Interview with H. Richard Tyler, MD
American Academy of Neurology
Oral History Project

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Professor of Neurology emeritus, Harvard Medical School
Senior Physician, Neurology, Brigham and Women's Hospital
Boston, Massachusetts

Dr. Tyler's Home
Brookline, Massachusetts
August 26, 2013

Kenneth L. Tyler, MD, and
Barbara W. Sommer, Interviewers

H. Richard Tyler: HRT
Kenneth L. Tyler: KLT
Barbara W. Sommer: BWS

Track 1015

BWS: Today is August 26, 2013. We are at the home of Dr. and Mrs. H. Richard Tyler in Brookline, Massachusetts to interview Dr. H. Richard Tyler for the American Academy of Neurology Oral History Project. Dr. Tyler specialized in neurology after studying medicine at Washington University, St. Louis, where he received his M.D. and B.S. in medicine in 1951. He then interned at Peter Bent Brigham Hospital in Boston and did neurological training under Derrick Denny-Brown at Harvard [University] and the Neurological Unit at Boston City Hospital. In 1956, he was recruited to be the first full-time neurologist at the Peter Bent Brigham Hospital in Boston. Under Dr. Tyler's leadership from 1956 to 1988, the Division of Neurology at the hospital added a major research program which has been credited with the impressive growth of the division. Peter Bent Brigham became a part of Brigham and Women's in 1975, and an independent Department of Neurology was created at the hospital in 1995. Beginning in 1952, Dr. Tyler taught neurology at Harvard Medical School and at other schools in the area. He held the title of Professor of Neurology from 1974 to 1998 and currently holds the title of Professor of Neurology emeritus. The interviewers are Dr. Kenneth Tyler, Dr. Tyler's son and a neurologist in Denver, Colorado, and Barbara W. Sommer.

BWS: Would you say your name?

HRT: H. Richard Tyler.

KLT: This is Ken Tyler.

BWS: Thank you, both, very much. Dr. Tyler, I know we've interviewed you for the American Neurological Association [Oral History Project]. We'll work on how we can build on that interview and also give information that is important to the AAN [American Academy of Neurology project]. I think one of the most important things to the AAN would be – as the AAN was being created in the late 1940s and early 1950s, as you were coming into neurology – if you could describe what you saw in neurology at that point. Describe what it was.

HRT: Neurology in the United States at that point was a subsidiary specialty with probably one practitioner in most large cities around the country. Most of the people in the United States who did neurology did psychiatry also. They did psychiatry to make a living and they did neurology more as a hobby. It was not strongly represented in the medical school curriculums. In the United States the only historically strong neurology was [associated with] Harvey Cushing at the Peter Bent Brigham Hospital. In World War I, when they formed the medical divisions to support the military, Harvey Cushing lumped neurology with neurosurgery and psychiatry, and so that's the way it was dealt with in World War I. Most of the medical schools which then developed after World War I just picked up the military model – medicine was separate, surgery was separate, neurology and psychiatry and neurosurgery were one unit. Neurology in this era didn't grow very well and was usually run by the neurosurgeon or the psychiatrist and was the afterthought. Most internists thought of themselves as perfectly capable of taking care of neurologic patients. This was an outgrowth of the fact that, at that time, syphilis was probably the major issue and they were very astute and competent in taking care of the complications of syphilis which, at that time, encompassed a good bit of neurology. Neurology at that time was mainly syphilis, tabes, paresis, and also the post-encephalitic squeal of the flu. Post-encephalitic Parkinson's, strokes and dementia were sort of second thoughts. A stroke was a stroke and an internist usually took care of it. They [strokes and dementia] didn't seem to be as prominent a picture [as now]. They

were on the hospital wards. You just took care of the stroke and then they went home. The dementias were all considered arteriosclerotic dementia. Everyone had arteriosclerosis. The diagnosis was usually "arteriosclerosis." Alzheimer's was a very special diagnosis at that time, reserved for the person who had no evidence whatsoever at the time of arteriosclerosis. So it [neurology] was in the backwaters, at least in medical school and hospital medicine.

It was very different on the Continent. In England, neurology had developed as part of internal medicine and was considered the "Queen" Science of internal medicine. It was the most rational, and most neurologists were internists who just saw nervous system patients. But it developed very strongly as one of the crowning specialties of internal medicine. Many neurologists were President of the British Medical Association, for example. They were known as outstanding clinicians. The same was true in France where the major hospital setting still was the Salpêtrière, which was run by neurologists. So French neurology had its own unique strengths. It was known throughout the world. It was excellent at publishing its materials and was very well respected. French neurology was descriptive. They had journals which used descriptive material and pictures and portraits and sketches. For most of South America and Central America and a good bit of the world, French neurology was picked up as the primary form of neurology. It [neurology] had the reputation that there were esoteric entities that were described by individuals and a good bit of neurology seemed to be descriptive. You'd end up describing. You'd make a diagnosis and many times, there wasn't very much else to do except make the diagnosis. So it had a little bit the aura that there wasn't much of a treatment aspect to neurology. That was the general background, at least when I was in medical school.

There had been one attempt to change that and that was in the early-to- mid-1920s in this country when Dr. [James] Conant and the Rockefeller Institute decided that neurology was very much in the backwaters in this country. They had seen what it was on the Continent and they set up a Rockefeller Institute center at Harvard that was run by Dr. Stanley Cobb. It was an attempt to change that for the first time. Someone was specifically brought in to change the situation. He [Cobb] was over sent to Europe – England, France, Germany – to learn about Continental neurology. He came back here [1925] to set up a center for neurology. That became the City Hospital Neurological Unit, which was Rockefeller-sponsored. He [Cobb] picked epilepsy as his

primary interest and he brought many people together to do research on this. They thought that epilepsy was related to blood flow at that time. He then developed a center where people did research as well as neurology. That was a new idea in American neurology. There he bred a number of people [ca. 1928]. With the EEG, for example, under [Frederic A.] Gibbs and [William G.] Lennox, they initiated electrical studies of the brain. [H.] Houston Merritt was brought there at that time to work on the use of medicines to control epilepsy. He discovered Dilantin with Dr. [Tracy] Putnam who was there also. That was the first time there was an attempt in American neurology to do other than be descriptive [and to establish research into neurological problems as part of the academic enterprise].

Cobb was not a charismatic [dynamic] leader. He was local. He was respected very much, but he was out of his environment at the City Hospital. He was a Boston Brahmin and didn't fit well in the rough and tumble world of political medicine that City Hospital was at that time. He eventually left after five or six years to go to the Mass [Massachusetts] General [1934] where he became the head of psychiatry. His idea of developing a center that would do research and try and understand the basis of neurology was the first major effort in American neurology to do something other than what Cushing had done, which was to develop a field or sub-specialty, i.e. neurosurgery.

At that time, everybody in the United States who wanted to do post-graduate work would go to Europe. Cushing was the first one who reversed that trend. People who wanted to do neurosurgery would come from Europe to the Brigham to study under Harvey Cushing. Before that people never would come to this country to learn medicine. People from this country would go to Europe to learn medicine.

Neurosurgery at that time was part of neurology. It was the "brain tumor" part of neurology. Harvey Cushing always felt he was a neurologist; that neurosurgeons shouldn't need neurologists. He trained most of the American neurosurgeons at the time. There were only two or three other peers that he had. So neurosurgery was known as Cushing's thing and Cushing's people spread around the country. [Ernest] Sachs was in Washington University, but he was not Cushing's student. There was one person in New York. But mainly when the neurosurgeons

disseminated, they disseminated mainly from Cushing. So that part of neurology was strong in the country. But they all were trained that they had to be their own neurologists and they considered themselves neurologists. Most of the neurosurgeons were members, for example, of the American Neurological Association. Sort of prime members.

Somewhere around the turn of the century American neurology had taken a swing and gotten very interested in psychiatry and Freud and psychoanalysis. Most of the original Boston neurologists and New York neurologists were really neuropsychiatrists. They were very interested in phenomenology and hysteria and things of that nature. So that always contaminated the run-of-the mill neurology. I think that was the situation when I went to medical school – that late '40s and early '50s – that was the general picture one had of neurology. When I went to medical school, I wasn't thinking of neurology as a strong area at all.

BWS: What do you mean by contaminated? You said psychiatry contaminated neurology. Is contaminated a good word?

HRT: The neurologists of the 1910s and 1920s in the United States would be called psychiatrists today. They called themselves neurologists. They are the founders of the American Neurological Association, but they are basically, mainly interested in and remembered for their psychiatric and psychological contributions. Yes, contaminated is a good word. It made it [neurology] very weak for many years. It was very different than in England where they never left internal medicine. They were always doctors and internists who did neurology. Whereas here they were people who got interested in Freud and dreams and status and the "frail American woman." That was their major interest. It was an idea of the nervous system which clearly would be recognized as having strong psychological contamination.

KLT: Do you think the reason they moved into epilepsy originally was because it was the hot, almost basic science area of the day? If you think about it, electrophysiology and neurochemistry and the examination of the spinal fluid would have been the leading basic science currents.

HRT: They weren't [up to 1920] – spinal taps were just coming in. People weren't looking at spinal fluid. There was no testing. The EEG, even in the 1950s, was a primitive machine. So you really only did a history and a physical and a lumbar puncture. You would do neurosurgical procedures like ventriculography, pneumoencephalography, myelograms – those were neurosurgical procedures looking for tumors or looking for neurosurgical problems. They had been developed by neurosurgeons and were not really done by neurologists. Angiograms were just coming in to play in the early '50s, so we weren't doing any angiograms in the late '40s or '50s. That changed very quickly in the next decade, in the '50s. Basically, that changed when I was in training, not before that. But I would think the EEG was the only thing that was available and mattered. At an early stage people had recognized that the EEG – that there electrical waves, that they did correlate somewhat with epilepsy. That was done in the late 1930s and early 1940s by Gibbs mainly out of City Hospital area. Lennox got very interested in it and described petit mal seizures and things of that nature. But these were mainly descriptive – many, many papers would come out, e.g. EEG and frontal lobe tumors, the EEG and hysteria, the EEG and schizophrenia, the EEG and mental retardation. They were trying to find a place for the EEG by descriptive reports. There would be hundreds of papers looking for the rhyme and reason in where you could use the electroencephalogram.

But it was still very limited until the mid-'50s – who could use it, who could interpret it. It was still a technically somewhat difficult procedure and had to be very carefully done. There was a lot of artifact. There were special cages that the machines had to be in to get rid of electrical activity that would be contaminating. It was never a strong tool except in epilepsy. It wasn't used diagnostically, for example. It was hard to buy commercial machines. You usually made up your own machine in the early '50s. So most of the machines that were made were handmade until Grass & Company began putting together machines that became commercially available. That was probably in the early '50s that the first Grass machines started coming out [interviewee's note: the Grass Model I came out ca. 1936].[1] Then people began finding it easier to use.

