Interview with Lewis P. "Bud" Rowland, MD
American Academy of Neurology
Oral History Project

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Interview with Lewis B. "Bud" Rowland, MD
Professor of Neurology, Department of Neurology,
Chairman Emeritus of Neurology & Director of the Neurology Service (1973 - 1998)
The Neurological Institute of New York, Columbia University Medical Center
Attending Neurologist, Columbia-Presbyterian Medical Center,
New York Presbyterian Hospital, and Eleanor and Lou Gehrig MDA/ALS Center
Past President of the American Academy of Neurology

Dr. and Mrs. Rowland's Home
Riverside Drive, New York, New York
November 18, 2012

Steven Frucht, MD, and
Barbara W. Sommer, Interviewers

Lewis P. "Bud" Rowland: LPR
Esther Rowland: ER
Steven Frucht: SF
Barbara W. Sommer: BWS

(Track 1007)

BWS: We are recording an interview today with Dr. Lewis P. "Bud" Rowland for the American Academy of Neurology Oral History Project. Dr. Rowland is Professor of Neurology at Columbia University and Attending Neurologist at Columbia Presbyterian Medical Center and at the Eleanor and Lou Gehrig MDA/ALS Center, which he founded. From 1973-1998, for twenty-five years, Dr. Rowland was Chair of the Department of Neurology at Columbia University College of Physicians and Surgeons and Director of the Neurological Service at Presbyterian Hospital. He also served as co-director of the H. Houston Merritt Clinical Research Center for Muscular Dystrophy and Related Diseases at Columbia-Presbyterian Medical Center. It is Sunday, November 18 [2012]. We are at Dr. and Mrs. Rowland's home on Riverside Drive in New York City. Also present is his wife, Esther Rowland. The interviewers are Dr. Steven Frucht, Department of Neurology at Mount Sinai Hospital, and Barbara W. Sommer.

(01:12)

Thank you for having us this afternoon. We appreciate your opening your home to us. We will start by asking you to start at the beginning of your medical career to ask, why medicine? Tell us about why [you chose] medicine and why you chose neurology.

LPR: Those are two different stories. One is a family story. [BWS: OK.] The story is that when I was four or five years old, my mother took me for a walk and we met a friend of hers who said – and I quote, "Oh, what a cute little boy. And what do you want to be when you grow up, young man?" And I said, "A doctor." And my mother said, "That's right." And it has never changed since that moment. [laughter] I was committed before I knew what commitment meant.

BWS: Before you were in school.

LPR: And neurology is a little more complicated. You asked the question about people who influenced my life [referring to list of topics sent to Dr. Rowland in preparation for the interview]. [BWS: Yes.] There are a string of them that we'll come to. But one was - the early years of medical school were very influential. I didn't go to medical school to become a neuroscientist or a neurologist. I just went to medical school because I was interested in medicine. But my literary hero was a character named Martin Arrowsmith, who was a feature in a book by Sinclair Lewis, the writer of the [19]'20s. Arrowsmith was a young doctor and his hero was a man named [Max] Gottlieb, who was a research scientist who was modeled after a real person. He – Arrowsmith was not interested in making money; he wanted to do science. It was the story of how he did it.[1] Sinclair Lewis was a very popular writer in the [19]'20s.

(04:01)
So medicine was easy. Neurology came later. It came in my first years at medical school. We had an interesting professor of neuroanatomy whose main attribute was that he could draw the brainstem with two hands. He would make it perfectly symmetrical with his left as well as his normal right hand. He was an odd duck but he got us interested in the nervous system. Then Yale had a requirement that, for graduation, every medical student had to write a dissertation. I could have become a psychiatrist were it not for the requirement about the dissertation. The reason was that I went to an assistant professor. [He was a] young assistant professor of psychiatry who later became famous and the head of departments – one of the most influential psychiatrists of his generation [and] the Dean of the Yale Medical School. His name was Fritz Redler. He was a German refugee; very smart. I had a brilliant idea, I thought. I took

[1] *Arrowsmith* by Sinclair Lewis was published in 1925; Lewis won the Pulitzer Prize for it in 1926 but refused to accept the award. The book, written after medical education reforms resulting from the Flexner Report on medical education in the United States and Canada (1910), has been described as the first to deal with the culture of science.

it to him and I asked him to be my supervisor for the dissertation. He said, "What do you want to write about?" I said, "Well, I'm interested in comparing the hallucinations of schizophrenics with the delusions of mountain folks – snake worshipers and so on." He didn't say, "That's not a good idea" or "Let me help you find another one." He just said to me – in not quite so many words, "That the stupidest goddamn subject I ever heard." [laughs] That was it. That was the end of the interview and the end of my career in psychiatry. So I had to get another subject. We had an odd professor of neuroanatomy – odd in many ways but very influential to me. His name was Fred Metler. He was the author of a textbook of neuroanatomy.[2] He had been in Georgia before coming to Columbia and he had contact with all the medical students – the first year medical students – at Columbia and also, indirectly, at every medical school in the country. What happened was – frontal lobotomy was a prevalent and, in retrospect, an interesting procedure that had swept the country, literally. Everybody – it was being done everywhere. It ended up with a bad name because it was adopted by somebody who – I don't want to be too judgmental of him – but he was a little bit of, I think, a psychopath. He ended up doing what are called orbital lobotomies; he would come into a place and do fifteen or twenty or fifty and then move on to the next place and do them without any recording of adverse effects or anything. [He would do this] without any controls, without any theoretical background for what he was doing. How he got to that was from Yale. In our first year, one of the other influential people was a man named John Farquhar Fulton who had been a Rhodes Scholar and worked with [Sir Charles] Sherrington.[3] He came back and he was interested in seeing what chimpanzees - how their behavior was altered by taking pieces of the frontal lobe out. That much had been known; the frontal lobes had something to do with primate behavior. It was from that that a Portuguese neurologist named [Antonio Caetano de Abreu Freire] Egas Moniz noticed that at an international congress in the [19]'30s somewhere, Fulton recorded the behavioral changes in Becky and Lucy, two chimpanzees. He took little pieces of frontal lobe out, not thinking that he was treating them or anything, but just to see what would happen – and they became very docile. So he mentioned at this international congress that it might be worthwhile doing it on people, but he was not going to do that on people. In the audience that day was this Portuguese neurologist, Egas Moniz [spells name], and he thought he would be interested in trying it on people who were agitated, had agitated depressions. He did it and he reported on five patients. Some of them got better and some of them didn't get better and one of them got worse. So he had all the bases covered and he ended up doing

[2] *Neuroanatomy* by F.A. Metler (St. Louis: The C.V. Mosby Company, 1942).

[3] Todman, D. (2009) History of Neuroscience: *John Farquhar Fulton, 1899-1960.* IRBO History of Neuroscience. http://ibro.info/wp-content/uploads/2012/12/Fulton-John-Faquhar.pdf, accessed August 9, 2012. Sir Charles Scott Sherrington was a British neurophysiologist and, with Edgar Adrian, winner of the 1932 Nobel Prize in Physiology or Medicine.

more. He got a Nobel Prize, not for that, but for inventing cerebral angiography.[4] He was a really interesting character. He was also very active in Portuguese politics. I don't think he became president but he had some higher offices in public life. He is another [influence] here

(11:48)

BWS: All this was going on when you were studying?

LPR: It was before.

BWS: Before you were studying.

LPR: It was there when we learned neuroanatomy and neurophysiology. It was there when Fulton talked about it. Then, just to continue that story, because it had a very mixed-up end – at this break point, I would say that it was very important for another reason. After World War II, psychoanalysis became the dominant force in academic psychiatry in the United States. Lobotomy was just the other way of looking at the world – it was more biological psychiatry than analysis was. Analysis had no theory or background except that perhaps developmental changes in the brain would be important, which was an important contribution. It left a legacy of talk therapy which we still have. But it got to be abused by Walter Freeman [Walter Jackson Freeman II] and it ended up moderately discouraged.

The other thing that contributed to biological psychiatry was electric shock therapy, which came from Italy. [Ugo] Cerletti published in the [19]'30s also. Shock therapy is still around now. And even lobotomy is still around now. One of our former residents is a wonderful young woman named Helen Mayberg. She started combining little pieces of surgery with functional MRI and has made a remarkable career herself with that. So after all these years we are still doing a little psycho-surgery.

BWS: You ended up coming into all of that during the World War II era. Is that correct?

LPR: It mostly happened after World War II.

BWS: It happened afterwards. That is when you came into it?

[4] Egas Moniz shared the Nobel Prize in Physiology or Medicine in 1949 with Walter Rudolf Hess. Egas Moniz's share of the award was for his discovery of the therapeutic value of leucotomy in certain psychoses.

LPR: I was in the class of [19]'48. The war ended in [19]'45. I've been in neurology since 1950. That's the year of the landmark.

BWS: The brain?

(15:41)

LPR: There was a child psychiatrist who talked about mindless psychiatry, which was psychoanalysis, because the ego and the id were not anywhere localized in the brain. Then he talked about brainless psychiatry, which was Pavlov's psychiatry, which just invented the brain for no good reason and stuck it in. Which is where we are now – trying to understand how the brain is related to thinking and behaving.

SF: When you were training, who were the major people at Columbia?

LPR: [H.] Houston Merritt was there.[5]

SF: He had come in [19]'46? Is that right?

LPR: [19]'48. He came to Montefiore [Hospital] in [19]'48 and then he came to Neuro [Neurological Institute] a couple of years after that. [SF: I see.] I started in [19]'50. [Tracy Jackson] Putnam came first.[6] Putnam – he was such an interesting man. He was so smart and Columbia was so terrible – just terrible – to him. Putnam came in 1939 and he appointed four people. David Nachmanson, who was a German Jew. Harry Grundfest, who was a Russian Jew. There was a third Jewish one and one was not Jewish. Later on he was fired by the hospital, not by the Dean. The Dean made it quite clear he had nothing to do with it. He was fired by the hospital because he was not managing the service well. They never explained that. When I was writing the book about Putnam and Merritt, I tried my best to find the records of the medical board, who the secretary of the medical board was, or somebody who would know the story of why Tracy Putnam was fired. It was so covered up; there was just no way of getting it. It is still a mystery. The person who did it was the President of the Board of Presbyterian Hospital. I don't see any way of refuting it. Somebody may go over it again and try to sleuth it out. It was beyond my capacity to crack it at all.[7]

[5] H. Houston Merritt was Chair of the Neurological Institute of New York and Dean of the Columbia University College of Physicians and Surgeons.
[6] Tracy Jackson Putnam was Chair of the Neurological Institute of New York. With Merritt, he was the discoverer of Dilantin for controlling epilepsy.
[7] Lewis P. Rowland, MD, *The Legacy of Tracy J. Putnam and H. Houston Merritt: Modern Neurology in the United States* (New York, Oxford University Press, 2009).

BWS: Houston Merritt was there when you were there?

LPR: Houston Merritt was there when I became a resident.

BWS: OK. Who were some of the others who taught you?

LPR: The people who came from Montefiore were Sidney Carter – who was really the father of child neurology in the United States.[8] He was set up – he was appointed by Merritt. There had been a pediatric neurologist before him – a nice, sweet, kindly old giant of a man who could hold an infant in the palm of one hand. His name was Louis Casamajor and among other things, he had a falsetto voice and his famous line would be – he would hold a baby in one hand and look at it and say, "This is a silly baby." [laughter] He was always right. He could tell by looking and watching a child's behavior. He was there. And [Melvin] Yahr was there.[9] Yahr later left to become the chairman of neurology at Mount Sinai. Was he there when you were there?

(20:31)
SF: When I went through, I met him when I was interviewing for a fellowship. He was still seeing patients.

LPR: Danny [Daniel] Sciarra came with Merritt from Montefiore. And Arnold Friedman – Arnold Friedman was the man who made headache a neurological specialty in the United States. He ran a headache clinic at Montefiore and then when they came downtown, it was at Columbia Service at Montefiore then. Then he just brought it to Presbyterian. We had one for the next twenty or thirty years until something happened and Dr. [Mark W.] Green took the headache service to Mount Sinai. We haven't recovered from that since.

BWS: You had some powerful teachers.

LPR: Yeah. I hope I haven't left out any. I wanted to mention John P. Peters who was a professor of medicine at Yale. He, like many good teachers in my career, even great teachers, was terrible to make rounds with because he was inaudible. I even say that about one of my most-admired professors at

[8] Sidney Carter was a Columbia University neurologist and clinician. He helped define the field of pediatric neurology.
[9] Melvin Yahr was an early expert in the use of l-dopa to treat Parkinson's disease.

