these committees every vote did count. Mr. Rogers, for instance, could have influenced somebody else on the committee by being vociferous in the executive sessions when they finally accepted the bill that they were going to refer either to the House or Senate floor or to the opposite house for compromise. At that time, it was very important to have a solid majority and a minority that wasn't deeply entrenched, because with a completely entrenched opposition you have to yield some. They won't override that kind of opposition. If they do it they pay a great price each time. They lose on something else if they don't pay proper attention to the very strong minority opinion.

TUSLER: Why did Mr. Rogers oppose the bill--largely on financial grounds?

WARREN: No, his support was from the Birchers and deep-dyed, ultraconservative Republicans. And some of the

industrialists who were helping his campaign didn't want the budget increased.

TUSLER: So he was just reflecting their interests?

WARREN: Yes, that's right. Oh, we went so far as to find out who these people were, and we had the local retarded children's association work on it.

TUSLER: Are you speaking now of the original bill that passed during President Kennedy's administration?

WARREN: This is true. Mr. Rogers was consistent all the time.

TUSLER: All the way through.

WARREN: Yes, I think Mr. Rogers was not reelected. I can find out by looking it up in the Congressional Yearbook.

TUSLER: But anyway, there wasn't any serious opposition?

WARREN: There wasn't any serious opposition. What there was, was along party lines, let's say. This is understandable and accepted; as long as there wasn't any fight over some detail, it was purely party line. It was all right. You just counted the votes, and you rested easy because everybody understood then that the opposition wasn't going to get up on the floor and lay around with a club.

On the Senate side, Lister Hill, of course, was assisted by Abraham Ribicoff (formerly the commissioner of Health, Education, and Welfare) and of course by the two Kennedys behind their seats. It was interesting during the Kennedy administration how much Bobby Kennedy and Teddy worked on

these things. To some extent, they shouldn't have, but they did. And of course later, when Mr. Johnson was president, we could depend on those two for mental retardation bill support, but not much else.

When the two Kennedy administration bills on mental retardation came up, there was almost no opposition in either house. They went through all right. The next step is always a signing. The president has the chairmen of the two committees, one from each house, attend. Wilbur Mills would be called in, although the Harris committee was the initiating committee in the House. Wilbur Mills's Ways and Means Committee was very important because of the budget. We worked a lot with Mr. Mills. Mr. Mills had things all lined up so that his hearings were held pro forma after Mr. Harris's committee approved it, and there would be no problem with the budget. The president had approved the budget; the Bureau of the Budget had approved it; so everything was all lined up.

Then came the great day when the bill was to be signed. The president also invited the retarded children's associations officials, my committee, and people from our office, and several governors that were close or that happened to be in town and could get around. He had a great big rack of pens (I showed you the photograph). He'd sign half a letter or something and then hand the pen to somebody. [laughter] I think I can turn you in a pen. I got a

pen fastened to a photograph which I have at home, but I think I've got an extra one which I can let you have.

TUSLER: Was this quite a little ceremony?

WARREN: Oh, yes. There were lots of photographs taken-- the president with each of the congressmen, or each of the senators or the retarded children's association. Each one of these people was always ready to be photographed. As Mr. Feldman says, "You don't do anything without some publicity, because this is politics."

The last bill-signing ceremony with Mr. Johnson at which I was present, the newspaper people were kept out. I have forgotten what it was right now, but I can look it up on the schedule. He had said his little say, and then the door was opened and the newspaper people and the photographers came in with a rush. It was just like a wave, you know, with a lot of noise and "Hold it, stand still!"

[laughter] You could hardly see for a while because of all the flashbulbs. But he had to do this in order to have any continuity in the presentation of his acceptance of the bill from the senator or from his staff and the official signing.

There is always somebody on the president's staff to write up the president's speech. It was interesting that Mr. Kennedy would look at a speech about two minutes before the door opened. When the people came in, he was letter perfect. Mr. Johnson would not have time to look

at it ahead of time on a great many occasions, so he would read it right out there. Mr. Kennedy would recite it without looking at it again and get most of it. Of course, a lot of it was interpolated--it might not be in the same order, but he had all the content.

TUSLER: Is this just the difference in the quality of the two minds, do you think, or was Mr. Kennedy just that much more involved in this particular legislation?

WARREN: Well, no, it's a difference in approach and work. I think that Mr. Kennedy had developed this sort of photographic memory. Mr. Johnson had a photographic memory, too, but he didn't depend so much on that kind of a technique. I think that Mr. Johnson was accustomed to working across the board, you see, in the Senate. (Mr. Humphrey has developed this ability now to deal with a fantastic range of things.) He hasn't become accustomed to a photographic memory for instant things. But, boy, you'd better not change anything on him! [laughter] I saw him eat out a couple of fellows who changed the speech before the final go-round. He had seen it earlier and had had an agreement on it. Then it had been changed, and he hadn't been notified. Oh, this used to make him furious.

TUSLER: You mean the speech had been altered?

WARREN: The speech or some agreement or arrangement had been altered that he was to talk about publicly.

TUSLER: Yes, you're speaking about President Johnson?

WARREN: President Johnson, yes. So there was nothing wrong with his memory, you see; but it wasn't the photographic type--the instantaneous photographic type like Kennedy's.

TUSLER: Yes, of course, President Johnson wasn't really as involved in this program for obvious reasons.

WARREN: In mental retardation, no. There was some doubt for some time as to our status. You might be amused by this story. Last January, a year ago, I didn't know what my position was. My actual agreement was up. I had been there two years, you see. But it was quite obvious that we were budgeted and should finish on July first. This was the time when a lot of changing around in the executive offices was being carried out. We expected somebody to say, "Why, sure, you're finished."

Mr. Macy was the hatchet man. We tried to get him, but we couldn't. He wouldn't answer the phone or anything. I guess he couldn't say, really. No decision had been made. I tried to get Mr. Moyers to tell me, but he said, "Well, I can't say." And Shriver was trying to answer, but the trouble was that the answer was all tied up with what was going to happen to the office after July first. Was there going to be a commission, a committee, or was it all going to be turned over to the Department of Health, Education, and Welfare? While I had presented both reorganization plans, I really recommended turning it over to the

department because the president's office needed no political mirror in this area. If the Commission for the Employment of the Handicapped were enlarged just a little, mental retardation could be put in there. This would serve quite adequately. They were a going concern, were well known, everybody liked them, and they had plenty of entree throughout the country.

One day, the man who ran the parade in the inauguration (by the name of Popham) came in and said, "When are you vacating the office so we can reassign it?" I was a little startled, and I said, "Well, I didn't know we were. We're budgeted to July first, and we've got speaking engagements and everything all lined up all around the country until then. We'd like to know, though, so we can unwind them." He said, "Oh, no, no, no, that's all right." And he just scratched off the number. [laughter] That's all we ever heard. [laughter]

Actually, I didn't get my certificate of appointment from Mr. Johnson, as almost everyone else did, and I kept wondering why I didn't receive my appointment. What was going on here? Finally, I asked Mr. Moyers, and he said, "Really? You haven't been reappointed?" And I said yes. And he said, "Well, I'll look into it." So, about a week later, it arrived. It had been sitting, apparently, in the Department of State's office. Mr. Rusk had signed it and nobody had yet asked for it, so he hadn't sent it

over. [laughter]

TUSLER: That sounds like typical government!

WARREN: It relieved my deputy. I didn't care one way or another. I was so busy, anyway. But my deputy had become very apprehensive. [laughter] Would we be able to finish out the last six months or wouldn't we? But it was finally settled all right. I'll have to show the commission appointment certificates to you. Both of them are standard size, signed by the president and the secretary of state. They're about two and a half feet wide and about two feet top to bottom, all very beautifully lettered with "By virtue of the authority of . . . this year so-and-so . . . you're appointed . . . at the convenience of the President."

You're not appointed by anyone else, you see, so he could say yes or no. The phrase at the convenience of was put in because some former special assistant had said, "Oh, no, you can appoint me, but it doesn't say that I have to leave when you want me to leave." This caused considerable embarrassment. I don't know which administration this occurred in, but now it's the standard form. It's very interesting when you see the whole situation.

TUSLER: You left on July the first--that was 1965, right?

WARREN: Yes.

TUSLER: What did happen to it then?

WARREN: Well, then my staff went over to the secretary's office in Health, Education, and Welfare, and Mr. Duplantier

is there now. As I said, my deputy came here as a faculty person in public health. The two secretaries were very able women; Mrs. [Alida] McBirney and Mrs. Kimble are there. My personal secretary [Rea Cassidy] went across the hall and joined former Governor Lawrence's staff, and that about accounts for all of us--except Mr. Ray who came over from the Kennedy Foundation. He had resigned there and become part of the staff as a consultant to the secretary.

They are now running the advertising campaign and answering all the thousands of letters that come in. We've even had as many as 500 a day. These were answered by a group of secretaries in a pool who were made available to us. We got the letters with special problems. Most of the mail could be answered by sending the program booklet, with the list of local retarded children's association offices and members and the individual state departments which could be referred to. We handed out booklets that could answer most of these questions.

TUSLER: Did mental retardation then actually become a part of the Department of Health, Education, and Welfare?

WARREN: Well, after the legislation, it was spread throughout the country pretty well. There's some in the Bureau of State Services, some in the Institute for Child Health and Human Development, some in the Office of Education, and some in Vocational Rehabilitation--practically everywhere. The Children's Bureau had a large stake in the crippled

children's program, and money was added to that for the mentally retarded, you see.

At the present, it's going under the name of the President's Committee. There is no committee. I am a consultant to that nonexistent committee. [laughter] I've only been called in twice, and I don't see that there'll be any more need to go in, as it's gradually being taken over. I think the office will be kept open either as a mail drop or it will be abolished shortly.

Mr. Duplantier has been offered and has accepted a teaching position in Tulane--part time in the university (part time in journalism) and part time back on his newspaper. And Mr. Ray probably will go into some other part of Health, Education, and Welfare, because he's such a good administrator. I've been suggesting he go back to Conway, the place he started, and really run that institution for the retarded for them. Mrs. McBirney, who is a very able secretary--her husband is in the Weather Bureau and is about to retire, so that settles her problem. They're going to Jamaica; they have bought a place down there. So all of our people have been well distributed and well taken care of.

TUSLER: Do you feel that it's a bad thing that it doesn't exist as an entity?

WARREN: No. The category, you see, is too diffuse. And it's better to have it disappear as an entity. It's part

of the Institute of Child Health and Human Development, part of the Children's Bureau, part of Vocational Rehabilitation, and part of the program for the mentally ill. All of these agencies can take care of their parts as long as they recognize that money has been provided.

TUSLER: You accomplished the major purpose of its reasons for existence.

WARREN: I got something done on each of the recommendations of the panel, and we got all the politicking and the state programs settled and on their way as far as it could be done at any one time. What's left, the agencies can take care of. The Department of Health, Education, and Welfare has regional offices set up, and these have now been staffed by people who know the field. They're covering their responsibilities as part of the heart, cancer, and stroke, Medicare, mental retardation, and mental illness programs.

TUSLER: And that's the way it should be.

WARREN: And that's the way it should be. Yes, even in the states' programs I see, that is the way it should be.

TAPE NUMBER: III, SIDE TWO

APRIL 29, 1966

TUSLER: Dr. Warren, we've been talking about a lot of your enterprises in Washington. Now I guess we're going to go back to the beginning and get you properly born and discover something about your family background.

WARREN: All right. Apparently, my paternal great-grandfather, Eli Warren, was born in Connecticut, probably descended from John Warren, the brother of Dr. William Warren, who died at Bunker Hill. He was an engineer on the Erie Canal and apparently was involved in the first use of the Fresno scrapers. These were mule-drawn earth scrapers which made the building of the Erie Canal feasible and profitable. I don't think he received any college training but had a natural mechanical bent, and he became an engineer in that way.

He settled in Wellsville, New York, where he had about fifteen children, which was common for the day. Most of them survived, apparently, and I guess this habit of having large numbers of children is why you see the town of Warren in almost every state. [laughter] The graveyards are full of Warrens, not of great distinction, but at least they were numerous and energetic. [laughter]

We don't know what age he was when he drove to California with an ox team some time before the Gold

Rush. During the Spanish period he set up a grist mill in the Oakland area, not very far from the town of Hayward, the final location of the family. There are traces yet of some of the installations for burning coke and charcoal.

Then he went back to Wellsville. Somehow he ended up very shortly thereafter, about 1870, in Michigan with two of his sons and two of his daughters, and during an Indian raid he was killed by arrows along with one son. This we know from letters, but we don't know what happened to the one son and two daughters who were married and settled in that area.

The paternal great-grandmother was Sarah Dean, born in Canada of Pennsylvania Quaker stock. She had a brother named Stafford Dean, for whom four generations of this Warren family have been named. Apparently the Deans were quite numerous in Pennsylvania, Virginia, parts of New York State, and New Jersey.

The paternal grandfather and his brother William Warren--my grandfather's name being Stafford Dean Warren--came to the California Gold Rush from Wellsville, New York. Apparently, William Warren was two or three years younger than Stafford Dean Warren; but at any rate they left with a horse and a gun and a frying pan and very little money. They worked their way by the tie and ride method. One would ride the horse for, say, twenty minutes and get off and tie it and walk. The other one, walking, would

find the horse, ride past the other brother and tie and go on. And by this method they could make pretty good speed, you see. And having nothing much to carry they could live off the country, which provided plenty of game, of course, at that time.

They arrived on the Ohio River and then sold the horse and got employment as flatboat workers and drifted to New Orleans. They then engaged passage over the Nicaragua route and up to San Francisco, where they arrived just about 1848 or '49, when the Gold Rush was well under way.

They tried to make a living around San Francisco by teaming and apparently were pretty successful, but got Gold Rush fever and went to Dutch Flat, where they spent about a year. Their gold workings were not very successful. After almost six months of very hard digging over the summer, which as you know is very hot in Dutch Flat, they apparently accumulated about sixty-five dollars' worth of gold. I can remember seeing a small nugget that grandfather saved and had on his watch chain, a great big, heavy watch chain, as one of the large portions of their take.

They made a living after that by burning charcoal and by skinning cattle and by tanning. There was enough oak bark around for this purpose, and they apparently knew how to do it. And they hunted bears. Many of the long evenings of my childhood were spent listening to grandfather tell about these days. There are two or three stories that I

might relate that are of interest.

At one time, the bears were stealing their hides. So grandfather sat up in a tree on a limb with his shotgun all night with a hide tied to the limb. This was a mistake because grandfather fell asleep. He was awakened by a bear shaking the limb. In the process he fell off, the shotgun went off, and the bear wasn't caught but went off, too. Both the bear and grandfather were probably equally frightened. [laughter] However, this frightened the bear so much that he didn't come back to steal the hides anymore. They didn't have to worry anymore, but this ended grandfather's attempts to stalk the bear by sleeping in the tree.

They had a cabin--apparently a one-room one--which they had built themselves and with a fireplace they had rocked up with local stones. They had a bed, apparently with a hide stretched across the frame, on which they put their covers. Their custom was for one to get up, make the fire in the fireplace, get the water boiling, and get breakfast on the way. Then he'd awaken the other one. One morning, when grandfather got up to do this and went back to turn the covers down to awaken his brother, there was a rattlesnake, which had been sleeping between them. He put the covers back and brought a stick. His brother, of course, as I said, was lying there frozen with terror. [laughter] Grandfather suddenly put the covers down

again and hit the rattlesnake and killed it. Fortunately he missed his brother. [laughter] Then they looked around to find where the snake had come from and found a whole nest of rattlesnakes holed up for warmth underneath the rocks in the floor of their fireplace.

I was also filled up with a great many tales of how to lay a hair rope around one's bedding roll when out in the woods to keep the rattlesnakes away. Of course, the rattlesnake doesn't pay any attention to this rope, but it was a good folk story. During my childhood we camped out a lot, and when we had guests, as we frequently did, we would always regale the girls with the tale and urge them to get a hair rope to put around the beds so that they'd be safe all night from these wanderers. Of course, there would be mice making noises in the leaves, and we had a lovely time scaring these fresh tenderfeet. [laughter] I always suspected that very few of them were really frightened, but they'd join in the game.

TUSLER: It was all part of the game.

WARREN: Part of the game, yes. When the mining petered out, grandfather and his brother decided to come back to the Oakland-Hayward area and settle up on some land. So they bought, or at least grandfather bought, about thirty acres down by a little town by the name of Mount Eden, which was just north of the Niles River delta. The Niles River at that time was quite a deep stream. Packet boats

would come in from San Francisco into the river and go upstream four or five miles and then transfer the luggage and whatever else they were carrying to muleback or carts. It was then taken to Pleasanton and Livermore, and then on to Placerville, which was called Hangtown at that time. Because of the earthquake of '68 the contours changed; the river filled up, and there was no longer a navigable stream.

After buying this land and making a start on their cabin, they decided to part. Grandfather went back to Wellsville. He apparently went overland, though it isn't recorded, to marry and return with Martha Miller Wright, my paternal grandmother. She apparently brought a tremendous amount of material with her. My grandfather must have made quite a bit of money and saved it. Her family probably put in quite a bit, too. But she brought it all to California by way of Nicaragua, probably by the same route as he had come earlier. We don't know whether they went to New York City and down the coast to Nicaragua and over, or whether they went the other route to Ohio and down the river by flatboat. But, anyway, they came the Nicaragua route.

She brought marble-top tables, a huge antique bedstead, a collapsible melodeon, a lot of silverware and dishes, and all kinds of bedding. We have a hand-woven wool coverlet of blue and white with the date 1817 on it. It must have been woven by her mother for Martha when she was a baby. Apparently her mother was a large woman and

could throw a "long shuttle," which made the bedspread very wide. This is also true of some of the blankets that came down on the Warren side. These women were good-sized, raw-boned, large framed, and had tremendous reaches. Most of them, anyway, must have had to be big to have so much energy. Although pictures of my paternal grandmother show her to be about five-seven, she was a very husky person.

TUSLER: Good frontier material.

WARREN: Good frontier material. They had to be able to take it.

The brother, William Warren, came down to Los Angeles for horses because they could buy horses down here for about a dollar apiece. Driving them up to the gold mines, they could sell them for \$50 to \$100 apiece. Knowing that his older brother would be away for about a year, or at least six months, he spent considerable time down in Los Angeles getting acquainted. In the process he married Juanita Lopez, and this connected him with a very large Spanish-American and Mexican group, including the Carillos. This is how I became related to Sheriff Eugene Biscailuz.

TUSLER: I didn't know you were related to him.

WARREN: The ex-sheriff, yes. Well, anyway, William brought his bride to Mount Eden about the same time that Stafford came back with his bride. Their house, which we saw as children, lasted until about 1920, I guess. It was about twenty feet square with four rooms. Now imagine how small

that was! [laughter] It means that the best you could get was a room with a ten-foot width. [laughter] Well, I guess it must have been a little larger than twenty feet square, but they had a window in each wall. There were no partitions when we saw it, and maybe there were none at that time.

TUSLER: They built it themselves?

WARREN: Yes, it was made out of logs and chinked, all done with an ax. What these people could do with an ax intrigues me; it's really something. The cabin had a very rough plank floor and a shake roof. These were hand-split shakes. Grandfather was quite expert at this and, of course, redwood was easy to use. I think very few nails were used. The ones there were, were all square nails. They were hand forged out of iron wire that they would buy.

TUSLER: The two couples lived there in that house?

WARREN: The two couples lived there at first, but not long after the two new brides had come to live in this small cabin they found they needed more space. Grandfather negotiated the purchase of ten acres of land in the little town of Hayward, California, where the soil and the climate were better. The area in Mount Eden was subject to floods. The two girls probably had considerable difficulty in getting along in the beginning because one spoke only Spanish and the other only English, but they managed to learn to speak the other's language very quickly.

While the boys were in Hayward trying to get the

land in shape to plant trees, and while they were building a small cabin, the girls would be visited by local Indians. They would cook doughnuts and pass them out a window as a way of keeping the Indians friendly, and of course this just meant that the Indians came more often. [laughter]

Well, finally the great day came to move, and there was a terrific flood--this apparently was in the winter or early fall. My grandfather finally had to float the wagon body for quite a distance to rescue the girls. I don't know what happened to all the furniture and stuff. Apparently this was piled high enough so it didn't get wet. But anyway, they got the girls to high ground and this speeded up their efforts to move.

Actually, the day they moved into Hayward was the day after the great earthquake of 1868, when tremendous destruction occurred to a lot of warehouses and buildings that had been built around the town of Hayward. The town of Hayward by this time had about six or seven families living there. It was in the process of great expansion because a branch of the railroad was going to be built out from Oakland. I can remember their saying that there were crevasses in the ground large enough to bury a horse in.

They planted cherries, apricots, and pears and, of course, potatoes and truck crops because these were very expensive. They made quite a bit of money from their vegetables. They were right on the lifeline to the

mines, since the Dublin Canyon-Livermore-Tracy route went through Hayward after the Niles Canyon route had been closed to traffic by the earthquake. This spoiled the development, then, of Niles and Pleasanton, which were in the Livermore Valley over the hills. Because the Livermore Valley was such a desert, it was very slow in getting developed after that. Some of the mines' traffic was diverted then around by way of Martinez on the bay or up to Stockton by boat.

My father was born in Hayward and grew up there and finally went to the University of California. He graduated as a civil engineer in 1884. He was very much influenced by the Professors Le Conte, who were both geologists and scientists and had a great religious fervor. They talked a great deal about the origins of the earth and speculations about life in general, which impressed my father. He used to think about this a great deal and talk about it.

My father had a younger brother, but he died, I think of diphtheria, so he was the only child. His mother died probably at about the age of forty from cancer of the breast. My grandfather lived to be eighty-three and was vigorous up to the end. He was a great big man, about six-three. My father was just barely six feet, but very well built.

TUSLER: They lived in Hayward?

WARREN: They lived in Hayward, California. The fruit

trees take about eight or nine years, really, to be productive, so gradually the ten acres of fruit made a very good living, in spite of the fact that it seems small at this time. During my childhood, father began having trouble with pickers. They would not come at the right time and would hold up the price for picking. Gradually, about the time I went to college, fruit became an unprofitable affair.

Well, to get back to my father, after graduation from college, he got a job working for the railroad. He surveyed the route for the railroad going into Seattle and laid out a good part of the development of the town of Seattle.

TUSLER: This is the Southern Pacific Railroad?

WARREN: The Northern Pacific. Anyway, we have pictures of father standing on stumps that were fifteen or twenty feet high. That was the only way he could get his transit up above the brush. His lineman would go out and climb another stump, and they would run their lines down through the brush this way. Apparently, when they finished that about 1888, he came back to Hayward and was hired by the De Fremery family to build a dam and survey the development of a real estate venture on the Maxwell Land Grant at Maxwell City, New Mexico.

He went down there, apparently on a very good salary for the day. Wherever you put water, the fertility was fantastic. We have pictures of father on horseback in a field of oats, and you can just see his head. That shows

you how the growth was. But, unfortunately, he inquired around and found there wasn't enough water to fill a dam, and so the irrigation system went kaput. So there was father without a job.

At about that time, the local marshal died of lead poisoning. Father was offered the job, which, of course, paid a very handsome salary, being kind of risky. He agreed to take it if he didn't have to wear a gun. And so he was the first marshal in the whole area that did not wear a gun. The gimmick was that he had learned to box and wrestle in college very well. He weighed about 200 and was six feet tall and was very muscular.

When the cowboys would come in on Saturday night and get liquored up and start shooting the lights up and other things, instead of having a battle, he'd say, "All right, put your guns on the bar and I'll fight you." They couldn't resist this challenge and were much pleased to be able to get an outlet for their energy without getting killed or killing somebody. So then he would knock them out. They were drunk, of course, so you see this was easy, [laughter] although I think some of them must have been pretty tough customers. Anyway, he'd put them in the hotel overnight and feed them good breakfasts and give them back their guns, and they were friends for life after that.

Some kind of a fracas like this happened to the chief of the Taos Indian tribe, because he became a blood brother

of the Taos Indian tribe. Because of this, he was one of the last white men to see their crucifixion ritual. This ceremony was prohibited at that time by federal legislation and had to be done secretly. The Indians guarded this ritual very carefully. I have gone around San Ildefonso and Santa Fe quite a bit, but I have never been able to locate the place my father described where the crucifixion happened. It was out of the town of Santa Fe about ten miles in the hills somewhere. They had a procession with Christ carrying the cross and the two thieves. These were Flagellantes, so that the man with the greatest honor was put on the cross and nailed up.

TUSLER: Oh, actually nailed?

WARREN: Yes, the whole thing was done according to the exact description in the Bible. The two men next honored were also hung up. They were taken down at sunset. Most of them survived and, of course, had the scars and badly crippled hands and feet. They were not really stuck in the abdomen, although they were cut on it.

TUSLER: This was considered a great honor, and they wanted to do it?

WARREN: They wanted to do this, yes. This was the culmination of their life, you see. By this time the Indians had had almost two centuries of indoctrination in this ritual. The early priests who came into this area must have been sadists and abnormal people who had been

"converted," so-called, and they really were working on such a ritual in a realistic fashion. The Flagellantes, during this parade, or ceremony, would have cholla cactus and beat the bare back of the man who was in front of him. The man with the lowest honor in the community was at the tail end of the procession. There was nobody to beat him, so he was in terrible distress.

TUSLER: Were they already in hiding with it at that time when your father saw it?

WARREN: Yes, this was the last one they did, too--at least as far as anybody knows. It's not done today, although they have a parade with beating. But it's not with the cactus on bare back; it's with a whip, and it's quite frowned upon, and so it's done secretly. Of course, at San Ildefonso, the local Indians were mostly all Catholic, and they'd go to Catholic mass, but they'd end up by going through the kiva sometime later on Sundays. So they'd have both sides taken care of in this situation. Have you ever been to Mesa Verde?

TUSLER: Yes.

WARREN: You've seen the kiva there?

TUSLER: Yes, I have.

WARREN: It's an underground circular thing. Well.

TUSLER: Was your father married at that time?

WARREN: No, he was a bachelor. But one day, Clara Leak got off the train with her aunt. The aunt was quite

wealthy and used to travel around the country to try to find a place where her asthma was not severe. She didn't approve of the romance which developed right away. Clara was quite a striking brunette, about five-eleven, and was a big strong woman as well. My father, of course, was blond and blue-eyed, and it was almost boy sees girl, bang! [laughter]

TUSLER: Inevitable.

WARREN: Inevitable. Well, the aunt stayed there three months and saw them engaged and married, and then went home in a huff. But there are lots of tales about father taking the young lady out riding in a sulky--this was a very light buggy with a very fast horse--and they would chase coyotes. Once in a while, they would run into a band of Indians, which was kind of chancy. But since father was a known blood brother and had bailed a lot of them out, apparently, they were never molested. But the real high point of this period was soon after I was born in the hotel. My children were distressed to learn that I was born in the hotel instead of in a hogan. [laughter]

TUSLER: They lived in a hotel?

WARREN: Yes, my parents lived in a hotel. Well, at that time, Maxwell City had about forty families. It still has about that number. There was a freight stop on the Santa Fe Railroad which served the Maxwell Land Grant, which was twenty or thirty miles out from there. The area was a big

sheep and cattle shipping center. In my father's day there were no longer very many sheep. The town had a hotel and a drugstore and a grocery store, and the rest of the businesses were saloons, I guess, and a couple of big warehouses.

I went there with my children in the thirties on a trip across the continent, and it was just a typical small country village. The druggist was still there, a man by the name of Brogan. He was kind of disappointed that I didn't grow up and marry his daughter. This was supposed to be the local romance.

When I was about eight or nine months old, and since mother was an organizer, she organized a baby show on the Indian reservation. Prizes were given for this and that. I can bring an audience out of a dead sleep by saying that my introducer didn't get all my honors, and I'm the only Anglo-Saxon who ever won a blue ribbon--first prize--in the baby show on the Navaho Indian reservation. [laughter] And, of course, father being a blood brother to the chief, and being the local marshal of this little town, and I being the only white boy, I had to get first prize for the best-looking white boy! [laughter]

TUSLER: Have you still got that blue ribbon?

WARREN: No, but I got a picture which my father showed to my bride-to-be when we were just getting engaged. It was a picture of me on a silver platter stark naked, which

must have been taken about that time. It would have been about 1897; I was born in 1896. It was quite the stunt to take your newborn into the local photographer and get a picture of the baby naked on this little silver platter. [laughter] I don't know what the connotation was, but anyway it showed that the family had a silver platter. Of course, they probably borrowed it from the photographer.

When I was two, the family left to go back to Hayward. Grandmother had died sometime earlier, and grandfather was living alone out in the cherry orchard. Before I left, apparently when I was beginning to walk a little, or at least crawl around, the local Indians gave father an antelope fawn. And great merriment apparently was created by the fawn butting me over as I was trying to stand up on the slick linoleum on the kitchen floor. The antelope was quite a pet. I didn't have a dog. Dogs were usually not kept as pets in those days. They were used for hunting and working, and in general were not housebroken. But the antelope went everywhere I went. Just before we left, it tried to cross the railroad tracks in a snowstorm and was hit by the train and killed. I can remember that for many years we had the hide of this antelope. The recollections of the antelope and its butting me over was recalled to all the relatives at all the nostalgic times like Christmas.

In Hayward, father and grandfather set up a real estate office because the orchard, of course, only occupied their

time three times a year: when they plowed, when they picked, and--only part of the orchard had to be trimmed. The cherry trees did not. This is one of the interesting things. The cherry trees, particularly the Black Tartarians and the Royal Anns, grew to be tremendous in size. They were fifty years old by this time when I began to know about them. They had trunks four and five feet thick. One tree I know about gave almost a ton of cherries, worth, at that time, three cents a pound. Now you pay a dollar a pound for them. They were great big, sweet and juicy things. I don't think you can buy Royal Anns now anymore; it's mostly Black Tartarians and Bings and sour cherries on the market.

TUSLER: Were you old enough to do any of the work on the orchard?

WARREN: Not until I got into college. The last years in high school I dug stumps. We used dynamite to break the subsoil in one part of the orchard. During the Christmas vacation, the stunt was to take a shovel handle and half a stick of dynamite to the orchard, run the shovel handle down into the soil about three feet, and then drop in a half a stick of dynamite with a fuse. It had been after heavy rains, so the soil was soft enough. Then when the dynamite would go off, it would make just a little "whoomph." This would produce a pothole about six feet in diameter and four or five feet deep in very loose soil.

The hardpan would be broken, so that the roots of a tree could get down below the hardpan, which was only about five or six inches thick but was a very hard gravel and sandstone combination.

This leads to an episode that is recalled by some of the old-timers every time we go back to Hayward. One day, my brother Guy and I had three sticks left over. We set off two of them on a big stump that was in a bad place and succeeded in getting that out. But we got the pixie idea that it might be interesting to set the third off in town.

By this time, we had sold the cherry orchard place and had moved into town in a little place on a hill which is now identified as Warren Street. The town lay in a great big amphitheatre of hills and then opened out towards San Francisco Bay. We lived right on this hill in the center, a focal point for sound. In fact, you could walk out on the front porch and hear people talking in the streets down below you on a quiet night. About seven o'clock, just at dusk, we divided this last stick in half and put a long fuse on each piece, right up on top of the hill on a rock. We went back home and were reading peacefully and innocently in the front room with mother and dad. All of a sudden the dynamite went off, first one stick and then, when the echoes had all quit and everybody was sitting there shocked, the other one went off! Oh, what a noise! We were very much upset by how successful this was. [laughter]

Well, the town poured out like bees out of a hive. This was at the time that people were afraid about the Japs: it was about 1913 or 1914 and there were beginning to be rumblings of the beginning of the First World War. The Hearst papers were talking about the "Yellow Peril." With the explosion everybody thought that the Japs had landed and were now attacking the town and that this was the beginning of the barrage.

Well, nothing else happened, of course. Finally people settled down, but the sheriff and the marshal and the constable soon arrived in our area. By this time it was dark. Father suspected something but didn't know, and of course the constable was kind of a scaredy-cat, anyway. [laughter] He came in the backyard and knocked on the door. Father got a gun and went to the door and said, "Who's there." He wanted to know where the boys were. Father said, "The boys have been here all evening, reading." "Sure they didn't set off anything?" As far as he knew they hadn't. By this time he told us, though, that he wasn't going to let out any information. Well, all night they prowled and couldn't find a damned thing (excuse me, a darned thing). Of course, we didn't let on, and no questions were asked--this was a nice thing about our family; no questions were asked--so we went to bed.

The next morning, of course, they traced the dynamite. Several families were doing subsoil blasting, but our

family was the only one that didn't have professional dynamiters. It was the boys that were doing it. So the constable came around to father with a big grin on his face and said, "Well, we know you bought dynamite. We can't prove anything. But we think you ought to discipline the boys a bit." So father said, "Well, I don't know for sure." And he said, "Well, did you ask?" And father said, "No." And he said, "Well, you better ask." And father said, "No, I'm not going to ask." So that's the way it was left. We didn't do any more! [laughter]

TUSLER: How old were you at that time?

WARREN: Oh, I must have been sixteen or seventeen.

[laughter]

TUSLER: Well, you got away with that one!

WARREN: Yes, well, I suppose that we were the sort of high-class juvenile delinquents of our era because we were always in all kinds of things. I decided in high school that I was going to make some money. I wanted a shotgun and a few things, and father said, "Well, you can earn it." We still had some land up in the cherry orchard, and father permitted me to build a pigpen. We had an old, old car, and he said, "You can haul the garbage from the local hotel," which was the standard way of feeding pigs. I was very modern. We put cement in the floor and a place for the toilet efforts of the pig. The pig is really a very clean animal and well trained if you give him the

opportunity. We had an old man who was kind of a pensioner living on the place in an old shack, and he used to feed the pigs for me. One small pig--the runt--he took on as his pet. This used to have the run of the orchard and would come when he'd call and would lie down at the feet of the old man while he was eating supper. And he almost took it to bed with him, [laughter] but not quite. I prospered very well the first year. I made sixty dollars, which was more than adequate to get a gun and a bicycle. I still have that shotgun.