[1] See also Grass Technologies, Company History, http://www.grasstechnologies.com/company/history.html, accessed 2/18/2014

In the beginning even the EEG was used more for medical reasons than for epilepsy. At the Brigham, we got the EEG because there was so much Addison's disease and one of the ways to treat Addison's disease was to do an EEG because the EEG activity was slow and you could regularize and speed up the EEG waves by giving adrenal hormone. So at the Brigham, it was easy to get an EEG machine because we had so many patients with Addison's disease and their treatment was monitored by the EEG. The same was true of hyperthyroidism and hypothyroidism. You could regulate their treatment by their brain waves. There was an interesting paper that came out in about 1955 from Russia that said cardiac arrhythmias were related to irregularities of brain wave, so all the cardiologists wanted the EEGS when they couldn't make a diagnosis. If they found paroxysms with the EEG, they were all treated with anticonvulsants at that time. So the EEG was used almost more for medical reasons in a general hospital than it was by for neurologic reasons because there were no neurologists who were basically more interested in it for neurologic reasons in many hospitals.

BWS: When epilepsy was chosen, it was an identifiable disease. Something that was…

HRT: And there was a hypothesis that it was secondary to blood vessel flow. So it opened up options for study. There were electrical studies. There were blood flow studies. There was a definition so at least there was a science that became underneath the epileptic. That was why, I think, Cobb chose it as sort of the prototype for what people could investigate. He did a very effective job of developing that particular concept.

KLT: Did it help with the sub-specialization of neurology? I was thinking back to how many of the first neurologists at places like Mass General and others were electricians because of the popularity – suddenly when you had electrophysiology being very specialized, you sort of needed someone who knew how to do it. And that provided an initial job niche. It sounds like EEG in the early days was pretty technical and specialized.

HRT: It was different. The electricians we [you] are talking about were in 1880 and 1890, something like that. They were using machines that would stimulate you and buzz you. That was twenty-five years before the first description of brain waves. So that the electrician idea was

thirty years before we had EEG waves. That had nothing to do with it for EEG. You had to have a little interest in electricity and the knobs. And know what electron tubes were. But you didn't need to be very much of an electrician.

KLT: I was thinking more that that had brought in the first neurologists because that was the first time for the skill.

HRT: That's why they were called electricians –

KLT: The question was EEG enough to start [neurologic specialization]?

HRT: That was because there were stimulating blue ray machines and cathode machines, things that were used to stimulate hysterical patients, to buzz them, twitch them a little with black magic. You had a course of electricity. In medical school, neuroanatomy was a course that was taught as part of anatomy. But I don't think neurology was ever taught as a course, at least in the early '50s in most schools. You could spend time with somebody interested in neurology but neuroanatomy was your basic course. As part of physiology there was a neurophysiology section. But I think it stopped there. Those were the two courses in medical school – neuroanatomy and neurophysiology. Things like nerve conduction had just been established ten years before, in the late '20s and '30s. So that was new that a nerve conducted electricity. Nobody was doing EMG. EMG was a research study. Doctor [Derek] Denny-Brown in England had used electric nerve conductions when he got out of [Sir Charles] Sherrington's lab to study nerve conductions and fasciculation and things like that. But it was research. Even in the early '50s, when I was a resident, Denny was still doing EMG work. But that was always done on the tenth floor, which was the lab floor of the City Hospital, not on the clinical floors. He would take patients up who had a neurologic problem and do studies, but he would never tell you what they showed. [laughter] That was part of the diagnostic work that was done to understand whether he could record what the muscle twitch looked like. What was the physiology of the sphincter in someone who was incontinent? Or the stool? Those were questions he would ask and use electrical techniques with his home-built unit. Usually an oscilloscope and a battery and an amplifier and a stimulator. In the '50s, you sometimes wondered what he did upstairs [laughter]

but you never learned, though he may, on rounds, explain to you, in someone who was incontinent, that the external sphincter was more active than the internal sphincter. Where he got he that from was from his electrical studies upstairs. But he never described, never linked the two. But he would often use what he knew from upstairs down in the clinic and often try things on you before they were really known. With Denny you waited to hear things twice before you would believe him. The first time he would often try it on you to see whether it sounded OK. The second time, then it was getting to be pretty well gelled. But otherwise it would be very fluid. Things could change quite a bit.

BWS: Was he writing papers?

HRT: Oh, yes, He was writing papers, classic papers that were the foundation of much of what we know now about the EMG – Electromyogram. Nobody would specialize in the EMG. It was also in the days before any specialization at all. There was nobody who would be considered a specialist in any form of neurology. There might be people who would do mainly neurology of children because they were in a children's hospital. They weren't necessarily neurologists; most of them were pediatricians but they did primarily neurology. There were only one or two in the country that were considered neurologists. One was Frank Ford at Johns Hopkins and one was [Douglas N.] Buchanan in Chicago who had come from England. These were the only two neurologists who did pediatric work at all, in the whole country. Ford was known because he wrote a textbook of neurology of infancy. Buchanan never wrote a textbook but was known as a good clinician in pediatrics.

There would be people who would, in the practice in the community, might see more epileptics than other patients. That only came about when there were the beginnings of medicines to treat epilepsy. Dilantin was available and subsequently Mysoline became available in the '50s [interviewee's note: ca. 1954 as primidone in the United States]. Then there would be people who would see patients with seizures and use that. Lennox always was interested in seeing just epileptic patients primarily. Treatment developed the first sort of epilepsy specialists because there was something they could do except be descriptive. But specialization came much later.

People had interests – they would do more of this or more of that. But many of the fields were subsequently developed.

BWS: How many departments of neurology were there? Not that many in the country?

HRT: As I remember – and it has been sixty-three years since I was a medical student – there were three departments. One was Harvard; one was Pennsylvania, and one was in New York. The Harvard department was the outflow of Cobb and his successors – Putnam and subsequently Denny-Brown. Pennsylvania had had a department for a long time. Some of the disciples were people who had followed Weir Mitchell; [he] had developed a chair of neurology there. And they had the Neurologic Institute in New York. The Neurologic Institute in New York at the time actually had been part of Columbia. It had a chair of neurology. They actually brought a Boston neurologist down there – Putnam – to take it over. [BWS: Tracy Putnam]. Tracy Putnam went there first. He was one of the early ones. After that Houston Merritt took over. But Houston Merritt left Harvard to go to Montefiore and then went over to become the head the Neurologic Institute. But there was a chair there; the chair was the thing that brought Tracy Putnam to New York. The chair was what brought Houston Merritt. So there were three places with [Departments of Neurology with established] chairs.

Most cities had a named neurologist. You got to know these people by going to the American Neurological Association meetings. There were people there – these were small meetings and you eventually got to know people. So you got to know who was in Denver, who you would refer a patient to in Chicago [or San Francisco]. At the meetings you would meet somebody and he would be the one in Chicago that you would refer a patient to, or in Denver, whoever it would be. But they were just – you didn't particularly care if they were with the medical school or not because they were not strong medical [school neurology sections]. They were just [doctors] interested in neurology enough to become recognized as the neurologists.

KLT: What moved you into neurology and what was post-graduate – how did someone at that time with an interest develop it and pick among the programs – the equivalent of today's residency training? How did that happen from medical school through - ?

HRT: You often have a mentor or an interest in someone who is doing something. I personally found anatomy an interesting subject.

KLT: That was in medical school?

HRT: In medical school. That led to meeting Dr. [James L.] O'Leary who was then head of the neurologic section in the Department of Psychiatry under Dr. [Edmund] Gildea. O'Leary was mainly an experimenter; he worked with George Bishop on nerve conductions. Bill [William] Landau was underneath George Bishop but very friendly and very much with Dr. O'Leary. O'Leary was just a nice guy. He mainly did EEGs and before long I was sitting in his office regularly with him as he read the EEG. I learned about the EEG and so forth. The clinician was Irwin Levy in St. Louis. Irwin was a good clinician. He had been trained at the New York Neurologic Institute in New York and had been one of the people who came to St. Louis. He sort of took me a little under his wing. He knew I was interested in neurology. He helped do things – many talks – and when I evinced some interest in that area – I wasn't sure whether I wanted to be a neurosurgeon or a neurologist, maybe even an orthopedic surgeon, in medical school – those were the three things that sort of came up. I had a little hand tremor and I wondered whether that would keep me from being a neurosurgeon. Actually, one summer I took off and spent a summer in New York with Bronson Ray. Bronson Ray was one of Harvey Cushing's most interesting students. He was head of neurosurgery at New York Hospital – he was head of Cornell neurosurgery. Harold Wolf, who also was a Boston-trained neurologist – worked parallel with Houston Merritt – had gone down to Cornell to be the neurologist. So as a neurosurgical resident I went to neurologic rounds and found myself much more interested in Harold Wolf than in what Bronson Ray was doing.

KLT: Was Wolf doing his headache studies then?

HRT: He was in internal medicine but did the neurology. He ran a conference. He was an interesting character. You would go to his conference. It would be at two o'clock and you would get there at two minutes to two, and at two o'clock, exactly, he would walk in. The conference

would last exactly one hour. At three o'clock he would walk out. He was logical. He was pretty to watch. He did a neurologic exam and he knew what to take from it and he came to a logical conclusion. I had an interest in mathematics in the background. I had always considered myself maybe going into mathematics or biophysics. That logic compelled me very much. I knew I wanted to go into neurology that summer. That summer I gave up orthopedic surgery and neurosurgery. When I went back to Washington University the last year, it was clear in speaking with Irwin Levy that I was interested in how to become a neurologist.

My senior year I also went down to Denver and worked on the neurologic floors at Fitzsimmons [General Hospital] as part of [the R.O.T.C. – Reserve Officers' Training Corps]. I was a fourth year person but the [U.S.] Army was paying part of my tuition with the military ROTC [Reserve Officers' Training Corps]. I had to spend the summer in a military establishment so I went to Fitzsimmons General Hospital and I worked purely in neurology and I enjoyed it.

Irwin Levy did two things: he counseled me not to go to the New York [Neurological Institute]. He didn't think that was a strong place for training even though he had been there. He was not eager to see me go there. He was very interested in Denny-Brown and said I should look closer at that possibility. I wrote to all the people whose names I knew who were world-famous neurologists – probably about ten letters. To people of international stature in neurology, none of which were in the United States. Most of them were in England. I was impressed that everyone wrote me back. It was a small enough world that everyone was interested. They were interested in counseling this little medical student. And they were unanimous – "you would be foolish to go anyplace but Boston to work under Dr. Denny-Brown." So it was clear from the beginning that everybody said that was the place to go. They didn't think I should go to Europe – that was the other question which Irwin had raised. Should I go to Europe to train at the Institute of Neurology in London directly and then come back. The letters and Dr. Levy pointed me to Boston.

BWS: Why did they say to go to Denny-Brown?

HRT: In England – English neurology was in internal medicine and, two, they had Sherrington there. Sherrington was the great neurophysiologist. He established how the nervous system worked in gross form. Denny was one of Sherrington's students and had worked with Sherrington. Denny had also worked in Queen Square where he had become the promising young clinician. He was well-regarded because he was a good neuropathologist. So when he came over to this country, he was one of the better Sherringtonian physiologists. He was a known neuropathologist. He was known to be one of the brilliant up-coming clinicians in England. So everybody in England said, "That is one of the best combination of thinking you could get, training with Denny." So I think that was pretty well gelled in my mind that I would like to train with him.