Columbia now. He is absolutely brilliant, totally articulate, knows everything about anything including non-neurological things, but he just doesn't talk up. I want to shake him and make him do it. You have to be a loudmouth like me to communicate.

SF: You've written about Merritt.

LPR: Merritt was the laconic – was extremely over –

SF: Right – and there are legendary stories about his ability to make diagnoses in a very intuitive fashion. Sometimes not even to fully communicate why he made the diagnoses.

LPR: No, no, he communicated fully. You would ask him, "Dr. Merritt, how did you come to that conclusion?" He would say, "Well, what else could it be?" [laughter]

SF: I see. But he wouldn't tell you his thought process.

LPR: No. He was known for that when he was in Boston before he came to Neuro.

SF: Do you think that those styles influenced you directly? Did you take from those styles?

LPR: I did to a certain extent. Let's say Merritt as a role model. He was absolutely free of pomposity. He was absolutely straight in saying what he thought. He was absolutely sentimental in <u>never</u> offending a patient or a resident. There are some people - [Derek] Denny-Brown was supposed to be terrible with patients and with residents.[10] Houston, he just was too kind for that. He was a good role model. As long as you spoke up, he was okay. The others – Danny Sciarra was a good role model by teaching. Sid Carter was great in both things. Sid Carter had the first training grant in pediatric neurology from NIH – NINDB [National Institute of Neurological Diseases and Blindness] is what it was in those days. The first group, they were all sensational. That set the pattern for everybody. The group was Arnold Gold – there were four of them – Abe [Abraham] Chutorian (who is still around), a guy who translated Bertolt Brecht from the German whose name was Gary Nelhaus; he went to Colorado and started a group there. There was a fourth.

[10] Derek Denny-Brown was British neurologist recruited to the United States to be professor of neurology at Harvard Medical School and director of neurology at Boston City Hospital.

(25:53)

SF: They were the original class of Sid Carter?

LPR: Yeah, and they all became big, important, national influences.

SF: And then you left?

LPR: I went to Penn [University of Pennsylvania].

SF: You went to Penn.

LPR: That was an interesting exercise too. In January 1967, we were told that Milton Shy was coming to be the chairman.[11] I had known Milton because – .

[telephone rings, short break in interview]

(Track 1008)

BWS: Go ahead.

LPR: So Milton Shy was coming. I had known him when I was at NIH [1953-1954] and we had gotten along all right. But we had a mis-step along the way. When he came to NIH, I was already there doing the work of a resident. He asked us to come and speak to him. He was a little bit miffed because the house staff had been picked by somebody else, not by himself. He asked me where I had trained, which I think he really knew because we had our CVs. I said, "The Neurological Institute." He said, "Oh, that's interesting." He said, "When were you in Montreal?" – which was <u>his</u> Neurological Institute. [laughs] We straightened that out. We got to be pretty good friends. We got to be friends of his family and his son. His son is now in charge of neuromuscular disease at the University of Iowa, but before that he had been the neuromuscular person in Detroit. He had been one of our trainees. He is a wonderful young man.

BWS: You spent some time at Penn?

[11] George Milton Shy was the first clinical director of NINDB. He died unexpectedly shortly after becoming the chair of the department of neurology at Columbia.

LPR: Because I got invited to look at the job at Penn [Professor and Chairman, Department of Neurology, University of Pennsylvania School of Medicine, 1967-1973] and we went. The Dean of the school was Sam Gurin – G-U-R-I-N. He would say, "My name is Sam Gurin; it rhymes with urine." When we went down there and as he showed us around, he became enamored of Esther Rowland. [To ER: He did, he did. He spoke freely about his affection for you.] We went down there one day and we signed the next day, as I recall. [aside comment] So we went and we had a wonderful time. We had a house that belonged to Thomas Wynne who founded Wynnewood, the immediate suburb next to City Line Avenue in Philadelphia. He had a wonderful stone house. We had rapid absorption into the culture of the department, into the culture of Philadelphia. We loved every minute of it. And then, in 1973, they asked me to come as a consultant to the Search Committee because there had been a serious problem at Columbia. The chairman was a Quaker gentleman and Mel Yahr was a tough New Yorker; they were not getting along and they decided to find someone else. The Dean at that time and [one other person], Paul Marx and Donald F. Tapley – both friends of mine, were the heads of the Search Committee. So they invited me as a consultant, but they were really after me. They offered me the job that day [Professor and Chairman, Department of Neurology, Columbia University, College of Physicians and Surgeons; Director, Neurological Service, Presbyterian Hospital], as I recall. I hemmed and hawed about it, but thought that the service was in trouble because of the battle between the two leaders. I was doubly arrogant. That was the first act of arrogance – to think it was worth saving. And secondly, that I was going to be the savior – that was the worst arrogance. So I came and Yahr moved to Sinai before I got there and that took care of the whole fight. It was gone. [Richard] Masland and I were friends; he ended up retiring a couple of years later.[12] That was the transition.

(08:53)

SF: You had met Stan [Stanley] Fahn at Penn or before?[13]

LPR: At Penn.

SF: At Penn.

ER: He came down with us.

[12] Richard Masland also served as president of the World Federation of Neurology (1981-1989).

[13] Stanley Fahn is the H. Houston Merritt Professor of Neurology and Director of the Center for Parkinson's Disease and Other Movement Disorders at Columbia University.

LPR: He came down with us. That makes more sense. And Audrey Penn came with us from Columbia to Penn and came back with us.[14] Louis DiMauro came for a two year stint as a fellow to Penn. He came with us. He is still around.

SF: You brought all three back to Columbia at the same time.

LPR: And there was a fourth. A guy named William Bank who went back to be a clinician. Or, he stayed there. Didn't he stay?

ER: Yes, Bill Bank came from New York to Penn and stayed.

LPR: Right.

ER: Stanley went from New York to Penn and came back. Audrey went and came back.

LPR: And then [she] left to go to NIH.

SF: What was the department like when you started in [19]'73?

LPR: Oh, that's a good question. When I was growing up in neurology at Columbia I used to say that the department had two classes of – two groups of second-class citizens. There were research people who gave the place its name, but never made a living. [phone rings] The other group were people in private practice who were making a living but who felt powerless because the full-time people controlled appointments and everything else. So neither group was fully happy. Stanley and I decided that we would appoint new people to a full-time position at salaries which they would get for themselves largely in the way of grants. That was the practice of the day. It [finding grants] wasn't so hard in those days. It has gotten worse since. We would just not re-appoint anybody except in a full-time capacity. We started that; I've forgotten, I think we had seven slots to fill. I don't think there was any ill will that came out of that. It was the right way to do it and the right thing to do even though it has taken a long time.

BWS: What made you decide to do it that way?

[14] Audrey Penn has served as Deputy Director, Acting Director, and Special Advisor to the Director of the National Institutes of Neurological Disorders and Stroke (NINDS).

LPR: We thought it was the right thing to do. The right goal was to have everybody full time and on salary. The question was how to get there without disruption? I wasn't going to come in and tell people, "Look, you go full time or you're fired." They were my friends and my teachers. It worked out all right.

SF: What was the focus in terms of, let's say, the research that was going on in your lab and in other labs? And in, let's say, in the ALS center?

LPR: [General comment] If you asked what I did for science, it was only to get good training. I did everything a Ph.D. student would do in the way of taking courses and so on. I worked in David Shemin's lab for four years. I had a couple of papers out of that, nothing very world-shaking. I wrote a lot. I talk a lot and I write a lot. I like writing. We published a book – Merritt's *Neurology,* which competes with [Raymond] Adams and [Maurice] Victor. It has now got a couple of other names including Joe Martin and is still the competition.[15]

SF: How did you end up revising it? Because Merritt did the first four editions – right? All by himself.

LPR: Yes, and then he used help after that. I think I was involved in the seventh to the eleventh and then the eleventh now had three because Tim [Timothy A. Pedley] came along.[16] Right now we are at a dead end because there are a couple of other people who want to edit the book without me or Tim. We'll see how that comes out. I proposed that we end up with four editors. I don't think it matters how many names you have on the cover except for their interrelations. That is what I am pushing for now. We'll see whether I last.

BWS: How did it come to you?

LPR: I helped Merritt. I was the one. I've done a lot of writing over the years. I was the editor of the green journal [*Neurology*], a big journal, for ten years. My good friend, Bob [Robert] Fishman set the

[15] Lewis P. Roland, Timothy A. Pedley, *Merritt's Neurology,* 12th edition (Philadelphia: Lippincott Williams & Wilkins, 2009). First published in 1955 as *Merritt's Textbook of Neurology* , LPR was editor of the seventh through the twelfth editions, 1984-2009. Allan Roper, Martin Samuels and Martin A. Samuels, *Adam's and Victor's Principles of Neurology,* 9th edit. (New York:The McGraw-Hill Company, 2009).

[16] Timothy Pedley is chair of the Department of Neurology at Columbia University and neurologist-in-chief at the New York-Presbyterian Hospital and Columbia University Medical Center.

ten-year limit, which most people think is good.[17] I'm not sure it's right. If you are doing something and doing it well, it is okay to let it go, but that was the rule that he set. I think most people think it's a good idea. I was the editor of *Neurology,* the green journal. [BWS: The green journal.] And of *Neurology Today,* which is also green. Green has become the color of Academy publications. We started with *Neurology,* the journal. The *Official Journal of the American Academy of Neurology* is the full title. The writing is part of me. I still do it. The question is – what am I going to do if I retire? Now I think the natural thing is for me to write a book about neurology, which I would do because I think the transition – that was one of your questions. What were the major changes? I think that there are two. One is imaging. The arrival of CT and MRI and functional MRI has just transformed everything that we do. The other thing that has had a similar impact is molecular genetics, which has transformed everything that is familial. And in neurology, there is a lot of familial disorder, so a lot of the advances in molecular genetics have come for neurological diseases.

(14:49)

BWS: You said, in 1991 when you were interviewed for the ANA [American Neurological Association], the diseases you were interested in were "wide open."

LPR: I was mostly interested in muscular dystrophy in those days, but the way I was going about it wouldn't have worked if I did it for a hundred years. What you were going to do was go through the muscle proteins one by one and see if they were normal or abnormal by chemical means. The first one we picked was myoglobin and we learned a lot about a condition called myoglobinuria. We didn't find the disease. It just was not the right way to do it. Molecular genetics was the right way to do it but it hadn't been invented yet. Then along came the first molecular geneticists who were Louis Kunkel at Harvard and his student, Eric [P.] Hoffman who is now a big shot in Washington at the National Children's Hospital, I think it is called. I think that they could have won the Nobel Prize. They found the abnormal protein in Duchenne's Muscular Dystrophy – the most common muscular dystrophy and a heart-wringing one because it affects young boys and is just fatal, ultimately. It's still in medical newspapers because heart transplants are one of the ways to keep the children alive. Steroids, to my surprise, have helped too.

SF: When did the ALS Center coalesce into a multi-disciplinary center the way we see it now?

[17] Robert Fishman was chair of the Department of Neurology at the University of California-San Francisco and chief editor of the *Annals of Neurology.*

LPR: That's another interesting thing. The sign up there says I founded it. We had had an ALS Center before, an ALS clinic, then somehow we made it a Center with some research labs. And then Tim [Pedley] hired Hiroshi Mitsumoto to become the Director of it. He had been in Cleveland when they had a very active Center. He came and took over. Right now the place is in turmoil again. I don't know whether you know about it but Richard [Mayeux], the new [department] chairman, has decided to put all patient care activities on the third floor with the movement disorders. [SF: Right.] So Hiroshi is down there now. He's got his office up on the eleventh floor and his patient care will be delivered on the fourth floor which is okay, I guess. You can go to where your outpatient facilities are. They don't have to be where you're permanent office is. But it's a giant change, so we'll see how that works out.

SF: How do you think the NI [Neurological Institute] building and the library and its storied historical – how do you think that shaped the training and experience for residents and for faculty?