TUSLER: How did you use it? On hunting expeditions?

WARREN: Oh, we had quail all around, and we used to go duck hunting down at Mount Eden.

TUSLER: Your brother was younger than you?

WARREN: He was four years younger. So this just put him enough behind me so that when he came to high school, I went to college, and we never really associated with each other in classes.

TUSLER: Maybe that has some advantages.

WARREN: I think it has a lot of advantages because each of us had our own coterie of friends. It's interesting that as I look back, about half of our so-called gang was Portuguese and half was Anglo-Saxon. Of course, that's just about the way the population stacked up.

We would have rock fights and tomato fights and pear fights. There was a long hedge of cypress between our

house and the town that ran almost a half a mile with openings for the driveways. These hedges were wind-breaks. Behind them were either tomato fields or pear orchards, which offered wonderful ammunition, you know. We had created a path up in the tops of these trees about thirty feet above the ground. In some places we could even jump the driveways.

After school, or going to school, we would frequently load up the pockets of our shirts with tomatoes or pears in the proper season, or rocks, and then fight each other, you know, all the way to school. Occasionally, a farmer would come by in the afternoon going home, and we would aim a tomato or something near him or on him, and he would get the whip out and chase us up and down. Oh, this was more fun than you could imagine! [laughter] But he was madder than heck!

TUSLER: Were these fights between the Anglo-Saxons and the Portuguese?

WARREN: No. This is one thing that didn't happen, which is very interesting.

TUSLER: No racial feeling there at all?

WARREN: But we each had our loyal group, you see, and here we all had special whistles. If one was set upon by three or four of the other side, why, he could whistle and yell, and we'd all come. Then we'd have a lovely row. It was all without much real trauma, you know. The worst

trauma was that you'd fall out of the tree, or you'd stumble and go headlong and skin your knees and elbows, which was a chronic state for all of us. And we didn't have any transportation. We went everywhere in a dogtrot, which is interesting, too, you know. Even in college, we would walk fast and occasionally dogtrot around. We would go great distances to eat lunch. We'd go from the north end of the Berkeley campus clear down to Haste Street and Shattuck Avenue, because they had a good steak and stuff, all for a quarter--soup, T-bone steak a half-inch thick, french fried potatoes, and pie and coffee for a quarter.

We had a very happy childhood. The family went camping a lot. We wandered all over the state as soon as dad got a car. We had a 1907 Oldsmobile. Well, the first one was a Maxwell with a woven willow seat. It had a door in the back, and your passengers sat opposite each other on the sides. It was a two-cylinder job, and it didn't have a very good clutch, so father used to park it in the barn and put a bale of hay in front of the wheels in order to crank it and not get run down. [laughter]

I can remember one trip when we went to Petaluma. One of our cousins had married the superintendent of San Quentin [Prison], and we had another cousin living nearby in Petaluma, so we went up there one weekend. I tell you, that was quite an effort because we had two or three flat tires and we had to lug some of the inner tubes and the

tires and keep the tires in the wheel while repairing them. Once the car got going down the hill about twenty miles an hour. It backfired and it scared father half to death. The car wasn't supposed to go more than fifteen miles an hour! [laughter] But you couldn't, anyway. The roads were full of chuckholes and were muddy. Everybody wore dusters and goggles.

TUSLER: Wasn't it rather unusual to have a car in those days?

WARREN: Yes.

TUSLER: Probably you were the only people in town--

WARREN: Well, we were among the first. There were only two or three cars in Hayward at the time.

TUSLER: Your father was still engaged in the real estate business?

WARREN: Yes, and then he became superintendent of the waterworks. He put in a water system. One of the earliest jobs I had was to read the depth of the reservoir which was about a mile from home. I would do it before breakfast at a dogtrot. Finally I got a bicycle. This was one of the emoluments--I could go further, but I could get there quicker. I think the athletics that we would do was wonderful. We had a little dog, and he and I would set off about seven o'clock in the morning and be back by half-past seven for breakfast. My brother took it over later. Father thought it was good for me and my brother. Later he had a

gauge that he could read from the house with field glasses. Then he'd phone the pumping station at the artesian well down in Mount Eden. When the gauge went haywire, he decided that he wasn't going to fix it because it was good for me to read the reservoir. I got ten cents a trip, too, you see, which went towards my savings. That gave me three dollars a month.

Later on, when I got into high school, I worked in the local drugstore for Mr. Spornuli, after school. This was to keep me out of mischief, I'm sure. I earned \$2.50 a week for two hours after school and all day Saturday. I washed bottles, filled them with castor oil, put on labels and all kinds of things. [laughter]

TUSLER: Druggists were really druggists in those days.

WARREN: Yes, the local farmer would come in, particularly the bachelors, the boys from the outlying farms, on a Saturday morning for a day on the town. They would invariably stop in the drugstore in the morning and get a three- or four-ounce bottle of castor oil, which they would proceed to drink right down because they were all constipated, you see. [laughter] Then they'd go to the barbershop and get all cleaned up and get a hot bath, and they were all set. In the afternoon they'd wander around from saloon to saloon, drink quite a bit, and then go to a local dance. By this time, they weren't feeling any pain. It was all very orderly. But we were told to keep away from this group.

They were kind of wild. We didn't think they were. They were just ordinary fellows. We'd hunted with a lot of them.

There was an old doctor there, Dr. Alexander, who had been through the Civil War. He had had only one year of medical school but had served much time in amputating the wounded in the Civil War, somewhere in upper Tennessee, I think. He was from Ohio and had gone down with the troops as their doctor. He got a license to practice in Hayward and set up his office in the drugstore, which had an outside entrance. He drove a pair of very spirited black horses in a very light buggy that he could whip around the corner almost without touching the ground. Whenever he had an obstetrical case, he would get mother to go and help him. Mother was a practical soul and delighted in working as a nurse. And, of course, this was one of the reasons she kept insisting all the time that I should be a doctor. Well, poor old Dr. Alexander had a high mortality in his cases. About the time that I started working in the drugstore, he ceased doing any surgery or obstetrics and only prescribed for those with coughs and minor illnesses. He'd fix a broken limb.

TUSLER: So if something was seriously wrong with someone they'd have to go farther afield?

WARREN: Yes, that's right.

TUSLER: This had some influence on your later choice of going into the medical profession?

WARREN: Well, I didn't think very much of him, but, well, I was malleable. I didn't care. I could do anything, supposedly. We had a little Carnegie library in town and half a dozen of us, including my brother eventually, just started going to the library to read everything in there. By the time I went to college I had read literally every book in there, except the encyclopedia, and I'd been through that, mostly. I could read two books a night without too much trouble. I don't remember the authors much at all, but I remember the story or what was in it. Along with this, there was quite a bit of science. It wouldn't do for today, but there was a lot of biology and botany and the latest in engineering and physics. Father subscribed, I guess almost from the beginning, to the Outlook and the Scientific American. These were always in the barn attic, and on rainy days we would sit there and just pore over the Scientific American. It had the battleships of the Spanish-American War. I can almost tell you in detail where the galleys were and the calibre of the guns, etc. Oh, it was just wonderful. And all the mechanical things and the latest scientific developments were there.

TUSLER: And in the field of medicine as well?

WARREN: Not much. There wasn't much. But father had quite a good library of Shakespeare and, oh, some of Stewart Edward White--and who wrote [The Winning of]
Barbara Worth?

TUSLER: Wasn't that Harold Bell Wright?

WARREN: Yes, Harold Bell Wright. And White was the other man who wrote a lot about early American history and the wandering of the pioneers across the country. I remember my father was very much interested in him and got some of his first books. White continued publishing for years and years, and very good stuff it was.

Father and mother were always trying to learn whatever they could about modern developments. Of course, this didn't jibe with the ideas of some of my friends, who thought it was just stupid to read all of that stuff. They said you were never going to get anywhere by all that reading, and I had no defense against this. I was just curious.

One of my friends became an amateur radio operator and had a spark set which he had built out of small things. His grandfather ran the local hardware store, so that he had early access to materials. Between us, we built a crystal receiving set, but didn't become interested enough to actually build a transmitter, but he could talk to amateurs all around the bay. I heard the first Poulsen Arc programs, music in which San Francisco was one of the first stations. This was a tremendous development because singing and entertainment began to come over the air for the first time. This was while we were in high school, about 1910, 1912, along in there.

This friend was badly afflicted with asthma, so that

he was always having to light a little asthma cigarette or burn some powders. He would cough, and he would have a terrible paroxysm. Then he'd clear out all his bronchial tubes and was all right for a while. But this kept him from much physical activity. He couldn't run with the rest of us. But if we were building caves or doing something that was static, like building treehouses or dams or were to go swimming, he'd go along. Then, when he'd get tired, he'd go back and sit in this little cubicle his father had made for him off his bedroom.

I began to understand or at least to have a yen to know about a lot of things, such as father's interest in geology and the studies of the Le Contes, and all this stuff I'm working on now--paleontology and paleobiology.

Father was an amateur fossil collector, wherever he went. Of course, he did quite a bit of surveying, too, during this time--odd jobs. He laid out quite a bit of the residential area in Hayward and San Leandro. I can remember I had to carry the chain and put the stakes down while he was looking at the survey, and this used to kind of gripe me. Then he let me look through the transit at the sun when it was setting, and let me get a look at the great big flames you could see coming off it. I don't know whether they were real or whether they were just distortions, but they looked like flames. Now, these occur only occasionally, and I don't quite understand

why we saw them so frequently.

TUSLER: This all stimulated your interest in things scientific?

WARREN: Yes. Everything was set up by the family in that way. I think if my brother had not emerged from college at the height of the Depression, he might have gone on, too. But father was killed in an automobile accident shortly thereafter, and this left the family finances in a very precarious position. They had pyramided their real estate heavily with mortgages, you see. The bank did not feel that mother was as good a risk alone as father had been when the two of them were together, so they began to call in the mortgages. The family holdings went from about a half-million dollars down to--well, at one time, mother had one set of pigs and a phonograph. That's all she had! [laughter] It wasn't quite as bad as that. The circumstances are a little different. As soon as dad passed away, she went into the apartment-house business in San Francisco.

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MAY 5, 1966

TUSLER: Last week, we were talking about your childhood and youth in Hayward. I believe we ended where you were saying something about the doctor there, Dr. Alexander. Was that his name? And you were saying something about your mother's work with him.

WARREN: Yes, when I was in high school, I got a job in the local drugstore after school and all day Saturdays. This consisted of mopping the store, cleaning and filling bottles, and putting labels on bottles. I got the magnificent sum of \$2.50 a week. But this was good income for a boy at that time, and it enabled me to buy a good bicycle and a pair of hip boots and a shotgun before I was through with high school. I still have the shotgun, too, a twelve-gauge pump-action.

TUSLER: Does it still work?

WARREN: Yes, it still works, and I got so I could handle it quite well.

You wanted to know about the town of Hayward. It was established by a merchant who came in and settled at the outlet of a bowl in the hills in the East Bay area south of Oakland. He bought several hundred acres of land, set up a general store, laid out a town, and began to sell lots. This was just before the Civil War, and there were

still a great many people migrating into the area from the East, partly to seek gold but in general to look for cheap and good land. The little town is right next to Castro Valley, another bowl a few miles over the hill to the north on a land grant owned by the Castro family. Castro Hill in Hayward is named after them because they had a house on this hill overlooking the bay. It is now part of the east side of Hayward itself. Hayward was important because it was on the route that led through Dublin Canyon into the Livermore Valley, then over Altamont Pass to Tracy and Stockton. It was one of the main travel routes after the Niles Canyon was filled up by the earthquake of 1868.

The access to this route had to be from San Francisco to Oakland and then down to Hayward because there was a lot of marsh in the way on the bay side, and packet boats couldn't come into this area at all. It was a tragedy that the little town of Niles lost its port function after the earthquake, and it never really amounted to very much after that.

Although, in my childhood, the town of Hayward had a population of about 4,000, the streets were hardly graveled or even graded. In the winter, when the long period of rains would come along, everything would be very muddy. The joke in the family always was that Santa Claus would have to come in a mud sleigh rather than in a snow

sleigh. [laughter]

Niles had, at this time, about 1,000 to 1,500 in population. Castro Valley only had a few people, mainly chicken farmers, because the climate was quite good for this. And the whole area was full of cherry, apricot, and pear orchards. The cherries were quite good as an income-producing tree because they matured in about six years and did not require any pruning. Then the trees became immense.

One particular Royal Ann cherry tree on my grandfather's property, which we fell heir to, had a trunk about four and a half feet thick and produced a half a ton of cherries. At the time these were worth three cents a pound, which was tremendous. There were always troubles with pickers who wanted one cent a pound and, of course, they could tear the limbs down and ruin the tree if they weren't careful.

TUSLER: Were these migrants?

WARREN: These were mainly migrants. A good many of them were Mexicans. The local Portuguese population was, of course, strongly Catholic and composed about one-half of the population of the town. There was a greater percentage in San Leandro, which was six miles north and just about halfway to Oakland. There the population was almost 80 percent Portuguese.

It is interesting to note the way the Portuguese came into the United States. Most of them came from the Azores. Families of cousins would separate. Some went to Cape Cod,

where I met the Mendozas and other cousins of men I grew up with in Hayward. They came to Massachusetts General Hospital for medical care as patients when I was an intern there--much later, of course. The other half, the fisher folk, would go to Pescadero at Half Moon Bay, and the farmers would go to San Leandro and Hayward. They would come in with all their belongings in a gunny sack and would work in the canneries. They would plow and prune as laborers, and pretty soon they would have a goat and a cow and then a flock of children. Within four or five years they had made enough to buy a piece of land and set up business. Now they have disappeared or been assimilated in the population.

Many of them were of Castilian origin and were blue-eyed and red-haired. Some, of course, were very dark, almost black, because of the Moor infiltration. So there was quite a wide variation. There were no problems in the schools with this. We integrated also with the Chinese and a certain number of Hindus and some Kanakas from Hawaii who had come over in sailing vessels and drifted ashore and then became farmers.

TUSLER: Was there any of what they call now de facto segregation, due to the fact that you were living in different areas?

WARREN: No, there was only one school--one large union grammar school--and we all went to that. This had to be enlarged about the time I was in the seventh grade. The

building, I remember, was cut in two during the summer and moved apart, and a big section was put in the middle. This was a great triumph of construction.

TUSLER: That sounds like the hard way to enlarge a building.

WARREN: Yes. [laughter] It was a two-story building, a very formal sort of New England structure with dormer windows. As I remember, it was a huge thing, but of course it really wasn't; it was just my childish imagination. We had a school bell which could be heard for about two miles around, and, of course, it rang in time for us to dogtrot to school if we were eating breakfast or lunch.

All my generation, if we didn't have a bicycle, dogtrotted everywhere. You could make almost seven to eight miles an hour that way. It wasn't tiring at all, no more tiring than walking. Even adults did it. Nowadays, to see somebody dogtrot--you'd think he was a little touched, perhaps. I don't know that I could dogtrot very far anymore, but it would be interesting to try.

By the time I got to high school, the only racial differences that you might see would be that the Portuguese contingent and the Mexican-Spanish were apt to take what was called a commercial course. This was supposed to be easier, but it probably wasn't. They did a lot of accounting and some typing, and the girls, particularly, were trained to be secretaries. The Anglo-Saxon group, of course, was socially knitted together. There were

some of the Spanish and Portuguese element who had had college educations when they came, and they were accepted without any problem. Some of them now are very wealthy and were big landholders until recently. They have sold their holdings for housing developments.

About the time I went to high school, tomatoes became a big crop in the area, and alfalfa came in, too. When I went to high school, I lived about a mile further away from where I had lived across town, so we mainly rode bicycles. I tried football after a lot of urging because I was supposedly strong, but I was tall and thin and very awkward and I used to get clobbered all the time. We started out with so-called American football, which is the type played commonly today, and then, when I was about halfway through high school, we changed to rugby, which was very fast. I became a forward, which meant I had to run after the ball all the time. This was very fatiguing, and I didn't particularly appreciate the difference. Of course, when I got to college, I was thrown off all the athletic squads, since I was able to make only the third or fourth string. I was the meat in the meat grinder for the football first teams! [laughter]

Well, high school was a very interesting period. I began to read some science and began to have a little understanding of physics, chemistry, and biology. I had some very nice teachers, who took a great deal of interest

in anybody who wanted to do more than just the routine. I knew I was argued into taking all four years of Latin and one year of Greek and one year of Spanish. I failed to do well in any of these languages, although I got high grades, but I couldn't use them. You know, it was a matter of just parroting back what you were taught. When our children began to study Latin and came home and could carry on a conversation in Latin, it just overwhelmed Vi and me! [laughter] It was a language and not just something that one learned by rote. There's quite a difference. Our children still do this, even if they took only three years of it, while Vi and I have some difficulty in going back to read Caesar or Cicero. Oh, it can be done, but there's no rhythm or poetry in the language, as there is to our children.

I continued to read in the little Carnegie library, so that by the time I got to college, I had literally started at one end and read everything to the other end of every shelf. Of course, it wasn't a big collection, but all the novels at that time could be read in maybe an hour by a fast reader. So I would read two or three a night, after getting my homework done. The family objected to this, but father also read until midnight, so he couldn't very well kick us out! [laughter] How could we go to bed if he was still reading? We were getting to be young men, my brother and I, after all! [laughter]

TUSLER: Did you learn to read at an extraordinarily young age, or was it something that you picked up at school in the normal way?

WARREN: I think that school had very little to do with it. My earliest memories of the cherry orchard place are of poring over stacks of the Scientific American in the barn. The series reproduced the battleships of the Spanish-American War, both the Spanish and those of our own, and the battles of Havana, Cuba, and Manila Bay were all outlined in great detail. It was in its early days, and the illustrations were just beyond words, mostly all drawings, not very many photographs. But even as a very young boy, when I first began to read, I liked the pictures, and I began to be able to understand them. Father or mother would always help if I got stuck. They were highly amused that I would be as sophisticated as that, but anyway it also kept me out of trouble. On rainy days, it was just wonderful to sit there in the haymow in the barn after school. We used to have four or five other children in the neighborhood who would come, too, and sit. The girls would try to play house for a while, and then they would get to looking at the Scientific American, too. We'd be very quiet, and anybody who would try to make a noise was shushed. I think, looking back on it, that this was very interesting. I wish we could get neighborhood kids to do this sort of thing today. Of course, they do this with television,

but this is not necessarily at all profitable viewing.

TUSLER: But it's the place. Who's got a wonderful place like a barn to hide away in?

WARREN: Yes. You could build a tree house. We had quite an episode of this. We had to be careful not to choose the prize tree in the orchard. Then we had to scramble to get the lumber because lumber was scarce. But a tree house was a very nice thing, particularly on a nice day in May and June, when everything was warm and pleasant.

I had to do then what is now a reprehensible thing. Great flocks of birds would come and settle on the trees when the blossom was just setting the fruit. They would eat the small fruit, which is sweet. Then later, when the fruit was ripe, they would come again in flocks. I would have to drive them off or shoot them. These would be linnets, canaries, orioles of two or three types, and other songbirds. We had no larks. There were plenty of them and quail in the fields and along the creek bank. When I'd come home from school I would pick up a little .22 and go out in the orchard and shoo them away by shooting them. They would not go by just firing the gun. You had to kill several of them before they would leave. The male linnet would sit on the top branch and just sing and sing while the female was down below eating. He was the one, of course, that would get shot. I would try to get the female, too, so that I wouldn't leave a broken-hearted

bride! I was being sentimental about all this! [laughter]

Mother raised Angora cats, and of course, they would watch all this. When the bird fell down on the ground, it was immediately pounced on. The cats had a kind of a ritual. Each one would take one bird and then go back to the house. There was a certain priority in taking turns. If the bird was wounded and fluttered up in the tree, the cat whose turn it was would go right up the tree after it. This saved a lot of wounded birds from getting away and dying elsewhere.

Out of this experience I came to be a very good shot. But I just shudder to think of the thousands of birds that I slaughtered all during that period of about seven or eight years. I have a nostalgic feeling for that period now, because in the last two or three years I've been unable to get any unpecked prunes or apples or figs off of the small orchard that I have! [laughter] We're hosting a bunch of mockingbirds, bluejays, linnets, and canaries, now!

TUSLER: But you said you had your gun?

WARREN: The birds can have them. I think we have sort of a standoff. I get enough, and they can have the excess. But I never realized that birds could eat complete apples. When I came home this year, I left a bunch on the tree to mature. This is a better way of storing them than picking them. Within a month they were all nothing but peel.

Later the birds even got the peel. The fruit probably helped some birds survive that were on their way south.

TUSLER: One of the chores that you had to do, I think you mentioned last week (but not on the tape), was delivering the milk in the neighborhood.

WARREN: When I was four or five, we had a cow. And, of course, the cow gave more milk than the small family of five--four and a houseworker--could use. Father would milk and then strain the milk and put it in two little covered tin pails with bail handles. The dog and I would set out to deliver it. This was in the winter, and it was usually dark after six o'clock. Father would get home and put up the horse and buggy about five-ten and then change his clothes and start milking right away. So it was about six o'clock when we'd go. Our front yard had a lot of roses and dark grey bushes that bent in the wind. There were big powerful arc lights, at that time, about half a mile apart in the street. Of course, the street was muddy and full of potholes. We were a mile out of town, but I had to deliver this milk about half a mile further out.

Last week, I took Mrs. Warren up to show her the place because I had discussed it with you. It's still there, though it's all taken over now by housing developments.

The Hoffmann family lived up on Castro Hill. The

house was about 100 yards back from the road with more bushes. The arc light was at the bottom of the hill, and though you could see the arc light, it gave you no light! [laughter] It just created horrible shadows with all kinds of beings skulking in the bushes. By the time I would get the last pail down, the dog was just as frightened as I was. He was a little cocker spaniel, and he wouldn't go ranging around, as a dog normally would at a time like that. He would just heel and would almost trip me. Well, the minute I delivered that last pail, I was off for home at a dead run, with the dog running, too. We would come back all breathless, and mother would say, "What's the matter, were you frightened again?" And I'd say, "Oh, no, I just ran to see if I could beat the dog home." But this was something that stayed with me for some time. Well, I guess we sold the cow about four years later. The cows were an unmixed blessing because the ones that father would buy were ornery. He was no judge of cattle because he was interested in other things. But he had to have a cow. So a friend would tip him off: "Here's a good cow, lots of milk." Well, the cow would be a Jersey or a Durham and it would give a lot of milk, but it would have a bad habit of switching you with its tail when it was being milked, or of stepping in the bucket just at the last when you were stripping the udder for the cream. The last time this happened father said he was damned if

he was going to milk anymore! [laughter]

TUSLER: But you never actually had to do the milking?

WARREN: Well, I tried it, but I was too small, and I couldn't stick my head in the cow's flanks, sitting on a stool. I was too short yet, and most of these cows were used to having a full-grown man stick his head in their flank and sort of push while he was milking. But my wife can milk and demonstrated it once on a dare, five or six years ago.

TUSLER: Was she brought up on a farm?

WARREN: She was brought up on a farm, too, and they kept cows a little longer than we did, so she had the job of milking. They had six children, and all six children milked. They ran a small dairy operation for a while-- not a formal one, but an informal one. Well, one of the things that today's children don't have, of course, is a barn. The greatest delight for a group of three or four children, boys and girls, maybe eight or nine years old, would be to climb up in the hayloft and jump down on the back shed roof, where the cows and horses were kept, and then jump on the manure pile. [laughter]

TUSLER: That sounds like fun!

WARREN: Oh, it is, you have no idea. The manure pile is springy, and it's a little hazardous, you know. You have to miss the latest additions, which are sort of soupy and gummy. [laughter] If you happen to slide

or step in it, mother knows about it, and this has serious repercussions. You have to be stripped--and it's usually cold--and maybe hosed down, especially in the backyard, and not permitted in the house until you were all clean. Then you'd have to take your clothing and wash it. And remember, the old scrub boards were used at that time. They had no washing machines.

TUSLER: No automatic washers.

WARREN. In fact, it wasn't until we sold the cherry orchard and moved into town that we had electricity. We had arc lights, but the power didn't come out that way for quite some time.

Well, I've often thought that we had open wounds of all sorts from falls and cuts and brush scratches. We must have gotten our immunity to tetanus quite early, because none of us had tetanus. Our natural immunization was pretty good. I got no reaction from tetanus shots when I got into college, which was about the earliest they were available. I think now how much we objected to our own children climbing up on the garage roof and jumping off and around because they would crack the shingles. Of course, this was in the East, and cracking shingles meant leaks and problems that apparently didn't bother my father. When this happened to the barn, it probably leaked already quite a bit. But then these were heavy shingles, about twice as thick as the ones that are

produced today; and they were all hand-split, so they probably stood more than the present shingles would. Of course this was carefully selected outer wood, too, which was, I suppose, a little more flexible.

We typically had the well halfway between the barn and the house, with the privy off to the side. The well probably was contaminated, though none of us ever had typhoid, and no visitors came who contaminated our privy with typhoid, so we got by with it. But this was the conventional way. We didn't have sewers either until we got back into town, at about the middle of my high school career. In my early childhood, we had a pitcher pump on the sink, I can remember. You had to prime it to get it to work. At first, the custom was to take water right out of the horses' and cows' drinking trough to prime the pump. But mother got suspicious of this, finally, so we had a big five-gallon tub of water stored in the kitchen for priming the pump. The first one up in the morning had to put a pitcherful in the pump and then pump vigorously. This caused the water to spill out onto the drainboard and into the sink. Of course, all the sink drainage went right out on the ground outside. The chickens thought this was wonderful because they could scratch there for worms, and the ducks would go and sit there in the puddle as much as possible.

My mother used to do a lot of reading in health magazines and books, so she got the idea of sanitation early.

She thought that we shouldn't have flies. I remember a long discussion about putting screens on the old house, that would keep out the flies and that incidentally would help keep out the mosquitoes. But they were such small mosquitoes they could go through! [laughter] But we never closed the doors fast enough.

TUSLER: I think you must have been quite influenced in your choice of a medical career by your mother's interest in these things.

WARREN: Yes, mother was always talking about the time when I would become a doctor and that I should get a good training and not be like old Dr. Alexander, who, of course, had come up under proctored training. He had actually only one year of anatomy and pharmacopoeia, as it was called then. He practiced before bacteriology was fully established, and he spent, I guess, all four years in the Civil War as an assistant to a surgeon. He saw a great amount of surgery and some obstetrics. But he didn't have any idea of sterilization as such. When he was called for an obstetrical case--he had a very light buggy and two very spirited horses--he would come tearing down the lane into our backyard and yell at mother, "Mrs. So-and-so is having pains. Get your bag." Mother had a collection of sheets which she would tear up and boil. I can remember there were always some on the stove boiling. She was careful to wash her hands, put the sheets in a package and put them

in her bag. Then she would get in the buggy. Not infrequently, the doctor was dead drunk, and she might even have to drive and then deliver the baby. At that time, she used some chloroform, but in general little anesthesia was used. Most of the children, as I recall, were born in bed. Occasionally the table was used or some kind of a chair. But it was all very primitive. Fortunately, the women were big and strong and had few birth accidents. I don't recall any deaths in this group.

TUSLER: Did you ever go along and assist?

WARREN: No, I was too small at that time. When I got into high school, of course, he no longer practiced. He was then eighty-something years old and he just sat in his office and prescribed. I can remember he would come out and ask the druggist, Mr. Sporduli, what to do for this or that. Mr. Sporduli had access to the drug house salesman. We had a patent medicine for almost everything--except for castor oil, and senna, and a few other standard remedies that were not susceptible to patenting.

I can remember that my grandfather used to drive a very spirited racehorse with a very light buggy down to the office every day. I was about four or five at that time. I remember that he had a great big beard. I would sit on his lap, and he would tell me stories that I never forgot, about the Gold Rush days. I've told you some of them.

During the time they were installing the arc lights

and telephone poles, they would dig a big hole, put the tree trunk on the ground and assemble the cross arms on it, and then hoist the trunk up and set it in the hole. Well, grandfather's horse didn't like these poles. They were new and were spread along all the way to town. One day, a newspaper flew up beside a telephone pole, and the horse whirled around, casting grandfather out onto the landscape, just like a catapult, you see. Then the horse came on home with the buggy. Mother got in and drove back and found grandfather. Apparently, he had three or four busted ribs, but he was up on his feet and mad as a hornet that the horse had gotten away from him. So she succeeded in getting him home to bed. Of course, he had pneumonia and died about four days later at the age of eighty-three or eighty-four.

Father sold that horse. He never trusted it after that, although that horse had apparently saved their lives, or at least saved them from the risk of drowning. In one of the torrential floods, he came to a bridge and refused to cross. The bridge was covered with water, but he put his foot on it and backed up. Well, they found the bridge was gone. [laughter]

TUSLER: And the horse sensed this?

WARREN: The horse sensed this, yes.

TUSLER: Animals are very smart with things like that.

WARREN: Yes, at that period, horses were a firm part of

the culture, not to be taken lightly. And, of course, the cowboy trusted his horse to do a great many things, just as he trusted his dog. Now this culture has mostly disappeared, except in the outer reaches of our country.

Haven't I got to college yet?

TUSLER: No, you haven't yet. [laughter] I just wanted to ask you if during your high school years you came to any very concrete decisions about what you wanted to study when you went to college?

WARREN: No, I had a kind of a vague idea that I was going to be a doctor, but I was so curious and so many things were beginning to open up that I just read and read and read. I can remember standing at the end of the school period, when the rest had gone, and reading the dictionary and the encyclopedia, because we didn't have one that size at home (we had a smaller dictionary). The janitor would come in about five o'clock and say, "If you don't go home, your mother is going to come in here like a wild woman and take your hair right off." [laughter] So I would then have to go. This was before I got the job in the drugstore, and I think it was one of the reasons why I got the job in the drugstore! The drugstore had a lot of medical journals around, most of them subscribed to by Dr. Alexander, but I almost had to steal them to get ahold of them. He wouldn't let me have the American Medical Association journal [JAMA]. He said, "These are things that should only be read by an older

man." And he said that I was too young yet to understand them. Actually, in looking back at that period, things weren't very definitive anyway. It's remarkable what these old doctors were able to do with such little information.

TUSLER: So you went to college.

WARREN: So I went to college. Father took me in to Berkeley in the car we had at that time. Registration, I can remember, was on the lawn of Boalt Hall. There was some discussion about what I might register for, and father said, "Well, what do you think? Do you want to be a premed or do you just want to go generally?" I said, "Well, I guess I better go premed." Then we went to a counselor assigned to the premed students and worked out a system of courses. He suggested that maybe I should take eighteen units, since I had a good high school record. I forgot to mention that I was the salutatorian of my high school class. My great competitor was Mabel Hansen, a blond girl, who became the valedictorian. She and I were equal in grades all the way through. I don't know what ever happened to her, either. She faded out of the picture. She was a very bright girl, and it's too bad that she didn't go on. I don't think that she went to college. Some of the girls from Hayward went to Mills College--this was due to a great drive to give girls a fair chance at a good education--but many of the Hayward girls went on to Berkeley, too.

TUSLER: What year was this when you first went to college?

WARREN: Let's see, I graduated in 1918, so it was the summer of 1914. We had the Panama-Pacific Exposition the next year. It was built in San Francisco, practically at the Golden Gate. That was a very romantic site. Some of my Spanish cousins came up, and we went over there. The whole family and all the cousins walked all over the place for two or three days. It was easy to get there. We would take the streetcar to the ferry, which went directly there. It took about two hours. We'd pack a lunch, and somebody would have saved up a little extra money--or we'd be slipped a little--but we weren't supposed to spend money on what you'd call frivolous activities. But later, after I got into medical school, we used to go out there to the grounds a great deal because of the beauty of some of the buildings. And the setting of the Golden Gate was just marvelous.

I can remember taking courses, and then I tried all kinds of athletics. My father thought I ought to try everything because this would develop muscles and skill, and I ought to be able to fight if I got into trouble. So I took boxing and got my nose battered, and I took wrestling. Oh, I got pretty good, but I didn't feel enthusiastic about it. The sport I liked best was football, but I couldn't do well at that. I was too light, and I wasn't able to do as much as I should. In looking back, some of the competitors I had were tremendous men, fast and as well built as Joe

Louis. I tried rowing and made the class crew, but the day before the race, one of the boys stepped through the bottom, so we didn't have a shell to compete with. They gave us our circle C anyway. I've got it up there on the wall. No, that's the one for fencing. I tried fencing just because in the past many doctors had been good swordsmen. Somehow or other I got the idea that this would be interesting. And it was very interesting. You could develop a hand skill, and you had an opponent who was directly opposed to you. While fencing could be fatal for real, it wasn't as brutal as boxing, from which you could get really pounded and not get anywhere.

TUSLER: Did they have teams for this?

WARREN: Oh, yes, I finally made the class team, and I made the university team; but it was a second-class sport. We only got a circle C instead of the full block letter. Then I made the Olympic team, when I was in medical school, with a couple of boys from Stanford. That was a sad situation. There was a Cuban who would come up nonchalantly and fence with us. He would go one, two, bing! One, two, bing! And there wasn't a thing we could do about it! [laughter] He was so fast and so skilled that he could always put the point just where he wanted. He'd let us make four or five very futile and gross maneuvers, with a sort of superior smirk on his face. You could see he thought, "These tyros, these Americans, Johnny-come-latelys, are hardly worth my

time." But then he wanted to win the honor and the prize, which he got.