There weren't too many other options. Ray [Raymond] Adams was with Denny at that time. Everybody was with Denny still. So after my medical training, I was fortunate enough to get a residency. At that time it was two years. It was a residency at the [Boston] City Hospital with Denny. At that time Ray split off and went to the [Massachusetts] General [1951]. There were now two outstanding people at Harvard but I was with Denny.

KLT: Was that residency in internal medicine? Right after medical school did you do training in internal medicine or did you go right into neurology?

HRT: After an internship at the Brigham.

KLT: You spent a year at the Brigham?

HRT: An internship at that time, they weren't any junior assistant residents. It wasn't like you could do three years training in medicine. You did an internship, then you went to a laboratory for two or three years, and you came back as a senior resident. There were no fellows and there were no second-junior residents or three-year. There wasn't a three-year program in internal medicine. So it was really an internship. And a senior resident, after you had done two or three years of a fellowship, you came back and you might be a senior resident. But it wasn't programs like it is now. Programs came ten years later.

KLT: Was that internship basically internal medicine, the year you spent at the Brigham? There wasn't anything particularly neurologic about it?

HRT: You rotated through various areas but it was primarily internal medicine. You rotated through infectious disease at another hospital. I think everything else was internal medicine.

KLT: Was it clear at that time that you were going to go to the City Hospital? Was there a plan?

HRT: By the time you halfway finished internal medicine, I think you applied as an intern for the residency and you got it probably in November. So I knew for six or eight months I was going to be over there. And over there neurology was a discrete subject, at City Hospital. That was not true at the Brigham or the General.

BWS: You were at Harvard, studying, and then at Brigham? Is that correct?

HRT: I was at Washington University. Then I came up and elected to go to Peter Bent Brigham Hospital for a year as an internship. Then I went to City Hospital for two years. For two years with Denny-Brown.

BWS: You were at Harvard all of that time?

HRT: The Brigham is at Harvard. So was City Hospital. [KLT: This was the Harvard service at City.] The first connection with Harvard were the Peter Bent Brigham Hospital, then the City Hospital.

BWS: Ray Adams was over at the Mass –

HRT: At the Mass General. That is another affiliated hospital. Different affiliations.

BWS: That was when you began to focus on neurology? At the Peter Bent Brigham?

KLT: More at the City Hospital.

BWS: Yes, City Hospital.

HRT: There was no neurology at the Brigham. That was one of the big differences.

BWS: But there was at the City Hospital.

KLT: What was the neurology residency like then? It would be fun to hear a description of what a neurology resident did and what the trainees did and their interactions with the faculty.

HRT: I spent six months on the ward, six months in the outpatient department. That was the first year.

KLT: How many of you were there?

HRT: Six.

BWS: Six of you at the - ?

HRT: At the City. I'm sorry, there were four of us.

KLT: Was it two one year and then two another year?

HRT: Two in the first year. In the first year you spent about six months on the ward and then six months in outpatient. Or it might be outpatient and some pathology. Neuropathology was the only basic science. You might spend a month or two with Joe [Joseph M.] Foley in neuropathology. The second year you were six months on the ward again as a senior resident and six months in consultation seeing patients in the hospital. At the end of that time, you were on your own.

KLT: How busy were the services then? Four residents basically ran the neurology service.

HRT: We had twenty patients on the male ward and twenty patients on the female ward. We had twenty patients that you took care of. Turnover was slow. A patient with multiple sclerosis might be brought in for six or eight weeks. Patients would be around a long time. There was no such thing as discharge until Grand Rounds, which were once a week. If you brought a patient in they had to stay over until Denny saw the patient on Tuesday. If he asked you a question you would have keep the patient another week, so a patient could be in the hospital for a long time.

KLT: Attending Rounds were once a week?

HRT: Attending Rounds with Denny. There would be visit rounds every day, but the important rounds were always getting ready for Grant Rounds on Tuesday. And there Denny would see all the patients, all forty patients.

KLT: Was this a walking rounds?

HRT: Yes, walking rounds. He would spend a great deal of time on the first two or three [laughter] and that would drive everyone crazy because you had thirty-seven to go. Yet he would see all thirty-seven; people would gradually peel off to go to lunch. And at that time, the decision would be made – "Is it OK to let the patient go home?" "Or not go home?" "Do some things?" He might say, "Do a better exam and I'll come back next week." The patient would have to stay for another week.

The consult service was a – second-year resident and it was the high point. City Hospital was twenty-five hundred beds. That included TB sans [sanatorium], infectious disease, pediatrics. A huge hospital. There was no psychiatry service. They didn't allow psychiatry in the City Hospital; they had a strong feeling about that. The head of the hospital didn't think psychiatry warranted a position in the hospital, so there was no psychiatry. The neurology resident de facto became the psychiatrist because that was "the nervous system." So your rounds included

psychiatric patients and neurologic patients. Most of the neurology in the City Hospital was on the medical wards because there were only twenty beds on the neurology service. You were only admitting one or two patients a day. You would have this whole hospital as a consult resident. You would get twenty-to-fifty consults a day. In the morning you would pick up your papers in your mailbox. Obviously psychiatry patients got short shrift. [laughter] There wasn't high interest. The only question with psychiatric patients was whether to commit on a six-day paper. But that was a very important power, because if you had a disturbed psychiatric patient on the wards, you were totally dependent on me [neurologist] to get rid of them. I would have sign six to eight papers [a day] and bring a psychiatrist around who would counter-sign it and then he would be shipped out to the psychiatric hospital. You were very powerful as a neurology resident because the [medical residents] had to keep on your good side because that was the only way to get rid of disturbing psychiatric patients – of which there were plenty.

But you saw the neurology all around the hospital. You would take your pick as to which ones you wanted to send upstairs to neurology. They would be the more interesting ones. One stroke in thirty would get "upstairs." But if there was a Charcot-Marie-Tooth Disease, even if he had a heart attack, you would want him upstairs. There were no respirators, no intensive care – I should say there were few respirators. There was a polio epidemic, but respirators had to be run by the neurology service. So anybody who needed a respirator had to be transferred to neurology. We were the only ones who could run the respirator. That was limited often to neurology patients [such as myasthenia or Guillain–Barré syndrome].

BWS: Polio was considered a neurologic - ? Was it part of your responsibility?

HRT: Yes, it was, but it was usually kept on the major ward. It wouldn't go to the neurology service. The consulting resident would see the polio [patients]. The end of the polio epidemics were in '51 and '52, so it was only that time that I was a resident that there significant amount of polio. After that, we really didn't have polio epidemics in this country. [BWS: After the vaccine? Interviewee note: Yes, after the vaccine.] After '55 or '56. After the vaccine came out. I remember seeing polio as a resident. I remember being scared stiff when I got a fever after seeing polio patients. [I was worried] whether I was going to have polio. I remember one of my

close friends dying of polio. But, yes, that polio patient would get up to the respirator in the neurology service. But there was no such thing as respiratory intensive care units. Intensive care was carried out on the medical service. They were on the ward. There was nothing like that in the '50s. That was a later development, about the late '50s and early 60s, where people began using things that we would now call intensive care unit medicine. It was all done on the ward and patients obviously died because of care that was not able to be given that intensively.

BWS: Post-surgical too?

HRT: Neurosurgeons always had its post-surgical care in the ward. There was no neurosurgical care unit. They would be sent back to the neurosurgical service and taken care of on the ward.

KLT: What were the bulk of the cases? The distribution of cases you saw?

HRT: Paresis, syphilis, post-encephalitic Parkinsonism. Those were the major cases.

KLT: Was there a difference between the out-patient and in-patient service or was out-patient basically to follow former in-patient care?

HRT: Seizures were out-patient. Seizures and syphilis. I mean the syphilitic patients had frequent LPs [lumbar punctures], had to be treated. So syphilis and Parkinson's – a great deal of time was spent trying to separate post-encephalitic Parkinsonism from true Parkinsonism. There was a lot of post-encephalitic Parkinson's in that day.

BWS: You didn't have anything to treat syphilis, did you? Penicillins and things like that, what about them? They came after the war [WWII]. Were you starting to see some of those treatments?

HRT: Penicillin and some of those drugs had just become available when I was an intern in '51, so we were just beginning to get into antibiotic use in '51. Prior to that, most things that were

'infectious' were not allowed into the Brigham. They were sent over to a special infectious disease hospital.

BWS: Quarantine.

HRT: Quarantine hospital. Haynes Memorial. So meningitis, polio – they all went right to Haynes Memorial.

KLT: You would have had sulpha drugs and penicillin?

HRT: Sulpha was about and penicillin was becoming available after the war. Still hard to get. Steroids – ACTH was available but not prednisone. ACTH was still experimental and hard to come by. We had it available to us at the Brigham because of George Thorn.[2] He worked with adrenal problems so the companies would give – but they were trying to see what ACTH could do and could be used for.

KLT: You had Dilantin, mysoline, phenobarbital for the –

HRT: Dilantin was available. Mysoline became available later. Phenobarbital and Dilantin were used a lot.

KLT: What about Parkinson's disease in the pre-levodopa era?

HRT: The medicine you had – you didn't even – well, you had tincture of stramonium and hyoscyamus.

BWS: What was the second one?

HRT: Artane was the first –

[2] The name is variously spelled as Thorne, but Thorn is the preferred spelling.

KLT: These are cholinergic –

HRT: Cholinergic drugs. At that time you used a tincture of belladonna, tincture of hyoscyamus and Benadryl.

BWS: What did they do?

HRT: They worked. Not as good as L-dopa, but they worked.

KLT: How about vascular disease? Carotid disease and all that?

HRT: I don't remember – people had strokes. It was not a prominent issue. I think the age span was younger. People died off quicker. No chemotherapy. The average life expectancy was ten or twenty years younger. We saw them but they mainly were embolic strokes. There was a lot of rheumatic heart disease, auricular fibrillation with strokes. Things like that. There were emboli from rheumatic heart disease – a great number of rheumatic heart disease complications.

KLT: No anti-coagulants?

HRT: Sydenham's chorea, we saw.

BWS: Chorea.

HRT: Complications from rheumatic disease and scarlet fever and things of that nature were still very prominent, with its complications.

KLT: Tell us about – you were doing lumbar punctures. What were the laboratories like? Were you doing your own analysis of the spinal fluid?

HRT: They [the lab] did the protein and sugar and you did everything else.

KLT: Did your own cell counts and did basic chemistry?

HRT: Even routine blood work was done by yourself. You did your own red cells, your own urinalysis. You would go round in the morning and draw all the bloods and urines and do them all before rounds. You often had ten red counts to do and ten white counts to do. There were no electrolytes.

KLT: I didn't realize that.

HRT: Electrolytes were just coming in at that time. We used a flame photometer to measure potassium. At the City Hospital, you were your own lab. There was a lab there to do your own urine and a lab there to do your own red cell count. You had your own microscope locked in and anything you wanted to do, you did yourself.