LPR: You could tell me better than I can tell you. What it was like to go through it and what has happened to you since and how you feel about it? My notion is that its tradition is remarkable. I don't know whether you know that there was a paper in the *Archives of Neurology* last year. Do you know about that paper?[18] [SF: Right. Yes, I saw it.] Let's put it on the recording because it is one of the things that makes me very proud. It was [written by] a group of neurologists – I know none of them personally – [who] thought it would be interesting to find out which training programs were responsible for training the faculties of all of the neurology training programs. They developed a list and which one was the most efficient in that? The Neurological Institute. It had to go back; it was 2011, I think, when they published that, but it had to go back through the years. I think it was 2002-2011. That's when we were in charge, so it was very complimentary.

(21:14)

SF: Let me press you on that point, because this is certainly something I am interested in. Do you think that that was because of the resources that were available in terms of expertise or do you think it's because of your and the other's skill in picking the right people to be trained?

LPR: We lucked out because the people who applied to us were so sensational. When you think the people that we couldn't take – [they] went somewhere else and have become great. I think it was the

[18] Medical School and Residency Influence on Choice of an Academic Career and Academic Productivity Among US Neurology Faculty, Peter G. Campbell, MD; Young H. Lee, BA; Rodney D. Bell, MD; Mitchell G. Maltenfort, PhD; Darius M. Moshfeghi, MD; Theodore Leng, MD; Andrew A. Moshfeghi, MD, MBA; John K. Ratliff, MD
Arch Neurol. 2011;68(8):999. doi:10.1001/archneurol.2011.67.

tradition of Neuro and then the separate building – nobody else has a separate building for neurology. It was not only sentimental but we never had competition for space. It was our space. The whole building was ours. Not anymore, but it was. We didn't have to fuss about anybody else. We just had all the space we could use.

SF: Yeah. I bring that up because I was a resident at Cornell which was a much smaller program than the city, but Fred Plum – one of his proudest accomplishments was he trained seventeen department chairmen. I think it was mostly because of his skill in picking people. He had a knack for that, because it certainly wasn't the overwhelming resources.

LPR: I disagree.

SF: You disagree.

LPR: I think it was the same. I think that Fred Plum – you know, we were competitors.[19]

SF: I know.

LPR: But we were good friends, really good friends. We ended up buying his dog one night when dinner was delayed at his house. Esther was part of that too. [aside comments]

ER: Talk about Fred Plum. I want to hear the end of that.

SF: You think it was what he had to offer?

(24:42)

LPR: I think that Fred was such a remarkable person that he attracted the best people in going into neurology, just as we did. There were enough to go around, to fill both programs. I think he was a more complicated person than I am. He was domineering, loudmouthed, egotistical, wonderful. A great combination for a great teacher. [SF: Yes.] Smart as hell. I get sentimental about people I like and I like people who may ruffle other people's feathers, but it wasn't mine. He never ruffled me. [aside comment] He had a wonderful house, just as we had a wonderful house in Philadelphia. He had a historic house.

[19] Fred Plum was Chair of Neurology at Cornell Medical College and editor-in-chief of the *AMA Archives of General Neurology*.

[aside comments] He invited us for dinner one night when I was just beginning my career as chairman. When we got there, there was a fire in the kitchen so dinner was delayed. [aside comments] He had a dog – a poodle, a prize poodle. The poodle had just had a litter [of puppies]. He offered us one of them. We paid $25 as I recall. [aside comments]

SF: I think dogs are the key to existence. I love my dog. I'm going to press you on the topic of picking people because this is a topic that I'm very interested in. I've been very curious in thinking about this interview and what your answers to these questions would be. Whether or not you think that there are certain personality characteristics that maybe are necessary or that predispose for someone to be interested in neurology and/or successful as a neurologist?

LPR: Well, if they applied to a competitive program, they're interested, I think. You can tell, not from the interview so much, but from the letters of recommendation whether they are any good or not. I'm not sure that I can tell from the interview anything more than whether the candidate's personality is likeable or not. I'm not sure that I can tell more than that. But when you start with the top of the crop you can't go very far wrong. I'm trying to think of whether there were any terrible errors we made. We must have. Somebody must have screwed up.

SF: Do you, though, that there is – do you think that a neurologist is made or are they born?

LPR: I think they develop.

SF: Do you think it is both?

LPR: Yes. Do you know who the most difficult case we had was the famous case of the guy who was in the Big Brother/Little Brother club. We're not going to name the person on tape. He was on national TV one night. I've forgotten what happened. Something bad happened. They said that one of the residents at the Neurological Institute in New York played a featured role in that.

SF: I guess I'm more thinking of the way people think or their intellectual thought process. Do you think there is a way?

LRP: I'm drawing a blank.
(31:08)

BWS: What is the characteristic of a neurologist? Some characteristics of neurologists that you would say were important? Curiosity? Stick-to-it? Ability, obviously?

LPR: First of all, they've got to be compulsive. There is a lot of iterive learning. Re-iterive learning. They've got to be tenacious. They've got to have the clinical skills of empathy and sentimentality. They do have those things. A frequent comment that was not quite on your list – maybe it was – is "how can you spend your life doing a specialty like ALS where you make the diagnosis and you have to tell them that it is lethal; they are going to die of it, and there is not much you can do about it." We can do more now than we could before in relieving the symptoms and making death smoother and less painful – painful being less suffering. But we can't keep them alive. We can keep them alive if we do a tracheostomy which is a different quality of life. The question you have to ask the patient – and I ask them straight out, is – "How are we going to deal with it now? We've got a serious diagnosis which is going to be tough for you. It is going to be tough for your family. We are going to have to decide one of these days – do you want us to keep you comfortable or do you want to live as long as possible? They are not the same." For the family, that is a family decision. One of the crass things that they have to decide, and other people decide, is that it's expensive to stay alive with all the equipment you need, and the personnel, to stay alive – and that affects your survivors. Such a tough disease on every level. But it is interesting that it is a field of research. I think everybody involved thinks that ALS is one of the diseases that we're going to crack one of these days. You were asking how people feel about it. I don't know why people are optimistic about it. It is not even on the horizon or breaking news.

SF: Let me press you on this. You have now a perspective on this that is probably broader than almost anybody around. Having seen the pre-pre molecular biology days and then the molecular biology days and the clinical trial days – if you had to make, let's just say, a prediction, what do you think therapeutics will be like in five years or ten years or fifteen or twenty in ALS?

(35:05)

LPR: What we need is to start with – I think I've got a list of twenty-five mutations that cause familial ALS, familial ALS with dementia or not. With frontal temporal dementia. If we get one, then that will help get to the others, I think, because of this. Every mutation, every one of the twenty-five, causes a recognizable syndrome that we call ALS. But the twenty-five, they are all different. So there must be an intermediary stage between the mutation and the mutated protein. There has got to be some common link. If you could get hold of that, then you might be able to stop the progression of the disease. It's like what is going on now with the pre-symptomatic identification of Alzheimer's disease. [SF: Right.] I

think that's a gigantic step. I never thought that Alzheimer's would be ahead of ALS; it really [ought to be] the other way around because it's simpler, but that's not the way it worked out.

SF: Using that as a starting point, then maybe can I press you on, let's say, your global take on therapeutics in various subspecialties. Let's just take movement disorders.

LPR: It is way ahead of everybody else

SF: Epilepsy.

LPR: Way ahead.

SF: Neuromuscular disorders.

LPR: Myasthenia is treatable.

SF: Compared to your original – I remember your "fatalities" paper from the [19]'50s.[20]

LPR: You are right about that.

SF: In myasthenia. But we don't think of it as a fatal disease today.

LPR: It is but it isn't. The mortality rate has gone from 33% when I first started to less than 5% now. Some of the mortality is in people who live long enough to have a heart attack. The treatment of neuromuscular disease – one thing that has made it less lethal is the development of the neuro ICU. It is an indirect advance in neuromuscular disease. The use of steroids is indirect because, as Houston Merritt would say, "Steroids are good for coughs, colds, sore holes, and pimples on the rectum." "Pimples on the belly," excuse me.

SF: How did the neuro ICU [Neurology-Neurosurgery Intensive Care Unit] develop at Columbia?

[20] Rowland LP. Fatalities in myasthenia gravis: A review of 35 cases, with 23 autopsies. Trans Am Neurol Assoc 1953; 78:158-163. Rowland LP, Hoefer PFA, Aranow H Jr, Merritt HH. Fatalities in myasthenia gravis. A review of 39 cases with 26 autopsies. Neurology 1956; 6:307-326.

LPR: It starts when I was invited to go to Penn. At that time, I had tried to get an ICU at Columbia and I was told it was impossible. Then I went down to Penn and they had, I think, four ICUs. They had a pulmonary ICU and a neuromuscular ICU. There was one that was general [and] a fourth. I was just shocked by that. I said, "Here I am, going from the world's greatest neurology hospital in the world to a – not second-rate or second-class, second-tier – hospital at Penn and they are way ahead of us. So when I came back, they asked me whether there was anything we needed that they could do. I said, "Well, I tried to get an ICU – a neuro ICU – before and I would like to have it now." So they said, "No problem. We're with you that we need one. We will do it and make it the first thing on top of the list." I've forgotten whether it took five years or ten years, but we finally got one. In the meantime, we acted as though we had one. So when we had to make do one or two years – we had tank respirators longer than anybody else I think. You've probably seen the pictures of the tanks. [SF: They were like iron lungs.] Yeah, they pulled the air into the lungs and then pushed it out again. Then along came the polio epidemic of 1953. If a person stopped breathing, they would get a medical student to push an Ambu bag – a bag that filled up with air and you pushed it out through a valve into the patient. They had medical students rotating to do it day and night. Then they ran out of medical students so they decided – somebody decided – brilliantly to invent a mechanical medical student that would be a pump that would push the air through the bag. Once they did that, they killed an old superstition that you can't do positive pressure respiration because it would impede venous return to the heart. Once that was gone, it was just a technical thing to develop the beautiful respirators we have now.

(42:50)

SF: Fred Plum used to talk about that. I think that was one of his original inspirations for neuro ICU and for interest in ventilation.

LPR: Absolutely. And he had a young assistant with him. A guy named Jerry [Jerome] Posner who worked on the respirator.

SF: Right. Was Matt [Matthew E.] Fink the first person who headed the ICU at Columbia?

LPR: Yeah, Matt was an ideal candidate to do that. [aside comments] He was skilled in pulmonary care before he came. He was a natural person to put in charge and he did a great service to the institution. I wrote that story somewhere. I wrote a review of a book called *Back from the Brink*, which

was the story of the ICU and how it was developed in general. I focused on the neurological point. The review was published in *Neurology Today*.[21]

SF: Maybe I can follow that up with another question about training as it was when you were chairman and how it has evolved. Neurology training in terms of the residents' experience.

LPR: What's dominated everything – residents, professors, everybody – is money. It is so intrusive now. When you have to pay rent in order to see patients and take care of them, there is something cuckoo about it. It is not just us. I ask whether other people pay rent and they do now. It's crazy. The economics of this system have gone awry, I think.

SF: I couldn't agree more. I'm going to follow on that point because this is a sore point for myself. It's pretty clear how you'll answer the question of what you think of the current obsession with billing and remuneration, but clearly, at least from my perspective, the way it used to be – or at least I was told that the clinical revenue often helped tide along the research. [LPR: Yes.] But then things did a complete flip, somewhere in the [19]'90s and early 2000s. From your perspective, what do you think – how much, let's say, with all this focus on remuneration and on timing, what do you think is the adequate amount, let's say, of time to be spent with a new patient or a follow-up patient in the office?

(46:10)
LPR: I could only say what I did. I would always allow an hour for a new patient and a half-hour for an old patient or a continuing patient. That didn't matter whether I was in the clinic or a private office. I don't have private patients anymore because I was losing money. [phone rings]

BWS: You were losing money because you were spending an hour, or the time needed?

LPR: Whatever it was, my account was in deficit. I got fired for that reason.

SF: We all have our own take, but I'm curious what your take on it is in terms of what impact that has on people going into the field and in their training?

[21] Edward J. Sylvester, *Back from the Brink: How Crises Spur Doctors to New Discoveries about the Brain* (New York: Dana Press - operated by the Dana Foundation, 2004). Rowland LP. Book Review: Edward J. Sylvester, ed. Back From the Brink. Neurology Today 2005, 5:(11), 37.