TUSLER: Was this in the Olympic competition?

WARREN: Yes, it was in San Francisco. They had the Olympic games there that year. Oh, I guess I was a junior in medical school, and there were Dr. Oliver and a radiologist--I can't think of his name, but he just died recently. Anyway, there were three from Stanford and two from Berkeley on our team.

TUSLER: It's a marvelous art. One doesn't hear much about it nowadays.

WARREN: No.

TUSLER: It's beautiful to watch.

WARREN: I was a sucker for a short left-handed person. If he got within my reach, then I was helpless, you see. I'd have to retreat, and one could only retreat eight feet. The mat was sixteen feet long with a line across the center.

TUSLER: And if you go off the mat, then you're out of bounds.

WARREN: Then you're fined, and you lose the point. It's quite a nice skill. I got pretty good with a single stick. We used to give exhibitions to raise money for our uniforms. One night four of us went with the trainer down to the Elks Club, and we performed in the ballroom. The spectacular thing was to use sabres. You had great big pads and a helmet on, and you couldn't get hurt. But it made a very

satisfying noise, particularly, if when you struck the other fellow, you turned the flat of the sword. Then, if you timed it right, you could come down on your opponent's blade. These blades were so badly battered that they were full of sawteeth, and when struck would make a chain of sparks. So the plan was to have the fencing match in the semi-dark and make a terrific noise with sparks flying as we revolved around each other. Well, unfortunately, we got under a chandelier, and I made one tremendous stroke and cut the chandelier in half! [laughter] That ended our giving exhibitions! [laughter]

TUSLER: It very nearly ended you, I should think, if it should have fallen.

WARREN: No, it was all in good fun, and like so many of these exhibitions, it was quite a fake. Although you had to be on your toes: you couldn't go to sleep on the job because you could get nicely hammered around the head and even through the mask if you didn't watch it.

TUSLER: What other extracurricular activities were you engaged in?

WARREN: Well, on the holidays I came home and grubbed stumps in the cherry orchard.

TUSLER: Good exercise!

WARREN: Yes, I learned a lot about trees. And I didn't mind it. It was usually during the Christmas holiday. There was a lot of rain, and the ground was soft. You

could pretend the stump was the devil or something and put a lot of effort in knocking it off, and then out would come this great big tree. Of course, father would come by, eventually, to pick me up and say, "Gee, you did pretty well today." And he would pat me on the back. This was the come-on to get me going, as I look back! [laughter] I tried it on my children, but it didn't always work. They were smarter! [laughter] They'd read Tom Sawyer and some of the other things. Father built a fence and added a Japanese shrine gate. This, of course, identified our place for miles around.

TUSLER: But your home was in the town?

WARREN: By this time, yes. We had moved to another place up in the center of town. This was the home from which we set off the dynamite. That's now an apartment house area and all built up. And there's a "doctors' row" very close to it on Prospect Street. No, the rest of it was hard work, but it was fun.

In the summer, the family would take off about three weeks to a month and make its way with difficulty in the old car to somewhere in the mountains. We always had complete camping equipment, food for a week, ax, saws and hammers, nails, wire, and two-by-fours in case the springs would break and we couldn't find a blacksmith. If you did find one, you jacked the car up and took the spring all apart. Then the blacksmith welded it together, and

retempered it, and put it back in. Of course, it didn't last too long, but you were forever hitting these big chuckholes as you were coming around the corner--the brakes weren't very good either--and bang would go a spring. The thing to do right then was to jack the car up and put a two-by-four in between the frame and the axle so as to hold it up in the right place. Otherwise, the sag would distort everything and the axles would break pretty soon.

Oh, and the trouble with tires: they had inner lugs and tubes. The lugs pulled the tire down to the rim to hold it on. You'd just about get it all together, and you'd start pumping, and then you'd hear a hiss. You'd had a pinch in the inner tube. So you took the tire off again and did another patch. Driving in the Sacramento or the San Joaquin Valley with the high temperatures, these patches would melt off. Then you'd have a blowout. You were very lucky if you didn't have more than two or three a day, you know. Sometimes, in order to get the frame of the car up enough off the springs to change the tire you'd have to unload part of the camping equipment.

It was not uncommon for people to carry almost a ton of stuff in an old touring car. That's the kind of car with just the seats and a cloth top that went up much like a convertible. Only it was always leaking, and the extra side curtains would flap, and never could quite keep you

from getting wet.

I can remember my freshman dance. I took the girl that lived across the creek to the freshman dance. She was then trying to be a teacher, and she agreed to come. So I borrowed the family Oldsmobile, a great, high, four-cylinder car. We had electric lights on it, although it came with gas lights. There was a generator and you lit the lights with a match. Half the time they didn't go. We had headlights by this time. It turned out to be a rainy day, and I picked her up in Hayward and got her to a friend's house in Berkeley, where she was to change her clothes. Then I went to my boardinghouse and changed my clothes to a tuxedo, my first tux, which was very, very unusual--for me, anyway. I had on my father's vest. It was a very fancy embroidered vest which was supposed to have a watch chain across it. He loaned me his watch chain, and I had a dollar Ingersoll watch! [laughter] Later, for the next dance, he gave me grandfather's silver watch, which was a great big thing, almost as big as this microphone. It weighed three or four ounces.

When I came back to the friend's house to get her, it was just pouring rain. I thought everything was dry inside, but when I opened the door, she quickly whisked into the front seat, and she sat in a puddle of water. Well, now, can you imagine a freshman in college on his first formal date and his girl in a puddle of water with

her very best gown on? Oh, she was furious. She didn't burst into tears, but she almost did. If she had burst into tears I would have been crushed; but she got angry, which sort of offended me. Anyway, she went back into the house and dried out with a lot of towels and things. She had some kind of a light skirt on, so it dried rather quickly, but we were half an hour late--which was all right, as we didn't miss too much. This was the time when you had these--I was going to say "menus"--cards with the names of your partners.

TUSLER: Programs?

WARREN: Programs, that's right; white, stiff cardboard with a tassel and a pencil.

TUSLER: Oh, I can remember those. We had those in college, too.

WARREN: I had arranged dances with a bunch of my friends. These were all blind dates, of course. Nobody knew the girl or the friend very well either, as a matter of fact. He was just somebody you boarded with! [laughter] You were supposed to have the first dance, the dance before the intermission, the one at the end of the intermission, and the last one. The rest you had to farm out, somehow. Well, I had negotiated all this successfully, but, since we were half an hour late, we missed the grand march, and we missed the dance that she and I had. She was very stiff and haughty. Of course, I imagine that underneath

she was just scared pie-eyed and was afraid that it showed. But it didn't really. But none of my assurances would be accepted by her.

We finally got through with this, and I brought her back to Hayward successfully. The car was not wet on the way home. How it happened to get that way at first, I don't know. But we were a little standoffish after that. She wouldn't be friendly and of course I was a little miffed, too. It was a terrible thing I had done, though. My mother was fit to be tied: "You should have taken a blanket or something." [laughter]

TUSLER: That's learning the hard way.

WARREN: Yes. Well, she continued on to be a teacher, and was married happily, and has two children now. I haven't seen her for a long time, so I don't know what my reception would be like now. [laughter]

TUSLER: Cordial, I'm sure. Well, what about some of the courses you were taking? Were there any professors that made any particular impressions?

WARREN: Well, of course, there was Henry Morse Stephens, a Berkeley historian and philosopher. They would practically have to have his classes in the big gym. There were 1,200 students in my class and there would probably be about 1,000 at his lectures. Then, of course, there was Professor Charles Mills Gayley, who gave lectures and readings in the Greek amphitheater, which were very

interesting. It was actually my first introduction to the presentation of poetry or a play at a theater.

We could go--and we did very frequently--to hear [Luisa] Tetrazzini and [Enrico] Caruso every time they had a performance. The family just shut down everything and went. And I can remember Tetrazzini singing on the lawn of the Oakland City Hall with maybe 4,000 or 5,000 people there. In the early evening, as this was, right after dinner, this was very romantic. The sun was just setting, and it was balmy spring. Her voice was just something. We had some records of hers that we kept for a long time. We used to play them over and over again. And then there was Ernestine Schumann-Heinck who had that throaty, low voice which was so appealing.

[Charles A.] Kofoed's first course in zoology was just a catalog of the phyla and was very boring, but it was possible to tolerate it. [laughter]

TUSLER: You survived it.

WARREN: Yes, I did all right until I got in my fourth year. I had become an honor student, so I was able to take advanced work and enter medical school at the end of the third year. I still had a few courses to take on the campus. Twice, I took twenty-one units, besides football and other things. It made me kind of rustle a bit. I didn't do too well on language. I got through German all right, but Spanish sort of failed me. I took

public speaking and tried to read in other areas that were not premed. This was the advice that you got from all the counselors. Well, then I got into medical school. I had just walked in about two days before the roster closed. I signed up, and the girl said, "Well, your records are all right. You're in." I paid the seventy-five dollars and that was it.

TUSLER: How simple!

WARREN: Yes, and there were thirty-five students registered, and they wanted thirty-six. I was about number thirty-two, you see.

TUSLER: This was at San Francisco?

WARREN: This was at Berkeley. They had the first year and a half at Berkeley until just ten years ago, when they shifted. We had anatomy in an old temporary building. Unfortunately, I was out for crew and had to leave about four o'clock, so I never quite got my laboratory work finished in good style. And I got my first C. This took me off the honor list, but I was already in the medical school, so it didn't matter. But it was a great disgrace to the family, to me, and to Herbie Evans--Professor Herbert Evans. He said, "Well, you ought to have known better. Why did you do these athletics?"

TUSLER: Who was Herbie Evans?

WARREN: Herbie Evans was one of the professors of anatomy.

Herbie Evans, Dr. [Joseph A.] Long, and Dr. George Corner were all

professors there. [J. Frank] Daniel was the best one that I found in zoology. He made us draw the specimens, and I worked hard on them with watercolors--and did a pretty good job. I happened to meet my wife's sister, an older sister, there. She was a teaching assistant at the time. I didn't know I was going to be marrying her sister.

Old Dr. Daniel had ulcers and had the sourest look on his face, and all the kids were afraid of him. But, one day when I was trying to draw a turtle's head and I was just about finished--and it looked like a turtle, you know--I felt this breathing over my shoulder. I thought, "Oh, oh!" [laughter] Dr. Daniel said, "Why, that's unusual!" He said, "That's good. Are you premed?" And I said yes. So he said, "That's fine. You want to keep it up. They need men who can understand biology."

Well, after that, we got very friendly, and he used to talk to me. I used to spend extra hours in the lab trying to understand things. I was just curious about all these things and anatomy and the relationships between different species. This was the first time I actually got my hands on anything. We dissected the frog and the dogfish. I began to feel that maybe there was something to this business of being a premed.

TUSLER: You really got excited about it at that time?

WARREN: Yes. But the first year and a half of medical school were just some more laboratories, although I became

interested in them. I found a cat at home that had a tumor about as big as a cup, about eight or nine centimeters in diameter. So I told Dr. Evans that I'd like to borrow some chloroform and some formaldehyde, and that I had a little surgery I wanted to do, and that I'd bring in a nice specimen. I didn't say why. And he didn't ask. So the next weekend, I operated on the cat, and I had a heck of a time tying off the blood vessels because I didn't know much about anatomy then. I brought in this great big tumor in formaldehyde. Well, Evans just hit the ceiling. They looked at that dissection and said, "Well, that's the first carcinoma that's ever been reported in a cat, WHY DID YOU PUT IT IN FORMALDEHYDE?" I said, "Well, everything else around here is in formaldehyde." [laughter]

This was just the beginning of tissue transplanting; that is, finding out that you could transplant animal tumors, and then doing it. I think they had a mouse carcinoma at the time in Berkeley. But I don't know of any tumor in a cat since. I certainly missed a bonanza. If I had only brought in the cat!

TUSLER: When you put it in the formaldehyde, then it couldn't be transplanted?

WARREN: Then it's dead. If I only had had my wits about me, or they had said something, I would have brought the cat in. They didn't suspect anything either.

Dr. Corner got interested in me and asked if I had

any free time and would I like to help him. I said sure. I began to work as his lab assistant in studying the endocrines, the ovarian endocrines. He had found a reference to an article by [Jacques] Loeb, who had left the department in Berkeley at that time and gone to New York.

This reference showed that if you put an object like a thread in the fallopian tube of the rat, when it ovulated, the rat produced a deciduoma; the reaction to produce the placenta was developed. Dr. Corner got me to make up little glass beads. We sewed them in the fallopian tubes and, sure enough, you had the deciduoma--no placenta, but the rat's uterus reacted just as though there had been an implantation. If you took the ovaries out, all this reaction disappeared; or if you put the glass bead in after you had taken the ovaries out, the uterus didn't react. This became my first joint publication with somebody.

TUSLER: Oh, you wrote a paper?

WARREN: He didn't like my writing at that time; it wasn't too good. [laughter] This has been one of my deficiencies, even though the English teachers labored long and hard with me. I never overcame the mix of Spanish and English way of expressing myself. This was started so early in life that I never was able to have a well-disciplined expression of my ideas. It was always backwards.

TUSLER: It certainly doesn't come out verbally.

WARREN: Well, I have to work on it. I have to keep thinking about it. I'm liable to put the object in where the subject ought to be and write it backwards as the Germans do or something. [laughter]

TUSLER: Was this because you were around so many Spanish-speaking people?

WARREN: Yes, I forgot to tell you that I had a regular gang. This was because our Anglo-Saxon family lived on a pretty good sized farm or ranch. There were Portuguese and Spanish-Americans around the periphery who were the working class. Their children and Anglo-Saxon children of the same age would get together. Of course, the Anglo-Saxon was usually more aggressive, and he was the leader of the gang. We would throw rocks at others together, and we would go running through the creeks and woods and so on together.

My brother being four and a half years younger was part of a quite different age group. We wouldn't pick on them because they were too small. Occasionally they took shots at us, but we ignored them. [laughter] There was always this kind of relationship.

We were taught never to act superior, but always to try to be like the others. So we would talk in the vernacular, you see, all the time. I didn't learn any Spanish out of this except some swear words. But it garbled my English expression. There'd be such things as "Father,

she burn the gravy." I've spent a lot of time trying to figure out what happened and why, but all my generation had difficulty with language. To some extent this exists now. There was a prohibition, a block, against the native languages. The people who came in as immigrants didn't want their children to learn to speak their language of origin. They insisted that they become Americans, and learn all the customs, and speak like Americans. Now, this had a fine influence on the amalgamation, but it ruined the continuation of a culture, which was quite valuable and would have been useful.

TUSLER: Where was your first publication published?

WARREN: Oh, I've forgotten now. I think it was published in the Journal of Anatomy. Then I got interested in all kinds of things. I could operate on a rat. We used chloroform and later ether. It turned out that I was no surgeon. I was all thumbs in tying knots. I could do the rest fine, but, for some reason, when it came to tying knots, I couldn't develop this skill. I can do other things very precisely, like micromanipulations.

TUSLER: Maybe it was digging out all those stumps that did something to your hands.

WARREN: Well, I had the fingers for it. They are stiffer and not as flexible as Bill Longmire's fingers. You just ought to see them. They're as supple and flexible as you can imagine, more so than any girl's hands. They're most

unusual. Most of the surgeons are that way.

TUSLER: Yes, I imagine that must be true.

WARREN: I had a very close friend in college, Dan Delprat, who was six-feet-three. We both rode motorcycles and became partners in medical school. He had huge hands, but with very supple fingers. He became a very good surgeon and could tie knots all around. When we got to the Hooper Foundation later, he would do all my surgery. He would come in and push me aside and say, "You don't know how!" [laughter]

The only high incident of recalcitrance during my first year in medical school was the Pajamarino Rally practice afternoon, when the boys and girls were going up past the Anatomy Building with the wood and the placards, getting ready for the big bonfire that night. They were giving us the business as they went by because of all of us men were always working instead of having fun. So we just casually threw out a couple of pieces of preserved lung, which disrupted the parade! [laughter] We were astonished at the reaction so, quick like a flash, we went out and recovered them before anybody could do anything. But the word went around, and we were castigated verbally by the instructors. Dr. Moody came in and said, "Now you are no longer boys, remember. You are men, and we don't expect gentlemen to do such a thing." [laughter]

TUSLER: Did you have a paid job in the laboratory then?

WARREN: No, it wasn't paid. But I got the job of feeding the mice over the weekends if I didn't go home.

TAPE NUMBER: IV, SIDE TWO

MAY 12, 1966

TUSLER: Dr. Warren, when you were working under President Kennedy in Washington, D.C., for the mental retardation program, you became interested in the problem of the necessity of computerizing the library system for the National Library of Medicine and the National Library of Law.

WARREN: The law library came almost last. When I was "negotiating" with President Kennedy about my coming there to work on this program, I was reading very actively. The panel report to the president on the necessary legislation to combat mental retardation had just come out. The report recommended setting up an office of a special assistant to the president to implement the ninety-five proposals that were in this report. Of course these got into almost every aspect of society and life and all ages. It contained very broadly based recommendations and was obviously something that would take years and years and years to carry out, but some parts could be started and a great many could be encouraged. Then there was the legislation which I understood at the time was to be introduced in Congress and passed. This would give authority and money to grant funds and to stimulate state programs.

I first ran across the paragraph on scientific communication, page 34 to 36 in this report, which recommended

that everything be done to speed up the exchange of information among those doing research and those interested in mental retardation programs. Second, it recommended that there should be no restrictions on the field or discipline from which very important information might come--i.e., engineering, physics, chemistry, and mathematics. Third, it asked that the techniques of computerizing the literature might be investigated and exploited.

I had been interested for three or four years prior to this in our problems with the Biomedical Library expansion. It became quite obvious in the late 1950s, when we began to plan the final stages of the UCLA medical center and the medical school, that the planned foundations for fourteen stack floors were going to be inadequate twenty years before we had thought they would become even comfortably full.

At the time of the original planning and projecting, we were taking a couple of thousand journals in our budgeting. We thought this might increase to 4,000 possibly by 1970 or 1980, and that we'd still be in the ballpark for the year 2000. Well, when it came time, in the mid-fifties, to look the situation over, we were then approaching 5,000 journals. It was quite obvious that we were getting a new journal every few weeks. By the time 1962 came around, a count showed something like 15,000 journals in the medical-biological field, worldwide. We were obviously subscribing

to a third of the journals most commonly used by our faculty and students, and we would shortly run out of space for the bound volumes of all these journals.

It was then that I became interested in computerizing and miniaturizing. Miss Louise Darling was interested, too. So I had the opportunity to make some contacts in NASA and brought the subject to the Manpower Committee and to Mr. Melvin Day's attention in NASA. He agreed that it would be reasonable to hold a conference on this situation, since they had this same problem in their research communications between Dallas and Berkeley. He suggested that I ask the National Science Foundation for joint sponsorship, since they had developed techniques for these kinds of conferences and had already held several.

I contacted Miss [Helen] Bronson in that program. She was a little hesitant at first, pointing out that there had been a whole series of conferences, and that they had gotten nowhere. I said, "Well, I think we can get somewhere." I pointed out that I was in this building planning stage, and that we were a key institution in the university family, and that this might be very helpful. I did not know at the time--and she was not willing to tell me, apparently--that she had just funded one at about the same time for the law, which was organized by Edgar Jones of our law school. Both of these conferences finally went off at Lake Arrowhead.

The law school conference took place three days before the one we had for the medical school.

Well, I can say that the law seminar, with some profit, did review all the common features known at the time about the hardware and the software and a few other things. Then, for reasons that are quite clear now, there was no home to go to for funding. The law school and law education are not supported by any granting agency. The National Science Foundation was not about to get involved with the law school, so their program lapsed, unfortunately.

Interestingly enough, in our program we had Bob Hayes, who came as a representative of a small nonprofit corporation through which he was engaging in investigations in this particular area. We also had members from all the important agencies in federal government and from quite a few small companies, as well as IBM, and some university people who had thought about this problem. We had a very fine three-day conference. The next to the last day, [Henry J.] Dubester, Bob Vosper, and I sat up to almost three o'clock talking about computerizing medical libraries. We had [Frank B. Rogers] there from the National Library of Medicine, who talked very briefly about their attempt to have a contract to work on computerizing the medical literature for the National Library of Medicine.

During this three-way conversation with Mr. Dubester,

then from the Library of Congress, we debated the whole business of computerizing the medical literature and how to distribute the computer tapes, and so on. I proposed the concept of a network, but this was not viewed with any great enthusiasm. In winding up the program the next day, however, I proposed the network plan. Bob Hayes was for it, as were a few others--but in general, it went over like a lead balloon. [laughter]

However, I never forgot this conference. There didn't seem to be much chance to go ahead following the conference, except that Louise Darling strengthened her efforts to train interns in medical library techniques and began to get some interest on the part of students in the computerized technique.

By this time, when I left to go to Washington, the School of Public Health had gotten its big computer machine installed. Dr. Wilfrid Dixon, who had attended the seminar, was aware of what Louise Darling had hoped to plan, and he cooperated very well.

TUSLER: Would you like to explain your concept of the network system?

WARREN: It was obvious that if you could put material on tape, you could reproduce the tape just like music on tape. At that time, they were well advanced in computerized personnel control and in many other things that were adaptable

to this process, I thought. I began to get some others who felt the same way about this, too. The tapes could be mailed from Washington, say, to our center, where we already had much information in this field. The air force had given the Brain Research Institute a computer. Then we had the Western Data Processing Center and the school of business, which were very sophisticated in this area with their computer. So I thought that everything was serendipitous in this direction. Let's say that it wouldn't have taken more than a decade to launch a network such that you'd have a station or a regional center. And I called these regions.

It was quite clear at that time. In fact, we had all the eager beavers point out that once you had the stuff in a computer, you could then challenge the computer from a console. You could store all kinds of images and then call them back. You could put all these images over the wire. Whatever or wherever your receiver was, you could deal with the computer just as if you were sitting right there. So you could spread this--if it was economically justifiable to do so--throughout a campus, throughout the university, throughout a whole region.

There are electrically activated typewriters. A man named Moors and I had a whole evening on this. He was promoting this as a private entrepreneur, and he made it quite clear to me that you could sit at this typewriter

and ask all the questions you wanted to with the computer, lock it in on the line, go away, and come back in the morning, and your bibliography or your information would be all typed for you. This is not unreal at all.

We also knew that we had a teletype, and the University of California has actually hooked all of its campuses on the teletype line. So it was here, really, all for the organizing. Quite a lot of things did not need to be done over or done from scratch. The problem was to get a group that was interested in libraries, not in mathematics or in data coordinating.

A tremendous amount can be accomplished by a computer in a few hours or even minutes, so that it's quite obvious that the computer center we had on the campus had a lot of time available which could be used by others on a rental basis. This function could be interdigitated without having to have a computer itself. How long this will last, I don't know, but anyway, that's about the way it is today.

I began to inquire about all this when I got into Washington, during odds and ends of time. Everybody in the Office of Education--Mr. John Lorenz, for instance, who had come there from the Library of Congress in anticipation of the big library bill that passed three years later--probed deeply into what was needed in this whole

field and into why this wasn't applicable.

I began to see that if you did it in medicine, how would the other disciplines get in? Medicine should not be required to computerize all the engineering literature, all the physics literature, and the rest. In the first place, it had no anticipation for this, so they had not prepared space for it. The Bureau of the Budget said, "Stay in your own backyard." The surgeon general was a little worried that the whole thing would be a bust, and so he wasn't about to expand the scope into other disciplines.

I began to find, as others had, that the library was sort of a lost sheep. The librarians had been so browbeaten over the years on their desires to develop new things that they just didn't have the momentum or the courage to step out and demand things as other scientists did.

In the meantime, the Department of Defense and several other departments engaged in defense got their operations together. They were having similar trouble with the contractors' reports, which came in by the ton almost monthly. Once they came in and were distributed, they essentially got lost. So NASA, the AEC, and the Department of Defense got together and decided that the Department of Commerce, which had a lot of problems relating to this, would be a good agency to hold all of these reports. It was already

doing a lot of reports and had created a small computer facility to handle them. So they had a start.

About this time, the Office of Science and Technology policy--Mr. Jerome Wiesner, particularly, before he left--began to get very worried about my activities. I spent about \$1,400 of my own money on luncheons, and I had gotten in to see every computer buff in government that I heard about; and I began to ask a lot of questions and talk. This took me about a year, so that by 1964 I was ready to make some proposals.

By this time I had, of course, talked very extensively with Dr. Martin Cummings, who was an old friend and who had become the new director, because [Frank B.] Rogers had accepted the librarianship at the University of Colorado in Denver. They had a medical library there, too. I'm not quite clear whether it's a medical library of the medical school or part of the university library. Anyway, it doesn't make any difference, because he continued to have an active interest in the field but now, of course, was looking at it from a different point of view--that of the university, not of the government.

Dr. Cummings and I agreed that the network idea was a good possibility, but that he couldn't spend the energy on this. He was, however, very hopeful that I could do something about it. He loaned me Dan Bailey for two or

three weeks to write my first white paper and to be sure that it was accurate. He checked it with everybody.

The Office of Education lent me Allen Kent for three weeks as a consultant. Now, Allen Kent was considered to be a stormy petrel in this field and had, with some others in Western Reserve, compiled a glossary for metallurgy and had computerized it. The literature on metallurgy was being searched by computer in rather a limping--but nevertheless successful--fashion. Western Reserve did not want to expand. It was obvious that expansion would go for the hard sciences, of which metallurgy was only one small bit. And so they had a falling out, and Allen Kent went to the University of Pittsburgh, where he joined the education department, I think.

He found that the climate was quite good there and finally organized a seminar and invited me to come. I gave my first proposal at that seminar, and of course, it caused quite a stir. It was a public address. At this time I did not have any support from the Office of Science and Technology, and Dr. William Knox refused to have anything to do with my presentation--so I did not clear my paper there.

TUSLER: What was his objection?

WARREN: That is a very interesting question. The same objection came from almost everywhere--that the time was

not ripe, that we did not have a perfect system, and that this was forcing the issue. It was felt that MEDLARS was going to fall flat on its face and be a bust and a scandal. In fact, Verner Clapp, formerly in the Library of Congress but for the last ten years or more president and executive director of the Library Council on Rockefeller Funds, had been working on this subject, too.

One of my first contacts before I made the seminar arrangements occurred when I heard about him. I came into his office in Washington, and he was working on a small gadget which was a refinement of a gadget that Vannevar Bush had designed for sorting cards--putting this stuff on some kind of drum and then doing the sorting with essentially a computer technique. It was very primitive and crude, but pretty effective in a low-level way.

You can do the same thing, not quite as well, on an IBM sorter by just punching cards. Then you ask for a certain item which is on one particular punch hole, and you get all the cards that have that hole punched, as you know.

Verner Clapp was on the advisory committee that Mr. Knox of the Office of Science and Technology called in. And there was Mr. Carlson from the Department of Defense, who was their computer specialist. He was also secretary of the Joint Engineering Council. He had proposed a

glossary and the organization for computerizing the engineering literature, but it had gotten nowhere. I took him to lunch, and we talked about it. There were some things about his plan that I felt weren't quite acceptable. We discussed this, and he said he would support me. He was a member of the President's Science Advisory Committee, which was answerable to Dr. Hornig's or to Dr. Wiesner's office, the Office of Science and Technology.

I ought to back up a bit and say that the president has two advisory arms now. One is the Bureau of the Budget, which does all of the legwork and provides the supporting material. Its purpose is to keep the new proposals within the budget that the president has agreed to for the coming year. So its action on all new programs is to scrutinize them very carefully and to sample the possibilities of their being acceptable to Congress and their acceptability within the budget set.

The Office of Science and Technology advises the president on all scientific matters. But originally, the scientific bodies that advised the Office of Science and Technology were weaponeers. When I came to talk about this new program before their groups, they gave me two or three hearings.

At first I had a very crude proposal, I'm sure. This was bad because it fell through quite easily. But I was

able to take advantage of the criticisms and go back and probe further as the year went by and to get better oriented. I began to learn the proper vocabulary. Then I objected to this being a group of weaponeers and not soft scientists, scientists in the softer fields--biology, medicine, health, and so on.

They did have one fellow, Colin M. MacLeod, as a member of the office, and later Richard Bing, and a succession of medical advisers who worked on things that were of importance. But they were put to work on crises like the pesticides, water pollution, and things of this sort. While they understood what I was talking about, they didn't get into it in depth enough to have an opinion of either yes or no. So they were essentially neutral.

They were also neutral later about my small medical school plan, chiefly wondering about the quality of the faculty that could be gotten into them. And yet they didn't have the resources to make a search around the nation and see whether I was right or not. Were there a large number of assistant professors who had just come to the eighth year in the training program throughout the nation in medical schools who had no tenured spots to go to? This is the key to the staffing to that group. In fact, it is the key to the staffing of the big centers, too. They won't make such a quick drain as the small

ones will which could be put up quickly if this thing goes across.

To get back to the Office of Science and Technology and my progress, I finally submitted a paper suggesting a kind of medical library that would be focused around regional centers and then be fanned out by whatever means of communication which would be appropriate to the medical schools and hospitals and others. I created a budget for it and consulted with Mr. [Robert] Barclay, the staff man for Senator Hill.

Senator Hill was delighted with my suggestions, understood them perfectly, and said he thought it was needed. Within three days, they had a bill exactly copying my budget and the main points. Well, then he said, "You will have to get the president's approval, because my work is with and for the president, as you know, and this is vital if we're going to get it through Congress. If you get his approval, it's pro forma." I started working in the Office of the President. Myer Feldman, who had been President Kennedy's right-hand hatchet man, told me just before he left Mr. Johnson's service that they should have included my bill as part of the health message in the prior years. He said that it was a good, attractive thing, but that it was too late for 1963. It was the fall of 1964 by the time I really got Mr. Hill's attention.

I then had to work with people who were not particularly interested in mental retardation. [Kermit] Gordon said he would not unlock the budget. But then I got Wilbur Cohen interested. Finally, Mr. Cohen and Mr. Gordon compromised, and I agreed with them that the construction money the first year be left out. I had not been too happy about putting it in the first year, anyway, because of knowing what usually happens. It takes six months to make an application. Then, to get all the approvals, you have to go through preliminary drawings, so you probably lose a year before you can get an application in for a grant to construct.

The proposal wasn't quite clear. I wanted the regions to be built by contractual arrangement with one or more universities in a high-density area--say, in the periphery of Chicago, or on VA land in Los Angeles. Let the university take the responsibility for designing and operating it for the federal government instead of having a federalized procedure to build a building, which would take years and years and would be very slow. It wouldn't be very profitable, particularly since I wanted each region to be a center of a training and a research effort, too. The whole thing was really too big to put on a campus. But if it were near a campus it would succeed. It would use the precedent of the AEC contracts and NASA contracts.

I saw nothing out of order in this at all. All the precedents for this were already available. The only thing was that they hadn't been as widespread in medical circles as in engineering, chemistry, and physics circles.

Mr. Hill's bill number was Senate 597. The hearings occurred on June 14 and 15, 1965, sort of the last minute of the budget year, you see. However, they were not passed until that fall. The president then signed them while he was in the hospital. This was unfortunate, because there was not the chance for the publicity of the signing with the pens, the calling in of the group of people who were then to understand, motivate, and implement the program.

But to go back, in order to get the president's permission, I had to get Mr. Gordon, who was then just about ready to leave the Bureau of the Budget directorship, convinced on the deadline of the submission of the 1965/66 budget. He didn't want to see me, of course, but he had to, since I was with the president's office. So he gave me a five-thirty appointment in the afternoon, thinking that, well, he'd be through by six o'clock anyway. Well, I stuck with him until seven o'clock. We finally agreed that I would be willing not to have much money. A couple of million dollars was nothing in their budgetary process.

I was to drop the \$10 million construction out of the

first year, but instead of five years, it would be spread over four so the same amount would be available, since the centers would probably cost \$50 million, anyway. That would be \$7 million apiece times seven. And the \$7 million was an estimate I made just by crystal-ball gazing.

Before I left here, I had thought about what to do about a big computerized center. Mr. Gordon finally said, well, he would discuss it with some of the others. But I would need to get the support of the Department of Health, Education, and Welfare. The official support was not from the surgeon general under which the medical library came, but it was from the legislative representative of the department, the secretary, now the deputy, Wilbur Cohen. So I got that support very quickly.

I next had to go through the Office of Science and Technology, and I knew I would fail unless everyone but they had approved. I went to [S. Douglass] Cater, Jr., who was the quiet lobbyist and the programmer for the president, and who prepared his agendas in a preliminary way before Mr. Moyers set the final appointment schedule determining who went through the office each day.

He was very kind to me. Busy as he was, he gave me about half an hour, during which we went over my proposal very quickly. By this time, Mr. Hill had a bill all printed and ready--not heard yet, but issued. I was

able to show him and tell him what I felt Mr. Gordon would agree to, and that I had Mr. Cohen's backing, and that now all I needed was his backing.

I thought that the Office of Science and Technology probably would not resist vigorously. Well, I had to brow-beat brother Knox at luncheon. He was just down the hall. So, finally, I think it was Colin MacLeod, the medical man in the office, who said that this program ought to go. Also, by this time MEDLARS had paid off. They had a very successful run. Mr. Knox challenged them. A group in the National Academy of Sciences recommended and authorized their librarians to make a search on a dozen subjects proposed by Colin MacLeod. Mr. Knox then would verify that.

The questions were put to both the librarians and MEDLARS. MEDLARS had the answer the next day, of course. It took the librarians two weeks. Now, each did find a few answers that the others did not, but the MEDLARS found many more and proved the case. They just couldn't ignore it and throw it out. It was good enough. The failures were such a low percentage of the MEDLARS that it just stood by itself. It didn't have to have any other support.