KLT: Now they won't let you do a stool guaiac because you are not certified. [laughs]

HRT: You want to diagnose thyroid disease, you had to do your own BMR [basic metabolic rate]. You did all the lab work by yourself.

BWS: You would see something like a thyroid disease and go in and do the lab work to confirm it.

HRT: You would have to do the breathing tests which showed the rate of breathing and the BMR; you would diagnose it that way. Not with a TSH [thyroid stimulating hormone]. We would diagnose it clinically – the red face, tachycardia. You don't need lab tests.

BWS: You are using the neurologic exam?

HRT: Yes.

BWS: Was that part of the process – the exam itself?

HRT: The exam was everything. I think the only difference between a neurologist and an internist is the neurologist does a neurologic exam and an internist doesn't.

KLT: How did you learn all of this? What taught you the exam at that time?

HRT: The exam was critical because it answered the question, "Where is the lesion?" An internist would take a history and physical and say, "I wonder what is going on." A neurologist would do a history and a physical and a neurologic exam and say, "He has a lesion. It is C-5 on the right side." And then ask, "What's going on?" He would always be ahead of the internist because he knew where the lesion was and then could say what lesion could be there. Whereas the internist would be talking about the cause of leg weakness and I would be talking about the cause of a C-5 lesion on the spinal cord. So the neurologist always looked good because he was better clinically than the internist in neurologic things. He always said "where" before "what." So you were always taught that you would have to do an exam that is good enough to say "where is the lesion" and then you say, "What's going on?" The internist never learns that. That's the major difference in my mind between a neurologist and an internist. At the City Hospital you learned how to do a very good exam.

KLT: How did that happen?

HRT: You would take a history. You were dealing with people with limited formal education. Everybody had syphilis; everybody had tuberculosis. And then you would examine this patient who had syphilis and tuberculosis with weakness to the right leg. But everybody started out – fifty percent of your patients had a positive syphilis test and tuberculosis was rampant.

KLT: Did you pick up how to do the exam by watching your co-residents do it? Watching Denny [Denny-Brown] or Joe [Foley]? How did you learn it practically?

HRT; By watching people like Denny use the exam to get to, logically, the right place. People saw them. I used to say it takes a year-and-a-half to train a neurologist before he is a neurologist.

It is when he begins to do his exam well enough that he trusts it. That he asks you questions about "where is the lesion?", not "what is the lesion?" In the evening, you would pick up the phone and a resident would call you and say, "such and such." The first thing you would ask is, "Where is the lesion?" If he didn't know, then you knew you were trouble and you had to go to the hospital and find out where the lesion was. If he could tell you where the lesion was, it would be easy to tell him what to do. Sometimes when they made that transition where they realized that they could reason from their exam, they became a neurologist. They did that.

I mentioned in the other interview [ANA] an episode in an elevator which I think characterized that. There was a brain cutting at the City Hospital. Joe Foley would run the brain cutting, Denny-Brown would sit in the front, and each of the residents would have to say what they thought. Then eventually Denny would say what was there. They presented a patient with left facial paralysis and everyone guessed the lesion was in the right facial center. Then they cut the brain and it was in occipital lobe on the other side. No one could explain it. The second week – there was another one. Left facial paralysis. Everyone made the same guess as the first week. Everyone was wrong again. It was on the opposite lobe on the occipital side. The third time they presented left facial paralysis in another patient. This time I said, "Left occipital area." And everyone else said the other. I was right and everybody else was wrong. And Denny was very upset with me. "We don't reason that way, Rick. That is not a way to reason. You go off to the library and you tell me how you could get a left facial paralysis from a left occipital lesion." For weeks I had to work in the library, trying to show that there was some logic to what I had just empirically said. But he was very upset with me – that I would reason that way. The fact that I was right didn't matter.

At Queen Square when I went for post-graduate work, there were people there who could do exams beautifully. Could always localize the lesion beautifully. It was a thing of beauty to watch how they could go from there to there in a way that I never saw in this country.

KLT: That would be people like Sir Charles Symonds.

HRT: Mainly [Edward Arnold] Carmichael. Carmichael could do an exam – could localize the lesion to millimeters but was often clinically wrong, but his exams and his reasoning, his logic, and his knowledge of where each of these little pathways were in neuroanatomy, were exquisite. Sir Charles Symonds had that, but he also had a history. He was never wrong. But there were people who could use the exam to fulfillment. They knew what to do. So you quickly learned that was a very strong tool. If I learned anything from Queen Square, it was that the exam was cardinal. And the history tells you what it is. But the exam tells you where it is. And where it is a very important part of knowing what it is.

KLT: How much of your exam skills do you think you had at the end of your City Hospital days and how much came from the time you spent in England and France?

HRT: Eighty percent from City Hospital. Ninety-nine percent coming back from England.

[break in interview]

Track 1016

BWS: We are on track 16 and are talking with Dr. Tyler for the American Academy of Neurology. We've talked about your training and background. You were a neurologist and were recruited by George Thorn in 1956 to be the first neurologist at the Peter Bent Brigham Hospital. Tell us about how that happened and what you wanted to get done. What your thoughts were at that time in 1956.

HRT: When I left the Brigham [in 1951], George Thorn had all the interns write a criticism of the internship. I had a good internship but I did criticize the fact that there was no neurology. I thought that was a significant deficit. I never planned to come back, so I just called a spade a spade. I went over to the City Hospital and, obviously, had many friends back at the Brigham. I used to come back to the Brigham and round with the chief resident, Dick Gorlin, at the time, to see his problems. We'd go over the neurology aspects once a week or twice a week in the evenings. I was like an unofficial consultant. I had a little side interest in Cryptococcus or torulosi. I was seeing patients with torulosis all over the city including the Brigham. Just

collecting twenty-to-thirty cases of torulosis. I had an idea to have a look at alcohol levels in the spinal fluid. I then went over to England to do a post-graduate year. England and France, mainly England. That was my goal, but halfway we decided to spend an equal time in France.

While there I didn't know quite what I was going to do, I was a little interested in pediatric neurology. So I wrote to Frank Ford who had written a book on neurology of infancy and childhood and asked if I could come and study with him. He forgot to write back, one thing or another, but eventually it gelled and we went to [Johns] Hopkins for a year. This was now '55. Thorn had been interested in bringing some neurology to the Brigham and he got a grant from somebody to build a little extension on the out-patient department for a geriatric unit. I think it was $250,000 at the time. He envisioned using that as a nucleus that might bring a neurologist into the Brigham. There had been other people there before me. I subsequently found that Romero was probably the first. Romero was from the City Hospital had been there a year as a full-time person before he went on to Rochester and developed neurology at Rochester. He was basically a neuropsychiatrist but he had been at the Brigham before me.

There had always been some part-time people going back and forth but George [Thorn] wanted me to come full-time on staff. We negotiated. It was a matter for him to decide if he was going to give me a formal offer or not, which he did when I was still at Hopkins. I immediately said, "Yes." It was done, I think, with Denny's pushing. Ray Adams and George [Thorn] were very close friends; they were tennis partners. So, to some degree, I'm sure that George had discussed things with Ray as well as Denny. But Denny was pushing, with the idea I would come back and do some work at the Brigham and possibly some work at Children's Hospital given my pediatric background. Ray had sent over one or two people that either weren't interested or George [Thorn] was not as interested, and I got the offer. Sir John Walton was one of them, by the way. A very well-known British neurologist, he looked at the Brigham job before me.

I came back to the Brigham and I was paid $8,000 and I was allowed to see private patients to buttress that. My job was to be the neurologist at the Brigham. Being over there meant I was next to Children's Hospital, next to Boston Lying-In, next to Free Hospital for Women, close to Robert Breck [Brigham] – none of which had neurologists. That was my area. I was the only

neurologist full-time. I only did neurology; I didn't do psychiatry. So you saw all the consults and so forth. And in an academic area, you were supposed to develop a research interest. I began to work with Bert [L.] Vallee – who was a biochemist and had a laboratory in trace metals and enzymology. We tried to do that, played with that for a number of years. The enzymology of the nervous system. I never did exciting work as far as I was concerned, in that area. It always kept interfering with the clinical responsibility. If you had a sick patient it was hard to leave him to do a five-hour experiment – and all the experiments seemed to take five or six hours. You were on your own; you didn't even have lab technicians. Bert never made things easy; he always gave you a difficult, time-consuming problem, appropriately.

Gradually, the situation kept developing and I made the rounds with the medical residents, then they asked if I would take a medical resident on – to rotate one month of their rotation. When they opened up what they called a junior assistant residency – there had been an internship but there never had been a junior assistant resident. They would rotate through defined specialties. One of them was in neurology. It became one and then two and then the medical students by that time were coming over to do their medical neurology electives. I had the opportunity to add somebody who wanted to come and study for two or three years. He was an internist but he was willing to spend three years to learn neurology. I had to make arrangements with Denny so he would get approval for his residency while he worked with me – things of that nature. [interviewee note: Dr. Morton Rubenstein?]

I was always trying to put together. Children's Hospital had no neurologist; it had a pediatrician, who did neurology and was good at it, but I would go over there and I would run there to work with him on neurology at Children's. They had a training program for a year which would train pediatricians in neurology. So I began taking some pediatricians over to learn neurology. It kept growing, little by little. Somewhere along the line, Buck [Augustus S.] Rose, who had occasionally visited when he was in Boston, managed to get a person to give $500,000 to Harvard to the benefit of the Brigham and Children's Hospital. We called it the "Jake the Barber" chair because it was a Mafia type who gave that money. But that was the first money that Brigham saw to help develop neurology.

BWS: What was [Dr.] Rose doing at that time?

HRT: From Boston, he had gone out to start the Department [of Neurology] at Los Angeles [1951].

BWS: He was still in Boston when he [arranged for the money]?

HRT: No, he was in Los Angeles. He may have been in Chicago first. It was a Chicago man who gave the money.

BWS: Gave the money to Boston?

HRT: At Buck Rose's suggestion, yes.

KLT: More altruism than you would see today. [laughter]

HRT: At the same time, Bronson Crothers died. Bronson Crothers was a pediatrician who was basically the father of cerebral palsy. He had formed the Cerebral Palsy Association. He had known everything. All the kids that wiggled and squiggled were cerebral palsy. When he died, a chair was established in his name. The Bronson Crothers Professorship of Neurology at Children's Hospital. With that chair established, things opened up – they had ten beds in neurology at Children's. I went to George Thorn and asked if we could have ten of the medical beds. He said, "Yes." So we had twenty beds between us and we could apply for a neurologic training program. Now we had beds, which was the *sine qua non* of neurology training programs. They appointed a City Hospital neurologist, Lahut Uzman, as the new professor of neurology – the Bronson Crothers Professor but he sat at Children's. They assigned the Brigham to that chair. This was an era which the Brigham and Children's were together. Lahut was the chair. Lahut died within the year and Charlie [Charles F.] Barlow took over as the professor. By that time, the training program had been approved and we were able to initiate it with Charlie's help – two years at the Brigham and one year at Children's. We were the only program initially that could train pediatric neurologists as part of a regular program. Our residents would be able to go out as

pediatric neurologists or adult. That was the beginning of more formal training opportunities. You could train only in pediatric neurology by going with Dave [David B.] Clark at Johns Hopkins for a year. But they were mainly pediatricians.