LPR: I don't think what field they go into matters. They've got it in every field. The Dean says we're not going to tolerate deficits anymore. He says it because the Trustees tell him, "You can't be in deficit." I was out of the halls of power a long time ago, before Gerry [Gerald D.] Fischbach became the Dean. Gerry Fischbach was a talented neuroscientist and clinical investigator. He came from Washington University in St. Louis. He became Dean and was very popular with the faculty, especially with the basic scientists because he understood their culture and their needs. But he ran a deficit. So he got fired and became a Vice President or something. Then they got Lee Goldman and Goldman's marching orders were no deficits. So he fired Tim [Pedley], I think. Tim got fired, but he was kept in a place where his talents could still be useful because, I think, Richard didn't want to have anything to do with the finances of the department. Anyhow, whatever their arrangement is, they worked it out. It is working pretty well now.

SF: Maybe I can ask you more about, let's say, for resident training. What do you think are – because there has always been a tension between the need for residents to be in the hospital to take care of sick patients, to take care of the ICU, versus now the shift to out-patient neurology.

(50:20)

LPR: We're doing it right now. Everybody says they've got to do more ambulatory neurology. I always thought the old system was okay but that is an antiquated view. The notion was, if a neurologist knew how to take care of really sick patients, you could take care of less sick patients [SF: Right.] without any special training or not. What you can't do, I think, is to run the ambulatory clinic and make a <u>profit</u> – or at <u>least</u> not <u>lose</u> money. [SF: Right.] That's the crux of it. And leads me to something that is not on your list of questions. <u>Why don't we have national health insurance? Why do we have to have profit-making systems?</u>

SF: I think we would need a symposium to answer that question. [laughs] Do you think, though, that residents – wouldn't you say that they need the training now that so much of neurology has become out-patient? I remember from my own experience feeling ill-equipped to deal with a lot since I was trained to take care of very sick people.

LPR: Yes, they'll do that. I think they'll do that. But I want to tell you about the list of people who influenced me. I'd like to go through that list. [SF: Yes, go ahead.] I want to talk to you about John Punnett Peters. He was a professor of medicine at Yale when I was a student. He was one of these hypophonic guys – you couldn't hear him from an inch away. He mumbled terribly. He was a chemist.

He wrote a textbook of medical chemistry which was a laboratory manual for everything that was done in the Yale diagnostic laboratories. He wrote the method that they would use. He was also literally puritanical. He came from a family with many ministers and he had a divinity school approach to social problems – it was the responsibility of physicians to think about what is happening to the patients' finances when we take care of them and what role that played in their getting sick in the first place or whatever problems would arise from it. He imbued that, I think, in me and people like Frank [Franklin H.] Epstein who became editor of the *New England Journal [of Medicine]* and [Arnold] "Bud" Relman who became the editor-in-chief of the *New England Journal* and a guy named Charlie [Charles] Nugent, who was one of our friends in Arizona. All of these people, in one way or another, got involved in medical politics, I think all because of Peters. Some of them got into trouble because of their interest in medical politics – like me. You didn't get to that.

SF: When did you get into trouble?

LPR: I got thrown out of the NIH. I this is worth putting on record.

SF: You got thrown out?

LPR: Yes. I just always assumed that everybody knew. When was it, Esther?

ER: 1954.

BWS: You were there in [1953-1954]. Tell us about it.

(55:10)

LPR: The other person besides me who is important in that story was named Joseph McCarthy. [SF: Oh!] And he was in full power then. He scared the bejeebers out of everybody by calling them up and embarrassing them in public or forcing them to take the Fourth Amendment.[22] I had been the president of something called the Association of Interns and Medical Students [AIMS], which had two major goals. One was to get rid of racism in American health care and within the profession of medicine and the other was to have national health insurance. That was sufficient for the AMA to brand AIMS – the

[22] The Fourth Amendment to the United States Constitution affirms protection against unreasonable search and seizure.

Association of Interns and Medical Students – a "Red front."[23] That was the nasty name [used by] these mean people if you were [seen as a] hazard. So when I was at NIH, the FBI came after me. I was called down and interrogated; it was like a scene out of Kafka. I was there and they said, "We want to talk to you." I said, "I don't want to talk to you." They said, "But you've got to talk to us." I said, "Can I get a lawyer?" They said, "No." I said, "Can I talk to my wife?" They said, "I guess that will be all right." I told Esther that I was being interrogated by the political police and I said I wasn't going to talk to them. I didn't talk to them and that became a charge against me later – I had refused to cooperate with the Department of Health and Human Welfare. There was a list of other charges like that. We were living in an apartment house on the campus of NIH – and they said, "Okay, you're fired. You have to get out of your room." We had a one-year-old baby (the one who is calling us today). When we got thrown out, I thought I would never work again. There were two heroes that made it possible for me to work again. One was Harry Zimmerman, the neuropathologist at Montefiore who later was the guy who recognized the epidemic of ALS on the island of Guam. He was a captain in the [U.S.] Navy medical corps. He was stationed on Guam and he noticed they were getting a lot of autopsies on patients dying of ALS. They sent other people later and found out that the incidence – the prevalence – was sixty times higher than any other place on earth. You know that that epidemic is gone. [SF: It burnt out.] It is gone. The last patient diagnosed was last year or something. It has got to come back to have a low level, but at the moment it seems to be gone. [SF: The second person was?] Houston Merritt. Houston Merritt got me a fellowship. He helped to get me the job at Montefiore. He wanted to make it easy for them if they didn't have to pay me, so he got me an MS fellowship. Fishman and I had the first two clinical fellowships from the MS Society. Neither of us were particularly doing MS things. I did a little bit. But I never forgot how much I owed the MS Society. At one time, I became the chair of the Medical Advisory Board of the MS Society in New York. That was my payback, but it was a great pleasure and it was very interesting.

SF: Maybe I can ask you about your activities with the Academy – with the journal and with the institution.

LPR: I was at one time President of the Academy. I was President of the Foundation – the Academy Foundation. I was made the President of the Academy by Steve [Steven P.] Ringel, who was a kingmaker. It was his idea. I enjoyed that and I thought it was important. Some people don't like that

[23] Reference to Senator Joseph McCarthy and his anti-Communist campaign, which became known as McCarthyism. Red was used as a reference to Communists and Communism. Senator McCarthy eventually was censured by the United States Senate for his activities.

kind of bureaucratic assignment but I relished it. The people who get into that are such, themselves, remarkable people. A guy like Fran [Francis I.] Kittredge – a big wheel in the organization. He had a private practice in Portland, Maine; we ended up having a pattern of having a clinician for one term and then an academic for another term. I thought it worked great. We all learned a different field and I don't think there was ever any friction between the two that "you're taking my territory" or something like that. I just admired the whole bunch of them.

(01:01:46)

SF: The Academy is certainly – it went through an explosive period of growth in the [19]'70s and in the [19]'80s in terms of the meeting and the size of the meeting, the presentations.

LPR: And the courses. Don't forget the courses. I've been involved in the courses from way back. I developed a course called "The Scientific Basis of Neurology." I really relished doing it because it was just fun and it was effective as determined by questionnaires and by requests to do it again for another year. I've forgotten how many years I did it – at least ten. That kind of thing still goes on. The courses are the main attraction of the annual meeting. And Continuum. I didn't have much to do with that but that's another important contribution to lifelong education.

SF: Aaron [E.] Miller [developed Continuum]. Aaron Miller just stepped down after ten years of doing it.

LPR: Right, but I don't think he was the first. Somebody was there before him. He did very well. They both did – whoever it was before him.

SF: Maybe I can segueway from that. What do you see in the landscape for non-academic neurologists?

LPR: That's depends on the national health insurance. I think national health insurance would be great for neurologists. We need it. I think we should have another survey of neurologists to find out how they'd feel about national health insurance. I don't think the Academy is a proponent or a vigorous opponent of national health insurance. It ought to be one or the other.

SF: There is a projected shortfall of neurologists in the next fifteen or twenty years in the United States.

LPR: You know who else said that? He didn't limit it to neurologists – a very savvy guy. Herb [Herbert] Pardes, the former director of both the Columbia-Presbyterian and New York Hospital. He said we need more doctors. The aging population is one thing. The other things are the changes in finances. That may be right. I don't know how the Academy feels about that. [aside comments]

(01:06:13)
SF: You've mentioned national health insurance. Do you think there is a system now in the world that does this more effectively? Are you looking to the European model?

LPR: I think we're the only major industrial country in the world that doesn't have a national health program. I think that's right. [SF: Yes.] Stephanie Woolhandler and [ER: David Himmelstein.] David Himmelstein – Physicians for a National Health Program. I wish more people would join that. It makes an impression when you say 60,000 doctors are for national health insurance. But it is piddling compared to the 300,000 or the 600,000 in the AMA.

SF: Do you think it is money that drives that opposition?

LPR: No. I think that the AMA is for private practice. That is what they think their people want. It may very well be what their people want. I don't know how hard it would be to sell national health insurance.

BWS: You asked about other systems. The Canadian system?

LPR: The Canadians have a national health program. What they say is that Canadians come to the United States for specialty care. I'm not sure if that's right. I'm not sure it's wrong either.

SF: My own – I'm curious what you would think – if you would support this if we had a national health insurance. But to do that, you would, I think, have to change the way training works – particularly in medical school – and the way that's paid for. Almost all the societies that have the national health service, medical school does not bankrupt the trainee.

LPR: I think that people should be paid to go to medical school. I was paid to go to medical school. I was in the Navy. They bought us uniforms, books, equipment, guns. [laughter] They took the guns away from us when we started marching around the streets with them.

BWS: Medical school costs now – that comes up a lot [in these interviews].

LPR: There is no reason – if medicine were viewed as a public service, then you send them for training. I think the medical schools would like that – to be assured of tuition income and not have to give so much away in scholarships and financial assistance. They [students] would have no debt. What is the debt of a medical student now?

SF: The average is about $160,000. In some it's $250,000.

LPR: How do they pay it?

SF: It's impossible to attract people to primary, non-surgical care.

LPR: Why do we go on like this?

SF: I couldn't agree more. I think it is a whole other topic.

LPR: You and I would make a great team as the czars of American medicine.

SF: I think I would probably have ended up blacklisted as well, unfortunately. In the Woody Allen movie from the [19]'50s where he is called to testify and he tells them they can go stick it and they take him off to prison in handcuffs. [aside comments]

(01:11:09)
ER: *The Front.* [referring to the name of the movie]

LPR: I wanted to tell you about the people on my list. I told you about Peters. I'll just read them in this order – it doesn't matter. David Shemin took me into his lab for four years to let me do whatever Ph.D. students did. And as I said before, I didn't make any great discoveries but it influenced <u>everything</u> I've done since then. Training other people. Supporting research. Writing. <u>Everything.</u> David, at the time we started, it was before molecular biology so the big thing in those days was how do you make large molecules – not proteins – but large molecules, like hemoglobin and cholesterol, out of smaller ones. <u>He</u> was the one who figured out how you end up making hemoglobin from glycine. He was terrific.

Seymour Kety was the one who figured out how you would measure human cerebral blood flow in living patients.[24] He did that when he was at Penn. Then he went down to NIH and was the director of research for both mental health and NINDB. He gave it a start that has sufficed to keep it going for all these years. Walter Freygang is on my list. [William] Landau was a contemporary at Wash. U in St. Louis. He was down there [NIH] at the same time and we became friends. Mutually influential. He is a wonderful maverick; he's always contrarian. [aside comments] He took me into his lab at the NIH. I went there because he was studying living blood flow and I wanted to do for muscle what Kety had done for the brain – figure out how you could measure muscle blood flow and metabolism. I spent six months in his lab and learned that it was not possible. But that was fulfilling. Merritt is Merritt. Tiffany Lawyer was head of Montefiore. Harry Zimmerman, I mentioned. Chadmonson had a lab when I was learning biochemistry. I worked first in a bigger lab for first-year doctoral students. S-- Bosang was in there. He was a biochemist. I think he retired as a full professor; he was so helpful and so nice. Fishman and I shared offices, labs, and patients for seventeen years before he went to California. He was my big brother in all the time I was growing up – he was a year older than me.

SF: I've heard you talk about mentorship. I remember you saying about getting foundation funding – it is always hard to get money and what do you do with it. You would say, "If you have a limited amount of money, the best thing you can do with it is to train someone." [LPR: That sounds good.] The best investment you can make is to train someone. Clearly your mentors had a big impact on you [LPR: Yes.] and you've mentored many, many generations of people. Not everybody is a good mentor. [LPR: Yes.] What do you think are the characteristics of the mentors that you had and that made you an effective mentor?