They told Mr. Cater, "Okay, [laughter] we'll let the poor country boy have his say. But it mustn't go any further than MEDLARS." This went on to the president. The president sent word to Mr. Cohen. Mr. Cohen told Mr. Hill,

and within three or four days, Mr. Hill held the hearings.

The hearings had a good attendance as all arrangements had been made ahead of time. Anytime the hearings were to be held, there were certain people there who were recommended by Marty Cummings and me, or by the surgeon general and Mr. Cohen. The AMA were there. It was the first time the AMA could testify on something that was not on the socialization of medicine. They came in very enthusiastically. The Association of American Medical Colleges was there, of course. That's the deans' organization of medicine. Then a lot of individuals were there, including the Heart, Cancer, and Stroke Committee, to whom I had submitted my suggestion. They had held a hearing, and Dr. [William H.] Stewart, who is now the surgeon general, made the main argument for me afterwards. All that helped. Dr. [Michael] De Bakey is a close friend of Senator Hill's and was there. He was for it, and that just added more pressure.

On the House side, [John] Fogarty, [Wilbur] Mills, and [Oren] Harris all approved it and cosigned it and it went through pro forma. So almost within a week it was ready. [laughter] Now, that was only the beginning, because a year would go by before they could do much. Dr. Cummings has now given the Association of American Medical Colleges the contract to define a biomedical library because this is important for the establishment, then, of a center or

a region or a local program. There is also the [Inter-University] Educational Communications (EDUCOM) Council, which is kind of a self-appointed group out of the Big Ten universities and is sparkplugged by [Dr. James G.] Miller. Marty Cummings of the Library of Medicine has given the AAMC a contract to recommend the sites for library centers. That group had it's first meeting this week. Bob Hayes is a member and Robert Tschirgi, one of our former staff members who is now working in the Office of the President. He will now be a faculty person in [UC] San Diego's medical center. He is also a member from our side.

This makes it very nice because Bob Hayes, particularly, understands networks and so on and probably is the most sophisticated of the group, although Miller pretends to be a cybernetics expert. I feel that Miller's personality is so expansive that he's fine to initiate a subject and to stimulate interest in a lot of people; but when it comes down to practical working affairs, somebody else has got to furnish the details. And that's fine. People have certain roles in which they are good.

In the meantime, the VA has responded. One of the elements unregistered in the bill was the allocation, perhaps, of centers or subcenters of VA property where the VA had a big computer competence as it has at the Hines Cancer Hospital in Chicago, as it has in Atlanta at Emory

[University] Hospital, at Gainesville, Florida, and in Los Angeles, of course, in the San Fernando Valley at the Sepulveda [Veterans] Hospital.

All of them have big computers and people with know-how, so they can get the tapes. With the proper instructions, a couple of people added can be very valuable to the medical schools and the region in which they exist in furnishing bibliographic citation. This also makes it possible to create small medical schools with computer connections--not necessarily a computer service, but eventually with consoles and electrically activated typewriters, which would get all of the bibliographic service and citations without having to accumulate a half a million dollars' worth of books. It is necessary, perhaps, to buy current textbooks for reference and subscribe to maybe 1,000 journals, which they would keep on the shelves five years and then throw away.

Most of the reading done by graduate students and faculty is within the last five years. Even now, where the computer service does not exist, the medical libraries ask the National Library of Medicine or the Library of Congress for facsimiles or for interlibrary loans. That kind of activity would continue. Or one could get the modern-size microfilming, which is 4 x 6 inches and holds fifty-six pages, or use some other size that might be set as a standard by the Bureau of Standards. The Bureau of

Standards has accepted the responsibility not only for these microfilm sizes but also for the equipment that might be usable by libraries, and will police the language that the computer uses so that we don't have the disorder of different languages by different companies.

Let me go back to the Department of Commerce, which had started a computerized program. There was an informal but official agreement among the defense agencies which I mentioned. The AEC, NASA, Department of Defense got together with the Department of Commerce and said, "We will ask the Department of Commerce to supply us with reports or citations or facsimiles from government reports coming in from the contractors or from any other agency." These reports are weekly, monthly, bimonthly, or biannually. They are used by the scientists that are supporting the contractor and the agency to keep abreast of progress. If the communication is good, there is coordination.

At Huntsville, for instance, in northern Alabama, a rocket contractors' organization has a tremendous library accession problem with these reports, but it doesn't get all of them. Those that it misses, it has a deuce of a time checking on. It has a good reference service. So the Department of Commerce built a \$12 million (I think) center for a reporting organization outside of Washington. About two years ago they moved in and began to give this

service. This did not include the serial literature at all. But out of it, by contract, the Datatrol Corporation produced a composite computer vocabulary which was a two-volumed work about five inches thick. This gives you some idea of the size of the project, but they broke a logjam.

Mr. Knox felt that the composite vocabulary situation was unthinkable. This was a big obstacle because every specialty in science has an association, it has a vocabulary, or it has a committee working on its vocabulary or its glossary; and they all differ. Now, what Datatrol did was to punch on cards the glossaries of the agencies, because each one had created its own glossary. It turned out that by proper programming, the computer was able to print this out in a week, organizing it into hierarchies, subjects, and categories. Whatever it was told to do with the material, it did. So this two-volume composite vocabulary now becomes the focal point of the whole business.

Mr. Knox was quite fair. He gave me a copy immediately, which I took to Marty Cummings. I brought a copy home, which is now being used here by the Brain Research [Institute] and other groups working on this same problem at the basic level. When it comes to these specialties, you need this.

It was agreed that MEDLARS would eventually adapt

its medical glossary--which has stood for thirty years, I guess, always improving and increasing in size--by integrating and implementing it. I got Mr. Savage from the Food and Drug Commission, Dr. Cummings of the Library of Medicine, and [Foster E.] Mohrhardt from agriculture. They all agreed that it was vital that they should begin to use this composite vocabulary as the base. It had a great many of the terms already in it, particularly the chemical terms. While the defense agencies concentrate on fuels, metals, ceramics, and electronics, and so on, there's enough of this in contact with medicine--in technology, anyway--so that you've got a start. Each one of them had a medical department, and it had particular problems. The Atomic Energy Commission, of course, had radiation biology. With NASA, the biological effect of rocketry on the human being occupying the capsule was the problem. So the idea of coordination was not unrealistic at all.

Now the Department of Commerce has gone ahead and for several years has been doing their reporting to the contractors and to the defense agencies. Any other agencies of government, of course, can tap this, also. But it's not, in any sense, a competitor. In fact, it's a leader, and it's very helpful to have them and the National Library of Medicine going ahead side by side.

I'll have to explain that Dr. William Knox was the

librarian for Esso [Standard Oil of New Jersey]. He has a PhD in chemistry and has been a librarian for five years. All of these oil companies have a huge research group. They have found that it's quite important to have a clearinghouse of scientific information. The latest stuff is read, abstracted, and circulated. This has been the custom for many, many years. This was Mr. Knox's role at Esso.

In my thinking, I had the weaponeers as the worst antagonists, or you might say, as the most vigorous antagonists to my suggestions. I had Mr. Knox kind of in the middle, and then I had the eager beavers, like myself, you see, who wanted to proceed now on an experimental basis. He and I had agreed that MEDLARS was an experiment, as was the Department of Commerce program.

The CIA had a tremendous program, but it was all classified. Joseph Becker, who had written a book with our Bob Hayes, was the man who organized the CIA computer program. I had met him before. He couldn't come to the Arrowhead conference, but sent his buddy Mr. Hayes. Their book, by the way, at the time it came out, was a pioneering effort. But by 1963 or 1964, it became old hat, [laughter] so I think they spent this last summer rewriting it. I don't know whether it's come out yet, but it ought to be greatly improved and up to date. The problem in this field is to keep up to date. It just progresses fantastically fast.

Well, now it became obvious that I couldn't develop the bill unless I went to the greater problem of the library itself, the general library. So I attacked Mr. Knox on chemistry abstracts by asking, "Why weren't they computerized?" And so he stirred his stumps. I never attended these meetings. I was not invited. He told me at our first meeting--we had a very frank relationship--"You're controversial, and I can't get you in my meetings." And I said, "I'll invite you to all my meetings, so that you'll know." I paid for an awful lot of his dinners and lunches. [laughter] But I was glad, because I was indoctrinating him, you see, gently, carefully, persistently.

Then I began to look at the Library of Congress and the library situation as a whole. It's obvious that unless you computerize chemistry abstracts or some other large group serving the field, you can't get ahead on this. I had the long-term goal of interesting each agency's library and bringing it into a common pool. It wasn't possible to get the thinking conditioned enough to make this acceptable--it was too early--and I didn't want to continue beating my head against a stone wall and getting rebuffed all the time with no progress made.

In early 1965, Mr. Knox began to get active. He got the Department of Defense, NASA, I think the AEC, and Dr. [James A.] Shannon, the director of the National Institutes of Health,

to agree on the advice of the president's Scientific Advisory Committee. These are made up of almost the same people. The latter has more computer buffs in it, but again they are weaponeers. It's Carlson from the Department of Defense, Joint Engineering Council, and so on.

A contract was drawn up and agreement reached whereby the Chemical Abstracts Corporation would be subsidized to the tune of \$42 million over four years to computerize not only their citations but their abstracting service. I had the satisfaction--privately, before I left--of seeing or hearing that the contracts were signed. Mr. Knox came by with a big grin on his fat face and said, "We got the contracts signed today, and Chemical Abstracts is now on its way." It changed them, of course. I shocked him by pointing out that it changed them from a completely private organization to a quasigovernmental organization, sort of on the order of the Red Cross. There are a few other agencies around that have this, although the Red Cross is constitutionally set up, and this is set up by presidential order or agreement.

TUSLER: But no bill was necessary.

WARREN: No bill was necessary. This is under Executive Office operations so that it doesn't have to go through Congress, unless they have to ask for the money. You see, the agencies will cough up this money, so that it

means a couple of million dollars a year apiece. It wasn't too bad.

Now, I had already talked to the American Institute of Physics about doing the same thing. I had tried to get them interested in computerization. Almost from the beginning, I had all these strings out to Chemical Abstracts, the Engineering Council, and the American Institute of Physics as the association representatives of the field.

I ought perhaps to explain a little bit about Chem Abstracts. Chem Abstracts is supported by the American Chemical Society. It was an offshoot. It publishes their journals and it does the chemical abstracts. It's supported out of dues and out of sale of the abstracts journal. But this was getting more and more expensive so that, pretty soon, the members could not subscribe anymore. I think it eventually cost \$800 a year. So it meant that only strong chemistry departments and libraries would buy it. Well, that was not enough, so it was going broke, and it was about to be disbanded. I feel I had a very informal but an initiating part in getting it rescued. This was personally satisfying for the work I put in it, although I don't get represented anywhere.

I had each one of these groups as guests in Washington. I had the American Chemical Society editors down and gave them lunch in the White House. You know, I gave them the

business. I had a diagram of library organization on a blackboard. One of these boards I could turn around. I had things about mental retardation on one side and about the library on the other side, depending on my audience. [laughter] It really worked surprisingly well. The president's assistant's office as a vehicle was a neutral area, and yet it showed the interest of high-level government, and the Executive Office, in the field. People were stimulated by just coming and talking in my office and going to lunch and seeing all the rest, to go ahead and do something if they were about ready. I also tried to get the American Library Association and others in, but I was not very successful.

By this time, I went out and talked with Western Reserve, at their invitation, about this library problem. I felt, "Oh, dear, this is worse than the mental retardation group." The parents in the mental retardation group were at least interested and would go out and be vocal and work; they want their children taken care of. But the librarians, as I mentioned earlier, had been too browbeaten, and they were not forward-looking enough philosophically. The libraries have been creatures of the administration of the campus. It's as if the hospitals in the medical schools were creatures of the dean's office. They really don't have much to say about those hospitals.

Nevertheless, it's a necessary service organization. And, of course, you remember the long fight that Larry Powell and Bob Vosper had here to get the staffs of the School of Library [and Information Science] branches and services up enough in quality to be acceptable to the Academic Senate.

One of the things that I have come to believe is that we need a reversal of operation. The diagram that I created for the White Paper on General Libraries is a good illustration. The library school should be the driving force; and yet, of course, its budget for training is miniscule in comparison to the library operation. Well, this is also true in the medical schools. The hospital operation is one-third of the total budget, which might be \$20 million for the medical center; and the educational part is about one-third; and the research is about one-third. And the funds come from different sources to a great extent. But in the library, as yet, the educational program is just crawling and very poorly supported. There's not much volume in the training group of students. There's almost no research. The library budget for operation is the big one. I sense certain problems in the relationship between the dean of the School of Library Service and the librarian. There are almost power struggles, though there shouldn't be. I think that in some respects we ought to return to the time when Larry Powell was dean and librarian; then

you avoid this.

TUSLER: The job being one and the same.

WARREN: The job being one and the same. Now, this means that you have to have a very potent assistant librarian, who essentially takes the place of the librarian, then let the dean cover both functions, but have a planning, developing, policy-level position, rather than an operational-level, or direct operation. Well, if the assistant librarian were sick, why, the dean could even be the librarian, but he's not ordinarily and actively this. He could be, perhaps, an executive dean or an associate dean in charge of the library, as we have with Dr. [Baldwin G.] Lamson, associate dean in charge of hospitals and clinics. Now this exists not only here at UCLA, but I found that this exists elsewhere around the country, and I think it's covertly present in Berkeley.

TUSLER: This is the only way to keep the academic or research aspects of the organization in the primary position, would you say?

WARREN: In the primary position, yes. Well, you see, I come to this conclusion because the structure which runs the general library program for the nation, like the National Medical Library, has a board of regents. It has a director who is the librarian, namely, Marty Cummings, and his advisory group. This is a little changed now

because of the legislation, but there are different representatives on it now than there were before.

The National Library of Medicine originally was the army surgeon general's library. By agreement and new legislation, it was transferred to the Office of the Surgeon General of the Public Health Service, and the board of regents had representatives from the army surgeon general's office and the navy, and so on, as well as from civilian offices.

Our Dr. [Norman] Brill was a member for two terms. In that case, you see, Marty Cummings, as the director of the library, has a research-granting function and an operation-granting function, and he is beginning to take in interns and residents from other organizations from university libraries for training. This is bootleg because he is not in the university, but they go there on assignment from their parent institution, and it works out all right. But, you see, in a sense, he has the organization I'm talking about. He has no school as such, but he has the trappings of it. He is functioning very heavily in the research side, too, and making grants, which his advisory council scrutinizes. He'll have a study section which will make project site visits. In fact, one is coming, I think, next week to visit here to see how the MEDLARS station is progressing.

This is relevant because looking around in government, it's obvious that the Library of Congress has tried for thirty years to be a national library, but it has failed to be this. This is why I have this book, which I got together as sort of my progress and source material on the library program. I studied very carefully the Executive Office and the agency organizations. I needed to do this, anyway, to see where mental retardation fit across the board. This was so because the military had mentally retarded children, of their enlisted men particularly, which was a severe problem in Germany and other foreign places. NASA had some among its contractors' personnel's children; AEC had some in their city locations, like Oak Ridge, Tennessee, and Hanford, Washington. But in reviewing these organizations, I would keep three or four items in mind as I went through so I wouldn't have to go over it.

There were 120-odd special agencies reportable to the president. Of course, every president has had surveys made and has said, "How do I get rid of all these?" [laughter] Because, at least once a year, he has to send a message or attend a luncheon or do something in respect to each one that answers to him. So I rearranged some of this, too, for him in the process and gave it to the president's office. I also talked it over with Julius N.

Cahn, who was Mr. Humphrey's right-hand man, and who'd been working on this also for many years. He had been working on possible consolidations.

For instance, in mental retardation, there's no reason why employment of the handicapped couldn't be joined to the same agency because the mentally retarded eventually become sixteen or eighteen, anyway, and they're employable, and they should be employed. They are handicapped but not unemployable. Why have a different agency do that? And then there's the juvenile delinquency, the drug addiction, and alcoholism. All of these are handicaps which interfere with the operation of an individual in society in earning a living, just like the mentally retarded. So I suggested putting them all under one chairman, Mr. Humphrey, the vice-president. Let him represent the president. It gives him something to do. Of course, Mr. Humphrey has got more to do than any other vice-president ever had to do. But he had a retarded grandchild, so he was interested.

Well, let me get back to the government. The Library of Congress has a congressional committee which recommends its budget. The Library of Congress provides the Congress with all the information on any prior legislation and usually makes suggestions. Perhaps they even outline a bill. Members of this section of the Library of Congress may actually work physically with the staff man for the

congressional or senatorial committee. These people may have no home base at all in the library building. This is a very useful and workable relationship and is very important to the Congress. The president's office, of course, can also ask for the same service. The Department of Justice or any other group that wants legislative information may ask for this service.

Now, along the way, the Library of Congress got legislation to force the deposit with it of two copies of every publication. It's gradually issued a catalog, the card catalog, which has become a kind of a standard, but really it's in the doldrums. They make money out of this, and this partially supports it. This shows how inadequately supported they are. They have to compete with industry in order to issue cards, and the program waxes and wanes each year.

The library has international holdings and national holdings. It is not complete, and yet it duplicates the Library of Medicine and the Library of Agriculture to a great extent. It does not have a complete file on government. In fact, it's fourteen years behind. This is shown by evidence cited by Verner Clapp, Mr. Dubester, who worked in the Office of Education, and by a lot of other people.

Verner Clapp, very kindly, invited Mr. L. Quincy Mumford, the director of the Library of Congress, to

lunch with me at the Cosmos Club, and we had a discussion. I asked the director a dirty question, "Why not computerize the Library of Congress, the production of the library cards, for instance? It would help and you'd know where everything was and bring this stuff up to date." Well, he said he had been overwhelmed by the immensity of the job, that in general he wasn't up to it or wasn't going to do it. And he was backed by Verner that this was not a practical thing, although by this time it was early 1965. This was just before I left that summer, June 30, 1965.

But then, very shortly, a report came out, a printed report. I have a copy. I think it's there, or maybe I gave it to Louise. It was by the King Committee.* Mr. Mumford confessed, of course, that he had been a party to the writing of it.

Now, it just shows the fear in the man and in the group. This committee was a powerhouse group. It could have come out and said, "The Library of Congress should be computerized at the greatest rate possible. There should be integration with all the other libraries, and so on and so on." Now, it didn't. But it said everything in this direction in a negative fashion. It has a large section on hardware and the great possibilities of it. At the end of its conclusion, it said that it would be nice to computerize the library, but it was the cost that would be prohibitive.

* Gilbert W. King, chairman, Automation and the Library of Congress (December 1963).

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WARREN: We were talking about the Library of Congress and the fact that the librarian presented his budget to the [Joint Committee] on the Library of Congress. This committee has always played a very important part, of course, in the program of the Library of Congress, particularly in its budgeting. This is because the librarian submits the budget directly to this committee of the Congress in the initial establishment of his budget. Over the years the librarian of Congress, having worked closely with congressmen, has become more comfortable in working with them instead of with the president's office.

But for over thirty years, as I said before, the librarians of the country, and I suppose the librarian of the Library of Congress, have been trying to establish the Library of Congress as the national library but have never had the proper political support to achieve this end. In the final go-round each year the librarian of Congress officially submits his budget to the president, and it becomes part of the president's official budget. Former presidents have not paid much attention to this.

After I had made so many inquiries around the president's office about libraries, and particularly after talking with Mr. Julius Cahn, a library buff and

a computer buff in his own right, the president became interested in this point. I think that now the Library of Congress budget will have more scrutiny from the president's office, particularly by the Bureau of the Budget.

I'm not too happy with the Bureau of the Budget's role, because they have formerly, more or less, rubber stamped it. They may have negative approaches as well as positive approaches, depending upon how strongly they feel about the development of the Library of Congress.

When I left Washington, I had talked with the new director of the Bureau of the Budget, who is a professor of economics from Johns Hopkins University, who ought to know the needs of a library. He assured me that he would do as much as he could to strengthen the Library of Congress, particularly in the computerization of it, because this obviously would take a sizable budget.

I talked a good deal with the people in the Office of Education, who early in my conversations were working on the omnibus library bill and then later had to do the actual implementation of the bill. The omnibus library bill had as its main intent the strengthening of libraries in the school systems throughout the country up to the state college and university level, though not very much at the university level. It has the intent, too, to strengthen community, municipal, and county libraries.

This is to provide the opportunity for the student, throughout his development from grammar school on up, to have access to libraries of better quality.

The era of the Carnegie library is past, and there is no one who is able to do this kind of thing or willing to do it. Libraries in general have not been fostered since the war. They have been left without good support, and this goes right on up through to include the Library of Congress, which is, as I say, fourteen years behind.

Mr. Lorenz at first was in the Office of Education. He had come there from the Library of Congress to work on the library bill and to reorganize the Office of Education. As soon as the library bill went through, he transferred back to the Library of Congress. I hope there he will do everything he can to advance the computerization of the library. This last year, the Library of Congress got only a very small budget--I think it was less than a million dollars--to organize a computer program. Let me say that the year before last they had one man on the library staff who was trying to establish a computer program in the library. Then Mr. Lorenz returned, and this was immediately built up. But a million dollars doesn't go very far in a problem as great as this.

I think the initial effort will be to computerize the library cards. Now the library card has a lot of

information on it, including the number which is the reference to the item in the library. This is the number you give when you ask for material as well as for titles. But the number can be used also to identify a great many things, which should and could be put on the card. They are the publisher, the editor, the cost, and the shelf location. It should give the title as well as the author, and it could give a small list, as the MEDLARS does, of headings, showing what is in the item.

The serial literature is a big amount of material, but it does not approach the quantities that are represented by fiction literature and the romantic literature. But here, too, I think that if you do not wish to have a facsimile in the computer--and this is impossible right now because of the large amounts of items and the bits of the computer that are used up by facsimile--it would be quite sufficient to have the author and the title and a few descriptive words for most library purposes. Then you know from the information presented that you want to read this or you don't want to read it. If you do want to read it, then you can get it out as an item, or you can get a facsimile made, or a microfilm made. This is good enough for this first era.

I talked a bit not only with Dr. Lorenz, but with Paxton Price, who succeeded him, about fostering the

development of the Library of Congress out of the new library bill authorization. They thought it would be feasible. But the question is how to make a first approach, as Mr. Mumford is very sensitive about his prerogatives. He doesn't want to change the situation; he doesn't want to come under some agency which might force him to give up what he thinks is his autonomy.

I tried to point out to him that the Library of Medicine and the National Agricultural Library appear to do all right, that in fact they are going to do better, and shouldn't he look into this. My suggestion to him, to Mr. Lorenz, and to Mr. Price was that they gradually accept some support from the Office of Education and the library services group for parts of the Library of Congress. This might finance the computerization, or it might be support in some other aspect.

The proper support could be financed by having the agency, under contract or agreement, subsidize the pertinent part of the Library of Congress, but never to subsidize the part that furnishes the legal information to Congress. Let Congress propose the level at which that is budgeted and then that budget could be independently supported, either by the president directly or by the agency by agreement, but with the original initiation of it to come from the congressional committee. In that way you'd keep the

congressional committee happy and permit the support without interference with the operation of the Library of Congress itself.

If the Library of Congress were properly organized, it would assign to the Library of Medicine, to the Library of Agriculture, and to other federal libraries the support of clientele in their field. This would decentralize certain parts. As it is now, the Library of Congress will furnish medical citations in a laborious fashion, but not yet from a computer. Well, it seems to be only reasonable, particularly since the literature is so large, that the Library of Congress decentralize as much as possible.

I wrote the general library proposal up in a white paper dated June 30, 1965, which I presented to Don Hornig in the Office of Science and Technology, asking that it be brought to the attention of Mr. Knox, in the hope that that office would continue to plan and maybe make further proposals that I could not make at this point. They will require legislation. They will require increased budget. But the service is so badly in arrears that it is important and necessary to increase the budget. The library proposal makes only a delicate suggestion that the Library of Congress be subsidized by the Office of Education.

With the recent departure of Francis Keppel, director of the Office of Education--who became an assistant

secretary, but who is leaving--and with the appointment of [Harold] Howe [III] as director of the Office of Education, there is a new group coming in who are not aware of what I had proposed. I have a sense that Mr. Paxton Price is too low down in the hierarchy to have much influence that high.

I am thinking about writing a letter to Mr. Howe, who would be the man who would be most directly effective, and I am sending him a copy of my proposal suggesting that something be done about the Library of Congress. I'm asking him to look at the concept of the university library and its organization in order to key in certain areas of support. I don't know whether or not this will do any good. If I get a chance next summer in Washington, I might ask for an appointment to call on him and probe it.

I've got another thing that I want him to do or consider. In going through all these maneuvers, I wrote up, with the advice and help of my deputy, Edward Forgotson (who is both an MD and an LLB), a proposal on computerizing the United States Law Library. I had luncheon with Chief Justice Earl Warren, who is an old friend. He was very much impressed by this suggestion and urged me to go ahead. At that time, I had money for an ad hoc committee, which I've listed in this report--I'll give you a copy--which is composed of judges and lawyers and a few law librarians, like the one from Pittsburgh and from here.

The chief justice said he would be glad to be chairman and suggested that I talk with Warren Olney III, who's a Californian, as you may recall. He is the director of the U.S. Circuit Supreme Court. That is the highest court, with eleven regions, each one with a court. Anyway, I had him and his assistant with me for lunch. They bought this hook, line, and sinker, and suggested I go ahead.

Then I went to [Nicholas deB.] Kaztenbach, who was then acting for Mr. Robert Kennedy. He was delightfully neutral but said he would send a representative to the committee.

Well, it turned out that there were about twenty different courts, agencies, and groups that have set regulations and rules. These have the force of law--i.e., the income tax regulations. All of them have a literature which is referred to by lawyers and others. It would be very helpful if all of this were put on computer and pooled for access. The state law would be computerized by the State Law Library, under a common glossary of policy, and then all interlinked by teletype or electronic means or by mail. You'd have the same regional distribution conforming to the circuit of the Supreme Courts and fan out from there. It's very much like the MEDLARS network that I was talking about.

Unfortunately, I ran out of steam. I got pneumonia and was in the hospital at the critical time when I should have set up this hearing. So I missed out, and I never had

it. Of course, there's no money now for this kind of thing, no money to promote it.

TUSLER: Did it ever reach a bill form?

WARREN: No, it never reached a bill form. I put it in to the president as a last gasp. I gave copies to the Bureau of the Budget and to the Office of Science and Technology. Dr. Knox told me in November, when I called him, that they had tabled it as premature.

They are now waiting for the ideal system. They think that the Lincoln Laboratory at MIT is going to come up with the ideal system. It's got a report out. I haven't seen it, but Marty Cummings saw a copy and told me it was not very helpful. It was full of generalities and not specific, and the computer techniques were not disclosed.

In the workup of the white paper, I had representatives from the American Bar Foundation and the American Bar [Association], which is different. The foundation is the research organization of the bar. I had the Washington bar people in, and I did a fair amount of indoctrination around so that I knew that it was something that would go if there was a hope.

Yesterday, Marlin Haley, who is a member of the California bar, and who meets with the bar tomorrow here in Los Angeles, received a copy from me. I talked to him about it and I took him on a tour. He met Bob Hayes and

[Eldridge S.] Adams, who's working on the computerization of the law on this campus. I think that the California bar group may stimulate something.

Now, there's one weak point in all of this. The law is a profession, but it has no home in government. It has an academic home in law schools, but these are kind of separate and really aren't in the mainstream of academic life. At any rate, at the federal level, there is no house, as there has been created for medicine and medical research. There's no research going on in the law, except a little bit of operations that are promoted now and then by a group of lawyers or a law school or a foundation; but it's so miniscule. This is beginning to be of interest, as fact, to certain deans and some lawyers, particularly to the chief justice and Mr. Olney.

In looking on, I think that the Office of Education, the library services division, is probably the place to start it. And I suggested to Dean Maxwell that he write a letter to Mr. Paxton Price, which he did, asking for support of a conference and a feasibility study for computerizing the library. Mr. Price told me, "I probed this ahead of time so that the letter would be expected."

I told Dean Maxwell, "You would not be able to fund it this year, since nothing has been laid out for the law library. It hasn't been even thought of." True enough,

Dean Maxwell got a reply saying, "I'm very much interested. This is an important subject, but I have no money in the budget."

I told Mr. Haley yesterday that if the California bar were to write in, along with a few other bars, to the Office of Education and say, "Why is this not done? This is important. We want it done." I told him, "You are the people to initiate it and maybe a few others: a judge or two, on his own, and maybe a dean." Next year they would put some money in the budget. No? [laughter]

This is on its way. This is the way medicine pressured Surgeon General [Thomas] Parran, in the early days before the war, to get some support in the study of venereal disease, and a little bit on nutrition. After the war it's bloomed as you know. But it's only bloomed because there's been political support by the professions at the right place in Congress, and the presidents know this. Now there are so many legislators in Congress who are lawyers, if once they were convinced, it seems to me, this would just go.

TUSLER: Yes, and you'd have the support of Chief Justice Warren, too.

WARREN: Yes, but unfortunately, politically that's not very important. And he doesn't want to be involved politically, either, you see. He can't very well. But the American Bar Association could be. That's the professional association,

like the American Medical Association. It's got a little more than that, because it's actually got certain legislative powers. Oh, I guess they're still advisory powers in the states and around. But in any case, it could be done.

There is an advantage. They already have a glossary. They have three publishing companies that are very much like Chem Abstracts. They use these references that these companies provide them, so that they're almost official. They're organized for profit, but they don't make much of a profit, so a certain amount of subsidy could be introduced with the benefits well recognized by those concerned.

TUSLER: Is the Office of Education willing and prepared to follow through and supply a budget for law?

WARREN: Well, Frank Keppel was, but now he's going to leave. So I'll have to get to Mr. Howe. I told them all this, and they gave copies of these two papers on the general library situation and the law to Wilbur Cohen. It was right after that that Mr. Cohen became the deputy and not the assistant.

The new director of the Department of Health, Education, and Welfare is a man who is interested in research and in academic things, too. I can't recall his name [John W. Gardner]; he came from the Carnegie Foundation. Now I think the time is ripe and it needs somebody to get on the horse and do it. It's not in my field. Of course, Mr. Vosper is, I think, a little miffed and probably wonders if I'm

trying to speak for the librarians at UCLA. Well, I'm not. [laughter] I'm trying to speak as an ex-vice-chancellor of the health sciences, you see, and make it clear that I have no relationship in an official capacity.

I think Mr. Vosper was a little embarrassed by my maneuvers, since he was the president of the American Library Association this last year, and we were not quite seeing eye to eye. I think he felt I was going too fast; but I had a deadline, and I had to get it done before I left. I saw no reason to wait. Witness the library network bill for medicine that went through. If you are in the right place at the right time and you get the support up, then you just go, like that. And you have to work fast. You can't dilly-dally.

To wind this up, I think that the schools of library sciences or services have got to take an aggressive part here, and they've got to be backed by the American Library Association and the Association of Research Libraries, to whom I sent copies of all of this. In the medical field, this would have been picked up right away; but it was not by the librarians. I think they were just apathetic. They didn't understand the politics of the situation, and they are not used to fighting for grants. In fact, they have not had teaching programs of any strength or moment, many of them. A great many still are interested in their

historical collections and museum type of operation.

But we've got to have both. I'm not denying at all that collections of fine manuscripts are a great thing nor the part that they ought to play. In fact, I was personally greatly gratified that my friend Elmer Belt gave his gift to the library and that the library responded with this very nice program that they put on last week. Great scholars came, historical scholars mostly, and talked before the Elmer Belt and [Norton] Simon Foundation program.

TUSLER: Well, that's been the traditional role of the library. Actually, the library profession is such a new thing that they don't have the backlog of the scholarly type of setup and professional setup that the medical profession has.

WARREN: Well, it hasn't been easy to see that the library was more than a repository which supplied the scholar with his background information. Of course, the librarians, for their own development usually, often develop a field of creative effort of their own. Larry Powell is a good illustration. This surely helps the library as much as the medical programs keep helping the library.

I felt from the beginning of my deanship that the medical library was going to be the heart and central nervous system of the medical center, because this is the focal point where all of the learning is stored and

where it's available. It's a very vital and important thing. I'm glad to see that my successor feels the same way and keeps supporting Louise Darling's program and budget.

Now, she's going to have problems with the MEDLARS station. Eventually, it will become a large operation. I have suggested long since that the center be built in conjunction with the medical library. At first, before we saw just how large it might be, we visualized increasing the building as it presently exists. There's space to the east and to the north for an expansion of the present reading room and for putting in the machinery supporting the computers, as well as all of the installations, editors, translators, and so on. All of them will be accessible for training students. This is very necessary.

Now I think this ought to be done, anyway, as a subsidiary of the region, but with the main regional operation over in the VA, on the other end of Montana Avenue. There, we should build a big block-house type of thing with student facilities, research facilities, conference centers, the big computer installation, and all of the electrical connections for fanning all of this out all over the Southwest.

TUSLER: How many centers were provided for?

WARREN: Seven were provided for.

TUSLER: Is it settled where they are going to be?

WARREN: No, EDUCOM has the contract to have a committee deliberate on that. I mentioned that earlier. Bob Hayes and Dr. Tschirgi were our members. Now, whether they'll take my list or not (they've probably forgotten or overlooked my proposal by this time), [laughter] Bob Hayes and Tschirgi are pumping for UCLA, because it's developed to the point where it could be one of the regions.