KLT: How many residents would you be training?

HRT: It quickly got to be six neurology residents. Two medical residents and two residents from outlying hospitals – Bassett in Cooperstown, they would send people down. We would get a fellow; Panama would want me to train someone to go back to Panama. They would pay for his residency. So we gradually got to be about ten or twelve [residents] in size.

KLT: What was your appointment?

HRT: I was an associate professor at that time. You started as an Assistant, then Associate, then you became an Assistant Professor.

KLT: You were an assistant in neurology, then an associate in neurology, then you became an assistant professor?

HRT: Then associate professor.

KLT: You were an associate in neurology?

HRT: Associate in neurology. That was one under what was considered faculty rank. To get to faculty, you had to be an assistant professor to go to faculty meetings.

KLT: Tell us about the role of the societies. As a young pre-faculty or junior faculty, as we would call it today, what was your involvement with the ANA or the AAN at that point? In that earlier stage of your career?

HRT: The first I had ever heard of the American Academy of Neurology was when I was a resident at City Hospital. I got a letter saying that for $5.00 I could join the American Academy of Neurology. So I joined for $5.00. Nobody had heard of the American Academy in Boston. It wasn't considered a necessary thing at all.

BWS: Why did you join?

HRT: It was $5.00 for a resident; it was something to join.

BWS: You were a resident still?

HRT: Senior resident. I think that was when I joined first. It had been established about two years before by what you would call "The Four Horsemen," a group of [BWS: Midwestern] neurologists. [Adolph] Sahs, [Abe] Baker, [Francis M.] Forster, and I think [Russell] DeJong is the fourth one.

BWS: DeJong is the fourth one.

HRT: They formed it because they felt excluded by the American Neurological Association. First, they weren't all members. That was number one. Two, it excluded the residents – a lot of people who were interested in neurology. The American Neurological Association was a very prestigious, limited society.

BWS: Were you in the American Neurological Association [ANA] at that time?

HRT: No. That was in '55. You didn't get into the ANA until you were recognized as a major neurologist in the country.

BWS: You had to have a certain academic standing?

HRT: In the Boston area, the minimum would be associate professor. In the rest of the country, it usually was considered to be full professor, or to have made such unusual research contributions and you didn't have to be a neurologist. George Bishop was a member[3] but he was not a clinical neurologist. It was limited initially to 250 people, but by '57 or '58, 750 people as the limit. You could only get in if someone died. It was a limited number.

To get in, you had to be nominated by members. You had to write a thesis which was a very serious undertaking. The thesis had to be approved. Then you were an elected member. There were a number of people who couldn't write a decent thesis. If you were just a clinician, it was very hard to write a thesis. Nothing to write about. So you had to write a thesis on a subject that was acceptable, it had to be looked at much like for a graduate degree. In Boston I think the usual feeling was that, "We'll talk about it when you are an associate professor, if you are ready." That would be up to Denny and Ray. They were the two people – without Denny and Ray's imprimatur, no way.

BWS: You wouldn't get in without that?

HRT: No one could nominate you. No one would dare nominate you. More than once, I know I suggested someone to Denny – "Maybe we'd like to get so-and-so in." He would say, "He's not ready yet. Another year a two. Let him mature a little more." That was the end of his nomination. I wouldn't nominate him unless I knew that Denny wouldn't veto it.

BWS: You were in the medical school at Harvard, working your way up associate professor in the medical school. How many neurologists were there in the department?

HRT: There probably were – there were others in the department of neurology. It was the Department of Neurology and Psychiatry which had all these hospitals from Mass General, each one its own little fiefdom. At the Brigham there was only me. At the Children's Hospital, there was only Charlie Barlow. He had two or three people appointed with him. They were young

[3] George Bishop was elected to an associate membership in 1948 and, in 1964, was made an honorary member.

appointments, assistant levels. Not an associate professor. City Hospital might have five or six people. [Massachusetts] General would have ten or twelve.

KLT: BI [Beth Israel], Deaconess and that group?

HRT: That came later. The only people at the Beth Israel in the late '50s were private practitioners. Sam Epstein, Leo Alexander. People of that ilk, they would see patients. Chaim [I] Maymen was the first one to be appointed by Howard Hyatt to be a full-time neurologist. He came from Ray Adams. Chaim was a youngster compared to the others, but he was doing what I had been doing ten years before, but at the Beth Israel – trying to develop a service. Eventually Lou [Louis R.] Caplan joined him. But it was just to be a consultant. They had a number of other people from around town who would do occasional consulting. Barry Arnason was there for a few months.

KLT: What do you remember from the first meetings of the American Academy or the ANA?

HRT: In the Boston area, there was only one meeting you could go to – the Boston Society of Neurology and Psychiatry. So as a resident, you could go to that meeting. That was the only meeting where everybody could come together. Once a year, it would be the American Neurological Association where, if you could go, you would go. Someone had to cover home base, so as a resident, you often didn't get to go. If you could, you went to the American Neurological Association meeting.

KLT: Those were always at Atlantic City.

HRT: Those were always at Atlantic City. Always the same thing. They joined with the Association of Neuropathology because at that time, neuropathology was the only basic science of neurology. Frequently neurologists would present a paper in pathology – the pathology of herpes or the pathology of something.

KLT: How about the Academy? Do you remember about going to the early meetings?

HRT: I'm pretty vague about the early meetings. They were done at a separate time of the year from the ANA. My impression was that it was ten or twelve years later that it had developed to the stage where people would go more regularly to the American Academy from Boston. There was a very strong antipathy, antagonism, in the Boston area about the American Academy which developed in an interesting way. The Four Horsemen[4] successfully got funds and were instrumental in getting [U.S.] Congress to form the NIH [National Institutes of Health]. [Interviewee's note: As a part of the NIH, the NINDB – National Institute of Neurologic Disorders and Blindness was established in 1950; it is the forerunner of the current NINDS – the National Institute of Neurologic Disorders and Stroke.] So the NIH funding developed out of the efforts of Baker and that group, not out of the American Neurological Association. One of their men, Pearce Bailey [Jr.] become the first head of the NIH/NINDB [1951]. Pearce Baily was very much a Midwesterner. He was not a clinician. He did some research, but he was not considered very highly by Ray and Denny in the scheme of things. They didn't think highly of many people in the country. They had a very inflated – a very high ideal of what a neurologist should be and most people didn't fit it. The NIH, having gotten money and with Pearce Bailey in charge, had set up many of its committees with American Academy people, not Boston people. They suddenly had funds which they were now going to develop neurology by paying for residents, paying for the development of resident training programs, and so on – of which the Academy had control of because their people were in charge of the committees. If Boston wanted to apply for funding, they were applying to Baker's committee, or so-forths committee, to try to get funding for their residency program from what was easy money. [Interviewee's note: A.B. Baker chaired the National Committee for Research in Neurological Disorders.]

The situation came to a head when there was an international meeting and the American Academy was picked as the representative of the United States, not the American Neurological Association. [KLT: This was under Pearce Bailey?] They did it through the NIH and Pearce Bailey picked the American Academy. It was a shock for the American Neurological Association. That was the time when Denny was president of the American Neurological

[4] The four founders are: Abe B. Baker, MD, Adolph L. Sahs, MD, Francis M. Forster, MD, and Russell DeJong, MD.

Association [1960]. His major contribution was to try and get these two organizations together so that they weren't antagonistic. Until that time, the American Academy was not a strong presence in the Boston area. It wasn't important that you joined or didn't join, but you wanted to go to the American Neurologic. But after about eight or ten years, they came to peace with each other. The American Academy clearly blossomed as the speaker for the mass of neurologists incorporated – training programs, residents, students, fellows – everybody could be a part of the American Academy. But the American Neurologic still had its nose up in the air. Now except for not having to write a thesis, you still had to be picked by the inbred group. The American Neurological Association has gradually gone down in importance and the American Academy has steadily gone up in importance. Its programs are successful – training programs, courses. It fitted the need of a developing neurology world which the American Neurological Association did not. After a while, people would say, "Why go to the American Neurological [Association]? I just went to the American Academy four months ago." If funds were limited, you took your pick. If you go and could take three days of courses as well as give a paper, when the other one you could just give a paper with no courses – so the American Neurological Association began to look more around for a reason for being. "What was our reason for being?" I don't think they found it.

BWS: You said that the Academy fit the burgeoning or growing neurology world.

HRT: Every medical school now could not get paid for an assistant professor of neurology. Could pay for a resident program – three residents, four residents – all sponsored by the government. Every school was willing now to set up a section, so thirty or forty or fifty departments were formed out of the NIH funding. With the start-up, for three-to-five years you could have your residents paid for. It came free, as a freebie. And they frequently got Boston people to go and head the departments. That's where the Boston influence came. The Boston people went out to head these assistant professor slots and brought a little bit of the Boston thing across the country.

BWS: There was still Boston influence?

HRT: Oh, yes, because they were the ones that were training [program leaders].

BWS: They were the ones?

HRT: The psychiatrists didn't want to run a neurology training program…so he [they] would bring in an assistant professor and he would get paid and so forth. Eventually, some made it and some didn't. Departments grew. A lot of medical schools wanted it and they got some very good people that way, with the help of the NIH. The NIH was in the business for a long time of subsidizing neurology training. It burgeoned to where there were over fifty programs?

KLT: More.

HRT: More? Where before were three; that's all since the NIH. It was based on the NIH money.

BWS: Columbia [The Neurological Institute] placed a lot of department chairs, as did Boston.

HRT: Columbia and Boston.

BWS: They would seem to be the two influences? Even though this was a Midwestern-based organization?

HRT: Houston Merritt had reached his peak. Houston Merritt's young people were beginning to fan out. [Gilbert] Glaser at Yale, someone in California.

BWS: Bud [Lewis P.] Rowland?

HRT: Bud Rowland stayed in New York as editor of the journal. The journal *Neurology* became the most commonly-read journal. The ANA journal was only the *Transactions* of the ANA, which eventually they stopped publishing. The *Neurology* journal developed very quickly at that time. When I started, the only journal that you would read would be *Brain*, which was an English journal. The American journal, *The Archives of Neurology and Psychiatry* was read

mainly by psychiatrists. Eventually they split it off and it became the *Archives of Neurology.* But the *Archives of Neurology* was now second to *Neurology.* Its editors were not as strong. [Russell] DeJong was a pleasant, mildly effective – but he was good as an editor and he developed the journal.

BWS: That was his avenue in the Academy.

HRT: He was a very quiet – I was with him in England for the year. He was with me in England for the year. He was, like me, an extern, even though he was a professor in Michigan. But over there, he was just a little boy. And he was a little boy compared to what he was seeing – real neurologists. When he came back, he obviously developed Michigan more in the Queen Square tradition. He got some very good people with him. But he is mainly remembered as the editor of *Neurology.* [Abe B.] Baker just continued to be known as a teacher, an educator – an outspoken clinician. [Adolph] Sahs – a clinician. [Francis] Forester – a clinician. They never were uniquely strong people neurologically except as founders. Competent neurologists, but I would not say of an ilk that would match Continental [European] neurology.