(01:16:06)

LPR: I think the most important thing is to pick good people and then leave them alone. I'm not even sure that that's what I did, but I didn't interfere with people. I would encourage them. I guess it's the same thing I try to do when I'm an editor. When I'm an editor I try to help people say what they want to say. Say what they mean. I think when I'm involved with somebody's training, I want to help them do what they want to do. I can't remember ever wanting to <u>stop</u> somebody from doing what they wanted to do.

[24] Seymour Kety was a neuroscientist who applied basic science to the study of human behavior. He was the first scientific director of the National Institute of Mental Health (NIMH).

SF: Do you think, though, that – because I think you're being overly modest – it's not just about picking the right people. It is also helping to guide them or when to guide them or when not to interfere. You clearly take the role of not trying to make hay out of what they are doing – to let them run with their careers – because that is something that struck not only me, but many other people in the department that you built. Each division of that department could have functioned as an entire department of neurology in many institutions around the United States. [LPR: I think that's true.] Certainly it was true of the movement disorders division when I was there. But it was also true of stroke. It was true of neuromuscular. It was true of memory. That was very unusual. It was unusual for a neurology department.

LPR: But that is the pattern everywhere now. Every department, the top departments , are an amalgam or a cohesion of programs. You can just pick the ones that are at the top of the list in the world, in U.S. hospitals annual report. The group is the same in and out. We're [Columbia] in the top five always. We're never number one in that one. We're two, three, four. It's the Mayo Clinic – they belong there. It's UCSF – they belong there. It's us. It's Mass General – they belong there. It used to be City Hospital – the Boston City Hospital. I always say that Penn, Columbia, and Harvard all claim to be the cradle of American neurology, but it was the Boston City Hospital. They bounce around within the top five. The Mayo Clinic is – I just find it's an astounding place. In the middle of nothing for miles around them – Olmstead County is a cornfield – is this great, really great, institution. I remember when I went out there as a visitor. I went out on a site visit team. I take responsibility for making them great. [laughs] They were applying for a training grant and I was on a site visit team. They had it set up so that the muscle guy there – [SF: Engel?] Andy [Andrew G.] Engel and Peter Dick would have an afternoon a week to do research. We wrote a report. I have forgotten who else was on the committee with me; it was a good committee. We rejected the application. We said that it is ridiculous to think you can do research one afternoon a week. That's just not the way you do research. So we rejected it with the recommendation that they re-submit by just putting these guys on salary and leave them alone. And they did. They got it. And they both have flourished ever since.

(01:22:20)

SF: Maybe I can follow that up by asking about training and the challenges to training of young clinician scientists today, which is a hot topic within academic neurology. What your thoughts on that are?

LPR: We need role models. I'd say do it the way they did it. In a sense we're doing it. That was Richard Mayeux.

SF: Do you think it is harder now, or was it harder before, to do it?

LPR: We had training grants then. I'll tell you how the training grants started. It affected me and Fishman. The director of NINDB was Pearce Bailey. He was a friend of Merritt's. The story went something like this – this is an approximation of what happened sixty years ago. Houston and Pearce Bailey, they knew each other from being on committees together. Merritt probably had something to do with Bailey being picked as the director. Merritt was on the NINDB or DS council three times, the only one in history who was appointed three times. Bailey said to him, "Houston, we're trying to set up some training programs to train clinical investigators. We think you ought to have one. Don't you think so?" Houston said, "Of course I ought to have one. We ought to have one." Then he said, "Do you have any candidates for it?" He said, "Well, I've got these two guys here that I call the Gold Dust Twins. Fishman and Rowland." So Bailey said, "Send down the information about them." Well, he did and the next thing we knew, Houston said, "What are we going to do now that we have a clinical research grant?" Or maybe he had to put a program up that they could approve it down there. So that is how it started. Both Fishman and I got good training. I went to Shemin's lab and I went to NINDB. Fishman went to the Armed Forces Institute of Pathology to work with a guy named David [McK.] Rioch. Rioch let Bob do what he wanted to do.

It was Darryl De Vivo. He and I were on a committee, might have been an Academy committee that was advising NIH. It was Darryl's idea was that what we <u>needed</u> was a fellowship that would be sponsored by the Academy, funded half by the Academy and half by an academic center. We would call it Training in Research Clinical Investigation or Clinical. [SF: Yeah.] That is still going. I think at one time there were thirty of them. That was what we were asking. It still exists. It has been so successful compared to the number of outstanding people who were trained. I think it was all Darryl's fault, not mine. He is very imaginative when it comes to organization. [SF: Yeah.]

(01:27:05)

SF: Anybody else on your list we want to mention?

LPR: I've talked about all of them. I don't know whether I said something about the professor of neuroanatomy. I've got something here that I may have missed. The word is here – I called it bio-

electricity. They guy would measure the electrical retention of people and trees. He had brilliant observation that when a woman ovulated, that he could detect an electrical change. He decided that if he could put that up to a lapel light he would know when a woman was going to have a baby or not.

One of the great lines. You asked about changes and I said no longer "Diagnose and adios." That was a phrase that was introduced by guy named Labe Scheinberg. Did you ever know that?

SF: That is a phrase I've heard Stan use many times. Diagnose and adios.

LPR: That was the nasty description of neurology. We've talked about molecular genetics and ICUs. I talked about familial ALS. We talked about the AAN.

SF: Do you think, looking at students today, that the students who are interested in neurology are different in any way from when you were a student?

LPR: Yeah, they get better and better.

SF: Really!

LPR: Don't you think so?

SF: I think if I were to be a cynic, I would say sometimes I wonder if some of them are <u>hungry</u> enough. You know?

LPR: I've said it several times. They're great. I love them all.

BWS: There is a lot more specialization now?

LPR: We get to know more and more about less and less. But that's the history of medicine. I think specialization is good, not bad. People say we get too narrow, but I don't think that has appeared to me.

SF: I would agree. [LPR: Good.]

BWS: You do more because you know more.

LPR: And we still have terrible diseases to deal with. [aside comments]

BWS: Major changes you've seen? Anything you see going into the future for neurology?

LPR: I wish I saw something coming for Alzheimer's and for ALS both. Stroke care has improved immeasurably. The outcome of lethality of stroke is down. The recovery and quality of life is better.

SF: In movement, we pride ourselves on our therapeutics. This is a transformative field compared to when Stan got into the field. He came to Columbia almost forty years ago. The changes. The field looks nothing like it used to be.

LPR: How about stem cell therapy?

SF: Controversial.

LPR: You think there have been any advances?

SF: In neurologic disease?

LPR: In the brain, I'm talking about.

SF: It has been a difficult topic in PV but in inherited metabolic diseases like Steven Goldman's work and others, I think it is a fascinating area. Is there anything we've forgotten to ask?

LPR: I've gone through the list again. I think you did very well.

SF: You did very well.

BWS: What advice would you give someone coming into the field now?

LPR: First of all, I would encourage them to come to us for training. [laughs] If they were interested in going to Sinai, that would be okay.

SF: To come to New York?

LPR: That's another interesting thing. There was a time when people didn't want to come to New York. It was too dangerous and there were too many drug people around. There was a time when somebody came for an interview and was mugged on the staircase coming up from the subway. Were you around then?

SF: When I interviewed for medical school at Columbia, I had not been to Presbyterian but the cab driver that I tried to get in didn't want to take me. And on the way out, they said, "You don't walk down this street and you don't walk down this street, or this one. This one looks okay but it's not really okay." That was the message I got.

LPR: That's right. This was somebody who actually got mugged. Not hurt, fortunately. [SF: But that's changed.] New York can be an attraction, which I think it is now, or a distraction. I hate to say it but it became an attraction again when Rudy Giuliani was mayor. [laughs]

SF: But wouldn't you say though that the fact that the catchment is so great – of people, of patients, of the care – that that drives a lot?

LPR: I'll tell you – I think one thing is, you could tell me whether this is my saying or whether it is a correct belief. I think it is very hard to go through training at the Neurological Institute without seeing or hearing your peer talk about <u>something</u> that occurs. There are no surprises left. You've heard it all at least once. You think that's it exactly?

SF: I think it is.

LPR: There is so much that comes through. We have such <u>huge</u> numbers of admissions and ambulatory patients now. Huge numbers.

(01:36:16)
SF: My own bias is that it is also a New York phenomenon because of the catchment. A very different feel from when I was in Boston. Very different.

LPR: Is that right?

SF: Yeah, and indispensable to training, wouldn't you say? That volume?

LPR: Absolutely.

ER: How about the opportunity for jobs for spouses in New York?

SF: That's true.

LPR: What do you think about that?

ER: I think it's a lot – there are a lot more. If both of them are medical students and going through residencies, there is more chance of getting one.

LPR: We've got married couples.

[general discussion]

ER: Nancy [S. Green] and Richard [Mayeux] and Tim [Pedley] and Barbara [Koppel].

LPR: Nancy and Richard.

ER: And Tim and Barbara. Are you talking about married couples among the faculty?

LPR: We're talking about – I was thinking first about married couples who are both on the staff. But you are right, there are some that are not on the same staff.

ER: That is the point. In New York, you could be on two different staffs – on many different staffs – and still be in the same city. As opposed to, say. Rochester [Minnesota].

[general discussion]

BWS: Is there anything else we've missed?

LPR: If you think of something, send me an email and I'll answer it.

BWS: A good idea.

[general discussion]

End of Interview

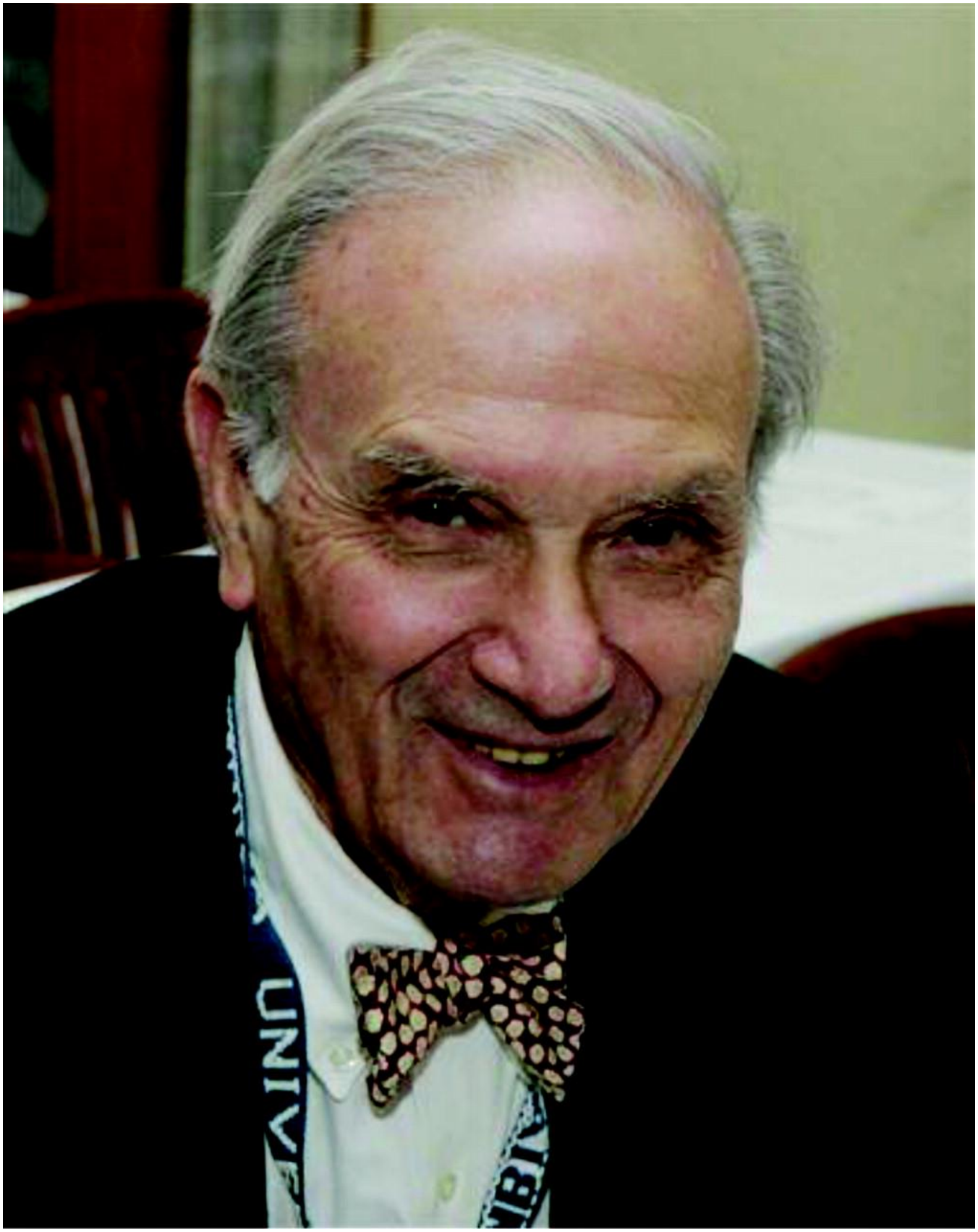
Notes:

The telephone rang several times during the interview. The Rowlands kept the phone ringer turned on because they were expecting a call from a family member.