Now, it doesn't necessarily mean that the lightning would strike and the center would be built in our Biomedical Library or on our campus. If it isn't built as an important and integral part of our Biomedical Library, then it should be over on the VA property, because our campus is too crowded. I think that we're going to get the VA anyway as an additional part to our campus, that part north of Wilshire, particularly the unoccupied part. Those seventy acres just south of Sunset Boulevard should come first. Then, as the VA rebuilds the south part with additions to the general hospital--i.e., the neuropsychiatric wing and the Old Soldiers' Home or domiciliary unit as their geriatrics program--they will abandon the buildings to the north. At that time we should fall heir to them, too. The chancellor knows all of this, so this is not saying anything that isn't known.

The new library should be built on raw ground.

Then, a subsidiary building, perhaps, should be focused around the clearinghouse computer operation that the Brain [Information Service] has under Dr. [Victor E.] Hall. It might be housed in that building, plus consoles and all kinds of manipulating devices for library purposes.

Now, I understand, of course, that the new campus [University] Research Library is computerized for its accessions, its personnel, and all of its operations, except the law school. They would not quite go to the extent of taking on the literature, or some part of the literature. I don't know who to suggest to proceed there. I think whoever he is that he would be imaginative and progressive enough to do this himself without my assistance. [laughter] Well, this is my tale on the library, and I have the material that backed all of this and was used to promote it, and I can turn this in to you.

TUSLER: Let me just ask if you had any direct contact with President Johnson through all of this?

WARREN: No. Through Mr. Moyers, but not directly. The last year of my tour, well, let us say, after the election, it became more normal. Everything was pretty chaotic up to the election. Everybody was running on free enterprise, practically, but after the election, the president really reorganized things. Mr. Feldman left to go to private law practice with a law firm. And there were other changes.

Mr. Moyers became the direct contact man. We had about two conversations, and he said, "Just go ahead the way you are. Try to finish everything that you can. We'll help where necessary."

It was his suggestion to the president, I think, that he release the library bill that was so useful. We had one official session in what was called the Rose Garden in which we reported to the president. Our office reported. [Sargent] Shriver and Mrs. Shriver were there, and they had a few things to say. The Junior Chamber of Commerce had come to town. We took the opportunity to have them there and photographed at that time. The surgeon general and a few others were there. The total elapsed time of the session was fifteen minutes. Everybody was photographed. No records were made of the conversations, because the conversations were unnecessary. Everything was already typed out for publicity purposes. So it was mainly to get pictures of the president shaking hands with the chamber of commerce people, and with Mr. and Mrs. Shriver, and me, and the surgeon general. I have a picture of it. He then signed, "Good luck, Stafford," I think, or something like that. I'm in the one where he signed his name.

Obviously I was a very small part of this whole operation, and it was unnecessary. There was no need, really, since all the bills were done. He had signed

the library bill. The only question was, did we have something important enough in public relations for the mental retardation program to get it on the national TV and radio by forcing the president to take some of his precious time to do it. With the war escalating, on June 30, I asked for five minutes to say good-bye to him. I waited in the anteroom an hour, I'd say, while he was on the phone with various members of Congress getting the housing bill through. Finally the door burst open, and he came in all smiles and said, "Well, I just made it. How are you?" [laughter] And I said, "Thank you very much. Congratulations on getting this done."

He was so caught up with housing that I don't think he knew I was representing mental retardation. [laughter] Anyway, he remembered to call me Stafford. That's in my letter of reply from him, you know, which was written by Mr. Moyers. I think he changed a few words; they always like to change a few words or so. That's part of it. So we were photographed, but I never got a copy of that; well, I never asked for one. I had enough, and I walked out. I had had a hard time. I wanted to make it very short, you see, and he was so full of just having passed this bill that I think we spent ten minutes together. I was very glad to listen. It was interesting and important, but it was not up to me to impose anything.

TUSLER: Of course, he never had the personal interest in retardation, obviously, that President Kennedy did.

WARREN: No. Mr. Humphrey came to the last meeting of the ad hoc committee, made a very nice statement, and was photographed appropriately with everybody. This photography is an awfully wearing thing. The political rule is, don't do anything that isn't going to get you publicity. This is a guiding light on everything. So all you have to do is whisper, and they'll send a photographer. I guess the White House has a very good budget for photography. Then you can get copies appropriate to any visitor, which you send to his newspapers. My staff man would write a little blurb about so-and-so of the Junior Chamber of Commerce, Representative Mr. So-and-so and Mr. So-and-so both very prominent in their--you know. They had come with a very important message and had the president pat them on the back. It's said that way. [laughter] Or they met with the special assistant on mental retardation, and this goes home. The next day, when they arrive home, of course, it's in the local paper with photographs.

You try to get as high up as you can for the pictures. You try the president. No. You try the vice-president. No. So then the special assistant is next, and, of course, he's there--able, willing, and vocal. [laughter] Well, I must have a couple of hundred pictures of visitors. I've

got maybe twenty-five or thirty in this loose-leaf binder here.

TUSLER: They will all be put into the collection?

WARREN: Yes, well, I'll give that whole collection over to you, including these things, you see. I'll try to get each one organized in such a way so that it keys in with what we said on the tape, or I'll put a little statement with it so that the student that comes along won't be completely sunk. I'm anxious that any student will have the same kind of benefits from the organization of it that I expect to get out of the computerization of the library, you see. It saves you months of legwork.

The way Viola has to struggle to find a source for some item about an early doctor in the Spanish-American period before the Gold Rush is something, you know. She'll travel to Berkeley, or to San Diego, or to any old place to find it; and they're so scarce. So, if this exists for another forty years, and somebody then wants to know what in the heck we did in this benighted period, at least they'll know something about this. [laughter]

TUSLER: Very good. Well, have you talked enough on this?

WARREN: Oh, well, let me review the procedure for getting something through. It's like putting him through the little degree we gave the wives of the medical students at graduation dinner. We had a little scroll which said, "PHT

Degree" ("Putting Him Through"), you see. This had the name of the girl on it and the date, and I signed it, and then I presented it at the dinner. Most of the girls were obviously quite pregnant. [laughter] First of all, you need a widespread grass-roots support. This is what President Kennedy felt he had in mental retardation. He had all of the support of the associations for retarded children and the parents organizations. About 3 percent of the population was retarded, and this meant 6 million individuals. In turn, they had a circle of parents, grandparents, local friends, amounting to almost thirty people per retarded individual. So that's a large segment of the population, thirty times 6 million, equals 180 million. These are people with some contact with, and some knowledge of, and some influence with the retarded individual. Now, that's a big segment of our population. So this is politically powerful if you tap this in the right way.

The president knew that he had the support to get the congressional votes. And he did get them. There was no problem at all. If you want to get something started, and it doesn't have quite that support, it's a different order of magnitude, but it's somewhat the same. In a professional area, you get the appropriate agency in government to be willing and able to support you. They go to their chief, who then sends his representative in to talk with the

president's office, the Bureau of the Budget, and the Office of Science and Technology. Now, if you get those two, you're in. It's then a matter of the agency writing the bill, and the president telling the appropriate committee chairman in Congress that he is for it, and that it's part of his program. Then the bill is printed. The clerk and the staff men of the committee chairman begin to get enough information about it so that they know how to write the agenda for the full committee, who they call in to testify, pro and con at the hearing. You must balance the pro and the con, so that if you want it to go through, you get the pro and very little con; and if you don't want it through, you get a lot of con and no pro. [laughter] It's really worked this way.

Now, if you have a vocal opposition that is strong and isn't directed from the committee hearings at all, the appropriate staff man tries to get enough information that will completely counteract this. The antivivisection program is the one that's really very tough because these people are essentially endowed by Irene Castle and others who worked on the program and who created all these horrible things about what us vivisectors do. Then, when she died, she left \$40,000 to the association to pay for the permanent secretary and the permanent staff. Some of these are very wealthy organizations now.

You see the same people in Washington, who used to be in Sacramento, pounding on [Edward] Roybal. Unfortunately the poor man is pestered by the same elements that pestered him here when he was in the Los Angeles [City] Council.

The staff men who are working on these bills try to get the proper representation from all of the medical associations and all of the research associations who come in and give their presentation. The trouble is, these associations don't have very much money and can't work on it twenty-four hours a day, as the others do.

While we're on the subject, Miss Christine Stevens is now one of the more glamorous opponents or antagonists on this subject. Her husband is a prominent Democratic wheel. She is the daughter of a former professor of physiology, Dr. [Herbert] Gasser.* Supposedly, he speaks with authority on the crimes committed by the investigator on animals. She, of course, is very unrealistic. She visited me once, after we opened up. We had the new animal quarters. I said, "Have you been in the animal quarters recently?" And she had to admit that she had not for fifteen or twenty years. And I said, "Woman, you're talking through your hat. You just don't know what you're talking about, do you?" I was mad at her, and we got on well enough so that I could talk frankly. I thought somebody ought to face her with the brutal fact that she was wrong, and the fact that people

* Miss Stevens is the daughter of Robert Gesell.

were lying on her behalf, and that maybe she was, too, without knowing it. So I took her down there. The veterinarian met her, and we went around. And he said, "You can go anywhere you want. We didn't know you were coming, and we've made no preparations. You can go into any laboratory." So she went around and she saw the little baby mice, and she saw the little baby monkeys, and everything. Then I just took her to the obstetrical suite and let her hear the babies crying, and see the babies through the window, and said, "Now, is there a difference in the way we treat these people and these animals?" She said that there wasn't. And I said, "Also, isn't it appropriate to sacrifice these animals to save this baby here and that baby over there?" And she couldn't deny that either. She accused me of setting up a fallacious case, but I said, "It isn't. These babies are going to die unless we get some way of treating them so that we can cure them, or so that we can prevent these deformities. The only way we can do it is through the animals."

She made the point, "Why don't you use the human?" And I said, "Yes, you have no children, so you don't know what it is to be a mother. You wouldn't want the doctor to experiment on your child, anymore than you'd want the doctor to experiment on you. You, of all people, want the best at the time you are sick. This is characteristic

of your group. When you're sick, you want the best based on the research findings that you're fighting to prevent." Well, it didn't last or it didn't hold. She wouldn't yield.

TUSLER: It didn't make any permanent impression?

WARREN: No, she just avoids me.

TUSLER: In the face of such definite proof, I don't know how a person can hold on to a prejudice like that. It's fantastic.

WARREN: Yes, well they wouldn't be as violently and aggressively prejudiced if they could see and understand. Of course, these old ladies want a crusade. This offers them something. They can make all kinds of comments and statements and listen to people make these statements about the horrible actions, but they never do see it. They are never faced with it, but it remains an image that they can crusade about. This is just lovely. Now, if we could only change their crusading direction and get the same energy for support, this would be fine. I've tried with some of them. I succeeded with some, too. But one of them called me a murderer at the inquiry at the Los Angeles council and spat on me as I went out. I thought this was interesting. This was the first time I had ever had that happen.

TUSLER: Aren't they usually people who don't themselves have families?

WARREN: They have a cat or a dog or a canary. And they

can just see that poor little dear being cruelly set upon
by those vicious scientists who just like to see the blood
run and hear the screams. [laughter]

TAPE NUMBER: VI, SIDE ONE

MAY 19, 1966

TUSLER: Dr. Warren, last time you were about to tell me a fascinating story about one of your escapades in medical school having to do with a white rat.

WARREN: I think I told you about working with [George] Corner and my surgery on a tumor in a cat, which resulted in my putting the tumor in formaldehyde and therefore eliminating any possibility of transferring it to other cats as an experimental tumor.

Well, after this, I became quite familiar with the workings in the animal house under Dr. Corner's supervision and instruction. I learned quite a bit of surgery in the process of trying to study the effect of glass beads inserted in the uterine horns of the rat, which resulted in producing a deciduoma. It was accompanied by all of the signs of pregnancy in the rat. The breasts swelled, and the rats began to form nests. They became rather vicious and would bite. Previously, they were handled with no problem. Strangely enough this is quite current today, because it's very much like the use of the plastic intra-uterine spiral for contraception. The same sort of thing happens without quite as much reaction.

Anyway, I received an invitation from Miss Lockhart to come to a sorority spring dance. She was a friend of

a Hayward classmate. Well, I thought it would be a nice thing to do to give her a present. I couldn't afford anything, so I picked out a nice little white rat with beautiful pink eyes and a silky coat. It was about four weeks old. It would sit there on the table and wrinkle its nose and wave its whiskers. And I thought this was wonderful. The afternoon of the dance, I washed it carefully and got a pink ribbon and put it around its neck and trained it to sit in the inside pocket of my coat. Thus equipped, I went to the dance. I did not have the first dance, as I was apparently just a blind date, and on trial, more or less, although I had tried to go with Miss Lockhart by frequently accompanying her home from the library, and by such minor contacts as might occur on the campus. I danced with three or four girls and got well acquainted with Viola's roommate. About the fourth dance it was my turn to dance with Viola. There were about twenty couples, I guess, and the chaperones were sitting around the periphery with the housemother, and everything was very decorous and staid but kind of lively. While we were out on the floor, I took this rat out and put it on my shoulder, with the pink ribbon, of course, attached to my lapel. The girls began to see it, and they twittered. Viola saw it and was shocked and didn't know what to say, one way or another. [laughter]

It turned out that half the girls wanted the rat and the other half wanted to throw me out. However, Viola was disturbed and ran out the front door, and I followed her and finally grabbed her. She didn't get any farther than the gate. Her friend came out, and we had quite an argument about the propriety of doing this, the friend taking my side. Finally, I put the rat up on the post above the doorway, and we went in and finished the dance. But there was a frigid air around her immediate coterie of girls. This was a fringe group, not my Hayward classmates, however, who thought this was very bad social manners, quite typical of a country boy. [laughter] I finally made some peace and made a date for further discussion. Well, we've been arguing about this now for pretty near fifty years. [laughter] I think she married me to reform me, and I resisted ever since somewhat defiantly! Did I tell you how I met her?

TUSLER: No.

WARREN: Well, we were taking a calculus class together under Baldwin Woods, who later was the University Extension chief. He was in the mathematics faculty. I guess he was an instructor at that time; this was in 1917. The class went to the board for an exercise, and this very good looking, tall, slender girl with magenta colored hair-- it wasn't quite red, but almost--was beside me. She was

beginning to use three-quarters of the board, so I said, "Let's divide this up evenly." And I drew a line down the center and said, "Now, you stay on your side." Well, apparently, she wasn't used to being treated this way by men, and so she said, "Well, if you're going to divide it, let's have it correct." So then she erased my line and put it over four or five inches. Well, this started a row which started us off. [laughter] I guess this was part of the way we became interested in each other.

Neither of us was afraid of the opposite sex, particularly, and we had ideas that were different. She liked to walk and hike. It was quite the thing in those days to take a picnic lunch. Three or four couples would go up to the top of Grizzly Peak, or to some of the big quarries in back of Berkeley, and build a bonfire, sit there, eat lunch, and watch the sunset and the ferries. The lighting of San Francisco and the bay was very beautiful. It still is. During the last Christmas holidays, when we were back up there, we took a walk up in those areas just before dark and got some beautiful pictures of the bay.

I finished up the Berkeley period in medical school and then transferred to San Francisco. The medical school period was divided into two parts. The San Francisco Affiliated Colleges were organized about that time. The Homeopathic Medical School had been given to the University

of California with the understanding that the university would maintain a chair in homeopathy. The small hospital that belonged to the university was affiliated with the county hospital and the children's hospital. This gave us a varied group of clinical experiences.

The chronic cases, of course, were in the county hospital, and the children's hospital had only children. The faculty at this time was, I think, entirely made up of part-time people, who practiced downtown and who came to teach at regular hours. Many of the local surgeons operated in the university hospital. [Dr. Wallace I.] Terry was chief of surgery at the time. Dr. [Frank W.] Lynch was chief of obstetrics.

Looking back on it, medicine was still pretty primitive. We had to wait a week for the crisis to develop to determine whether the patient had a lobar pneumonia or typhoid or endocarditis. We were beginning to learn something about bacteria as the specific causes for diseases. I mean by that that laboratory identification of organisms by smears and staining was now at such a level that the student could do it. It was no longer a very difficult laboratory research exercise.

Our sophomore year was spent commuting to the county hospital to learn physical diagnosis. We had some very excellent instruction there by the men who were tuberculosis specialists. They would make a diagnosis by using

inspection, by feeling, and by percussion. X rays, at that time, were still fuzzy. By using broad-focus tubes image sharpness was not sufficient to see the fine detail of tubercules or of small lesions. A great deal was assumed or deduced by using all the skills of percussion, looking, touching, and asking questions. I thought this was a very good training. We neglect this to a great extent now because we can get the evidence much more quickly and much more reliably by other methods-- by laboratory and X-ray findings.

We began to have lessons in argumentation, or discussion of the pros and cons of the diagnostic possibilities. We all bought French's [Index of] Differential Diagnosis, which cost ten dollars--a lot of money in those days. This was a book which listed all of the symptoms and physical findings and then gave all the possibilities. You can imagine that this was quite a complicated thing. Today, a computer would do this for you. [laughter]

The great diagnostic difficulty was between latent tuberculosis, latent endocarditis, and latent typhoid. There would be a low-grade fever, the patient would be weak and would have lost weight, and that was all you could find. There would be nothing much to show to establish the diagnosis, so you had to wait.

This was the period of the image of the personal

physician who sat by the bedside and felt the pulse of the dying child while the parents sat in the room in misery, discomfort, and sorrow. About all a doctor could offer in those days was sympathy and comfort.

Very shortly thereafter, while I was still in school, a great development occurred in bacteriology, which began to open doors. Immune reactions began to be recognized. You could say a patient did or did not have typhoid, or had had it. You could culture tuberculosis. You could begin to culture streptococci and other organisms, too. Bacteriology usually developed in the department of pathology. About the time I was in my internship, two or three years later, full-scale bacteriology departments began to be developed in medical schools, although this was slow in some cases. But in general this was the beginning of what today is called the department of microbiology or infectious disease. Viruses, of course, were unknown. But something beyond our reach was suspected. Viruses were talked about, but not identified in any way at this time.

I became interested in the fact that Elmer Belt--who was in the class ahead of me--had become a fellow in the Hooper Foundation. He suggested that I do likewise. This meant dropping out between the sophomore and junior year of medical school and taking a year of research with a stipend of \$500, which was a large sum of money. On

this, one could support himself pretty well. There was no fee for the registration during that period, so expenses were less. The fee, at that time, was seventy-five dollars for a semester or a year. I think it was a year, because we registered for the whole year, not just for the semester, as we had been doing in undergraduate work.

I told you that I went in to register for medical school about four days before the registration was closed. I just walked in and registered. There were thirty-five places in the class, and I was number thirty, I think it was. The registrar--a nice young lady, who was sort of a godmother to all the students--was the only contact we had at all with anything called the medical school. She just looked at my grades and said, "Well, it's all right. Just pay your money." So I paid my money, and I was in. Then I had to get a dissection instrument set and a few other things, but not very much.

There was a complete separation in the whole atmosphere of the basic science programs given on the Berkeley campus from those given on the San Francisco campus. I think that this is partly responsible for the fact that my whole generation--and this was true around the country to a great extent--feared contact with patients at first, because when you first went into medical school you expected it, and then it didn't happen. All you saw was

the cadaver and the inanimate laboratory things and animals. My family always said, "When are you going to begin to be a doctor? You can't even bandage a finger." And they made other scurrilous remarks like that. Well, this is one reason why, when we began our medical school here, I pumped for the Red Cross first-aid course, right off, for freshmen, so that they wouldn't be embarrassed by someone saying, "Well, you can't even bandage a finger." They might put the bandage on backwards, but they still could do it.

TUSLER: To begin to have that personal tie?

WARREN: To begin to have that personal tie. And today, of course, we assign a student a well baby and his family the first day, so that the student knows he has clinical contact. They are taught psychiatry with patients in the picture, too, for correlation of all of the other things.

Well, I took the Hooper fellowship at a time which further separated me from clinical contacts. I enjoyed this work very much. I worked directly with Dr. George Whipple on the effects of radiation, and I learned a lot of pathology during that time. Dr. Belt, Dr. Harry [P.] Smith, Dr. [Irvine] McQuarrie, and Dr. Francis Scott Smyth, who was later dean at San Francisco medical school, and [Daniel P.] Foster were all at the Hooper Foundation at about the same time. Some were hangovers from the previous year. One of the nice things about the fellowship was that they gave you

a desk and a lab bench which you kept the rest of your medical school days. The Hooper Foundation had the animal house not only for itself but for the medical school, and it was on the same grounds. The building still exists, though it's been modified a good deal. This meant that after classes, later, you could go back to your lab and do a lot of work that was pertinent to your classwork, but you could also keep your research going.

I found that under Dr. Whipple's instructions, I began to get my research focused, and then I would read a lot of things that were relevant to my research. It turned out that it was also relevant to my classwork. Classwork, then, fitted into a picture which was understandable, and I was able to build from that. I think that this kind of interlude is one of the best tools in an educational program as complex as medicine. This permits the student to grow in the quickest way to amass concepts and to begin to think.

For the first time, I had a year in which I didn't have to meet any classes. I could stay up all night if I wanted to, and I didn't have to be there shining bright at eight, although most of the time I was there because George Whipple was there. [laughter] He worked at night, too. We learned the freedom of action, too. You could think about something, go to your lab, where you had

chemicals and equipment, and you could tinker.

They taught us how to blow glass a bit, and we had to make our own laboratory equipment. In general, this was conventional at the time throughout the university in all of the sciences. You couldn't buy equipment. In the first place, there was no money. The budget for your research might be something like \$200 for the year to buy your animals and their food and janitor care and whatever chemicals and other things you might use. This level of budgetary support existed until 1940 and was one of the great stumbling blocks in development in areas where considerable equipment was needed.

If you were going to study the effects of any new physical or physiological phenomenon, you were almost prohibited by that restriction. So you had to contrive what you needed with a little bit of wire. Maybe you had enough money to buy an amplifier tube or something of the like, for things were just beginning to become a bit sophisticated. But the budget was limited. The period before 1940 might be called "The Rise of the Laboratory Sciences." The attitude of the doctor changed in this direction, too. The white coat--the laboratory coat--became the symbol of status. This was the time of development of a great many teachers in this field, too, straddling the clinical and the basic sciences. It was a very difficult thing, but

it meant that men who had had opportunities and training as I had had, or who got them later during their residency period, could take the clinical problem into the laboratory, devise animal experiments that imitated it as nearly as possible, and then try to find out what the causal mechanisms were. Of course, during this time a great deal of work was done on animals with human infectious material.

About the time of my graduation, the big decision was "What kind of training should I have?" Dr. Kerr was anxious for me to stay in the internship that he offered me in medicine. Dr. Whipple, who was also flirting with the deanship at [the University of] Rochester [medical school] about this time, said that this was not a good idea, that I would be too ingrown. He said that the best thing to do was to try to get an internship at Harvard or [Johns] Hopkins, or something like that.

I had done some research on venous pressures during my senior year on one of Dr. [William W.] Kerr's cases and learned a great deal about that. We published a paper jointly.

During this time, Viola came to work in San Francisco (I forgot to mention that we were married). [laughter] She first worked for the Journal of Electricity as a junior editor, and then came to work, when we moved into San Francisco, as medical secretary to Dr. Kerr. She had to learn her medical vocabulary on the side. But she

was quick at that sort of thing and learned this very quickly, although she recalls it with considerable trauma. She was taught, also, to run the electrocardiograph machine, which was a great big cumbersome galvanometer with an arc light. Since she had trouble with the arc light, I used to come down and adjust it for her. One of my cases under quinidine therapy was having trouble. I thought it would be a good idea to get some electrocardiographs throughout the night, so she and I stayed up all night one night. She sat in the electrocardiographic room waiting at the end of a buzzer. Everytime this fellow had a spell, I put the electrodes on him, and she would run an electrocardiogram. Well, in the process, we demonstrated the first ventricular fibrillation, from quinidine, which excited Dr. Kerr no end.

TUSLER: You mean you got the first picture of it?

WARREN: We got the first record of it, and the first proof of it, too. Ventricular fibrillation is a very unusual thing. Normally, the auricle contracts first and pushes the blood into the ventricle, those valves close and then the ventricle contracts and pumps it out of the heart at high pressure. It normally beats somewhat under 100 beats a minute.

During the ventricular fibrillation, the auricular pacemaker is disattached and an individual pacemaker develops in the ventricle. The ventricle then contracts

at approximately 1200 beats per minute. This is just what the word says; the ventricle fibrillates. It essentially quivers; it cannot expel the blood, and it does not achieve a relaxed state or diastole, which allows it to receive the blood now being pumped into it from the auricle. So the auricle becomes very much embarrassed, and if it's not fibrillating, but only trying to pump at the 60 to 80 beats per minute, and the ventricle is going at 1200, this is apt to cause the death of the patient if continued too long. Unfortunately, this patient had a series of about three of these lasting about four or five seconds. Viola caught one complete one. She saw it in the record as she started it running, so she kept the record going and got the complete episode and then its cessation. And she got the subsequent normal beat. I don't think this has been done more than four or five times since.

TUSLER: That's quite a phenomenon!

WARREN: Yes, it's quite a phenomenon.

Of course, the usual thing happened. We had a baby just before the final exams and the state board exams. By this time, we had had an offer, and had agreed to go to the Massachusetts General Hospital in Boston for my postgraduate medical training. It didn't start until the following February, so I accepted a volunteer fellowship in pathology at [Johns] Hopkins for the meantime.

While the exams were going on, I had to study long hours, of course, with several of my pals, Dan Delprat and Scotty Smyth. Viola learned to put the baby to sleep in a bureau drawer. This turned out to be very helpful when we crossed the continent later. We were living in a small apartment that mother owned in the city. We had given up our small apartment near the medical school during this period. I finally passed the exams without too much trouble, but was exhausted.

We left by train for Baltimore and got as far as Indianapolis, when there was a railroad strike. We had relatives in Terre Haute and Indianapolis, so we got off and stayed with them for a few days. During this time I bought a Model T, touring-type Ford, which was in very bad shape. But what could you expect for forty dollars? One of the cousins, who had lived with us for a while in California, had a shop. He and I took the Ford down and put in a new crankshaft and valves and piston rings and got it together. Parts were cheap and cost another twenty-five dollars. Then we started for Baltimore. We had about four flat tires a day, and, of course, it rained a lot. We'd get in thunderstorms and the roof leaked. It took me a long time to get the tire patched, and we didn't have very much money. We arrived in Baltimore on Labor Day weekend. Harry Smith, who had been a Hooper

fellow, was now an assistant in pathology at Johns Hopkins, and I was to work under him--he helped us find an apartment. Well, we found one in the Jewish section on East Baltimore Street. We didn't realize that on Saturday everything was closed down in this area. But the landlord was a doctor, so we looked at the apartment. It was very nice and very inexpensive, so we took it and paid almost all our money down. And, of course, Monday was Labor Day, and the doctor had taken off for New York on Saturday. We tried to buy some food on Sunday, but there was a blue law in Baltimore. The kosher shops were closed, of course, but the Jewish proprietor would sit in a chair at the doorway. He would go get two chairs, and he told us to sit down. It took us a little while to learn about this, but finally, in desperation--I sat beside this old gentleman and said, "I just have to have some milk for the baby." And he said, "A quart?" And I said, "Yes." And he said, "Well, you take a walk around the block, and it will be ten cents" (or something like that). I put ten cents on the chair and walked around the block. When I came back, he was gone, but there was a bottle of milk. [laughter] And this is sort of the way it went.

The second night, while we were putting food on the table, the baby cried. Viola went into the bedroom and turned on the light, and bedbugs crawled off in all

directions. These had been crawling on the baby and had been biting her. Well, there we were, no money, my friend and the doctor were out of town. So I told my tale to the Jewish gentleman across the way, and he left some kerosene for me. We put the legs of the baby's crib in cans half-full of kerosene. Fortunately, we had our own bedding for the baby. It was warm, so we didn't need anything much. We stripped all the bedding, looked it over carefully, couldn't find any other bedbugs, other than the ones on the baby's bed. Apparently, they were in the pillows and came out of the breather holes of the pillows. So we threw them out in the alley and sprayed everything and decided that we had killed them. We didn't have any more trouble with them.

Then I developed the hives. I didn't find out until later that I had become sensitive to bedbugs. Then I had a very difficult time in Baltimore. I finished my assignment; but I would have to get up and take a cold bath to shrink the swelling on my face just so I could see. The dead bodies of these bedbugs were just everywhere in the apartment. They'd been there for years and years.

I wrote several papers and did some experimental work. I had to carry the anesthetized dogs, in a sack from the anatomy department, through the alleys to the hospital at night to get to the X-ray equipment. That was kind of

difficult, and their equipment wasn't very well calibrated. Once in a while, the dog would void while he was anesthetized, and there was not an easy way of cleaning the place, although I got mops and scrubbed. But then there'd be complaints that I had left an odor in the place. So it was unhappy research, though I got one paper done, anyway.

Then we had a murder in the back alley. A colored man came back to his common-law wife and saw some shoes underneath the bed, and decided that there was another man around. So he got his gun out, went looking and shot the other man, [laughter] who had hidden in the closet. Of course, we had never experienced this kind of business. In that part of Baltimore, the colored people occupied the alleys.

There was no sewer system. The sink drains went right out into the alley. They usually had an outside privy for the back parts of the alley, and, in fact, for many of the apartments. One reason that we took the apartment that we did was because it had a toilet and a bath and a good sink. Lots of apartments we saw with the characteristic white marble front steps had a kind of a bathroom on the second floor in a three-floor apartment house. The bath and wash tub would be there. The landlady would say, "Oh, well, you know everybody who uses it." Then they'd have the privy out in the back. This was in 1923 or 1924.

TUSLER: That's hard to believe.

WARREN: The city would send around a bathhouse truck on Saturday nights and hook it up to the fire hydrant. The people--colored and white--would come and pay twenty-five cents for a bath, because they had no facilities of their own. Then the bathwater would just go out on the street or in the alley.

TUSLER: That's incredible.

WARREN: The flies were a very bad problem, as were mosquitoes, to some extent.

TUSLER: This was true of that particular section of Baltimore?

WARREN: That was quite true of Philadelphia and Boston, too, when we got there. You have no idea how things have been cleaned up since then. Of course, that's forty years ago. Well, then we had a very brutal payroll murder. They caught the people just a block and a half from us in a back alley where they had been living.

We decided that Baltimore was kind of rugged, this part of it near the medical school. Of course, the medical students had been living all around here, and this was part of their social experience, to see what went on in the lower levels of society. It was from these people that the clinics had their clientele. That's why the hospitals, particularly the big community hospitals, were put in the

slums--so that the ill from the slums could come to them.

During the study of obstetrics, the student went out with or without the nurse to be the obstetrician for the young mother in these hovels, and probably, for the first baby, taught the mother how to boil the clothes and do something about the diaper situation, without many facilities. There would be, maybe, just one electric lightbulb or an old coal-oil lamp for light in the apartment.

Then we moved to Boston. We shipped our stuff by boat and went by Ford in the middle of the winter. I had a navy peacoat. Oh, it was cold. This was our first experience with snow. We were a little worried about the baby and the Ford with only side curtains and no heater. Viola had to nurse the baby, too, during this trip, which was quite some experience.

We had a couple of flats. I tell you, it was something to change a tire, patch it and pump it up, with snow all around and no proper gloves. Very few people wore gloves. They weren't supposed to be worn. It was sissy-like, you know. But when your fingers stuck to the iron, [laughter] this was kind of cold. So I had gloves and mufflers. They didn't fit too well, but they worked.

We got to Boston, and the Belts were there, and they took us in. They had come the previous year. Dr. Belt had his training in urology in the Peter Bent Brigham

Hospital. We finally got an apartment in the same apartment house they were in, so that we had at least a friendly reception. We had tried to arrange for a little house which we had heard about, which would have been nice.

My brother was with us and entered Harvard for a while. He was getting over a love affair, and his heart wasn't in his courses. [laughter] After about three months, he went back to California; but in that time his girlfriend had married another fellow. That really settled that, but too late for his finishing at Harvard.

I better tell you an episode that just shocked us. We, of course, thought that we were pretty good and socially acceptable to everybody. But our stuff hadn't come, and I still was wearing, of all things, hip boots, because of the snow and having to get down on the ground to change tires. I had them concealed under my pants, but the feet showed. Then I had this navy coat. Of course, it was snowing like mad when we went to see that house. Viola was a Phi Beta Kappa and I was a Sigma Xi. We thought we were intellectuals, more or less, since we had passed everything with honors. So we looked the little house over. It was furnished. The landlady was a snippy little middle-aged spinster, I guess. She was Miss So-and-so. We allowed that this would be a pretty nice place, though we weren't unduly impressed. But we said something that she resented, and so she wouldn't

rent to us; we were unfit. What a shock this was. We went back in a state of collapse to the Belts. [laughter]

I imagine that probably she had not been out of Boston. You know, they are there, so they don't have to go anywhere. Buffalo is the Far West, and we came from California. And I think our dialect was different. We could hardly understand the Boston dialect at first. To get around town we would look for an Irish traffic cop; they were quite common. And we would ask, "Where is Park Square?" And they'd say, "Oh, begorrah, you mean Parrk Square." [laughter] Anyway, we probably made a very bad impression. Our clothes weren't neat and pressed.

TUSLER: There was a difference between East and West.

WARREN: Yes, there was a big difference. Well, we babysat for the Belts and they babysat for us. The girls would try to take some courses at Radcliffe, and it was all pretty rugged. I wasn't home much, and neither was Elmer. We were not supposed to be married. We were supposed to live in the staff house. But I had every other weekend off and one night in the middle of the week. So you can see it was necessary to park your lady with another lady in a similar situation in order to have her have any kind of life at all.

TUSLER: Did they know that you were married?