Neurology is different now but at that time, it was mainly European – French and English. Through the '70s.

BWS: They did have this influence – it came along at a time when neurology spread –

HRT: It came along at a time when neurology spread from the City Hospital. From Cobb's people and then, after that, Denny-Brown's people. Ray is one of Denny-Brown's people. The Boston influence was widespread in the country.

BWS: Is it still?

HRT: No, I think it I has lost its influence.

KLT: Do you think that is because the playing field is more diffuse and level now?

HRT: Where before there might be one or two places that you really wanted to go to train, now I would say there could be thirty. It is not clear that Boston is the best place. I think the days of giants are gone. OK? I look on those as the days of giants. Denny was a giant. Ray was a giant. Houston Merritt, probably a giant. In his way, each had their strengths and their weaknesses. But there aren't many people I would put in that ilk today. I don't even know the names of ninety percent of them.

KLT: It might be fun to hear a little about them as people – the ones you mentioned. Denny, Ray, for example. Houston Merritt. Joe Foley.

HRT: Denny was a very strong person. Introverted. Quiet. I used him to call him a Herr Gehrenrat – i.e. a German professor. You did things his way. It was his thing. There was a right way and a wrong way and his way was the right way. He was very loyal to his people. Very interested in his job of teaching. Never had an eye to worldly gains. He never wanted to earn much in private practice. Mainly teaching and research. Did some private practice when he needed money. Greatly respected. Greatly feared by his residents. There was a little bit of both. You learned to stand at attention when you were a resident. You did things his way. You made sure it was his way. If it couldn't be his way, you had to find a way to hide it. He was always very rational in his approach to patients but he often could make mistakes at the end. You could always follow his line of reasoning and logic – then he would make a leap into a diagnosis. But his logic was beautiful.

Ray was ambitious. He had a world of experience. He was a superb neuropathologist. He reasoned from his experience. He would say, "In this situation, I've seen five things happen. One, two, three, four, five." Then tell you which of the ones he thought it was. I never felt I could learn from Ray because I never had his experience. I could only learn that Ray would guess this, whereas with Denny I could find the line of reasoning and disagree and keep on growing. I always thought you could learn from Denny and his residents could be better than Denny, but nobody could be better than Ray who trained under Ray. He was the king. Others such as Maurice Victor would know everything that Ray had done. Victor would tell you, "Ray

said this in this situation, there were five things" and he would be just as good as Ray at that point because he knew the five things. But he never knew a sixth thing. [laughter]

Denny, I always felt, would often be wrong because he leaped, but he would make very flashy diagnoses that people would remember. But he often was rational. Ray was hardly ever wrong but it was because he was dealing with his worldly experience. A good clinician.

Who else? There are other people.

HRT: Joe Foley was Denny-Brown's alter ego. Pleasant, affable, talkable. Residents all felt totally comfortable with Joe. If you had a problem, you would bring it to Joe. You would never bring it to Denny. Personal problem. Joe would always figure out a way that he could tell Denny. Joe would smush it over.

BWS: He ended up in Cleveland.

HRT: He ended up in Cleveland, ended up doing a very highly-respected training program, an excellent neurologist, and trained a number of people. But I think he learned everything he knew from Denny and profited from it. He was a smart man. He worked like hell. He was approachable and likeable. You could describe Foley as fun, but it was clear Denny was the teacher and he was learning too, with you. Denny could be very pleasant if it weren't neurological. If you found yourself at the dinner table, lunch table, with Denny and you weren't in neurology, if you were talking ballet – it was a different world. Suddenly you were his equal. It was very hard to shift from being equal to suddenly saying, "What happened to the patient on 2nd?" You had to shift back.

You often had to shift. I was always a wee bit uncomfortable with Denny. Some of the people who knew him socially said, "He is such a nice, pleasant, affable man." They never saw the side of him with a temper, banging on the table, "How could you do that?" [laughter] "You know I don't like that." And so forth. They never saw that side of him.

When I went to England, it was a totally different relationship. It was very pleasant. I could write to Denny and he would write back. We would write social letters. It was as if we were just two friends talking.

KLT: How about later when you were at the Brigham?

HRT: Distance was a great help. I could be in a very good relationship with Denny because I never was there. I went to Saturday conference. I knew I had a seat to sit in, in the second row. And I only would sit in the first row if he invited me. [laughter] That was his place, his thing. There was a right and a wrong. It often was very hard to disagree. When I came over and visited the City Hospital, you were responsible for the patients for the month, but every Tuesday he would come by. It was difficult sometimes to take patients and treat them differently, because this was the way you wanted them treated, and then have to be there on Tuesday and knowing he would get upset that LP wasn't done two days before or something. "We usually do it that way here, Rick." I would say, "Yes, sir."

KLT: Would he come over to the Brigham?

HRT: Rarely. If I had a patient who was either important enough or I wanted some help, he would come over. It was easier to get Joe Foley to come over. Joe Foley had a way of dealing with Denny. Everybody knew that he would disagree with him once. So on rounds, Denny would round on thirty patients, and Joe Foley might say, "Well, I thought it was this." Denny would tell him why he was wrong. From then on, Joe Foley would agree with every other patient. He would never disagree twice. [laughter] No matter what Joe said earlier, it was something different on Tuesday.

[phone rings, pause in interview]

BWS: Let's talk about the book collection. That was a lifelong interest. You worked on it a long time. It is now down at Washington University.

HRT: The collection wasn't lifelong, but I was always a collector. Coin collector, that sort of thing. Somewhere in the – when I was an intern at the Brigham, I was influenced by someone by the name of Dr. [unclear], who was a radiologist. When we would go down and look at some X-Rays, he would frequently make some allusion and bring out some little gambit which would make it very interesting. You would look at the X-Ray of the patient whose chest X-Ray – when he was finished, he would say, "Would you like to see the first X-Ray ever done?" And he would bring out the Empress of Russia's hand X-Ray. That was the first X-Ray ever done.

He kept doing that with little things. "Do you want to see Roentgen, the first X-Ray tube je used?" The first X-Ray tube he ever used. The X-Ray tube. I got fascinated by this and said, "How did you get all of this?" He said, "It's easy. You get interested in it, you learn what is important, and you collect." I got the idea that I could do that in neurology and I would have one advantage of the book dealers – I knew what was important in neurology; they didn't. They knew what was important in books and what the price of books were and what was rare, but they didn't know necessarily all the people who were important. So there was a chance of doing something. So I started collecting books slowly.

BWS: Why books?

HRT: They were easily available. There would be book dealers. They had a catalog and you would look through the catalog and there would be an article by Babinski – a reprint signed by Babinski. That's cool. I could show an article signed by Babinski. So you would buy it for $25 or something. It got to be, slowly, accumulating things. You never could fill everything. And you gradually decided that – you saw a book by Thomas Willis and it was $2000. That was a lot of money, but what the hell? So you would buy something and the next time you looked, it was $3000, and the next time it was $4000. Eventually you would stop worrying about what you paid for it, because it seemed that every book would increase. You realized that some of these books and things never are going to be printed again and that, as they gradually get into libraries, they become less and less available. There is only one place for the price to go and that is to go up.

The other thing was that, if you kept track of the prices, there were now auctions where the book dealers would go. I would go to the same auctions as the book dealers because they would buy a book at auction and triple the price. The tax laws are such that if you give a book away, and if a book dealer sells it for triple the price, that is the price you claim. You only paid one-third of it, so basically you can't lose money if you give it to a library. On the expensive books, if you would buy it for a third of the price of the most expensive book dealer, you knew you would never lose money on account of their being worth more as a donation.

Eventually you start buying books and eventually the book dealers got to know you because you were a good customer. And eventually, they would say, "I'm going to Europe. If I see any books you would be interested in, I'll just charge you ten percent over what I pay for it." It was at a time in the '50s when a lot of the World War II countries that had lost their book collections and universities were in need of money and they were selling everything they could, including their old books – so a lot of things were available at that time. Readily available.

And the book collection kept getting bigger and bigger and bigger. You went from books – you met other book collectors. I remember MacDonald Critchley in England and we got talking about it. He said, "Come over to my house." Over at his house, he had a whole room. He had the bed of Oliver Cromwell [laughter]. He had the jacket of the author who was a gay man [KLT: Oscar Wilde] Oscar Wilde's jacket and shirt and pajama pants. He had all those things around. He started collecting and recognized – there were other things besides books. Or you saw a very famous atlas that was very pretty. The author also wrote a book on churches. So you buy some books on churches and you learn about those interests of the author. He was interested in churches. Or you learned some of the early neurosurgeons were interested in prostitution or wrote books on prostitution. And you learn that some famous neurologists were interested in stenography; Kenny [KLT] has a whole collection of stenographic writings of [William] Gowers which someday could be put into book form. Gowers has written – probably thirty percent of his work is in stenographic work not available to neurologists unless they are translated. It would be thirty percent of the writing of one of the most important British neurologists in the 19th century. You began picking up books about books and books about things. Then you get an old book and you get interested in how they were printed. You realize they were printed on different kinds of

sheets and so, if you saw a second book by that author, you might buy it to compare various pages to see if they made any corrections in the print because they were printed one book at a time. This was going back to 15th or 16th century printing, and you get interested in that. Gradually things built up. I acquired some nice books over time.

Eventually it got to be too big. It got to be – this is a big house and it was filled with books. Third floor, second floor, back rooms, front rooms, everyplace. Closets had books. The problem became buying two books – not realizing I had one in the closet, the same book. I had decided at some point that the book collection now was a very useful situation. I had used it in all my teaching much as this radiologist did. We would have history sessions in this room where I would put out all of Charcot's books or all of Thomas Willis' books. If you go back and see the first description of myasthenia gravis. The residents loved it. They loved to touch the books, look at the books. They would come over to these meetings wondering what I was going to put out. For multiple sclerosis, I would put out the first picture of the first case that Charcot looked at and knew about. That was how he made the diagnosis. That was Charcot's work that had the first picture. You had the original atlas. Charcot looked at it and recognized it. So you could make all these things – it led very quickly into – you get to know ideas and things about that that you could put yourself in 1850 and imagine the books that were written and know how it was felt and understand the book better. It is hard to read in 2000 an 1850 book and say, "Why was he thinking that?" If you understood what was going on in 1850, it was easy to understand an 1850 book – so I could place myself in different time periods and understand how in 1790 why they thought certain things. It made life a little easier.

I realized that was their value. I also was not oblivious to the fact that Cushing's major contribution in my mind was the donation of his books to Yale. And the Yale Rare Book Library has Cushing's collection and it will stand the test of time. They will forget about him – I mean people don't talk about Cushing anymore as a surgeon. They know he was the father of neurosurgery, but they will never forget the fact that, if you want to see Vesalius, you will have to go to Cushing's collection.