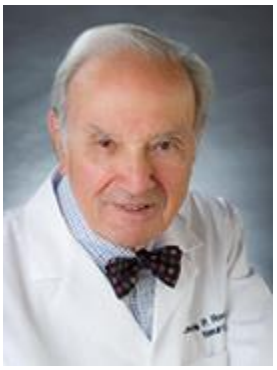
The interview was recorded on a mild autumn day and the windows in the Rowlands' apartment were open. Sounds from the street and children playing in the park across the street (along the river) are heard in the background of the recording.

Dr. Rowland is the recipient of many national and international honors and awards:

Lucy G. Moses Prize in Clinical Neurology, 1965.
Lucy G. Moses Prize in Clinical Neurology, 1967.
Robert Schwab Service Award, Myasthenia Gravis Foundation, 1973.
Distinguished Teacher Award, College of Physicians and Surgeons, 1975
Vice-President, IV International Congress for Neuromuscular Diseases, Montreal, 1978.
Vice-President & Special Lecturer, International Congress of Neurology, Kyoto, Japan1981.
Vice-President Vth International Congress of Neuromuscular Disease, Marseille, 1982.
Robert Wartenberg Award Lecture, American Academy of Neurology, 1983.
Citation Classic, Current Contents 1984 (11/26), p. 22. (Layzer RB, Rowland, LP, Ranney HM. (Arch Neurol 1967; 17: 512-523.)
Srinivasan Visiting Professor (Madras, Bombay, Hyderabad, Trivandrum, New Delhi) 1986.
Honorary Member, American Neurological Association, 1989.
Nicolaus Copernicus Medal, Polish Academy of Science, 1993.
Certificate of Recognition, Black and Latin Students' Organization, College of Physicians and Surgeons, Columbia University, 1993
Presidential Award, American Academy of Neurology, 1993.
Jerry Lewis Research Award Muscular Dystrophy Association, for Lifetime
Achievement in Neuromuscular Disease Research, 1993.
Associazione per la Promozione delle Ricerche Neurologiche Prize for Neurological Research and the First Dino Garavoglia Lecturer, Italian Society of Neurology, Florence, 1993
Committee of Honor, Session Chair, Charcot Centenary Celebration, Academie Nationale de Medecine, La Salpetriere, Paris, 1993.
George W. Jacoby Award, American Neurological Association, 1995.
Doctoral Lecture, University of Padua, Italy, 1996



Lewis P. Rowland, MD
Source: www.neurology.org/content/76/9/766/F1.expansion.html



Lewis P. Rowland, MD
Source: web.neuro.columbia.edu/members/profiles.php?id=8012029

Steven Frucht, MD
Source: www.zocdoc.com/doctor/steven-frucht-md-12029

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Personal Data

Date of Birth August 3, 1925
Citizenship USA

Education

6/45-9/48 M.D. Yale University School of Medicine New Haven, CT
9/42-6/45 B.S. Yale University 1942-1945 Class of "1945W" New Haven, CT
Explanation of Gap: I served in the "Doctor-Draft" at the United States Public Health Service via the National Institute of Neurological Diseases and Blindness, National Institutes of Health, as a Clinical Associate, 1953-54.

Post Doctoral Training

1/48-6/48	Research Assistant in Neuroanatomy, Department of Neurology, Columbia University, (six months).
1/48-61950	Intern in Medicine, New Haven Hospital; Assistant in Medicine, Yale University School of Medicine (18 months).
1950-1952	Assistant Resident in Neurology, Columbia-Presbyterian Medical Center
1952-1953	Assistant in Neurology, Columbia University.
1953-1954	Clinical Associate, National Institute of Neurological Diseases and Blindness, National Institutes of Health, Instructor in Neurology, Georgetown University.
1954-1957	Assistant Neurologist, then Adjunct Attending Neurologist, Montefiore Hospital, New York, N.Y.; Instructor then Associate in Neurology, Columbia University.
1956	Visiting Worker, National Institute for Medical Research (Medical Research Council). London, England (six months).
1957-1961	Fellow in Biochemistry, College of Physicians and Surgeons, Columbia University.

Hospital and University Appointments

1957-1963	Assistant Professor of Neurology, Columbia University.
1957-1962	Assistant Attending Neurologist, Columbia-Presbyterian Medical Center.
1961-1967	Co-Director, Neurological Clinical Research Center, Columbia-Presbyterian Medical Center
1962-1967	Associate Attending Neurologist, Neurological Institute, Columbia-Presbyterian Medical Center.
1963-1967	Associate Professor of Neurology, Columbia University.
1967-Present	Professor of Neurology, Columbia University; Attending Neurologist, Columbia-Presbyterian Medical Center.
1967-1973	Professor and Chairman, Department of Neurology, University of Pennsylvania School of Medicine.
1973-1998	Professor and Chairman, Department of Neurology, Columbia University, College of Physicians and Surgeons; Director, Neurological Service, Presbyterian Hospital.
1973-2010	Attending/Consultant, Harlem Hospital.
1974-1998	Henry and Lucy Moses Professor of Neurology, Columbia University.
1974	Co-Director, H. Houston Merritt Clinical Research Center for Muscular Dystrophy and Related Diseases, Columbia-Presbyterian Medical Center.
1989-1999	Founder and Director or Co-Director, Eleanor and Lou Gehrig MDA/ALS Center

1998-Present Professor of Neurology, Columbia University; Attending Neurologist, Columbia-Presbyterian Medical Center, New York Presbyterian Hospital
1999-Present Attending Neurologist,, Eleanor and Lou Gehrig MDA/ALS Center.
2000-2001 Sabbatical Leave: Consultant, Office of Communications and Public Liaison, NINDS, NIH to write book, "NINDS at 50" Rowland, LP . NINDS at 50. NIH Publication 01-4161, 2001; Demos Press NY, 2003.

Sometime Visiting Professor or Lecturer:

Universities:

Albert Einstein, Arizona, Baylor, California (Davis, Los Angeles, San Diego, San Francisco), Boston, Case-Western Reserve, Colorado, Univ. Connecticut, Cornell, Downstate Medical Center, Duke, Emory, Florida (Gainesville), Hahnemann Medical College, Jefferson Medical College, Johns Hopkins, Kansas, Manitoba, Maryland, Medical College of Pennsylvania, Massachusetts, Medical College of Georgia, Miami, University of Michigan, New Jersey (Newark), New Jersey (Rutgers), New Mexico, New York Medical College, New York University, Northwestern, Pennsylvania, Rochester, State University of New York (Brooklyn), Southern California, Southern Florida, Temple University, Tennessee, Texas (Southwestern Dallas, Houston), Tufts, Tulane, Vermont, Virginia, Wayne State, Wisconsin, Yale.

Hospitals:

Allegheny (Pittsburgh), Beth Abraham (NY), Beth Israel (Boston), Beth Israel (NY), Brigham & Women's (Boston), Brookdale (Brooklyn), Brooklyn (NY), Chester (PA), Cleveland Clinic (OH), Coney Island, (Brooklyn, NY), Englewood (NJ), Helen Fuld (Trenton, NJ), Lankenau (PA), Lenox Hill (NY), Long Island Jewish (NY), Massachusetts General Hospital (Boston) (~1990; 2006), Mayo Clinic, Rochester (MN), Roosevelt (NY), St. Raphael's (New Haven, CT), Wilkes-Barre (PA).

Institutions Abroad:

Universities of Beijing, Bombay, Cardiff, Copenhagen, Delhi, Genova, Helsinki, Hyderabad, Jinan, Kitasaki, Kumamoto, Kyushu, Lubjiana, Madras, Milano, (University and Instituto C. Besta Modena, Montreal, Montreal Neurological Institute, Nanjing, Oxford, Padova, Siena, Tokyo, Toronto, Trivandum, Warsaw, Winnipeg.

Hospitals & Institutes: Charring Cross Hospital, Instituto C. Besta Modena, Montreal Neurological Institute, National Hospital (Queen Square, London).

Departmental External Review Committees:

University of Utah (1973); Albert Einstein College of Medicine (1976); University of Toronto (1980); Yale University (1980); Tufts University (1983); University of Rochester (1985); University of Washington (1986), University of North Carolina (1991), University of Arizona (1991); Yale University (1992); University of Medicine & Dentistry of New Jersey Robert Wood Johnson Medical School (1992); Montreal Neurological Institute 1993; Cornell (1994); Robert Wood Johnson Medical School (1996), Yale University (1998).

Neurology Societies:

Massachusetts, Pennsylvania, Connecticut, Arkansas

Program Project External Review Committee:

University of Pennsylvania Muscle Center (1975-1979).

P & S Committees:

Medical Faculty Council, 1973-
Dean's Committee on Hospital Appointments, 1973-

Executive Committee, Medical Faculty Council, 1981-85.
Research Development Advisory Committee, 1984-90.
Special Purposes Committee, 1987-90.
Committee on Harlem Hospital Affiliation, Co-Chair, 1991-2.
Special Advisory Committee on Clinical Practice Plans, 1991-
Evaluation of New Curriculum, 1995-6.
Ad Hoc Conflict of Interest Committee, 1996.

Committee on Appointments and Promotions, Chair, 1998-99, 2001-2, 2002-
Search Committees:
Psychiatry, 1975 (Chair); 1983.
Neurosurgery, 1980.
Medicine, 1982; 1990 (Chair).
Dean and Vice President, 1984-85; 1988.
Dean, School of Public Health, l984-85 (Coordinator)
Ophthalmology, 1986-87 (Chairman)
Associate Dean for Harlem Hospital Affiliation, 1986-87.
Dean, School of Nursing, 1988 (Chairman)
Clinical Genetics Center, 1988 (Coordinator)
Chief of Surgery, St. Luke's-Roosevelt, 1989
Chief of Medicine, St. Luke's-Roosevelt, 1991-3

Presbyterian Hospital Committees:

Medical Board (1973-98), Executive Committee of Medical Board (1973-98),
Vice President (1988-91); President (1991-4); Steering Committee (1994-8).
Long Range Planning Committee
Patient Referrals Subcommittee, Chair
Geriatrics Subcommittee
Joint Conference Committee of the Board of Trustees (Presbyterian Hospital) (1990-96)

CPMC Joint Committees:

Dean's Committee on PH Appointments (1973-)
Comprehensive Cancer Center (1985-1995)
Residency Committee (1973-83)
Imaging Research Committee, Chair 1984-88
HMO Committee, 1985-86
Clinical Genetics, 1986-1988, Co-Chair
25 Year Club, 1983 (President 1990-91)
CPMC Office of Clinical Trials: Research & Development Committee: Chair (1992-6); Advisory Committee (1992-2000) (Ex-Officio); Structure & Mission Subcomm. (1994-2000)
Managed Care Committee, 1992-3.
Columbia-Presbyterian Physicians Network Board of Directors (1993-8)
Columbia-Presbyterian Cancer Center Advisory Committee (1995-2000).