WARREN: Yes, but this was right after the war, and there

were shortages of interns. I think they grudgingly took somebody from the West also. It's hard to figure out. I think I was very lucky. I could have been turned down, and I would have missed both my San Francisco and Boston appointments. I had to give one up in order to apply for the other one. They wouldn't have tolerated the multiple applications that we have now.

TUSLER: What was it like being an intern in those days? Was it quite a different proposition than it is now?

WARREN: Oh, yes, we worked longer hours. Well, all the boys work now, too, and it's hard to make a judgment. I had a graded internship. I started in as what was called the "skunk" and then became the "rat" and then the "pup." Each of these was a three-month tour. As a skunk, you did all the legwork for the service. There was a hierarchy.

There were thirty-two beds. I was on the west medical service as against the east medical service. It was a big open ward with a fireplace in the center. It had been built about 1860, and the surgery amphitheater, where they used ether for the first time, was up on top of it. The place was really set up for the horse-and-buggy days. There was still a battery-operated buzzer system. The attending man would come in with his horse and buggy. As he passed through the gate--everything then was kind of in a stockade--the gateman buzzed the intern's quarters.

The intern would put on his clothes and get ready to receive the attending man, who would then come in with his top hat and his striped pants and his long-tail coat. He would go around to see all the patients.

It was not quite like that in 1923, but almost. The attending man would come at eight o'clock each morning. I had Big Bill Smith, who was short and a bachelor and a very incisive instructor. The other service was run by Little Bill Smith, who was a big man--opposites, you see. There was a great deal of rivalry back and forth about who made the best diagnoses.

Big Bill Smith would arrive in the pathology quarters, where he left his coat. He was an old-time friend of Dr. [Frank B.] Mallory, one of the pioneers in pathology. The whole ranking hierarchy--the three I've mentioned and a junior and a senior intern--would accompany him down the hall to the ward, and we'd stop at the first bed. There'd be bowing and introductions all around. The head nurse would be there with two of her assistant nurses and a social worker. By this time, of course, there were eight or nine of us. Occasionally, there'd be a Harvard medical student. They were from across the river.

When we entered the door, the head nurse would present Big Bill Smith with his white coat. He'd turn around, and she'd put that on him. Another nurse would come up

with a rose. He'd smell it and put it on with a pin which she would furnish him, and once in a while he'd stick himself. You must be very careful because this is a way to spread infection.

At the third bed, the nurse on duty from the diet kitchen would appear with onion soup and give it to Little Bill. At the fourth bed, he'd give the soup cup back and, of course, compliments to the dietary kitchen. Oh, this was very formal. He was dressed in a dark black suit, with no stripes or tails. This was kind of a beginning, you see, in the development of what were called rounds, teaching rounds.

We would each recite the data that we'd obtained overnight. We usually had about ten admissions and ten discharges every day, which occasioned one of our hard-driving problems. We had maybe five chronic cases on the ward, and in the beginning almost always one with typhoid. This meant putting curtains between the beds. During the first period of illness we had to help the nurses give these poor typhoid patients ice baths. This was the method then of reducing the temperature. They were not a bad way of doing it either, for that matter. It's a technique now that's been lost. I don't believe that today's nurses would even know how to give an ice bath.

We had all kinds of other things to do. We had

physical examinations to write up. At first, of course, there were just urines and stools, blood samples and sputum examinations to do. That was the skunk's job. He also had to do some of the same kind of work in the outpatients' clinic. This kept you running until midnight. Then the next step was to organize all of these reports and to be sure that they were recorded. In addition, due to the latecomers, those patients that were admitted after six o'clock had to be cared for.

When you became pup, you were lord of all the laboratory work. You had to be sure that the physicals and the blood smears were all done and that everything was ready for rounds the next day. It might not be done until one or two o'clock in the morning, but you had to be there by half-past seven to be ready for the eight o'clock visit. Sometimes it was nine o'clock, but most of the time, it was eight, because the attending man had to go back at eleven o'clock and open his own office.

TUSLER: Did you do the actual laboratory analysis?

WARREN: I did everything. There was the beginning of a laboratory program, but this is what the intern was for. He had to do all of this. This was so he would learn the hard way. If the rounding men didn't like your blood count, or it didn't seem to fit, you had to do three counts that day on the patient. That's three different

sets of pipettes. We would complain that the pipettes were chipped and that we wanted new ones. In fact, the west and the east service got together and said, "We're going to revolt." Well, it didn't do us any good. We were told to calibrate them ourselves. If we had one good one, then we could calibrate all the rest of them with just a little water. They would leave it up to our ingenuity to do it. And we had better do it, too. [laughter]

Our needles were dull. We had a little whetstone on which we sharpened them. It was difficult to sharpen them without having a little curl on the sharp end so that when you stuck that thing in, it hurt like heck. Now, think of the disposable needles. You use the syringe and the needle, and even when you throw it away the needle is still very fine and is very sharp. This is just a miracle when you consider the old way.

Why we didn't pass more infectious jaundice back and forth I don't know; but we didn't. Currently, this is a virulent infection, you know. We're having a lot of infectious jaundice now. It's a virus disease and is passed by transfusions and improperly sterilized syringes and needles and other things that are used a second time. Maybe this is something that is becoming more endemic now. On the other hand, the patients got well and didn't come back to us with complications. Maybe they had it at home

afterwards and just had the "misery," or were laid up for a couple of months and didn't pay any attention to it. Maybe they weren't sick enough. Jaundice, when we saw it, was gallstones or cancer. We rarely saw jaundice that wasn't due to something really spectacular and cataclysmic. Infectious jaundice can lay you up for three months, maybe even a year, with malaise and great fatigue. You can't do anything much. There's no treatment that's good for it, either.

One night, one of the typhoid patients who had had an intestinal hemorrhage during a violent delirium got up and escaped the nurse. He got into the basement tunnel system. There were tunnels between all the wards and the various parts of the hospital and the pioneer infirmary. They called out all the big interns--which included me, of course--the janitor, the maintenance man, [laughter] and the engineer. We finally cornered him. When we surrounded him, he was just as meek as a lamb. He had had a wrench and had gone around pounding on pipes and threatening the nurse and everybody else. To our surprise he didn't hemorrhage and die, as we had expected, in spite of all this effort and struggle.

We had a very interesting custom in the morning when we got up. Of course, we didn't have much time for devilment, but we had lots of energy and excess frustration

that we were unable to get rid of. We would fill the bathtub half full of cold water--essentially ice water. After we had shaved, and before we took our shower, we would slide quickly into the tub and, with body motion, splash as much water on the floor as possible. If you had more than three inches left in the tub, starting with maybe six inches or a foot, you had to try again. If you didn't do this, you were in disgrace. It sounds silly and I am horrified, right now. Why we didn't have leaks in the ceiling below, I don't know. The water would come out on the bathroom floor, which was tile, go down a drain, I guess. I think they'd had experience, because the floor had quite a slope. [laughter]

At "change parties," of course, somebody's bed always ended up on the roof. Then how to get it back down became a problem, because nobody would help you. Probably three people had taken it up there. [laughter] There were the usual silly things of that sort.

TUSLER: Was Dr. Belt also an intern at that time?

WARREN: Yes, he was an intern at the Peter Bent Brigham Hospital, which was at the other side of the town. That was a pavilion hospital and an experiment in design. They had the administrative offices and some of the X-ray departments in the center, and then long corridors with joist-roofed passages at first. The wards were isolated.

Somebody had an idea that this would be a very good way to prevent the spread of infection. I think at first it started out as a tuberculosis hospital and became a general hospital.

The clinical pathological conferences--I think I mentioned them--were great amphitheater spectacles. This was the showdown, when Little Bill Smith would make a very astute diagnosis on practically nothing, or Big Bill Smith would, or Dr. [Lewellys F.] Barker or Dr. Sadie [William S.] Thayer would do so in Baltimore [Johns Hopkins], or Dr. [Henry A.] Christian in the Peter Bent Brigham. Dr. Merrill Sosman, a radiologist at the Peter Bent, became famous for his ability to make diagnoses when the clinicians--particularly the surgeons--weren't sure. And he was not above stealing the operative specimen and x-raying it on the quiet, and doing other interesting things to help himself a bit. [laughter] So we were all afraid and very respectful of him. This added glamour and drama, you see, to the showdown.

At that time, it was quite acceptable if you were a little better than 50 percent correct. There wasn't quite a 50-50 chance. There were so many variables. It wasn't either this or that, but it could be four or five possibilities. The pathologist would say, "The patient died with," not "because of--" The cause was still a mystery. This is still done today, because you don't

know exactly why a patient died. But he died with, and usually there was a sufficient list to more than satisfy the requirement for shuffling off the mortal coil. These patients were usually just full of abnormalities. It's a wonder that the body could continue to exist alive.

Many of the things that we had to worry about and were constantly examining and trying to develop better information on are just not seen anymore. Lobar pneumonia is a very rare thing now. The gummata of syphilis are practically not seen now. In fact, I don't think we've got a good bone gumma in our pathology collection here, even though twenty years have gone by in making our teaching collection. The antibiological and the laboratory procedures have made a fantastic change.

I finished my work at Massachusetts General Hospital, and I took a year as Dr. George Minot's resident at Collis P. Huntington Hospital during the time that he began to use liver for pernicious anemia. Dr. Whipple had discovered the necessity to use iron and other supplements to replace the hemoglobin; that is, to furnish the iron loss in hemoglobin if you had a hemorrhage. Pernicious anemia was one of the very serious problems at that time. Every time a pernicious anemia case came into our hospital with low hemoglobin and badly damaged bone marrow, we would have a problem. This was because we would have

to get donors in for the blood transfusions. Then you would have to decide whether there was going to be a surgical union of the veins of the donor with the veins of the recipient, with a guess of how much blood went into the patient, or whether you would do a medical transfusion. This involved using 20-cc. syringes and connecting up big needles.

You'd have to have a big team. One intern would be drawing the blood and undoing the syringe and handing the full one to a nurse who gave him an empty one. Then another nurse handed that full syringe to the other intern, who connected it and gave her the empty one back. Needles would slip out or plug up. Occasionally someone dropped the slippery syringe on the floor. It usually ended up with blood all over.

Our matching process to choose a donor who was compatible was not very precise. We also knew that most of the pernicious anemia cases, particularly those that had had many transfusions prior to this, were sensitized to the new blood. They would have a reaction which was wonderful to behold. They would get fiery red and their temperature would go up. Then they would sweat. Once in a while, one would die from this reaction. This was a very risky thing. We shuddered every time this reaction came on. We had no treatment for it.

Dr. Minot had collected probably the largest group of these patients in Boston, because he had been very successful in trying various things. Roger Lee, a famous clinician at Massachusetts General Hospital, suggested to Dr. Minot that he try George Whipple's liver diet, and it worked. Then Dr. [William P. Murphy], the biochemist at Harvard, found the effective fraction of the liver. They all got the Nobel Prize for this--Dr. Whipple, Dr. Minot, and Dr. Murphy. Dr. Kerr had tried this before Dr. Whipple left San Francisco to go to Rochester. He had been fairly successful, but the difficulty was that pernicious anemia had cycles. The patient might even clear up his anemia under no treatment. So everybody was suspicious. There were psychological factors, and doctors thought maybe there was and maybe there wasn't something in the treatment. So Dr. Kerr didn't press the matter. Dr. Whipple left about then, so Dr. Kerr missed the Nobel Prize, in a certain sense. I think Dr. Minot was better fitted in his practice, by the number of cases he had and by the backing of the biochemist, to really bring this to a satisfactory conclusion.

When I was Dr. Minot's resident intern at the Huntington, I took care of the leukemia and pernicious anemia patients. The leukemia patients and some breast cancers were treated by Dr. Dresser, who had the big Duane X-ray machine, of 200,000 volts. (This was one of the

few advanced programs for treating cancer at the time.) Dr. Minot would come on rounds. He was a very fast-moving, thin person. He had advanced diabetes and was on a diet, but he would come almost running in. We would practically dogtrot from patient to patient, and he would give me a running account of what I had to do for them for that day. Then he would leave.

He always kept his pocket full of postcards that were all stamped but were addressed to a pharmaceutical house. They were advertising cards. He'd scratch out the address of the pharmaceutical house and put my name and address on it. Then he'd write a reference to an article or something he'd forgotten on the back and mail it to me. I would get it maybe at four o'clock that afternoon, or in the next morning's mail, just before he came to the hospital.

[laughter] I didn't always have a chance to do what he suggested. But he was quite stimulating, and I learned a lot from him.

TUSLER: The Huntington Hospital was in Boston?

WARREN: Yes, it was part of the Harvard medical complex. It was about half a block from the Harvard Medical School on the same plot of land just behind the Peter Bent Brigham Hospital. At that time they had interlocking governing boards but no contracts, really, for this educational program. Yet Harvard was teaching its basic sciences

in what's called the Harvard Medical School buildings. They are classical in design, with great big columns around a court, and very poorly designed inside. They have very high ceilings and the windows aren't in the right place, but they made it work all right.

They've got the School of Hygiene, which is the School of Public Health, and the medical school together there. They taught in the junior and senior year--just as I experienced in Berkeley and San Francisco, except I had to cross the San Francisco Bay for either the basic sciences or the clinical training. The separation was very great. The medical students at Harvard would go into the Peter Bent Brigham [Hospital] or the Massachusetts General [Hospital] or the [New England] Deaconess [Hospital] or to the Children's Hospital. There was a dental school there, too. They had a library in a separate building. There was perhaps not quite as much separation as I had; because once we crossed San Francisco Bay, in the third year of medical school, we never got back to Berkeley. But in Boston you could still go to the anatomy [department] or the biochemistry department from the hospital wards without too much trouble.

TUSLER: Was this a requirement, then, that you should be a resident here?

WARREN: No, this was just something that I wanted to do. I was coming back to San Francisco to practice cardiology

because I'd been impressed by it. As a senior student, I could read all of the previous literature on the physiological studies on the heart and circulation and all that was known about heart disease. Since I had helped Viola on the electrocardiogram, I learned a great deal about that. I learned a great deal about the phase of relationships of currents and so on from studying the simple electronics on the X-ray machines that I had had to keep running to do my experimental work at the Hooper Foundation. My interest in cardiology was so great that when I was at the Massachusetts General, where Paul White was just beginning to become an authority on heart diseases, in my own mind I was going to go back to San Francisco and become the Paul White of San Francisco. [laughter] Well, I didn't visualize it quite that far. At that time, he was just one of the part-time doctors who, more and more, wanted to do research on heart problems. So he finally wangled himself an office at Massachusetts General. He had an outside office, also, at first. But in this office at the Massachusetts General, he saw private cases. He had a big electrocardiograph machine right down the hall, which he took charge of. Then he began to have the use of an intern, after they finished their twenty-one months, as I had done. These men began to be more and more able to call themselves heart specialists.

I used to go down and see him. He was a very affable person and only about eight or nine years older than I so that we still could talk. There wasn't a barrier of seniority. And he had a very nice way of wondering about things. The electrocardiogram was a complete mystery at that time. After all, it was just an empirical measure. Until relatively recently, maybe fifteen years ago (which may not be recent to you but is to me), you'd buy an electrocardiograph and put large electrodes on each wrist and on the left leg. Now, this gave you a very interesting and consistent electrical pattern on the oscilloscope. And by comparing case after case after case, particularly with the autopsy of the heart after death, you could almost say this kind of a change in the electrocardiograph figure was due to a certain defect in the heart muscle bundles or electrical conduction systems.

TAPE NUMBER: VI, SIDE TWO

JUNE 2, 1966

TUSLER: Dr. Warren, last time we were talking about your internship at the Massachusetts General Hospital, 1923 to 1925.

WARREN: That's right. I was on the west medical service in the building, which had the ether dome upstairs, and wards on the second floor, and the administration and laboratories on the ground floor. They also had a basement. It was a granite stone building.

The ether dome was, as the name implied, a dome-shaped room with a very high ceiling, and the teaching amphitheater. The center on the floor level was about 20 x 30 feet. Opposite the door, the tiers of seats rose, so that there were about twenty rows of seats in a semicircular shape, all facing down a very steep angle to what was called the amphitheater below. The patients were brought in there where the teaching discussions were held. The clinics and the seminars were held there. And this was the place where [William Thomas Green] Morton and [J. C.] Warren demonstrated the effects of ether in the very early days. This demonstration caused the acceptance of ether and its replacement for chloroform, which was used prior to that time.

TUSLER: Was that happening just at those years when you

were there?

WARREN: No, that was back about 1870.

TUSLER: Oh, it was that far back. [laughter]

WARREN. Yes. At the time the building was built, it was on the James River and had a pier on the river side. At the time I was there the river was half a mile away, the land having been filled in. But there was still an iron ring on one of the staircase walls on the river's side of the building, to which boats had been tied in the early days, when they brought supplies and visitors and patients to the hospital. On the other side, there was still a roadway which led to the hospital through big stone gates in an iron fence. Along this roadway the visiting doctors, with their top hats and long-tail coats, and horses and buggies used to come.

Roughly, the medical services were divided between east medicine and west medicine. Then there was an east surgical and a west surgical. Each one had about thirty-two beds. The hospital had a great big, open ward with a fireplace in the center, facing four ways, which was the only heat they had in the early days. The beds were separated by curtains on sliding rings on rods. They might have an infectious typhoid case right next to anything else. It didn't make any difference. They used what they called "precautions," which meant that they

had a basin full of lysol solution and some soap and a towel at the foot of the bed. Occasionally they had rubber gloves, but not always. These were brought in specially by the head nurse. Surprisingly, the precautions, plus the general resistance of the patients, I think, resulted in very few cross-infections, even with bad staphylococcus skin infections. The meticulous washing of the hands in lysol, which came down from [Joseph] Lister (also in the early 1800s), was the main protection.

I think I described for you the life in the hospital to a great extent last time; so I might tell you that we arrived, as I mentioned, in the old Model T Ford touring car. We lived at first in an apartment house, next to the Elmer Belts--he also was graduated from the University of California in San Francisco.

Dr. Belt was a year ahead of me. He brought his two children and his wife there while he was taking a residency in urology at the Peter Bent Brigham Hospital, and we lived next door to them. This made it possible for Viola to babysit for the Belt children and Mrs. Belt to babysit for our Jane. The girls would go to visit museums and the cultural side of life as much as possible. Viola took a course at Radcliffe on writing and composition, I think. She didn't stay long enough to get a master's, but she had almost all of the equivalent for it before

we left.

After the Belts left at the end of our first year, we moved into Cambridge, out on the periphery of the James River area, into a little flat in a three-flat dwelling. This had a lawn and other things, so that our baby could play outdoors. We lived there the rest of our Boston stay, for almost two years.

Viola was somewhat isolated because I had to have the Ford to go back and forth. Some of the time I had only every other weekend off and occasionally I could get out for an evening, so the baby didn't really know me until almost the time we went to Rochester. [laughter]

Food was quite inexpensive. It wasn't as cheap as it was in Baltimore, where lobster and fish and all kinds of vegetables were in the huge market a few blocks away from our little apartment. But it was within our budget. I got fifty dollars a month board and room, and my laundry, which was considered to be top intern salary for that time. In fact, in many places, I should have had only the board and room and laundry, and not the extra salary. But this was the new era, and they began to pay these "large" salaries.

During the last year, when we decided that I was going to accept the Rochester job in radiology instead of going back to San Francisco and practicing cardiology,

I took a residency at the Huntington Hospital under Dr. George Minot.

It's interesting that Dr. John Lawrence, who's professor of medicine and chairman of the department here now, had had that job while he was waiting for the west medical appointment, while I was in Baltimore. When Dr. Lawrence came on the west medical service, two levels behind me, he was the rat while I was the junior. He still complains about all the skunk work I gave him in doing blood counts and things. [laughter] But our friendship started at that time.

In the residency at the Huntington--I think I explained some of this--I learned a great deal about leukemia and cancer, particularly cancer of the breast. Dr. George Minot was the rounding man on the leukemia patients. Dr. [William] Duane was the physicist who had designed a very high, 200,000-volt, X-ray machine. He was very forward-looking for the time. It was used to treat cancer and leukemia.

The Huntington Hospital had been built, as the name implies, from money provided by Mr. Collis P. Huntington, who had endowed a lot of other buildings and educational programs for the Harvard Medical School. That assignment paid \$100 a month and board, but no room. I was allowed to live at home.

By this time, my parents had come on a visit and

decided that the old Model T Ford was just impossible. Of course, it burned just about as much oil as it did gasoline. Everywhere I parked, it left a big pool. Neither my friends nor I could tighten up the pan of the engine sufficiently to stop these leaks, even though we put in new gaskets. We were all pretty good mechanics because we'd had to take our cars apart and put them together again. So my parents decided to give us a Model A Ford, which we then purchased. We felt, oh, my, life had improved tremendously. [laughter] An interesting thing: the salesman asked Viola whether the Ford had gone only 90,000 miles, which was on the speedometer. She said, "Oh, yes, the speedometer has not been used a great deal, because it hasn't been running for quite a while."

[laughter] She answered the question the wrong way because it probably had 150,000 miles on it instead of what was indicated on the speedometer.

Well, with this, we got rid of the old tires with lugs and the continual pinching of the tubes, and we had modern tires with no lugs and a clincher rim. We actually had a spare tire, which was on the back. The car, of course, sat high. The gasoline tank was in front of the windshield. It was a nice little four-cylinder car. We kept it for a long time. It must have gone 150,000 miles, I guess, because we drove it later to and around Rochester

for some time.

We used to take weekends and drive up and down New England to get the historical flavor. Viola spent a lot of time in the library reading. When I would get a weekend off, we always took a big washtub with us if we were going up or down the coast and would stop at some local pier to buy two lobsters apiece and a gallon or more of cherrystone clams. Then we would stop, build a fire on the beach, fill the tub with seawater and proceed to boil the lobsters and the clams. The clam juice, of course, even though it was salty seawater, was just delicious. This was partly because we were so ravenously hungry, you know. You could get lobsters, at that time, great big ones, for ten cents apiece. This is hard to believe at this time. And a gallon of clams, I think, was something on the order of fifty cents.

TUSLER: And that was cheap even for those times.

WARREN: Yes, although this was one-third of what it would have cost in Boston. But out in the sticks, Marblehead, particularly, was a nice place to picnic. Then, of course, it was dirt roads everywhere at this time--no freeways--and the roads didn't show very well on the map. You did a lot of wandering just by guess and dead reckoning.

Once we went to Brant Rock. We'd been to Plymouth Rock, but we'd missed Brant Rock. So we spent a whole day one

Sunday going around Massachusetts Bay trying to find Brant Rock. At about four o'clock in the afternoon we found a man at a crossroads. He said, "Oh, yes, it's just down the road here a mile or so." We went down there and found that the tide was in. You could just see something that looked like a rock pier running out into the water, maybe a hundred yards, and almost completely covered by the high tide. This was Brant Rock. Apparently, at low tide, which dropped maybe five feet, it was quite prominent. And during the low tide it was used to unload small ships.

We decided we never had to see Brant Rock again. And anytime we have a boo-boo of this sort on a trip, we always say, "Well, we won't have to go to Brant Rock again."

[laughter] It was absolutely without anything, except a vague historical background. [laughter]

The eastern woods fooled us. The western woods, of course, have almost no underbrush, just great trees, and you can walk and see for miles. You can get up on a hill, which is usually bare, and see all around it. But not so in New England. You were practically in a tunnel on the road, particularly at that time. It's still true, to a certain extent, even with the freeways. You can't see through; you can't see anything until you come right up to the lake or right on the stream. You can climb up on the hill and the brush just goes right up there, too. So

I tried, when we first did some of this wandering, to get out and climb a tree. [laughter] But these are brushy and aren't trees that you can climb easily.

TUSLER: You found out.

WARREN: I found out, yes. And then, of course, near the end of my Massachusetts General tour, we took a trip. I had a week coming to me at New Year's, so we got a friend to take care of the baby, and we took a trip up into Maine to see some of the mountain scenery in the winter. Of course, it was colder than all getout. We had a very poor heating arrangement in the car, so we went all bundled up.

Did I tell you about our Mount Mooseleuk trip. Well, we got up into New England at Mount Mooseleuk in Maine. We hadn't been able to see anything. And we stopped at a little town overnight and got to talking with the owner of the motel. So we were taken in almost as family. The man said, "Oh, yes, Mooseleuk; that's right here and the trail's just up here about a quarter-mile. It's a good trail, and there's a cabin up about a mile, and there's a cabin up on the top. And up there, there's a road, too, and it goes to a tuberculosis sanatorium." He did not think about the fact that I knew nothing about the winter and outdoor activities in the winter in Maine. I did not think to ask whether it was the summer he was talking about or winter. [laughter]

So we started out. We had some snowshoes that we had borrowed. We didn't know anything about footwear, so Viola had on some galoshes, and I had on rubber hip boots. I was good and strong in those days, and I thought, "Aw, I can go anywhere in rubber boots." But I knew I could; I could hunt with them, too. We started out about one o'clock in the afternoon because it was only three miles. Heck, we could crawl three miles in three hours and get there before dark. Well, we had had a snow the night before which had left about twelve to sixteen inches, very powdery, light snow on everything including the trail. We found the trail all right and we got a fair way along it. Then it turned out that the snowshoes just acted as shovels. Everytime you lifted your foot in this kind of steep trail, you lifted a big bunch of snow. So we took the snowshoes off and hung them in a tree, thinking to get them on the way back. And it turned out that we could then navigate very well. But it was slippery. In the course of another half-hour, we came to a lodge. It was unlocked. We had been told by our host the night before that when you went anywhere you left a little note, and if you used any of their supplies, you left a little money so that the club could buy the supplies that you'd used up. So we signed in the book and said, "Try our Sierras sometime. This is very beautiful, but we like the Sierras." We had a cup of tea and left a

dollar and went on.

We got slower and slower and more exhausted. So I finally parked my Graflex, which weighed fourteen pounds with the case, in a tree. Viola was getting kind of anxious, and I was, too. We came out of the trees at dark--it got dark at three o'clock--in a blinding snowstorm. I didn't know about snowstorms at these high altitudes in New England. Well, looking back, I had a flashlight, and I had my .45 pistol, as usual, in a hip holster. This was customary.

TUSLER: You always carried something like that?

WARREN: Oh, yes. Well, we had eaten by this time everything we had brought along. We were just as hungry as the devil. And just as the dark came on, with the flashlight, I saw a rabbit, and I took a shot and missed it. Viola thought, gee, I'd fallen and the gun had gone off and I was dead or something. And she came panting up at the last twenty feet or so and collapsed from the terror. Then we went on. I was madder than heck because I would have ordinarily got the rabbit, and we could have had a fire and had a meal, anyway.

Well, there we were. And looking back, it was very difficult to see the trail going back downhill, particularly with the flashlight. It just sort of disappeared. We could see the trail ahead, because now we were in the very low

brush at the timber line, and you could see a sort of path. We could see snowdrifts and so on, but we understood that the house was right there. We went on, and Viola got awfully tired, and I got exhausted. You'd come to a snowdrift about six feet high and then would struggle over it and then fall down on the other side. Usually, the other side was icy. And, of course, we would skid all over. I then decided that I was too tired to hang on to my boots. We both had on two pairs of socks, and as long as the feet didn't get wet this was all right. So I took off the boots and put them on the snowdrift top, weighted them down, with a rock or something. And then we went on a little bit.

Suddenly the path disappeared, and it looked like everything was going down. We were on the top. So we sat down to have a consultation, just exhausted, at the end of our rope. I had always thought that in the cold if you do freeze, it's painless--you just go to sleep, so we mustn't go to sleep, although we were both sleepy.

Well, we had just about decided that we'd better try to get back, because we ought to be able to track ourselves across the snowdrifts, anyway, from one to another, and find where we came out of the woods. We knew it would be better to go down in the woods than to stay in this wind, which was just fantastic. It was whipping Viola's hair all around her face, and she could hardly see. She had had

on a parka with a hood. The hood had blown off because there was no strap. This was an awful messy kind of thing. We certainly were tenderfeet.

Just about that time, we heard voices, and each one was afraid to tell the other, because we thought we were having an hallucination. But all of a sudden, two men came out of the snow. I yelled at them, and they said, "Oh, are you here? Haven't you found the house?" And I said, "No." And they said, "Well, we saw your writing down below, and we're out on a hike for New Year's, tomorrow, and we decided you'd broken trail; so we followed you." And I said, "Thank God. Do you know where the house is?" And they said, "Oh, yes. It's down the line." Well, we went down the saddle, and up. I would have missed it, because it was covered with ice and just looked like boulders. Well, one of the men went around the back, and knew where the door was, and hammered the ice off and we got inside.

Then we found that the chimney was full of snow, and we had to take the stovepipe all apart. Finally, we got a fire going; there was wood, fortunately, and we all had matches. The boys had some tea and some jerky which they had brought from an outing house. This was the thing to do.

Well, we finally got warm. I had both ears frozen and a frozen toe. Viola had both ears frozen a bit, not

badly. These finally thawed. They located some mattresses in the hut, which we put two deep on the floor, and then put mattresses over us. All four of us lay down together under these mattresses to keep warm for the rest of the night. The stove wasn't big enough, although we kept it going all night as fast as it would burn. Everytime I would turn over, my toe would hurt. And Viola says I swore in my sleep, or something, [laughter] but I don't remember that part, anyway.

Well, next morning, there was no wind. It was just as clear as a bell, and you could see all over that part of New England. And looking down the trail, you could see Viola's parka where it had blown off and had caught in the rocks. You could see my boots. You could see our tracks and the boys' tracks. We wondered, "Why in the world was it all this trouble? It wasn't very far, really." But we didn't know anything about that country. And we could have been lost, because over to the left in the direction we were being pushed by the wind on our way up, there was quite a cliff. If we had gone a little farther over, and on the ice, the wind would have pushed us over.

TUSLER: It was dark enough so that you couldn't see?

WARREN: We wouldn't have known it until it was too late.

Well, anyway, we got up and had tea, and the boys went along on their trip. We gradually made it back down,

got our camera and snowshoes, arrived back at the car, and put all the gear into it. Then we went into the little motel, or the tourist place, and got lunch. The fellow said, "Well, gee, I didn't know you were going to walk up there, now!" Of course, it's true I had just inquired. I didn't say we were going to do it. And he said, "My lord, you didn't tell me, and I wouldn't have known. I just thought you had left, except there your car was."

So we came home. Later the little hut burned, so we sent them a healthy donation, because the place had saved our lives.

TUSLER: I think you're right. That was very nearly the end of a glorious career. You could have easily been permanently lost.

WARREN: Well, we decided to be very respectful of the New England mountains after this. We later did quite an extensive tour of that area in the summer with our child, who was then three. This time, we went pretty well equipped, except we didn't have mosquito netting. We hadn't really yet learned the hard way about mosquitoes.

We decided we would stay at a small lake up there overnight. I had an umbrella tent with a mosquito-proof front, and had a gasoline stove. We really were equipped to stay in the woods. We had an ax and all the tools that were necessary to fix the car and everything. Well, that

was fortunate, because, as I turned around to get on to the site where I was going to pitch the tent, the crankshaft broke. And there we were. We hadn't passed a town for twenty miles, and there was obviously no tow arrangement available.

The only thing I could see to do was to take the car apart. Maybe there was a stage route. Somebody had come by and told me that there was a stage that passed by once a day. So I spent the rest of that day getting the camp fixed up. I cut a couple of trees and fixed myself a hoist. I had some rope, and with the jack, jacked up the car. With this arrangement, I could hoist the front of the car so I wouldn't have to lie down on my back to work. The mosquitoes were just terrible.

I finally got it all apart just about the time the stage came by. The driver said, "Well, I'm just going to go up here to a bunch of ranches and I'll come back and pick up your crankshaft. I'll help you free the last part." I wasn't quite able by myself to get the crankshaft loose from the clutch bearing. I needed another hand. So he came back a couple of hours later, and in ten minutes we got it off. He went to town with the crankshaft in two parts. I had very little money with me, but I had enough, I thought. But it took fifteen dollars to get the new crankshaft and pay for the

transportation. I had about five dollars left, which would just about buy the gas and enough supplies to get us back to Boston. [laughter]

Well, anyway, all that next day, I worked at getting it back on; and I did get it back on. He had brought some oil, too, so I let the car down on the ground, put the oil in, cranked it up, and away it went with no knocks; so we packed up.

But in the meantime, the mosquitoes had almost carried away our small daughter. Viola had a lot of netting with her and made a pillowcase-shaped net to cover her. This came down over her legs. Viola had some elastic which she put on the bottom. Jane was completely encased, and she thought this was a ball, [laughter] because the mosquitoes wouldn't get her. She would run up and down the road and play.

TUSLER: She could walk in this contraption?

WARREN: Yes, Viola had split it on the sides. Viola was a very expert seamstress. Of course, she had to practically unsew and sew the child up again often so that she could eat and go to the bathroom. [laughter] Well, finally, in desperation, though there were signs prohibiting this, we broke into one of the nearby cottage's front doors. It was just a matter of lifting the latch. I didn't acutally break anything. Then we got in the screen porch with

everything buttoned up tight. And you could just hear the angry hum of all these frustrated mosquitoes that were perched on the screen, buzzing away. They were so vicious that you could hardly sleep. [laughter] They were so numerous that the screen was just black with them, by the thousands.

TUSLER: We Californians don't know this.

WARREN: No, we really don't know. The tale is that these mosquitoes once caught the first train going up the track in the woods. They came along in droves. The fireman and the engineer decided that this situation was hopeless. So they quickly took the fire out of the firebox under the boiler. Even before it was cooled, they crawled inside, you see, and shut the gate. Then they laughed at the mosquitoes. But the mosquitoes, not being completely defeated, stuck their bills through the boiler and let all the steam out. They began to attack the firebox, and were just about to get at the engineer and the fireman. Fortunately, they'd had a hammer with them, so that as the bills of the mosquitoes came through the wall, they took the hammer and bent the bills down. Well, pretty soon there were so many mosquitoes fastened in the whole thing that they all waved their wings at once and carried the engine off. And the fireman and the engineman were never found again!