Somewhere along the line, we began showing the books. Not only to the residents locally, using them as part of every lecture – especially the atlases, but at some of the national meetings. McHenry had a similar feel. [KLT: Lawrence McHenry, Larry McHenry.] Larry McHenry had a similar collection of books. Together, we put together demonstrations for the Academy. Not the American Neurologic, but the Academy. For several years running, we would have a room with a case. It was very popular. People would come in and look at the old books about various topics and things. When it was the 100th anniversary of [Santiago Ramón y] Cajal's description of the nerve cell, we were able to get Spain to send over ten cases of Cajal's things for the American Academy. We had his microscope and his slides. We had a three-room exhibit of Cajal with the original Cajalian material and with three security guards that the Academy paid for. It was part of the historical bent that Larry and I got interested in, which led to the development of the History Section of the American Academy. The American Neurological Association really wasn't interested in it. The American Academy was open to us. It was an early section.

Somewhere along the line, they assigned their archives and library to Washington University [St. Louis] which was my alma mater. That combination was very interesting to me. I could give my books to Washington University and the American Academy neuro collection. Eventually I decided I would do that. They got all the books.

BWS: They took the entire set?

HRT: The agreement was they would take everything and keep it together. By that time, it certainly was probably in the top ten book collections in the world. I was the conservator.

KLT: You are including libraries in that, not just personal collections? You compare that against libraries?

BWS: Major libraries?

HRT: Harvard, NIH, may have superior neurological book collections but I don't know of anybody else that would. It gave Washington University a very respectable historic base since it

dealt with books from 1490 on including the Vesalius and all the others. By that time, I had been pretty crazy. I had a first edition of Vesalius, a second, a third or fourth etc. There were some books I didn't have, but we could probably count those on two hands. They just hadn't come on the market. But I had most everything that was important. So it is a very nice collection of neurology books. It is called the American Academy of Neurology Book Collection at Washington University, which is fine.[5] So it tied both places together [American Academy of Neurology and Washington University].

KLT: How would you like to see it used? I realize when you give it to a library, they have rules.

HRT: As much as possible, I want people to get their hands dirty. I'd like it to be used. Bring it to meetings. Sign it out.

KLT: Libraries like to lock them in cases.

BWS: Is it a closed or open collection? A collection like that would usually be closed, used on site.

HRT: I would like it to be as open as possible. I don't care if you put on a pair of gloves to use the books. I hope they would be able to take books and bring them to meetings. We were able to do it here and show the strength of some of that. Now Harvard has very closed where before it was very open. But I could bring things here to this house from the [Francis A. Countway] library [of the Harvard Medical School] that would never be allowed out now.

BWS: Collections are usually very closed.

HRT: The Crowbar Man [Phineas P. Gage]. We brought the crowbar from the museum over here. The night we talked about the Crowbar Man, the crowbar laid on the table. When we talked

[5] The H. Richard Tyler Collection of the American Academy of Neurology Library. See: https://becker.wustl.edu/resources/arb/rare-books/tyler-collection, accessed 12/19/2013.

about [Johann Gaspar] Spurzheim, we had his skull here. It is in Warren [Anatomical] Museum. We would take his skull and put it on the table. We had Spurzheim's presence here. If I could continue that sort of thing, that would be good.

BWS: Is there a fellowship now?

HRT: The Academy has established something – the H. Richard Tyler Award. They allow somebody to be nominated so they could get a stipend to go there and look at the books there, which is fine.

BWS: Or do research in them? Does something come out like a paper or exhibition?

HRT: If someone wrote a paper on a second edition of Vesalius, but they didn't have a second edition or a first edition – they could go over there and look at the second edition or a first edition.

KLT: Some of these have led to presentations at the Academy.

HRT: Sometimes if you want to go and verify sources and get to the original book, it is likely to be in that collection.

KLT: Stanley Finger and some of the other people there have used that collection for some of their history of neurology exhibits.

HRT: And other people at Washington University use it. It is there and I would like it to be used but I would hope they could bring it out. That is their decision. They are their books now.

BWS: That is generous of you.

HRT: I'm just saying that they know that.

KLT: It is nice to have that on the record – we have the donor's intent. [laughter]

HRT: I've never been to see it there.

KLT: I've been out there a couple of times. I think they have a picture of me with the Vesalius.

BWS: You can bring it back and show it.

KLT: I don't think they would let me take it out of there.

HRT: I don't have any hang-up because we had it sitting here on the table for year. Everything was in this house.

BWS: 10,000 volumes?

HRT: There still are a few around here.

BWS: How many volumes basically?

HRT: I think it ended up that they took about 7,200. Seven thousand, two hundred.

BWS: That's a huge collection.

HRT: I'm still trying to get rid of all my journals. I have a lot of journals upstairs.

BWS: That's not easy.

HRT: That's hard. Reprints. Can't get rid of them.

BWS: No library wants them?

HRT: No library wants them.

BWS: Anything else we should discuss with you?

KLT: It might be fun, as an end, you've referred to research you've done. Now that you've had time to look back, what do you think are the most important personal contributions separate from training and the library? If you look back at the work you've done, what would you say your personal highlights would be?

HRT: I think basically clinical contributions, the opportunity to see a lot of kidney patients and write a number of articles on neurologic complications of kidney disease. I think some of the original articles on botulism were very good. I wrote my thesis for the ANA on botulism, which was twenty years before botulism became common. The thesis – I broke it down into six or seven papers I published.

KLT: You missed your commercial opportunity with botulism. Departments and how much we all make now with Botox injections.

HRT: There are warnings now about the strokes you get with botulism. But I think mainly the clinical aspects. I don't think anything I did in the laboratory was exciting. Being part of the development of things and seeing how much neurology has changed. It is obviously very different now. Angiograms are done. You don't do them anymore. You do them with MRIs and CAT scans. They didn't have CAT scans, MRIs, EMGs – none of that. There was none of the specializations; now there are fourteen sections in the Brigham. I look at those fourteen sections and I guess I could fit into all fourteen. I feel bad for the people who are stuck in their section because all they do is epilepsy, or motor diseases, or EMG, or behavioral neurology. I think, "I am a neurologist." I was brought up to be a generalist. They know more about minutiae. There are now twenty-five or thirty journals you have to read whereas before there were only one or two. You'd read *Brain* all the time, now I haven't read it in ten years. I find it harder and harder to read the journals. The huge research base of neurology. Neurochemistry and all these fields that have developed from nothing. Pediatric neurology – it was nothing before I started. Now it is

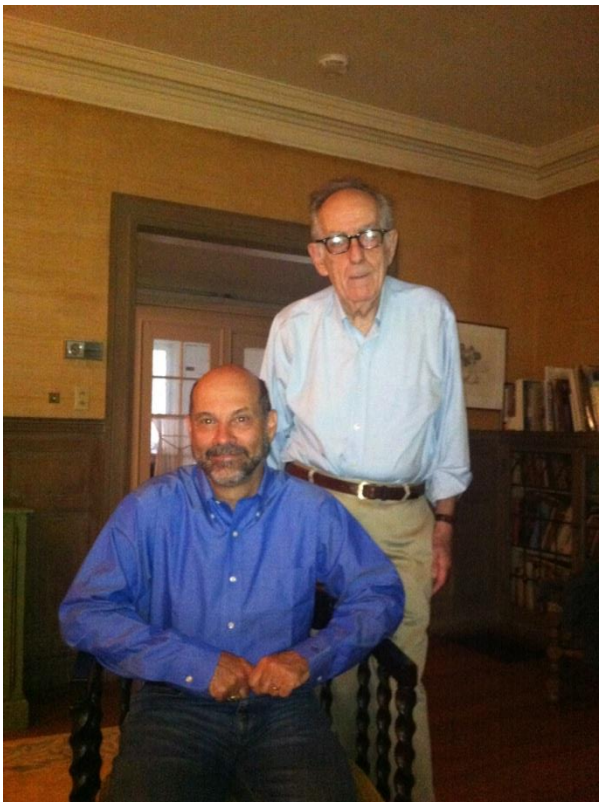
a field. We can work in the infectious disease department alone. We would go and see a polio patient, but it wasn't a field. I don't doubt that he [a specialist] knows a lot more about the minutiae than I ever will, but I can get it on the computer, which I do. I think that is the main thing.

BWS: Anything else.

HRT: I'm OK.

BWS: Thank you on behalf of the Academy.

H. Richard Tyler, MD, in the interview setting,
August 30, 20



Drs. H. Richard Tyler (standing) and Ken Tyler in the interview setting, August 30, 2013. 2013

Drs. H. Richard Tyler (seated), Ken Tyler (seated) (standing right), and Dr. Ken Tyler's son, Max Tyler (standing left)

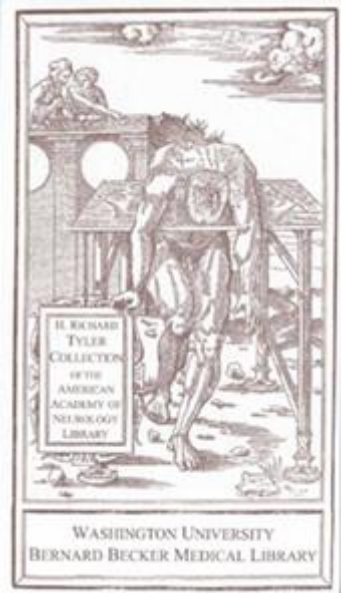
Dr. H. Richard Tyler:
Medical School: Washington University School of Medicine (1951)
Residency: Peter Bent Brigham Hospital/Harvard Medical School (1952)
Certifications: Neurology, 1957
Clinical Interests: medical aspects of neurological disease

Special Expertise

Amyotrophic Lateral Sclerosis ALS
Brain Aneurysm
Brain Cancer
Brain Disorder
Headache Disorders
Intracerebral Hemorrhage Bleeding In The Brain
Kidney Failure Uremia
Muscule Diseases
Myasthenia Gravis

Bernard Becker Medical Library Collections, Washington University School of Medicine

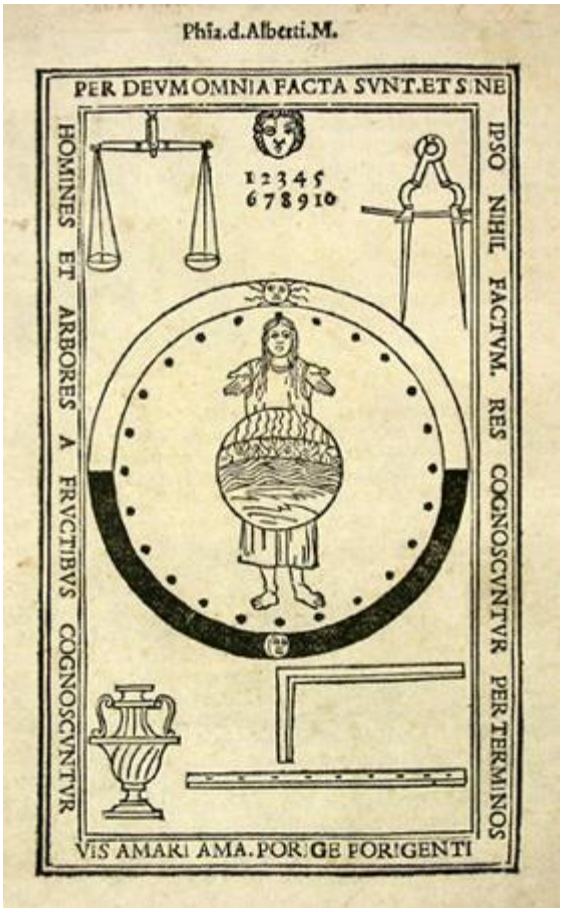
The H. Richard Tyler Collection of the American Academy of Neurology Library



H. Richard Tyler (b. 1927) received his medical degree from the Washington University School of Medicine in 1951. He led the Neurology Division at Peter Bent Brigham Hospital in Boston from 1956-1988 and is an internationally renowned neurologist at Harvard Medical School.