Societies:

Diplomat, National Board of Medical Examiners, 1950.
Diplomat, American Board of Psychiatry and Neurology (Neurology), 1955
Alpha Omega Alpha, 1948
Sigma Xi, 1949.
Association of Interns and Medical Students (AIMS) President (1948-50).
American Neurological Association (1959-); President-Elect (1978-9);
President (1980-81); Honorary Member (1989-).
American Academy of Neurology (Fellow); President-Elect (1987-9);
President (1989-90); Board of Directors (1978-1987; 1996-9); Chair AAN Ad Hoc Committee on the Physician Work Force in Neurology 1994; Co-Chair, Member, Workforce Task Force (1997-99); Honorary Member (1997-).
Search Committee for Editor of Continuum, Membership Committee (1996-2006), Publications Committee (2000-); Search Committee for Editor of NEUROLOGY (2006)

Editor-in-Chief, Neurology Today, 2001-
American Academy of Neurology Research and Education Foundation, Board of Trustees (1990-); President, Chair (1996-1999).
Association for Research in Nervous and Mental Disease, President (1969-70;Trustee 1976-); Vice President (1979-80); Chairman Board of Trustees (1992-8).
New York Neurological Society, Secretary (1965-67).
Philadelphia Neurological Society, President (1972-73).
American Association for Advancement of Science, Fellow (1999),.
Medical Advisory Board, Myasthenia Gravis Foundation, (1966-), Officer (1966-74). (Chairman, 1971-73).
Sydenham Coterie, Philadelphia (1970-73)
Medical Advisory Board, Myasthenia Gravis Foundation, (1966-), Officer (1966-74). (Chairman, 1971-73).
Sydenham Coterie, Philadelphia (1970-73)
Muscular Dystrophy Association: MAC Subcommittee for Clinical Resource Evaluation (1986-1988); MAC Subcommittee to Review Therapeutic Claims (1974-1988); Scientific Advisory Board (1972-1986; 1989-92);
Medical Advisory Board, (1986-99); Task Force on Therapeutics (1986-1989);
Task Force on Genetics (Member 1986-88; 1989-95); Vice Chairman 1989-95).
National Vice President (1995-).
Director, Lou & Eleanor Gehrig MDA/ALS Center, Columbia-Presbyterian Medical Center (1988-99).
National Multiple Sclerosis Society:
Medical Advisory Board (1969-1989); Honorary Board 1989-1992);
Research Programs Advisory Committee: (1980-2); (1984-8)
Association of University Professors of Neurology, Member 1967-1998; Secretary-Treasurer (1967-98); Trustee (1973-77); President (1977-78).; Chair, Taskforce on Families in Neurology (2002-)
Harvey Society
American Medical Association (1968-1981; 1984-2000).
Society for Neuroscience.
Fellow, College of Physicians and Surgeons, Philadelphia (1969-73).
Medical Advisory Board, Committee to Combat Huntington's Disease, (1974-1984).
Scientific Advisory Board, ALS Society of America, (1976-88).
N. Y. Chapter, Multiple Sclerosis Society:
Medical Advisory Committee, Chairman (1977-91);
Professional Advisory Committee, Chairman Emeritus (1992)
Consultant, Josiah Macy, Jr. Foundation (1980-82).
Research Programs Committee, National Multiple Sclerosis Society (1980-).
Parkinson's Disease Foundation, President (1979-).
Consultant, Klingenstein Foundation (1981).
Vidonian Club, New York (1982-).
Member, American Society of Human Genetics (1986-).
Dana Alliance for Brain Initiatives (1993-).
The European Neurological Society Honorary Member (July 20, 1989)
Vidonian Club

Editorial Positions:

Member Editorial Board:
Advances in Neurology (1969-).
Archives of Neurology (1968-1976).
Italian Journal of Neurological Science (1980-2001).
Handbook of Clinical Neurology (1982-).
New England Journal of Medicine (1988-2000).
Core Journals in Clinical Neurology (1983-).
The Medical Letter (1991-97).
Journal of the Neurological Sciences (1991-).
Neuromuscular Disorders (1991-98).
Nervline (1991-).
Medlink (formerly Neurobase) (1993-).
Clinical Neuroscience (1996-99).

Editor-in-Chief, Neurology (1977-1987).
Editor-in-Chief, Neurology Today, Official Newspaper of the American Academy of Neurology, 2000-
Ombudsman, Neurology, Editorial Board (2007).
Occasional Reviewer: Archives of Neurology; Neurology; Neuromuscular Disorders; Journal of Neurology, Neurosurgery, Psychiatry; Journal of Neurology; Journal Watch Neurology.

LEWIS P. ROWLAND, M.D.

Publications:

1. Rowland LP. Some observations of the coronal suture and the problem of variable results in prefrontal lobotomy (Thesis). Library, Yale University School of Medicine, 1948.
2. Mettler FA, Rowland LP. Relation of the trephine opening (Freeman-Watts lobotomy point) to the underlying cerebrum. Trans Am Neurol Assoc 1948; 73:156-158.
3. Rowland LP, Mettler FA. Relation between the coronal suture and cerebrum. J Comp Neurol 1948; 89:21-40.
4. Mettler FA, Rowland LP. The enumeration of neurocytes in the frontal lobe of human psychotics. Anat Rec 1949; 103:488-489.
5. Rowland LP, Mettler FA. Cell concentration and laminar thickness in the frontal cortex removed at operation. J Comp Neurol 1949; 90:255-280.
6. Rowland LP. Neurological manifestations in sickle cell anemia. Arch Neurol Psychiat 1951; 66:658-659.
7. Hoefer PFA, Aranow H Jr, Rowland LP. Therapy of myasthenia gravis. Neurology 1953; 3:691-697.
8. Rowland LP. Fatalities in myasthenia gravis: A review of 35 cases, with 23 autopsies. Trans Am Neurol Assoc 1953; 78:158-163.
9. Rowland LP, Korengold MC, Jaffe IA, Berg L, Shy GM. Prostigmine-induced muscle weakness in myasthenia gravis patients. Neurology 1955; 5:89-99.
10. Kety SS, Landau WM, Freygang WH Jr, Rowland LP, Sokoloff L. Estimation of regional circulation in the brain by uptake of an inert gas. Fed Proc 1955; 14:85.
11. Sokoloff L, Landau WM, Freygang WH Jr, Rowland LP, Kety SS. Normal values for regional blood in cat's brain. Fed Prod 1955; 14:142.
12. Rowland LP. Prostigmin-responsiveness and diagnosis of myasthenia gravis. Neurology 1955; 5:612-624.
13. Rowland LP, Zimmerman HM. Progress report on registry of demyelinizing diseases: Clinical analysis of 72 cases of multiple sclerosis and 6 cases of diffuse sclerosis. Interim meeting of the Research Committee, Multiple Sclerosis Society, Chicago, June 1955 (unpublished).
14. Landau WM, Freygang WH Jr, Rowland LP, Sokoloff L, Kety SS. The local circulation of the living brain; values in the unanesthetized and anesthetized cat. Trans Am Neurol Assoc 1955; 80: 125-129.
15. Rowland LP, Hoefer PFA, Aranow H Jr, Merritt HH. Fatalities in myasthenia gravis. A review of 39 cases with 26 autopsies. Neurology 1956; 6:307-326.
16. Rowland LP, Eskanazi AN. Myasthenia gravis with features resembling muscular dystrophy. Neurology 1956; 6:667-671.
17. Rowland LP, Samueloff M. Some effects of local cooling on the human forearm. J Physiol 1956; 133:73P.
18. Aranow H Jr, Hoefer PFA, Rowland LP. The long-acting anticholinesterase drugs in the management of myasthenia gravis. J Chron Dis 1957; 6: 457-474.
19. Rowland LP, Aranow H Jr, Hoefer PFA. Myasthenia gravis appearing after the removal of thymoma. Neurology 1957; 7:584-588.
20. Hoefer PFA, Aranow H Jr, Rowland LP. Myasthenia gravis and epilepsy. Arch Neurol Psychiat 1958; 80:10-17.
21. Rowland LP, Shapiro JH, Jacobson HG. Neurological syndromes associated with congenital absence of the odontoid process. Arch Neurol Psychiat 1958; 80:286-291.
22. Barron KD, Rowland LP, Zimmerman HM. Neuropathy with malignant tumor metastasis. Trans Am Neurol Assoc 1958; 83:86-88.
23. Rowland LP. Muscular dystrophies, polymyositis and other myopathies. J Chron Dis 1958; 8:510-535.
24. Rowland LP, Ross G. Serum aldolase in muscular dystrophies, neuromuscular disorders, and wasting of skeletal muscle. Arch Neurol Psychiat 1958; 80:157-161.
25. Barron KD, Rowland LP, Zimmerman HM. Neuropathy with malignant tumor metastasis. J Nerve Ment Dis 1960; 131:10-31.
26. Rowland LP, Osnos M, Hirschberg E. Serum enzymes in the myopathies. Trans Am Neurol Assoc 1960; 85:15-18.

27. Rowland LP, Hoefer PFA, Aranow H Jr. Myasthenic syndromes. Res Publ Assoc Res Nerv Ment Dis 1961; 38:548-600.
28. Rowland LP, Aranow H Jr, Hoefer PFA. Observations on the curare test in the differential diagnosis of myasthenia gravis. In: Viets HR, ed. Myasthenia gravis. Proceedings of the Second International Symposium. Springfield: Charles C Thomas, 1961; 411-434.
29. Hoefer PFA, Aranow H Jr, Rowland LP. Long-acting compounds especially BC51, in the treatment of myasthenia gravis. In: Viets HR, ed. Myasthenia gravis. Proceedings of the Second International Symposium. Springfield: Charles C Thomas, 1961; 545-555.
30. Christy NP, Blanc WA, Drucker WD, Sterling K, Rowland LP. Endocrine studies in myotonic muscular dystrophy (Steinert's disease) with particular emphasis upon the testis and the adrenal cortex. Acta Endocrinologica 1960; 35 (Suppl) 51:1347.
31. Rowland LP. Myasthenia gravis. Current Therapy 1961; 542-546.
32. Rowland LP, Greer M. Toxoplasmic polymyositis. Neurology 1961; 11:367-370.
33. Rowland LP. Acute intermittent porphyria: Search for an enzymatic defect with implications for neurology and psychiatry. Dis Nerv Sys 1961; 22:1-12.
34. Schwartz JF, Rowland LP, Eder HA, Marks PA, Osserman E, Anderson H, Hirschberg E. Bassen-Kornzweig syndrome: neuromuscular disorder resembling Friedreich's ataxia associated with retinitis pigmentosa, acanthocytosis, steatorrhea, and an abnormality of lipid metabolism. Trans Am Neurol Assoc 1961; 86:49-53.
35. Drucker WD, Rowland LP, Sterling K, Christy NP. On the function of the endocrine glands in myotonic muscular dystrophy. Am J Med 1961; 31: 941-9560.
36. Rowland LP, Aranow H Jr, Hoefer PFA. Current concepts of the pathogenesis of myasthenia gravis. Int J Neurol 1961; 2:207-223.
37. Rowland LP. Drugs in the management of myasthenia gravis. In: Modell W, ed. Drugs of choice. St. Louis: CV Mosby, 1962; 284-290. Revised 1965, 1968, 1972, 1975.
38. Abramsky T, Rowland LP, Shemin D. The formation of isoleucine from B-methylaspartate in Escherichia coli W. J Biol Chem 1962; 237:265-266.
39. Abramsky T, Rowland LP, Shemin D. The synthesis of isoleucine from B-methylaspartate in Escherichia coli W. Fed Proc 1962; 21:10d.
40. Rowland LP, Schneck SA. Neuromuscular disorders associated with malignant neoplastic disease. J Chron Dis 1963; 16:777-795.
41. Schwartz JF, Rowland LP, Eder H, Marks PA, Osserman EF, Hirschberg E, Anderson H. Bassen-Kornzweig syndrome: deficiency of serum B-lipoprotein. Arch Neurol 1963; 8:438-454.
42. Drucker WD, Blanc WA, Rowland LP, Grumbach MM, Christy NP. The testis in myotonic muscular dystrophy: a clinical and pathological study with a comparison with the Klinefelter syndrome. J Clin Endocrinol Metab 1963; 23:59-75.
43. Fahn S, Schotland DL, Rowland LP. McArdle's disease: hereditary myopathy due to absence of muscle phosphorylase. Transactions of American Neurological Association 1963: p. 145-147.
44. Rowland LP. Amino acids of urine and plasma in muscle disease. Neurology 1963; 13:354.
45. Rowland LP, Fahn S, Schotland DL. McArdle's disease: hereditary myopathy due to absence of muscle phosphorylase. National Foundation of the March of Dimes (Arch Neurol 1963; 9:325-342).
46. Schotland DL, Rowland LP. Muscular dystrophy: features of ocular myopathy, distal myopathy, and myotonic dystrophy. Arch Neurol 1964; 10:433-445.
47. Rowland LP, Fahn S, Hirschberg E, Harter DH. Myoglobinuria. Arch Neurol 1964; 10:537-562.
48. Rowland LP. Muscular dystrophies and related diseases: metabolic aspects. Manitoba Med Review 1964; 44:540-545.
49. White HH, Araki S, Thompson HL, Rowland LP, Cowan D. Homocystinuria. Trans Am Neurol Assoc 1964; 89:24-27.
50. Chutorian A, Rowland LP. Lowe's syndrome (Abstract). Neurology 1964; 14:263.
51. Gold A, Grumbach MM, Blanc WA, Rowland LP. Infantile muscular hypertrophy (Abstract). Neurology 1964; 14:264-65.
52. Freeman JM, Nicholson JF, Schimke RT, Masland WS, Rowland LP, Carter S. Ammonia intoxication due to a congenital defect in urea synthesis. J Pediat 1964; 65:1039-1040.