[laughter]

TUSLER: That's a good pull for these trains.

WARREN: Yes, but I believe it after being up there.

TAPE NUMBER: VII, SIDE ONE

JUNE 2, 1966

WARREN: We have just finished talking about touring with the ancient Ford in Maine. To make the situation worse, in coming back from Mount Mooseleuk, we were exhausted, as you might imagine. This was about noon, so we headed for Boston, which was only about 180 miles away; but on these dirt roads and rough roads you couldn't make much time.

About half an hour after we had left, it began to sleet. Of course, it covered the windshield with ice. At the first town we hit, I stopped at the hardware store and got glycerine for the windshield. Now, the old-fashioned windshield was split across the center, and the upper and the lower parts tilted. So it was quite a job--and this was given to Viola, of course, because I was driving and trying to see--to scrape the ice off through the split windshield, so that I could see. And it was too cold to drive with the windshield open, because we didn't have any earmuffs and our ears would freeze; nor could we look out the side, either, with the window down.

It took us six hours to make this short trip. We were completely exhausted, of course, when we got home. Once in a while we'd have to get out and stop the car.

We were not sure the car would start again in the cold, because the battery was low with the lights on and everything. The windshield wipers were run by air at this time, and without the engine going at a certain speed the windshield wipers wouldn't work. Of course, with the ice on them they weren't very effective, anyway. There wasn't enough heat inside to melt the ice on the glass. This was a very hazardous thing.

Everybody was traveling very slowly. There were lots of wrecks and lots of skidding off the road, because the ice was also in sheets on the road. And this was one of the things that used to bother me in Rochester later. It was the fact that the winters would very often have this same kind of situation. If you came to a little hill, you were lucky to get up it, because it was slippery. If you got on the other side, you could slide all the way down. If there was anybody in the way, it was just too bad.

And, often, chains weren't very good. If you recall, at that time we had high pressures in the tires--seventy and eighty pounds--so that the tires were round and hard and cold, of course. Even the chains, then, didn't give very much purchase on the road. Now they're low-pressure tires. The tread is broad, and the chains are rubber, a lot of them. You can get snow tires, too, and you really can navigate a lot better.

About this time, Dr. Whipple appointed me to the University of Rochester, and gave me a Rockefeller fellowship, and Vi and I went abroad. She had saved enough money from her work in the medical school during our final years in school together, with what money our folks put up, so that she could go along. But we had to park our daughter, because it was said that it was difficult and bad to take a child overseas. It turned out we could have managed it perfectly well.

We found some nice people near Boston who took her in. They had a child of their own the same age, and they wanted a companion for her, so we made a very modest arrangement for the four months that we were going to be gone.

I left after meeting with Dr. Alan Gregg, who then was the European representative of the Rockefeller Foundation. He gave me a lot of introductions. Dr. Whipple wrote a letter saying that this was Professor Warren, and he is our new radiology chief, and will you give him all courtesy, or something like this. The letter had the gold seal of the University of Rochester on it and this was "open sesame."

TUSLER: May I ask if Dr. Whipple was in charge of the medical school at the University of Rochester?

WARREN: Dr. Whipple had left California about the time I left to go east for my training. He had been director of the Hooper Foundation and was acting dean of the UC

medical school in San Francisco for one year. President Rush Rhees came out while I was still around the Hooper Foundation and talked to him about the great opportunity to build a medical school in modern terms.

George Whipple had the idea that all these facilities should be put in one building; that there shouldn't be a separation of the basic sciences and the clinical sciences as there was in Berkeley and San Francisco. Rochester was one of three medical schools built around the same time in 1926. One was built at Duke, where [Wilburt C.] Davison was dean; one at Nashville [Vanderbilt University], where Dr. [George C.] Robinson was dean; and one at Rochester.

Rochester had a combination of Rockefeller funds and Eastman funds. Mr. Eastman put up \$7 million and Rockefeller put up \$7 million, making a total of \$14 million for the medical school and the hospital. The [Henry A.] Strong [family] put in, I think, \$2 million for the hospital. George Whipple decided that he would do everything on interest and nothing on the capital. Mr. Eastman approved of this. He and George Whipple got along very well. They both liked to hunt and fish, and Mr. Eastman used to invite Dr. Whipple and some of his friends down to his Carolina lodge and have a week or two of quail hunting. I was invited there once, and it was a very interesting trip. Vi and I went down there.

We went to Europe steerage class, of course, on the

Leviathan, going and coming. It was very rough going-- forty-foot waves--and we spent a lot of time in the bow. It was about a three-and-a-half-day trip. I got seasick, but Viola didn't. Of course, she played all the deck games, and I didn't have strength enough to jump over the rail; so I just sat there in the deck chair while she showed her underwear. [laughter] It was all very discreet, but at that time underwear wasn't supposed to be seen, even the long, long pants. Sir Thomas Lipton, the tea king, was on this trip, and he put up the games and the prizes. Viola won the high jump and something else. [laughter]

We finally landed in London, and we had a funny experience at customs. There was a woman on board in our steerage compartment who had a baby. She was kind of strange as far as we were concerned. We had never seen her type. But she was returning home with a washing machine and a few things that she had bought in America. When we came to customs, we went through without any trouble, and she was waiting. She handed me the baby, and then went off.

Well, here we were in London dealing with a strange woman. We hardly even knew her name, and we certainly had no address for her; and here we had her baby. All we could do was describe her. Of course, the purser and the rest would have picked her up. But finally, after an hour, with not much more than "thanks very much," she grabbed

the baby back. This kind of shocked us, and we thought we'd better not be gullible.

Then I spent about a week in London going to all the hospitals and looking at the X-ray departments. As I said before, my height wasn't good for this, because they strung the bare wire for the high voltage from the transformers to the X-ray tube just below the ceiling. And it was about a foot below the ceiling; the ceilings weren't very high. When I stood up, my hair would stand up every time they put the switch on, because I was only a little further away than sparking distance. I never would go--after the first experience with this--into the fluoroscope room when it was dark. I always said, "Well, you better show me where the high tension is." In those days you have no idea how nonchalant the medics were with this high voltage. Nowadays, high voltage would never be exposed like this, but if you happened to yawn and stretch, you would get electrocuted, you see. [laughter]

TUSLER: Why were they so casual? They just didn't realize?

WARREN: Well, there was no standard design. There was no high-voltage insulation at the time. The brackets from which the high-tension wires were suspended were made of maple, or made of varnished or shellacked wood. They were bolted to the ceiling, and the wires were hooked to the

bottom of the bracket.

I can remember that even in Rochester we'd made big switches for transferring the current from the tube above the table to the fluoroscopic tube under the table. They were just wood. You had a piece of rope, and you hauled on the other end, and it clicked back. Well, this was all right, except in the summer, when, once in a while, things would get a little moist, and you could feel a little current. Of course, everybody was pretty wary of it. And as far as I know, nobody was killed in Europe or America from this high-voltage system. It's certainly strange now. But everybody was about equally as far advanced in this as engineers and physicists were at that time. The medics, and even the nurses, were very wary of getting in trouble.

Well, after going around the Guy's Hospital and around three or four others, whose names I've forgotten at the moment, I had a day off. Viola took me through the British Museum and other high spots. We went there on the bus. This was late in November. It was so damn cold that we bought long woolen underwear for each of us. With this on, we could stand the cold rooms and things.

We lived in a pension near one of the parks. We had a fireplace, and they burned big blocks of channel coal in it, which is soft coal. We'd never seen it before. But you would roast in front and freeze behind. And the

bathtub could be used on Saturday. It was a tin bathtub and colder than all getout. [laughter] The hot water was hot in name only. Viola tried out the bath first. She ran the so-called hot water in and stepped in, and it was almost like taking a cold bath. So we decided that we would sponge after that, and get some hot water in a pitcher from the kitchen, and use it. That worked much better. We had some hard soap. I guess their water was very hard, and of course it didn't make much lather, and it didn't use up very fast, either.

They gave us roast beef, which was about as tough and dry as you can imagine, and a funny kind of hard potatoes, and cabbage. But they gave us plenty, so we ate a lot. Breakfast wasn't much. It was usually a roll, or a sweet roll, and a little jam, and some tea, but no coffee. We got so we could drink tea.

We went on up to Edinburgh, and that was still colder. I decided that the reason the Scotch had the "bur-r-r burr" was because they were shivering all the time. [laughter] The radiology departments weren't much up there, although there was one man, whose name I've forgotten now, who really had advanced techniques of diagnosing the heart. We spent two days looking at all the historical things.

We went then to Denmark and then to Stockholm, where I saw Dr. [Gösta] Forssell, who had the first 100 percent follow-up

for cancer treatment and study, because his program was authorized and paid for by the king. The king had authority to order the local mayor to put the patient on the train or send the patient back, and the patient had to come back. They had had a two-year follow-up, which nobody else had, of their radium treatment of cancer of the cervix. While we were there, over a weekend, they had the Twelfth Night celebration (after Christmas).

We were invited out to one of the doctor's parents' home for this holiday. Viola had, of course, talked about having the local flavor. He had met her and said he would give her some local falvor. So we got on the train and rode about half an hour and got off at an empty station. There was a coachman waiting with fur robes and a sleigh and two big black horses. He took us about three miles out into the country to a tremendous stone house. You could see barns and everything on the estate. Apparently, his family had been there a couple of hundred years.

Well, there was a big family party, and we were cordially welcomed. They had glogg, which is port wine, brandy, cinnamon, and almonds. You set fire to the brew with the almonds on a screen above. The fumes permeate the almonds and then they drop them in the brew. Then they toast you. With "Skol!" you'd have to watch your neighbor and drink down as he drank down. Each one at

the table had "skolled" us, particularly Viola. [laughter]
Whoooo, by the time the main course came, we weren't quite
all there, I tell you. [laughter]

It was a lovely evening, though. They had these old
tile stoves on which you slept, which were built for singles
and doubles. The top of the stoves would be made of tile
and would be about seven feet long and from four to seven
feet wide. A kind of a pad was put on the stove with a few
covers, and you slept on there. It was just the reverse of
being covered by our electric blankets. The stoves were
very thick, and by keeping a small fire in them, they held
the heat all night. They also warmed the room. During the
day, the pads were put away, and the stoves were used for
eating on or sitting on, or any kind of thing. They were
almost three feet above the floor.

TUSLER: Was it comfortable?

WARREN: I don't know. We didn't sleep on them. We were
taken back about midnight and got the last train back to
Stockholm. We walked from the station to the King George
Hotel, where we were staying, and got sober on the way.

Then we rode the ferry across to Skansen from Stockholm,
with huge cakes of ice (eight, ten, twelve feet in diameter
and about, oh, a foot thick) in the salt water in the harbor.
They had funny, blunt-ended ferries that were flat bottomed.
They can run up on a cake of ice, which would tip and cast

aside, you see. Of course, it was snowing, and we thought this was a wonderful experience. We were the only tourists in town.

TUSLER: How marvelous!

WARREN: Well, we got to Skansen and they were having a celebration, for it was the next day after the Twelfth Night. This is an outdoor museum of all of the Laplanders and the ancient living culture of the Norse people. So we wandered around and looked at all the huts and things. They had a little place to eat so we went in there. Here was a young blonde woman with long pigtails down below her waist. On her head was a great big white cake with lighted candles. She wandered around from table to table and sang. Others came in and sang. It was a very pleasant party. Then we walked back to the pier and got a boat back.

We found we could walk everywhere, because the distances weren't very great. And we were very economically minded. Usually, the hotel cost was something around a dollar overnight, but if we walked up three flights--there were no elevators--we got it for a quarter. It was almost twenty-five cents less per floor up. [laughter]

Viola was astounded at the kind of work the women did. I was, too. I have a picture of a woman in a courtyard in a hotel in Germany pitching manure just like a big man. She was a big woman, pitching it onto a cart. It was a

man in a business suit and a hat, a very dapper gent with gloves, who had backed the cart in. He stood there while she shoveled it. [laughter] He went in to have a cup of coffee, or a drink, came back, then drove off, and that's all he did. She did the hard work. I imagine at the other end of the trip, there were a couple of girls who unloaded it. And I said to Viola, "You see?" [laughter] She wasn't going to have this when we got home!

We went back across to Denmark on the ferry. There I saw Dr. [August] Krogh. One of our classmates, Bee Carrier, had worked with him. Dr. Krogh had described the small blood vessels--the capillaries in various organs--outlining the arterial and the venous side. It's hard to believe that in 1925 the functions of the vascular organs were so poorly known. Some of histology had been described, but the actual circulation was unknown. He got the Nobel Prize for this later.

He lived in the third floor of the research institute. The laboratories and the graduate students were down below. He had a very charming wife and, I think, two children. They took us to the opera in Copenhagen. It was a very thrilling experience for us. They also took us to the ballet. Viola gorged herself on Danish pastries. Of course, they were pretty good in Stockholm, too. It's too bad that we didn't have a little more time, but we

didn't get to do more than just go to Stockholm and back. We didn't have a chance to go into Norway, or take a trip on the canal, which would have been wonderful. But, of course, everything was locked up with ice, too.

We went down into Berlin. My letter of introduction just flabbergasted the German "professors," because you didn't get to be even an assistant professor, which was what I was, until you were in the neighborhood of fifty years of age. Here I was, obviously, maybe thirty, you see. But I had read everything these gentlemen had read--you could do that in those days--and all that they had written. I had had an excellent clinical training, and if I decided they needed to have a little demonstration, they would take me on rounds and show me their patients. I would say, "Well, now, don't tell me about this patient. He has nephritis, and you've had a hard time keeping his blood up." This would astound them. Well, heck, it was simple if you'd seen a dozen of them, you know. They were pale and had a certain look about them, and you'd notice that they had arrangements beside the bed to collect the twenty-four-hour urine in a bottle. It was just "elementary, my dear Watson." [laughter] But it was very telling because none of their young men could do this. They never attempted to do this. This would be just heresy; they had to start from the bottom.

TUSLER: It really talked a lot about their type of educational approach.

WARREN: Yes. Ours was and is so much better, more complete, and certainly faster. Well, I met a lot of people who were famous in the radiation field and saw their laboratories. It was very interesting to find that their laboratories were just as crude as mine and the ones that I had worked in. There were no great advantages. And in fact, I thought that I could go faster with the training I had had than they could if I could get a small amount of equipment built. In those days you couldn't buy stuff; you had to make it. This was all right, because this meant the pace was slow. For our ambitious young men, this was all right. One of the things that attracted me to the job in Rochester was that, as Dr. Whipple said, "You go back to San Francisco and practice cardiology: Sure, that's a good field, and you may have done a lot of work with Dr. Paul White, but after all, so what? If you're going to do research, stay with radiation. We've already got a start. You can be the diagnostician. You can have at least half of your time to do research." This turned out to be Sundays and nights.

Well, anyway, I went down to Württemberg, where Dr. [Wilhelm] Conrad Roentgen had made his discoveries in X rays. I saw the technician, who was a young man at

that time, but now was quite ancient. He showed me around, and I saw the film that had the image of the key on it. Roentgen had left the key under the film and under the Crookes tube, and had gotten a picture, one of the first radiographs, you see, or the first radiograph, to prove that these were invisible rays which penetrated a book and showed the metal key. He showed me the equipment, which consisted of an old Crookes tube, a transformer, and a chemical rectifier.

Now, the fact that these were available in physics departments all around the world, particularly in the United States, is why so many people immediately plunged in and began to take X-ray pictures and do fluoroscopy, because it was in all of that first publication of Roentgen's--that certain substances would fluoresce.

Thomas Edison made some fluorescent screens. Pretty soon some others did, and then you had fluorescent screens available along with Crookes tubes. A little later they made X-ray tubes.

The Germans made one which had what was called a line-focus tube. The electrons came off a fine point in the vacuum, and the voltage forced them from the point to a surface of the metal target. The point was heated. This gave you a sharp picture in one dimension and a slightly fuzzy one in the other, but it was pretty good.

They learned later to make the target with a narrow trough in it that was very small. That became the source and, therefore, you could get sharper pictures.

In the United States, Dr. William Coolidge developed a coil, which was a filament, which was heated. The greater the heat, the greater number of electrons were emitted. These would then carry more current across to the target. By getting smaller and smaller coils, he was able to get a sharper and sharper source.

Of course, today the target areas are so small that they're almost pinpoint in size. But in my day, [laughter] we had targets that were half an inch in diameter as focal spots; they were half an inch across. Finally, we could get them a quarter-inch across, but they wouldn't last very long because the cooling was poor.

I can show you some films that I gave to the UCLA radiology department. I brought some with me from Rochester. They are thirty years old--just films--and they are very fuzzy. Of course, you couldn't see the fine details of tubercles and other things. You had to use secondary information to make you suspect that these were there. You couldn't actually do this, but you can today. They are there; you can see them; you can look at them with a hand lens and get some detail.

TUSLER: Then it was crude . . .

WARREN: Oh, very crude. But nobody had really dared to sit down and analyze what you could and couldn't do and make some standards.

We spent one week in Italy--Rome and Fiesole. There was no science represented in Italy, so we just looked at the leaning tower of Pisa and all the galleries. Oh, my, I was just filled with information. It was interesting to see in Fiesole that the Romans, at about 300 A.D. or probably a little later, were able to cast lead in sheets a half an inch thick. They used these to hold the water in their baths. And they had lead pipes for taking the hot water from the furnace heater to the bath. Then they had big tiles; but they had a problem, you see, cementing the round tile pipes to each other so they wouldn't leak. This was why lead was used so much.

I bet you that the Fiesole baths must contain a hundred tons or more of lead. It doesn't take much lead of that thickness to make a ton, but it's a fantastic accumulation of a metal. It was fairly pure, too. It looked as if it didn't have much visible imperfection. I took a little piece by cutting it off with a knife. It looked and felt just like lead should, today. I found out when we got home and tried to put up lead around the X-ray booths, that the soldering or welding of lead sheets together was a very tricky business. It took our man, who

was a good mechanic, about a month of practice to learn how to do this without having holes and thin and thick spots, you know. Yet the Romans had been able to do it, and you wonder how they handled the melting process, because they didn't have gas. What they might have done was build a charcoal fire and use a reed to blow the flame; but just how would you do this?

I was puzzled many times, because to hold the charcoal--to get any quantity of heat--you'd have to have a lump of at least a couple of inches in diameter just at the glow stage. And then they'd use a reed, but the damn reed would burn. They made small lead tubing of a kind; at least, in some museums you find it. But it was usually of pretty good size and crude; so they must have used something that was of wood or reed. I've always looked for this, too, because the habit of the masons, who built these tremendous structures, was to cast an ingot of silver or gold or lead--all of them with low melting points--shaped to go into the cavity between the two stones. This was why the Spanish took all the Inca remains apart to get all the copper, gold, and silver which held them together. The Turks also did this on the Acropolis during one of their occupations. This was why, even in the last war when they were in Greece some of the time, they mined the Acropolis for the copper and lead that was there. But they found that

it wasn't worth all the effort; they didn't get enough.

This is why so many ruins are in ruins.

They didn't always do this. Some of the masonry is so well fitted that it was just put together that way. The Romans apparently burned shells for the lime for their mortar. They also probably burned the limestone; but there weren't many places where you could find where this was done, as far as I know. And in later periods many people robbed the marble off of buildings to burn that. Limestone is calcium carbonate. They burn it to get calcium hydroxide, which is lime, which then hydrolizes again, and you can make mortar. It's water of crystallization, just as it is in cement. It's the water of crystallization that makes it hard. In plaster, it is the carbon dioxide and water that makes it hard.

I, of course, carried the camera everywhere, and I have a lot of pictures. I took more pictures in Rome, Fiesole, and Milan than I took in all the rest of Europe, because it was so wonderful and so California-like, too. I think this is part of its attraction.

TUSLER: They weren't doing anything along those lines there, or in France, I take it?

WARREN: Yes. I went to the Curie Institute [of Radium in Paris], and met Madame [Marie] Curie. Her husband was dead. by this time. And I met her daughter [Irène]. The old lady

was very anemic and yellowish looking. Her bone marrow had been so damaged by the radium. She extracted radium--even after they found it to be radioactive material--in open vessels, and took no precautions. Very shortly, the chemists would get pretty high concentrations of radium--in milligram amounts, still--but after years, they had a lot of trouble. She had some burns on her hands and her skin was very rough.

They had had quite a fight with Professor [Antoine Henri] Becquerel, who also had claims on the initial discovery of the radioactivity of radium and thorium.

Her daughter was a very intelligent and well-posted physicist. We also met her husband, Frédéric Joliot, who turned out to be a Communist during the Second World War and afterwards. During the atom bomb project, he was suspected of trying to get information that would be helpful to the Russians.

When we got back to London, we sent to the railway express office where we had our money, where we could cash our checks, and where they got all our tickets for us. We told the agent we were making a trip to Glasgow, but asked if he would get our tickets and transportation to the pier back home for us. We got our Glasgow tickets and left. We came back in three or four days, and there was a letter waiting from Viola's mother with a \$200 check. Viola went

to cash it, and the man said, "Well, you'll have to have Dr. Warren." Viola said, "Dr. Warren is at the hospital and will be back tomorrow." And he said, "Well." Then I came back the next morning with Viola and presented the check, and the fellow said, "Are you Dr. Warren?" I said, "Yes." He said, "I just cashed a check for a man called Dr. Warren from Mrs. Lockhart for \$100." It turned out that Viola had opened the letter from her mother in this office. She had thrown the envelope in the wastebasket. Some confidence gent had seen this. Of course, he was waiting around for this. So after we left, he went and picked the envelope up. It was addressed to Mrs. Stafford Warren and was from Lockhart, Berkeley, California. So he went through a maneuver by which he got acquainted with one of the travel clerks. He wanted to get a ticket to China, or someplace; that was a big expense, of course, a lot of money. He wanted to get these arrangements made, and then he'd go and get his passport as soon as dates and costs could be established. The next day, he came back and said he wondered if he could cash a check. And the travel clerk said he would have to see. In the meantime, the confidence man had written to Viola's mother saying, "Am short of funds." Or he telegraphed her, "Please telegraph \$100." Well, Viola's mother was disturbed because Viola would have asked for this and not me, so she thought that Viola

must be sick and out of circulation, or I wouldn't have asked. So she quickly went downtown and telegraphed a hundred dollars. This fellow got it and then cashed it, you see. And the fellow apparently hadn't seen me, as it turned out, so he didn't know what Viola's husband looked like. He went around to this travel agent who had arranged for, but had not yet sold him, the ticket, to identify him at the cashier's office, which he did, and the agent gave him \$100. Well, then he thought this was such a good deal that he waited a couple of days and sent a telegram to Mrs. Lockhart, again, saying, "Please send \$250. I am forced to borrow. Send not to the express, but to Lloyds Bank" in some other town. It was at this stage that we came back from Glasgow. Well, the poor cashier had to put up the \$100. We were sorry about that, but we went on and caught our boat. On the boat, we decided that something like this must have happened. What I'm telling you was after the fact; we later found this out. Viola went back from the pier and telegraphed her mother "Request for money a forgery. Letter follows." And Mrs. Lockhart got that letter just when this fellow had sent her a third telegram wanting to know what had happened to the money. [laughter] And of all things, it was signed "Love, Stafford."

When we got to Boston, we went around to the British consul, who was very snooty and who said, "Well, you were

tourists and you have to stand your own risk. You got your money back. So what?" Well, Viola said, "We'd like to know what happened." About two days later, the express representative, who we had also contacted, called on us. He explained that they had caught the fellow in Lloyds Bank, when he had gone to cash the second check. We were told that he made a practice of this and that he was well known and notorious in Europe for this. We said, "Well, it was too bad that the cashier was stuck with this." And he said, "Well, this is part of our role, and this makes us doubly cautious."

TUSLER: Couldn't the fellow have been held responsible for it then, or was the money then gone?

WARREN: Oh, the money was gone. He was broke, you see; \$100 didn't last him very long. It must have cost him \$100 a week. Apparently, he stayed at the best hotels and was very well dressed and had a polished manner. And I suppose he drank heavily, too. We came back to Boston and got our child, who was very glad to see us. We got into our own car and shipped our few goods and books and stuff to Rochester. On the first of April, we landed in Rochester. We went to a boarding house and had \$35 left.
[laughter]

TUSLER: That's coming out pretty well!

WARREN: That's coming out all right, isn't it? Well,

the first thing George Whipple did was to give me a meter stick. (That's a yardstick, you know.) He said, "Go upstairs on the third floor and draw in chalk on the floor the partitions for the X-ray department." He said, "You've been over in Europe now and have seen all these things." He said, "We've allowed you this amount of space, and go ahead." So, you know, young, brash, [laughter] and opinionated, I went upstairs and got the architect to go with me. (He was Leo Walsdorf, an awful nice fellow. We were friends forever after.) He said, "You the new man?" I said, "Yes." He said, "Have you any ideas?" I said, "Well, maybe." So he gave me a plan of the available space. They were just then putting the bricks up for the outside walls. This was just the concrete, the steel frames, and the floors. As a matter of fact, they were still casting some of the floors. Certainly, above me there weren't going to be any floors for another month or so. This was April 1926.

I spent a week with graph paper trying to figure out where to put various things. Then I went to Dr. Whipple and to Mr. Walsdorf and said, "This is about the way I see it, but I'd like to take this down to Ross Golden." He was one of the most aggressive and imaginative radiologists in New York. He's now emeritus and is working in our radiology department.

So I did take it to him, and he said, "Well, you'd better look at some of the X-ray equipment while you're down in New York." It was arranged, and I spent three days there. I spent one day with General Electric, one day with Keleket, and one day with the Picker organization, which was a brand-new company. Then I spent a couple of evenings with Dr. Golden.

TUSLER: Where was Dr. Golden attached?

WARREN: He was at a New York hospital. Well, then I was given the treatment by the sales people for these companies. I began to get suspicious that they were beginning to use pressure. In fact, the General Electric fellow, a man by the name of Reno, made no bones about it that this was a big job for him. I was a new man and part of a new department. This was going to be the opening of a modern era. He'd already sold to the Duke University medical school and he wanted my business. He gave me prices for diagnostic equipment--a portable machine and a therapy machine.

I went to Schenectady and saw Dr. Coolidge and Dr. [Willis] Whitney, who I had heard about. They showed me around the General Electric Research Laboratory. Mr. Reno came, and, of course, I was introduced to everybody and his pup to make an impression on me of how wonderful their stuff was. Well, I would agree that their tubes were the best. There weren't many other manufacturers making tubes,

but their equipment, to me, looked too heavy and too big, in comparison particularly with the Picker equipment, which was very compact. The capacity and output was the same, and the cost was 15 to 20 percent less. And this was not a special price, either.

Well, I'd had a hard time with the Keleket salesman, who used an awful lot of pressure and, in fact, got a little bit abusive towards me. I told him that his stuff wasn't even as good as the General Electric equipment. It was put together sort of haywire and in an improvised manner. They took some standard transformers and put them in cases. General Electric, on the other hand, had designed these transformers just as they would for a powerhouse. This was why they were so cumbersome and took up so much space. They were built so heavily, you could essentially throw them in the water and pull them out, wipe them off, and use them, and this kind of thing. Picker did it well enough, but they made light cases that could be fitted into a smaller compartment. What's more, they had at that time a mechanical rotating synchronous spark gap. A synchronous motor kept the contacts, or the gaps, at the right place during the sixty cycles so that you had a rectification. The negative was put in the positive side, so that you'd have a series of positive impulses going into the tube instead of a positive and a negative

one. You could do that with a switch, mechanically.

Later, they devised rectifying tubes for this, because the rotating, mechanical rectifier made a beautiful noise. You could hear the spark. It would crash. [laughter] Well, this was up around 80,000 volts. You'd get a good fat spark in four places at once across this disk or these arms.

Prior to that time they had gotten their high voltage from a wimshurst machine, which is a great big, plate-glass disk about six feet in diameter with silver or aluminum on it. The disk was rotated past collectors, and a boy on the bicycle usually furnished the horsepower. Then you had big condensers which were charged up and you could get a discharge across the gap or across the Crookes tube in the early days. This gave them a small current, but it was enough to fluoroscope with, because you need only three or four milliamperes in the dark to see a hand pretty well. You could use a long exposure for other parts, although the heart, of course, could be very fuzzy if you exposed it more than a half a second or so. Five- to ten-second exposures were not unusual.

Next they got chemical rectifiers, by which you had a solution of sulfuric acid in a jar. There were two electrodes in it, one carbon and one zinc, at one stage, anyway. And you had a big transformer. So then you put

your direct current through the chemical interrupter. This gave a sputter, and you had a very erratic, sawtooth kind of curve. Then the condenser took over the positive side and charged it up to maybe 100,000 volts or more, and then you could get the discharge from that. Sometimes, they ran it off the wimshurst machine which, you see, was simpler. In this case, it got power to the tube without having condensers, although later they put condensers in, too. That's what you had as late as about 1914. About that time they began to produce these transformers with the rotating rectifiers. Maybe it was a little earlier, because they had them in 1918 in San Francisco, but that was brand new at that time, and very modern.

I had the first chance to put barium sulfate plaster in the walls. The weight of the barium is the shield against the radiation. An inch of barium turned out to be a very difficult job because the barium would crack as soon as it dried. Then you had a hole, of course, that formed from the crack.

TUSLER: Was that dangerous, then? Could the radiation get through?

WARREN: The radiation could leak through. The barium was put on the walls between various rooms. But lead was actually put in the cubicle room behind which the technician stood or I stood. We had lead boxes in which

we put the tube with a big hole around the ends, and then bare wire was attached. Later, we got lead-glass bowls that were very heavy, but they were transparent. You could then see if the tube was getting red hot, or if it glowed, so you knew you weren't getting X rays.

We were able to get lead glass from Corning Glass. Just about this time, they were able to manufacture plate glass with lead in it, which had quite a radiation stopping power. Before that, the technician or the doctor had to look around the corner of the lead shield. He would get his head and neck exposed.

TUSLER: Which equipment did you finally buy?

WARREN: I finally bought the Picker equipment. I had a notice from the trustees asking, "Why didn't I buy General Electric?" So I had to write a letter. George Whipple said, "You write the letter and you buy what you want." As a matter of fact, it wouldn't have made a bit of difference, actually. But, you know, idealism! [laughter] Well, I was saving the institution some money, too. And it was seven or eight years before General Electric redesigned their stuff and got it down to the same equivalent as the Picker equipment.

Picker now, of course, has become one of the standard companies and has done very well. Mr. [James] Picker was a very nice gentleman. His son [Harvey] went into the business

and followed him. Mr. Picker has made enough profit now, so that he's endowed a foundation which pays for scholarships and research. [James Picker Foundation]

A man named Walter Steinkamp was my contact with Picker. He lived nearby and began to sell through all the northern New York territory, from Buffalo down to as far south as Scranton, Pennsylvania. There probably was a 20 percent profit on this stuff. So a machine costing \$5,000 brought a \$1,000 commission.

In addition, once you had sold the machine, you naturally sold the fluorescent screens and the film, even though it was Kodak film. We could have ordered it directly, but finally it turned out that Kodak had a kind of a fair-trade arrangement. It couldn't sell directly, they were wholesalers. So we gave the business, at first, to Mr. Reno of General Electric, because his price was the same and he hadn't had any money from us. Finally, his service got so poor that we gave it all to Mr. Steinkamp again. Mr. Steinkamp would get up in the middle of the night to get our stuff for us. The other man only talked about doing it, but Mr. Steinkamp did it. And Steinkamp was a good engineer in his own right. He could fix stuff, and he could tell what was wrong with it.

We built a lot of special things and began to standardize the techniques. I can show you some papers that were

written on the methods of making heart measurements at six-foot target film distance as a standard. I got an old cadaver that they were nearly through with and dissected the lungs out and left the heart in position. I put this with the ribs and everything left in place on a rotating table which I put in front of the X-ray film just in the position the patient would be. Then I took films of it at different angles so I could show the aorta and the pulmonary vessels and the auricles and so on. While some of this had been done before--it had been published that you could see the right auricle arch of the aorta on the oblique--nobody had standardized it. So I got it all standardized and worked out. Then I took some of the students, who were different sizes, and made comparative studies. For the day, I was right proud of my statistics. They were very simple.

TUSLER: Was this primarily for research? Or was this for teaching?

WARREN: This was for everyday routine. Well, you couldn't tell about one case or another unless you knew that something was bigger or absent, or that something was funny about it, unless you had reproducible pictures to look at. You had no way of proving the case. I could double the size of the heart picture by bringing the tube up close, you see. By getting it off at the distance where

the rays were pretty near parallel by the time they went through the chest, I could get a true normal-sized shadow.

I did a lot of work with a tin can with a hole in the bottom of it and a light in the can. The hole was the same size as the focal spot in the X-ray tube. I used this same model to show shadows. By moving the can back and forth at different distances and then measuring the size of the shadow in relationship to the actual size of the heart and the other organs (I did this for a lot of other organs, too, kidneys particularly, but that didn't turn out to be useful), then you could standardize the technique.

I built a model like an Aztec temple, with a set of stair steps an inch high and an inch deep, to a height of eighteen inches. This is the maximum thickness of the chest. Then I put brass bars on each step of a fixed length which were all within a couple thousandths of an inch of each other. I then could take X-ray pictures of different distances and calibrate them.