Although neurology became a specialty late in the 19th century, its origins are in early anatomical atlases and general medical works that depict and describe the nervous system, or specifically the brain or the spinal cord. Of the 7,000 volumes in the H. Richard Tyler Collection, the majority are landmarks in neurology and neuroscience. Dr. Tyler's donation ensures that future neurologists and medical historians will be able to uncover and interpret the beginnings and development of this significant field in medicine.

The American Academy of Neurology Library Collection contains rare neurological textbooks and monographs that have been donated to the AAN by its members.



Albertus of Orlamünde, Dominican (fl. late 13th c.). ***Philosophia pauperum.*** Venetiis: Georgium de Arriuabenis, 1496.

The *Philosophia pauperum,* now generally ascribed to Albertus of Orlamünde, includes extracts from writings of Albertus Magnus (1193?-1280). Works by Albertus Magnus were often digested by his students and confrères for the instruction of the less learned brethren. In earlier manuscripts this "Philosophy for the simple" *(Philosophia pauperum),* as the work was sometimes called, is ascribed only to a "Brother Albert, O.P." Other manuscripts are more specific, mentioning an "Albert of Orlamünde." Scholars now believe that it was this Albert (fl. late 13th c.), a Dominican teacher in Thüringen, who compiled these digests, a short textbook of natural philosophy and psychology which was used in schools throughout the Middle Ages. In the chapter about the soul *(De anima)* the author discusses the three ventricles of the brain as it is represented in the illustration above right.

Caspar Bartholin, the Elder (1585-1629). ***Anatomicae institutiones.*** Argentoratum: Scher, 1626.

Caspar Bartholin was a Danish physician, the eldest of the four known Bartholins who became noted medical doctors. He described first the functions of the olfactory nerve in 1611. Note that the book is bound in a fragment of a medieval manuscript page, handwritten on parchment and possibly more than 200 years older than Bartholin's work.

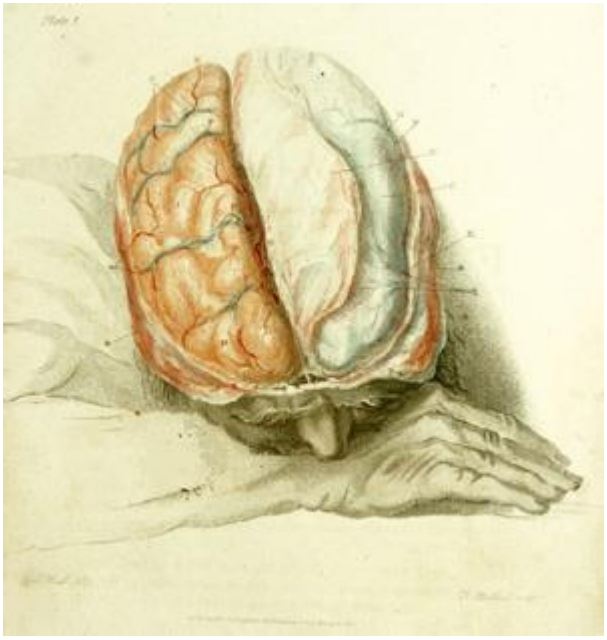
Marcello Malpighi (1628-1694), Carlo Fracassati (ca. 1630-1672). ***Epistolae anatomicae virorum clarissimorum Marcelli Malpighii et Caroli Fracassati.*** Amstelodami: apud C. Commelinum, 1669.

A collection of letters compiled by Carlo Fracassati, Malpighi's friend and colleague at the University of Bologna. Four of the letters written by Malpighi and two by Fracassati are treatises about the brain. Detailed copperplate illustrations represent Malpighi's microscopic investigations. This image depicts the crosscut of the optical nerve in the Xiphia fish.

Pierre Barrère (1690-1755). ***Observations anatomiques, tirées des ouvertures d'un grand nombre de cadavres, propres a decouvrir les causes del maladies et leurs remédes.*** Perpignan: J. B. Reynier, 1753. (Frontispiece)

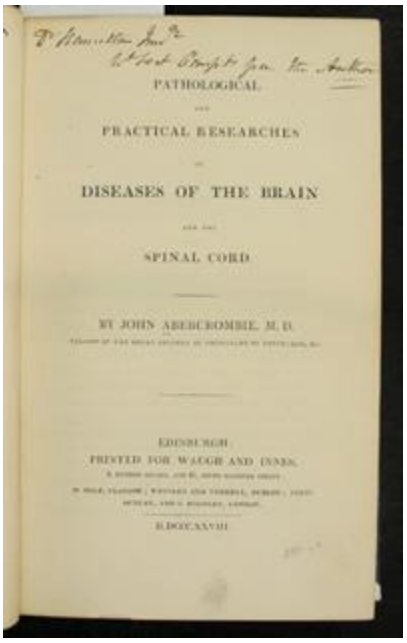
Barrère, a French naturalist and physician, first practiced medicine in his native village and then spent three years in Cayenne. Later he became the Chair of the Department of Botany at the University of Perpignan and worked in that city's military hospital.

As a naturalist, he wrote extensively on ornithology and ancient fossils. In 1741 he described for the first time the *mata mata*, a "large land turtle with spiky and ridged scales." His medical publication, including the above dissection scene on the frontispiece, first appeared in 1751 under the title *Diverses observations anatomique.*



Sir Charles Bell (1774-1842). ***The anatomy of the brain, explained in a series of engravings.*** London: Printed by C. Whittingham for T. N. Longman and O. Rees, 1802. (Plate 1)

Sir Charles Bell, a highly respected Scottish anatomist, surgeon, physiologist and neurologist of the 19th century, was trained in art as well as in medicine. He illustrated all of his medical works, several of which were co-authored by his older brother, the noted surgeon and teacher, John Bell (1763-1820). The twelve plates illustrating the structure of the brain in this volume are among the most beautiful in neuroanatomy. Bell's scientific discoveries were many, including the determination of the motor and sensory pathways of the spinal nerves. His book *An Idea of a New Anatomy of the Brain* (1811) has been called the "Magna Carta of neurology."



PATHOLOGICAL

AND

PRACTICAL RESEARCHES

ON

DISEASES OF THE BRAIN

AND THE

SPINAL CORD.

BY JOHN ABERCROMBIE, M. D.

EDINBURGH:
PRINTED FOR WAUGH AND INNES.

MDCCCXXVIII

John Abercrombie (1780-1844). ***Pathological and practical researches on diseases of the brain and the spinal cord.*** Edinburgh: Waugh and Innes, 1828. (Title page)

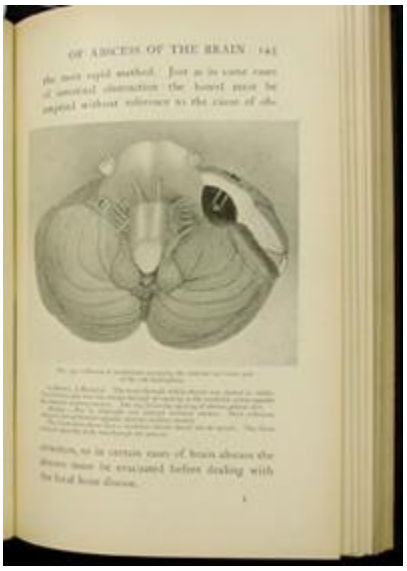
This is the first textbook published on neuropathology. Abercrombie, a graduate of Edinburgh University, had a successful medical practice in Edinburgh. From 1805 he served as surgeon to the Royal Public Dispensary and published several important medical works, including *Researches on the Diseases of the Intestinal Canal* and *Liver and other Viscera of the Abdomen*, both published in 1828. Abercrombie also found time for philosophical speculations, and in 1830 he published his *Inquiries concerning the Intellectual Powers of Man and the Investigation of Truth*, which was followed in 1833 by a sequel, *The Philosophy of the Moral Feelings*.

Note the author's inscription on the top of the title page.

Charles Bell (1774-1842). ***The anatomy and philosophy of expression as connected with the fine arts.*** 7th edition, revised. London: Bell, 1900. (Page 42)

First published in 1806 under the title *Essays on the anatomy of expression in painting*, this collection of essays was revised and reprinted several times over the ensuing years. In it Bell sought to reconcile the subjects of anatomy and fine art. In the introduction, Bell proposed "I am not without hope that a new impulse may be given to the cultivation of the fine arts, by explaining their relation to the natural history of man and animals; and by shewing how a knowledge of outward form, and the accuracy of drawing which is a consequence of it, are related to the interior structure and functions." He not only discussed the anatomical and physiological basis of facial expressions but also provided a critical comparison of ancient and modern art.

This illustration accompanied the essay on *Changes from Infancy to Age.* Most famously, this book contains Bell's illustrations of expressions such as pain, laughter, weeping, jealousy and remorse.



Charles A. Ballance (1865-1936). ***Some points in the surgery of the brain and its membranes.*** London: McMillan, 1907. (Page 145)

A pioneer English neurosurgeon, Charles A. Ballance researched nerve regeneration with James Purves-Stewart (1869-1949) and worked with Victor Horsley (1957-1916) in removing the first spinal tumor. He introduced nerve grafting for facial palsy in 1932 and was honored as the founder and president of The Society of British Neurological Surgeons in 1926.

Ballance's extensive operative experiences were detailed in this 1907 book, which was compiled from the material Ballance prepared for the Lettsomian Lectures of the Medical Society of London for 1906.

Novels by S. Weir Mitchell (1829-1914)

Silas Weir Mitchell was a pioneer in the application of psychology to medicine, famous for his treatment of nervous disorders and for his study of the nervous system. He was a prolific writer of not only medical monographs but also novels of historical romance and psychology, poetry, short stories, and children's stories. Mitchell received his medical degree from Jefferson Medical College in 1850 and served as an Army surgeon during the Civil War. Mitchell was an early advocate of the rest cure in the treatment of nervous diseases; Mitchell's disease (erythromelalgia) is named after him.

When all the Woods are Green (1898), *Dr. North and his Friends* (1900), and *Circumstance* (1901) are but a few of the Mitchell's novels.

Source: http://beckerexhibits.wustl.edu/rare/collections/tyler.html, accessed July 25, 2013