Any physicist would say that you didn't need to do all this. But clinicians weren't physicists. And you had to prove that the shadow, at a certain position, had a certain real measurement. I could show on a table and on a graph how much the magnification was for the stuff that was in front of the middle of the chest and how little it was on the other side. It sounds rather simple if

the Kodak plant all the tools were on boards that had shadows painted on them behind the tool, giving the shape of the tool. So, in going into a workshop in the plant, he could tell at a glance whether the man was putting his tools back in an orderly fashion or not. He made a great fetish of this. He carried it over into his personal life, so that in all the various places which were appropriate, such as the kitchen cutlery, he had a place on the wall with a diagram behind it for the objects. In his home in Rochester, many things were this way--the vacuum cleaner, the brooms, and so on. When we got to the lodge, we found the same thing was true there. He had the outline of his guns on the gun rack, and the tools that were used by the handyman were all marked this way. You could see that everything was calculated and figured out.

This was done to save time, and he didn't waste the time that he saved. He went on; he was a very active person, rather short-spoken. He didn't speak very often, which made him somewhat intimidating, sometimes, to a great many people who didn't understand that this was just his way.

Well, we had a guide and two pointers, very well trained dogs. We used to get up pretty early and go out while the girls had their breakfast in bed. This, of course, was the high point of the girls' life. And the

food was very wonderful: a lot of hominy grits and sow belly and black-eyed peas. It was the first time we'd ever tasted these beans; they're beans, not peas.

We went out in high leather boots because of the palmetto bushes, which were about a foot and a half high, that had spines on the end of the leaves. This made walking very painful if you weren't careful. Sometimes they hunted from horseback just because it was easier to get around. These palmettos were hard on the dogs, too, because they, of course, had to seek out the quail in and among them. The brushes are very dense in spots. There were a lot of open swales--a little bit of rolling flat was what you might call it. There weren't any steep hills. There were some pine trees that apparently were indigenous to the area. I never did find out what variety they were, but turpentine was harvested from this kind of pine tree. This was all second growth, though, and had been lumbered off.

We had pretty good luck with quail. Mr. Eastman went almost every time, although he was in his middle seventies. After the hunt, we were collected by horse and buggy and driven back, so that it was a very luxurious hunt. I was used to walking on shanks' mares mostly, to and fro, but this was done very expeditiously. We had shot the limit, so Mr. Eastman was satisfied that we had had a good time.

This seemed to be his best way of measuring whether we did or not.

This plantation of his was an old plantation which he had bought up. They raised peanuts on it, and Mr. Eastman was trying to do scientific farming. This was just beginning to be a new element in agriculture. Graduates from the agricultural schools around the country--state schools--were beginning to look at the depleted soils and to urge the use of fertilizers. Apparently, there were some deficiencies of trace minerals in this area. (Later, I found out that it was a lack of magnesium.) This accounted for the stunted cattle and, I guess, for the short stature of the people in this whole region.

Mr. Eastman, of course, over the years in Rochester, had what was called the Sunday Night Musicale. He would go down the faculty list, alphabetically, to choose his guests. Since we were in the W's, we always went with the Whipple's and the Wagner's and people like that, and we almost never saw the people on the other end of the alphabet. But he had about a hundred at a time in the house. He had a big organ in the middle of his house, where the staircases emptied into a big ballroom, and the orchestra sat on the landing of the staircase. And [Eugene] Goossens and Howard Hanson used to come. Mr. Hanson was dean of the Eastman School of Music and

conducted this orchestra. I knew him very well as a faculty member. He specilized in wild, clashing music. Well, there was a trio, too, which was very famous, and the Rochester Philharmonic Orchestra, and they used to be loudly applauded. Then Mr. Eastman would have a kind of a buffet dinner, and everybody would sit down. He had three huge rooms across the East Avenue side of his house, almost equivalent to ballrooms, although one was the library and one was the picture gallery. He had a fantastic collection of paintings, which he had accumulated over the years and later gave to the University of Rochester Art Gallery.

At ten-thirty sharp the exodus of the guests started. This was heralded by the appearance of Mr. Eastman's housekeeper at the doorway. Everybody knew that when she showed up it was time for Mr. Eastman to go to bed and get his sleep. So within, oh, ten minutes everybody was gone. I thought this was a very interesting thing. Since he didn't have a wife, and his niece, Mrs. Dryden, was not always around, Dr. Mulligan's wife was very often the hostess of the evening. Dr. Mulligan was Dr. Eastman's very close friend and personal physician. He had been quite influential in encouraging Mr. Eastman to set up the endowment of the Rochester medical school, the dental school, and the music school.

TUSLER: Was Dr. Mulligan the president of the Monroe

County Medical Association, too?

WARREN: Yes. Well, Mrs. Mulligan also had social pretensions. She had a salon on Wednesday afternoons at five-thirty to which we all would be invited, as with Mr. Eastman, in alphabetical order. It was quite a thing to engage Mrs. Mulligan in conversation because she was quite a volatile, outgoing, very beautiful, and charming person, always dressed in the latest, of course--for Rochester. And we found out (I forgot which wit on the faculty found out) that she read the equivalent of the Reader's Digest. What was the journal of the 1930s that came every week? It was like the News.

TUSLER: The Literary Digest?

WARREN: The Literary Digest. Anyway, it wasn't delivered until about four-thirty at our house. But, apparently, she got it at three-thirty and sat down and read it, so that she would know about the science and medical columns that were in there. She'd ask you a question about this, you see, and be very literate and erudite in your own field, which was a nice little touch. I admired her for having this kind of a gadget. But, having once had the word passed around, we all adamantly read our copies just at the last minute before we arrived so we could get a "one-upmanship" on her, [laughter] and so we could discuss it fluently. I think we were kind of dirty stinkers to do

this, because we thought at the time--I can remember we discussed this among our group--that we were kind of putting it over on her because she had such high aspirations for being the leading cultural point in the city, and we had found out where she got her source material. She wasn't embarrassed by this at all. We should have known and just cooperated with her, but she put it over on an awful lot of her guests. For years, we always had a private chuckle to see who didn't know what she was going to talk about for a given day.

TUSLER: Did you know Harold Gleason?

WARREN: Oh, yes, Harold Gleason was coming up as a brilliant young musician, and now, of course, is in his mature years, as is Hanson. Or has Hanson died?

TUSLER: To tell you the truth, I don't know. It's possible.

WARREN: I don't know either. To bring up Dr. Gleason reminds me that Mr. Eastman loved beautiful women. He was a bachelor, of course, and very discreet in everything that he did. He took quite a fancy to Mrs. Whipple, who was red-headed and from the Carolinas, and who had still retained a southern dialect. She was a wonderful woman with brilliant conversational ability. He also took a fancy to Mrs. Gleason and Nan Bayne-Jones, wife of [Stanhope Bayne-Jones] our professor of bacteriology. All

three of these girls were just sparkling. Mr. Eastman would have them to lunch; I think it was every Wednesday. During this time, the trio or some musicians from out of town would play. And then there would be a lively conversation. The luncheon was always very precise--start at twelve o'clock, through at one o'clock--just like that. Mrs. Warren was invited a couple of times, but it was difficult for her to go because she had young children and couldn't get away. After the second turndown, she was not invited again, which was the obvious system. Well, I think he accepted her reasons.

My lady was quite an active participant in these things and was able to keep her end up quite well. It was interesting to us, too, in later years, that we were the second-string men who came in and were on the average ten to fifteen years younger than other faculty. This meant that we associated with other professors in various administrative and official functions, so that it got to be the feeling around that I belonged with the administration and not with the so-called hoi polloi of the faculty, although I was of their age. Of course, I started in as an assistant professor and, as I told you earlier, the policy of Dr. Whipple was to raise the rank without the salary or to raise the salary without the rank. This gave him several chances, you see, to

improve a man's status without it costing him so much, because he was still running the school on the endowment income. You'll have to give him credit for his great strength of mind in resisting expansions that were not pertinent to the main purpose, which was to educate medical students or postdoctoral graduate students in dentistry, period. There was no public health, no nurses, nothing else. Since the hospital could educate nurses, as they did in the nurses' training school, that was fine. It had to come out of the hospital's budget, not out of the medical school's endowment.

The same thing occurred in social welfare. Dr. Nathaniel W. Faxon, who was the first hospital administrator, and later Dr. Basil MacLean, took on the training of nurses because this was a procurement device. They had to have a steady supply of young, newly trained nurses as the older ones departed into other jobs or got married. And the same was true of social welfare. You mustn't overlook the fact that many of the students worked for their board and room, so that the hospital sort of got free slave labor out of them. Since the hours were from twelve to twelve, there was twelve-hour duty and frequently not much time off on the weekend. When I went there, the faculty day was from eight to six, even among the heads of departments. You closed down at five, but then all the cleanup for the

next morning had to occur, and so the shift stayed on until six o'clock. Some of the girls came at six o'clock, particularly on the nurses' side.

TUSLER: How many people did you have working under you, then, in the radiation laboratory?

WARREN: Well, it wasn't the radiation laboratory, it was the X-ray department and it did all the X-ray diagnostics and treatment with X-ray machines and radium. I was supposed to have about half of my time free for research. This was the bargain that Dr. Whipple enticed me with. Well, of course, it was quite obvious to me that I had to get the department going first, because this was where I got my salary. The hospital superintendent made no doubt in my mind but that I had to serve the patients first, and then I could do research. For personnel, at what might be called the steady state, I had Dr. Walter Fray, who did mostly diagnostic interpretations; two secretaries; one head nurse, who kept the schedule; one head technician; and two assistant technicians. For the therapy I had two shifts of nurses. I had a laboratory technician and associate, Mr. Francis Bishop. Then later on research funds, various fellows; as many as three at the peak.

Looking around the country, this was typical of "X-ray men" as they were called then, or as we called

ourselves. Almost none of them did any research. This is why my description of the different parts of the construction of the department were publishable at that time. Nobody had done much construction in those years. Protection with lead and barium plaster was just coming in, so we were among the first pioneers to do this. And, as I said, the machines were developing.

There was a lot of uncertainty about how to handle the radium. I got some advice from Dr. Taylor of the Bureau of Standards. We built special shields, with a big piece of lead glass on the front. Then you could look down on the radium needles in a special device and put your hands around the lead so that only your hands were exposed. Well, I did enough of this over the first ten years so that I began to get pains in my fingers. I decided that we had to rotate the radium handling through various members of the department and reduce the dose. I didn't lose any finger ridges out of it, but I did lose some sensations.

I had about seventy-five feet of empty space--rooms--on either side of the corridor right next to my cancer-treatment clinic with double doors between. And after a couple of years, I got permission, first for one side of the hall and then, about the eighth or ninth year, permission for both sides of the hall. I began to set up experimental programs.

I did succeed in getting an assistant, Mr. Francis Bishop, who had been the troubleshooter for Dr. [George W.] Holmes's X-ray department at the Massachusetts General [Hospital]. He and I proceeded to do a lot of interesting things until World War II. After the war, he came here and worked on the Atomic Energy Project with the electron microscope.

While we're on him, he built all of the equipment for the fever therapy, including the resistance thermometers, the special controls of the lamps which heated the patient, and the electronic pickup and microphones for the heart sounds. He fixed it so that I could hear the heart sounds over a loudspeaker in my office or in the lab or in the room where the treatment was. By lifting the phone and putting it in front of the loudspeaker, the nurse could allow me to hear it even at home. This was quite advanced, and we got a lot of records of heart sounds and changes brought about by the high temperatures and the increase in heart rate. The clinicians got the habit of sending their residents down to listen to the heart, because you could hear murmurs that you couldn't hear with a stethoscope.

TUSLER: Was this at Rochester?

WARREN: This was all at Rochester, yes. And Mr. Bishop and I built thermocouples that could be put in needles and measure the temperature of tissues, joints, et cetera, all

around the body. We worked out some of the circuitry for this and the galvanometers. He mounted an old-fashioned, inexpensive student-type, flat, wall-type galvanometer on the wall and then we painted a scale board. My painting wasn't very good, but we succeeded in painting a centimeter scale on a board thirty feet long and putting it on the wall at the other end of the laboratory, about forty feet away. The magnification then from the image in the mirror from the galvanometer hitting that wall was fantastic. We could measure ten-thousandths of a degree centigrade in the liver, kidney, brain, et cetera, of the anesthetized dog or calf. Of course, we had problems. The slightest change in temperature would cause movement of the mirror and vibrations in the building, and things would make it dance. It was so sensitive that we had a hard time building a constant temperature bath for the reference end of the thermocouple. We finally calibrated it pretty well. We could make measurements in the deep organs. I'm sure we didn't know why at the time, but we detected the opening and closing of capillaries and the rate of consumption of oxygen by the cells--by one group and not by another. In fact, it was too sensitive for many purposes. So we used less magnification.

TUSLER: Was this all an experimental thing?

WARREN: This was all experimental.

TUSLER: You were not using it diagnostically?

WARREN: No, we were using it on animals, the largest being a calf. Well, we took a lot of measurements on ourselves and on students who were around and interested and wanted to know what was the temperature of their feet, of their hands, and of the skin of the face and things like this. But in general, we used the anesthetized calf, sheep, dogs, rats, or rabbits--things like that.

TUSLER: Would you say that on the whole your work there in the X-ray department was quite unique within the whole United States?

WARREN: Yes, there was no other X-ray department that did this kind of thing until later. Now, of course, they all do it. I began to create a definition for the term biophysics. You see, we'd been called "X-ray men" up to then. So I went through the period of getting the name changed to radiology, which was a nationwide effort. The journal and the associations were called--the American Journal of Radiology, or Roentgenology. Roentgenology was supposed to indicate that you were a diagnostician and read X-ray films and did fluoroscopy. Radiology meant that you did therapy in addition. Then I tried to create the definition of biophysics as the application of new physical findings, particularly having to do with the electromagnetic spectrum. That's heat, light, ultraviolet, X rays, and gamma rays.

They only differ by the wavelength. It gets shorter from heat, which has very long wavelengths, often called dark infrared, up through the gamma rays, which are the shortest.

Mr. Bishop built the ultraviolet clinic's carbon arcs, from what I told him about what I had seen in Denmark. He made it big enough so that we had fifty people in a circle around a big arc. It was a very popular clinic during the winter. And then we spent a lot of time working on the effects of gamma radiation, X rays (low and high voltage, long and short wavelengths).

In order to test out the effect of X rays on cancer, I began working with mouse, rat, and rabbit tumors. Because I had the patients right next door, I was the dumping ground or the end of the line of the cancer patient. After everybody else had tried surgery and everything else, they sent them down for X ray or radium. I gave some of them, who were volunteers, fever therapy, and I gave some what's called cryotherapy, reducing the body temperature with ice. I did all of this in rabbit trials first, and it did destroy the tumor. But the tumor that was destroyed was the part that was at the periphery of the tumor circulation; that is, the circulation had gone on and followed the new growth. In the course of time, usually the center of the tumor would break down and become necrotic. What the so-called freezing did was to reduce the body temperature

about ten or twelve degrees. This would cause an almost immediate shrinkage of this tumor tissue, which was about to die anyway, leaving less competition for blood, so that the growth recurred with even greater rapidity.

Dr. Temple Fay, in Philadelphia, was the man that started to do this cryotherapy. He started out in a funny way. He was a neurosurgeon, and he was trying to improve patients who had drug addiction. These were surgical cases. So he got the idea that maybe reducing the temperature would do this. (Why, I don't know. He never had a rational basis in his reasoning.) But then he did some cancer cases, and the tumors shrunk.

Well, all of us doing research in cancer have our ears to the ground, and we hear the gossip. I went down to see him almost immediately--within a couple of months--after he had started treating cancer. I wasn't very much impressed, but I thought, "Well, if I tried it on a rabbit first, maybe I could make some sense out of it." I was glad I did, because I then did (just for the record) ten very advanced cases of cancer. I also found out in the rabbit, and proved again in one patient, that if you gave X-ray treatment while the temperature was down, the X rays were less effective. In other words, if you wanted to protect an area that was getting radiation accidentally, or you thought you gave too much, if you put an ice pack

on it, you relieved the insult to some extent--not entirely, but to some extent. Just as I had found out in the fever cases that when you treated them with X rays, when their body temperature was high, the skin was certainly more susceptible to the skin burn--the erythema--just as the tumor sensitivity also was increased by the high temperature. So a lot of this was fraught with great complication and difficulty.

TUSLER: And these were all real discoveries that you were making?

WARREN: Yes, these were all new findings at this time. Everywhere you turned, practically nothing was known, so whatever you did was new and interesting.

TUSLER: When was this?

WARREN: It's still that way. I feel very excited about the prospects of studying cancer and other fields of medicine and sociology. It just proves that the field, after forty years, is still fertile for exploration.

TUSLER: When was this period that you are speaking of?

WARREN: Well, it was in the decade of the 1930s. Mr. Bishop built an electron microscope out of junk transformers, an old sink (because it had ceramic surfaces which were good insulators), and his own originally designed and built electron gun. He put these things together. I don't think that the total budget was much

more than \$200, which represented almost a year's budget for the laboratory; we had almost no budget. He did some of the first work with biological tissues. This was too early for grants. We got a little money for our cancer work from [William] Donner's foundation. Mildred Schram was the executive secretary to whom we applied. Miss Schram, a biologist, expected you to do your key experiments and show that they were going to be successful before she gave you the money. This was a common attitude of the few donors of that time. The grant was \$500 for the year; \$250 went to the fellow and \$50 went to the publication costs for the reprints and about, oh, \$200 went for rabbits and other supplies, including the building of any special equipment.

TUSLER: Good heavens, rabbits cost that much?

WARREN: Well, you use a lot of them--rabbits, mice, dogs and cats. It wasn't so much the outright cost as it was the food and cleaning costs. I had as many as thirty dogs at one time. That meant almost one animal man. They were washed down every morning and fed.

TUSLER: I suppose a lot of that sort of work was done by students?

WARREN: Yes. This was where I got my standard for a faculty unit for our medical school. I finally averaged four PhD candidates, or medical students who were taking

a year off to take a fellowship; this required about 800 square feet of useful laboratory space. My first PhD was William Bale, who earned his degree in biophysics, the first biophysics degree in the country.

TUSLER: Rochester was the first university to offer this degree?

WARREN: This degree, yes. I had a considerable argument with Dr. Wallace Fenn in physiology who said, "Well, this is a field we aren't interested in because it's gadgets." I denied this vigorously, of course; it was the physics and not the gadgets that were involved. Sure, we built gadgets; you had to. But he finally combined with me in getting the degree, or in recommending it to the university, so this was fine.

Dr. Bale now is a very famous biophysicist, still in Rochester, working with radiation biology. He built the first mass spectrograph, which was applied for biological research. Dr. Whipple got some heavy hydrogen from Dr. Harold Urey, who had just received the Nobel Prize for his making and identifying deuterium, or heavy hydrogen, H^2 . Dr. Whipple fed this, in the regular diets, to the dogs that were bled. And then Dr. Bale measured the normal hydrogen and the heavy hydrogen content of the hemoglobin in the dogs to plot the rate of increase of the heavy hydrogen after the bleeding. This would give the

replacement rate, you see. This was the only tracer that could be used. There were no radioactive tracers yet available that went into the hemoglobin. But hydrogen did. So you had this heavy hydrogen in the new red blood cells replacing the regular hydrogen elements. Now the reactors make tritium, which is hydrogen-three (H^3), much easier to maneuver, because the mass spectrograph differentiates between the weights of the light and heavy. With hydrogen-one and hydrogen-two, while there's 100 percent difference in weight, they're very close together.

Now, I might point out that the electromagnetic separation of the heavy and the light uranium isotope at the Oak Ridge cyclotron was done in the same way. The cyclotrons that Ernest Lawrence invented were changed to become mass spectrographs. The electromagnetic field hurled these atoms at two slits in a very strong magnetic field, and the magnetic field bent the heavy isotope further than the lighter isotope. Therefore, the heavy one went to one slit and the light one went to another. Well, with the heavy hydrogen, the same thing happens. You have a detector on each of two slits or plates, and you get a curve form that's proportional to the number of charged atoms that land on the plate. The charge is given over to the plate, and you measure that.

I am explaining this so extensively because serendipity

came along. We were able to buy for twenty dollars, which was at that time a good healthy part of our annual budget, an amplifier tube, a P-16, which was made by the General Electric Company. It was the first real amplifier tube available for experimental purposes, particularly at our level. Later, these became very common, of course. But that made Lawrence's mass spectrograph successful.

Then another man, whose name I forget, put together one of the first tin image producers for electromagnetic transport of molecules in solution that varied in weight or mass. Now, this enabled us to take the serum of the blood and pass a light through it while the serum was in a very strong electromagnetic field. The electromagnetic field pushed or attracted these molecules at a rate which was proportional to the mass or the size of the molecule. You could finally line up the albumin, the gamma globulin, the beta globulin, the alpha globulins, and so on, in the serum, and get it on a photographic plate. The distortion and the refractive changes has a Schlieren light, which is a funny angle beam as it passed over these margins between the succeeding more heavy molecules. It caused the distortion of the image, which could be put on a plate. It was something you could measure. You could measure concentrations that were far below what you could detect physically. This has become standard today.

TUSLER: You did that at Rochester?

WARREN: Yes, we did that at Rochester. We built a couple of pillars out of bricks on the floor and we got a big steel I beam about twenty feet long and put the light source and the Schlieren lens at one end. We put the electronic equipment and the film on the other end. (I almost had the name of the man who did this on the tip of my tongue--Eric, Eric, [Dr. Eric L. Alling]).

The man who made the image producer was a doctor who didn't like to practice. He was wealthy, so he came in and monkeyed around in the laboratory. He paid for part of the lens and a few other things out of his own pocket. He did some of the first pioneer work on some of these peculiar diseases that excrete proteins in the urine and have abnormal levels in the blood. By this method, he made the first clinical identification of the Bence-Jones protein in a tumor, the name of which I can't remember. It's a rare, complicated disease. Then this method became routine, and it's still going on. We were not the first, but we were among the first in some of the areas that were explored.

TUSLER: Now, just how much communication was there between what you were doing there and some of the other centers in the United States? Were you publishing some of your findings?

WARREN: Yes, this is the time when the various clinical associations and the basic science associations began to emerge as important figures in this communication. And they would have meetings--quarterly and annually--and there would be local branches. You would try your stuff out at the local branch with your peers. We had one that used to meet occasionally in Syracuse or Rochester or Buffalo. You see, this was the so-called northern tier of cities in New York State. And people who met in Buffalo would come from Cleveland and Erie. We met in Syracuse and maybe there'd be people from Albany and sometimes from Boston and New York City. Of course, we would all try to go to the national meetings, where you could then talk with your confrere in the same field. There was an awful lot of letter writing involved in this.

The situation improved greatly when Dr. Parran began to put money into venereal disease and into research. Lida Usilton, a great big rawboned Swede, was the first biological statistician in the Public Health Service in Dr. Parran's office and a very important element in the development of the design for our work with paresis. By this time, we had a big committee across the nation that Dr. Parran appointed. It furnished money for treatment of paresis. Lida Usilton designed the recording system for this method: how many times will we take the blood Wassermann, and the

spinal fluid; how would we record the cells, the proteins, and the spinal fluid Wassermann.

Well, Dr. Ruth Boak and Dr. Charles Carpenter were both very important in this program, as I told you earlier, I think. Ruth Boak did the thermal death times on the gonococci of the patient. Then we gave the patient the same length of treatment at 106.7 degrees. Ruth Boak ran the diagnostic lab in the bacteriology department into which all these fluids went. She got together with all the other people around the country who were trying to standardize all these tests for clinical laboratories. Lida Usilton was important in all of their meetings, to get all the statistics. No longer would she accept three cases. We were looking for, really, hundreds of cases. And she wouldn't accept anything less than twenty-five cases before she would talk. You see, this was just before the war. This had tremendous influence in starting a lot of the war research off on a large enough scale so that the biological experiments could be done once and be reliable. That turned out to be the case. I used the same policy in all of my dealings with the Manhattan District, in the discussions with the University of Rochester later, and with the medical school people that I will describe to you later. It was because we had just one chance and we couldn't come back and do it again.

Prior to that time--Dr. Whipple's era--the most advanced thinking was interesting. You would do three normal dogs as controls and three test dogs for any one thing that you were trying to identify. Then you did a complete autopsy, of course, and a lot of sections and looked at all the organs. Well, today, you don't accept the dog off the street because he's probably got all kinds of diseases to which, at that time, we didn't pay any attention. He's probably had a period of malnutrition, and you've got to feed him for two or three months to get him up to what you might call a normal stage. And you don't do the experiments unless it's important enough to do, maybe, twenty or twenty-five dogs. So you use rats and mice, where you can use large numbers. And that limits, to a certain extent, the kind of work you can do.

We had a lot of fun in Rochester with experimental tumors. The students, of course, could get the technique down quite quickly. You killed an animal and took out the tumor. Usually, it was a discrete mass. You cut it up with sterile scissors and took it with sterile forceps and put it into sterile saline. They were little bits that were about a cubic millimeter. We had a large, very sharp needle, with which you could insert a little piece of tumor. The needle had a trocar in it and when you inserted it through the thin skin of the mouse or the

rat or the rabbit with a very quick motion, you would push the trocar in and then withdraw the needle. This was not a very painful procedure. The skin was tensed, so that the tumor didn't come back out and the aperture could close. You'd measure the tumor size through the skin, of course, with calipers at weekly intervals, and plot the diameters. You could establish a growth curve this way. We standardized a lot of them this way. You can look at the publication, and you will see these charts with concentric circles which show it to you clearly. This is better than putting the actual figures in, because at a glance you can tell if there is an effect or if there isn't. If you look at a column of figures, you've got to visualize the increments of change as you look down the columns, while here it's diagrammed for you. The picture is worth a million words.

TUSLER: Were you at this time doing any classroom work?

WARREN: Oh, yes, we had two kinds of classes. We had the interns and residents from the various services every morning for two hours. They would come, and we would ask them what patients they wanted to see. Then we would throw the films up on a great big bank of light boxes.

At that time, I had seen Dr. Ross Golden at Columbia University. He is retired here now and working as an emeritus. He had a great wall full of X-ray viewing

boxes. These were quite expensive at the time. They were about fifteen dollars apiece, but now they're about forty dollars or so. That's considered cheap. But at that time fifteen dollars was very expensive.

We bought the glass and put in mercury tubes on our own, and built a pretty good view box, I think. We had a lot of switches so that we could control parts of it. In front of this were a bunch of chairs. And we had a dictating machine, which was considered to be ultramodern. So these boys, and sometimes the faculty, too, would come and sit. We would have a discussion about what they thought was there. Then we would say what we thought showed, and we argued about this. This was done again at the autopsy demonstration in the clinical pathological conference before the whole class and all the faculty that were concerned. This was where the faculty made or lost its reputation for good diagnoses.

Today, this is no longer done to any great extent because there's usually no doubt about the diagnosis because of the precision of the laboratory work. Then, you were good if you diagnosed 55 percent correctly. An extra 5 percent was a big gain.

We always had an intern or a resident come down to the X-ray department with a patient. We would fluoroscope and take X-ray films with the staff and students present.

Each patient was a teaching case. It didn't make any difference if they were rich or poor. The most intelligent ones were often the wealthy. They made the best teaching cases because they would respond well. You'd explain that this was the intern or resident or student. The patient would often take more care with his answer to questions the student asked.

I also had students attending the radium and X-ray clinics. These came down with the gynecologist, usually in his clinical section. The whole section was held in my department space, where we examined the cases once a week from the previous month. Patients came back at the end of one month, three months, and six months. You might be interested in the fact that the appointment slip was the main influence that kept many of these patients alive when they were in the terminal stage. If somebody made a mistake and didn't give the patient in these advanced stages the return slip for a month, they would die before the month was up. But if you kept giving them a slip, they would come tottering in month after month after month, for a longer time than seemed possible.

TUSLER: The psychology of it!

WARREN: The psychology of this is just like the Kanaka ritual in Hawaii of praying the person to death, and like some other voodoo things. It's quite real. Don't forget

that passing the gossip over the back fence is a very important element, too. You have to tell the patient things that she can relate to her neighbor in an understandable fashion where the neighbor can't pooh-pooh it. Certainly in the early days this was important, and I think today this is still very important.

These people are living with the sword over their heads. They know that they're going to die, and it's quite obvious to them and everybody else. The fact that they don't die is interesting to them and to other people. You have to satisfy this situation and not just pass it off. And it's the humane thing to do, too.

Well, then I had a regular class with the sophomores, when they began to examine patients. I fluoroscoped these students when they were taking their physiology course. Later, I had an hour three times a week, sometimes five times a week, in which I quizzed them. These were small student sections, you see, of about six or seven students. We'd all sit in the lab to get the student out of the way of the rest of the work of the department. We'd all sit around the table, and I would put up the X-ray film.

I'd tell them they had to do a Boy Scout thing. I'd teach them how to examine a film--to do what we call "read" a film. You do it just like a Boy Scout trick. You remember they would have the scouts run by a drugstore window

and remember all the things that were there. I taught them to read a film by making a complete circuit of the periphery, then systematically going up one side, across, down, and across, and then returning and examining it system by system. You get so that maybe you can do this in five seconds or less. Well, you have to be able to do this because you may have a couple of hundred films to read and reports to dictate in a morning.

We had Dr. Walter Fray, who did most of the roentgenology, that is, the interpretation and reporting of the films. He had some students, too. In the afternoon he would help interns and residents who came down with patients from the emergency room or with other patients.

Later, I got Dr. George Ramsey and then Dr. Andrew Dowdy, who's here now. Dr. Dowdy was used for therapy chiefly, because I was becoming more and more involved in the laboratory. In the last of the 1930s and early 1940s I was doing a lot of war research on gas gangrene, crushing, shock, and things of this sort.

TUSLER: Why was it that you got interested in that?

Was there any connection with the government there?

WARREN: Oh, yes, this was for the Committee on Research for the National Research Council. Dr. Dowdy got a large contract for studying the effect of X rays on gas gangrene. I took on the study of shock because I had a good idea

what the water and mineral balances were from the fever work. So I was asked to sit in on the shock committee, which I did.

Then we had a big argument because I took on the standardization of the experimental shock procedure and what the sequence of events was. Dr. [Alfred] Blalock, the surgeon at Hopkins, had been doing it. He was chairman of the committee. He had erratic results. There were several ways of doing it. You could put a tourniquet on the limb, or you could put a press on the limb. Now, the press was much more appropriate, because, in the bombing of London, the British were finding that a lot of people would have some bit of wreckage fall on a leg or an arm. They'd lie there for about five or six hours, and then they'd be rescued. They'd look all right then. The weight would have been taken off. Then they'd die ten hours or the second day later. The medical people couldn't figure out why the victim died. The limb looked all right, or fairly well; the circulation had seemed to return all right. Well, Dr. Blalock was getting more interested at that time in burns, and he wanted somebody else to study this, so I took it on. Mr. Bishop and I designed a press with heavy springs--Ford valve springs as a matter of fact--that could be put on the hind leg of the average dog under anesthesia, left there for five

hours, and then taken off. Shock would develop, and the dog would die within about eight hours after that. You could just sit there and watch the dog gradually come out of anesthesia, but then it would just fade away. Since I had been working with fever and cold and had all the other equipment and measuring devices, we tried fever. That was bad, very bad. Then we tried cold, and that began to be quite useful.

About this time, I had Bob Fink and Kay [Kathryn] Fink as research students, both PhD candidates. They are here now on the faculty in biochemistry, which is interesting. Both have done very well. They were both working on this project. Well, we found out a lot of things. We noted that the kidney was damaged, and that if you packed the leg in ice as you took the press off, you could rescue the dog. If you took the ice off, you could just see the dog fade. Put the ice back on and the dog appreciated this very much, so much so that once he found that when he moved and the ice went off he would feel lousy. He never would wiggle when he realized this; he would just sit there, wag his tail, sort of wail a little, and want to be petted. And, of course, the students would come over and pet him. We'd feed him dog chow because it was small hard bits, which was easily fed, you know. He'd drink everything and go along all right. We used to keep the dogs on

the table night and day nursing them. And we succeeded in healing them, but it took a week.

Well, it was almost time for me to go into the service, so we wrote this up. I found out some other things, too. The room temperature was exceedingly important. We tried a lot of things, like tetanus antitoxin. In the field, particularly in Africa, it was very difficult to get ice. How in hell were you going to get ice out there, or in the middle of the tropics? [laughter] So we were looking for something that could be transported. Well, Dowdy had a lot of antitoxin, diphtheria antitoxin, which he was using on the gas gangrene as a control item against the gas gangrene antitoxin. I tried some of that, and lo and behold it looked as though it was going to work. Well, then it turned out that I was doing these experiments in the winter, and I had the dogs on counters along the table. The thermostat over here said 76 [degrees] but the thermometer beside the dogs said 56. So they got better without the ice, but they were at a relatively low temperature. So right away this tipoff, after we really pinned it down, resulted in the following advice: don't put blankets on your patients. Don't heat the operating room; cool the operating room. And that's become an established thing today.

TUSLER: It was just the opposite from what was thought

to be true?

WARREN: Oh, yes! Every nurse's instinct is to cover the patient with a blanket, to keep them warm, because maybe they are shivering; but their temperature is going up while they are shivering. Well, I meant to come back and work on this because we began to find kidney damage and albumin in the urine. There was a funny, glary fluid that extravasated among the crushed muscles where the press had been. I saw this in patients, too, later. But even today we don't know what the cause of shock is, what the exact mechanism is, and I think that we could discover this, although it is a long arduous experiment.

TUSLER: Now, these experiments were taking place at a time when we were already at war?

WARREN: Roosevelt was just selling destroyers to the British. We were not actually at war, but by this time the National Guard, and even the army, was drilling boys with brooms, instead of with guns. You weren't old enough to remember that.

TUSLER: I kind of vaguely remember that. But Europe was already at war?

WARREN: Yes, Dunkirk either just had occurred or was about to occur.