53. Rowland LP, Schotland DL. Neoplasms and muscle disease. In: Brain R, Norris FH, eds. The remote effects of cancer on the nervous system, New York: Grune and Stratton, 1965; 83-97.
54. Rowland LP. Myasthenia gravis as an autoimmune disease. Symposium on Muscle Disease. Arch Phys Med 1965; 46(1-B): 146-159.
55. Kennedy C, Shih VE, Rowland LP. Homocystinuria: a report in two older siblings. Pediatrics 1965; 36:736-741.
56. Rowland LP, Griffiths CO, Kabat EA. Myasthenia gravis, thymoma and cryptococcal meningitis. New Engl J Med 1965; 273:620-627.
57. Rowland LP, Araki S, Carmel P. Contracture in McArdle's disease. Stability of adenosine triphosphate during contracture in phosphorylase-deficient human muscle. Arch Neurol 1965; 13:541-544.
58. Schotland DL, Spiro D, Carmel P, Rowland LP. Ultrastructural studies of muscle in McArdle's disease. J Neuropath and Ex Neurol 1965; 24:629-644.
59. White HH, Rowland LP, Araki S, Thompson HL, Cowen D. Homocystinuria. Arch Neurol 1965; 13: 455-470.
60. Wolf SM, Rowland LP, Schotland DL, McKinney AS, Hoefer PFA, Aranow H, Jr. Myasthenia gravis as an autoimmune disease; clinical aspects. Ann NY Acad Sci 1966; 135:517-535.
61. Rowland LP, Lovelace RE, Schotland DL, Araki S, Carmel P. The clinical diagnosis of McArdle's disease: identification of another family with deficiency of muscle phosphorylase. Neurology 1966; 16: 93-100.
62. Layzer RB, Lovelace RE, Rowland LP. Hyperkalemic periodic paralysis. Neurology 1966; 16:307-308.
63. Penn AS, Lisak RP, Rowland LP. Muscular dystrophy in young girls. Neurology 1966; 16:322.
64. Rowland LP, Aranow H Jr, Hoefer PFA. Endocrine aspects of myasthenia gravis. In: Kuhn E (Ed). Progressive Muskeldystrophie, Myotonie, Myasthenia. Berlin: Springer, 1966: 416-426.
65. Rowland LP, Sagman D, Schotland DL. Polymyositis: A conceptual problem. Trans Am Neurol Assoc 1966; 91:332-334.
66. Layzer RB, Lovelace RE, Rowland LP. Hyperkalemic periodic paralysis. Arch Neurol 1967; 13: 455-472.
67. Rowland LP, Schotland DL, Lovelace RE, Layzer RB. Neurogenic muscular atrophies. In: Milhorat AT, ed. Exploratory concepts in muscular dystrophy. Excerpta Medica Foundation, 1967; 41-48
68. Layzer RB, Ranney HM, Rowland LP. Muscle phosphofructokinase deficiency. Trans Am Neurol Assoc 1967; 92:99-101.
69. Layzer RB, Ranney HM, Rowland LP. Muscle phosphofructokinase deficiency. Arch Neurol 1967; 17: 512-523.
70. Rowland LP. Myasthenia gravis. In: Mark LC, Papper EM, eds. Advances in anesthesiology: muscle relaxants. New York: Hoeber, 1967; 85-113.
71. Rowland LP, Layzer RB, Kagen L. Lack of some muscle proteins in the serum of patients with Duchenne dystrophy. Arch Neurol 1968; 18:272-276.
72. Rosenberg R, Lovelace RE, Rowland LP. Progressive ophthalmoplegia. Arch Neurol 1968; 19:361-376.
73. Rowland LP. Acute polyneuritis. Current Diagnosis 1968; 732-734.
74. Buchsbaum HW, Martin WA, Turino GM, Rowland LP. Chronic alveolar hypoventilation due to muscular dystrophy. Neurology 1968; 18:319-327.
75. Bank WJ, Ipsen J, Rowland LP. Amino acids of plasma and urine in muscle phosphofructokinase deficiency. Trans Am Neurol Assoc 1968; 93:185-187.
76. Layzer RB, Rowland LP, Bank WJ. Isoenzyme abnormality in human muscle phosphofructokinase deficiency. Clin Sci 1968; 16:152.
77. Rowland LP, Dunne PB, Penn AS, Maher E. Myoglobin and muscular dystrophy. Arch Neurol 1968; 18:141-150.
77a. Rowland LP. Jargon. Letter-to-the-Editor. JAMA 1968; 205: 216.
78. Rowland LP, Osserman EF, Scharfman WB, Balsam RF, Ball S. Myasthenia gravis with myeloma-type gamma-G (IgG) immunoglobulin abnormality. Am J Med 1969; 46:599-605.

79. Layzer RB, Rowland LP, Bank WJ. Physical and kinetic properties of human phosphofructokinase from skeletal muscle and erythrocytes. J Biol Chem 1969; 244:3823-3831.
80. Penn AS, Schotland DL, Rowland LP. Antibody to human myosin in man. Trans Am Neurol Assoc 1969; 94:48-53.
81. Penn AS, Lisak RP, Rowland LP. Muscular dystrophy in young girls. Neurology 1970; 20:147-159.
82. Lisak RP, LeBeau J, Tucker SH, Rowland LP. Hyperkalemic periodic paralysis with cardiac arrhythmia (Abstract). Neurology 1970; 20:386.
83 Morrow G, Aslan S, Bank WJ, Barness LA, Rowland LP. Familial neuromuscular disease and non-ketotic glycinemia (Abstact). Ped Res 1970; 4:480.
84. Freeman JM, Nicholson JP, Schimke RT, Rowland LP, Carter S. Congenital hyperammonemia. Arch Neurol 1970; 23:430-437.
85. DiMauro S, Rowland LP, DiMauro P. Control of glycogen metabolism in human muscle. Evidence from glycogen storage diseases. Arch Neurol 1970; 23:534-540.
86. Trojaborg W, Rowland LP. Stiff muscles and bony tendons. (Abstract) Trans Am Neurol Assoc 1970; 95:169-172.
87. Hanson PA, Rowland LP. Möbius syndrome and facioscapulohumeral muscular dystrophy. Arch Neurol 1971; 24:31-39.
88. Chutorian A, Rowland LP. Lowe's syndrome. Neurology 1966; 16:116-122.
89. Rowland LP. Diseases of muscle. In: Cecil-Loeb Textbook of Medicine. 13th Ed. Philadelphia: W.B. Saunders, 1971; 338-355.
90. Bank WJ, Rowland LP, Ipsen J. Amino acids in plasma and urine in diseases of muscle. Arch Neurol 1971; 24:176-186.
91. Lisak RP, Schotland DL, Rowland LP. Myasthenic myopathy and thymoma (Abstract). Neurology 1971; 21:411.
92. DiMauro S, Schotland DL, Rowland LP. Ocular myopathy, glycogen storage and abnormal mitochondria (Abstract). Neurology 1971; 21:412.
93. Penn AS, Fraser DW, Rowland LP. Drugs, coma and myoglobinuria (Abstract). Neurology 1971; 21:453.
94. Rowland LP, ed. Preface: Immunological disorders of the nervous system. Res Publ Assoc Res Nerv Ment Dis 1971; 49.
95. Penn AS, Schotland DL, Rowland LP. Immunology of muscle disease. Res Proc Assoc Res Nerv Ment Dis 1971; 49:215-240.
96. Layzer RB, Rowland LP. Cramps. New Engl J Med 1971; 285:31-40.
97. DiMauro S, Trojaborg W, Gambetti P, Rowland LP. Binding of enzymes of glycogen metabolism to glycogen in skeletal muscle. Arch Biochem 1971; 144:413-422.
98. Rowland LP, DiMauro S, Bank WJ. Glycogen storage diseases of muscle. Problems in biochemical genetics. Birth defects 1971; 7:43-51.
99. Rowland LP, Layzer RB. Muscular dystrophies, atrophies, and related diseases. In: Baker AB, (ED). Clinical Neurology, 3rd ed, vol. 3, New York: Harper and Row, 1971:1-100.
100. Rowland LP. Immunosuppressive drugs in treatment of myasthenia gravis. Ann NY Acad Sci 1971; 183:351-357.
101. Penn AS, Cloak R, Rowland LP. Myosin from normal and dystrophic human muscle; immunological and electrophoretic studies. In: Serratrice G, Roux H, eds. Actualites de pathologie neuro-musculaire. Paris: L'Expansion Scientifique Francaise, 1971:87-89.:
102. DiMauro S, Rowland LP, DiMauro P. Control of glycogen metabolism in human muscle: evidence from glycogen storage disease. In: Serratrice G, Roux H, eds. Actualites de pathologie neuro-musculaire. Paris: L'Expansion Scientifique Francaise, 1971:105.
102a Rowland LP. Dedication to G. Milton Shy. Birth defects 1971; VII.
103. Penn AS, Rowland LP, Fraser DW. Drugs, coma and myoglobinuria. Arch Neurol 1972; 26:336-343
104. Takagi A, DiMauro S, Rowland LP. Periodic paralysis: functions of sarcoplasmic reticulum and metabolism of glycogen (Abstract). Neurology 1972; 22:426.
105. Lisak RP, LeBeau J, Tucker SH, Rowland LP. Hyperkalemic periodic paralysis with cardiac arrhythmia. Neurology 1972; 22:809-815.

106. Rowland LP, Penn AS. Myoglobinuria. Med Clin North Am 1972; 56;1233-1256.
107. Penn AS, Cloak R, Rowland LP. Myosin from normal and dystrophic human muscle; immuno-chemical and electrophoretic studies. Arch Neurol 1972; 27:159-173.
108. Rowland LP. Periodic paralysis. K levels during arrhythmia (Letter). N Engl J Med 1972; 287:50.
109. Rowland LP. Treatment of Bell's palsy (Editorial). N Engl J Med 1972; 287:1298-1299.
110. Bank WJ, DiMauro S, Rowland LP. Renal failure in McArdle's disease (Letter). N Engl J Med 1972; 187:1102.
111. Bank WJ, DiMauro S, Rowland LP, Milestone R. Heterozygotes in muscle phosphorylase deficiency. Trans Am Neurol Assoc 1972; 97:179-182.
112. Rowland LP, Lisak RP, Schotland DL, deJesus PV, Berg P. Myasthenic myopathy and thymoma. Neurology 1973; 23:282-288.
113. Earnest MP, Fahn S, Rowland LP, Gambetti P. Normal-pressure hydrocephalus with cerebrovascular disease. Trans Am Neurol Assoc 1972; 97:268-270.
114. Rowland LP. Muscular dystrophies. Dowling HF (Ed). Disease-a-Month, November, 1972, p 3-38.
115. Black JT, Brait KA, deJesus PV, Harner RN, Rowland LP. Myasthenia gravis lacking response to cholinergic drugs. Neurology 1973; 23:851-853.
116. DiMauro S, Schotland DL, Bonilla E, Lee C-P, Gambetti P, Rowland LP. Progressive ophthalmoplegia, glycogen storage, and abnormal mitochondria. Arch Neurol 1973; 29:170-179.
117. DiMauro S, Rowland LP, Mellman WJ. Glycogen metabolism of human diploid fibroblast cells in culture: 1. Studies of cells from patients with glycogenosis Type II, III, and V. Pediatr Res 1973; 7:739-744.
118. DiMauro S, Scott C, Penn AS, Rowland LP. Serum carnitine: index of muscle destruction in man. Arch Neurol 1973; 28:186-190.
119. Mawatari S, Takagi A, Rowland LP. Adenyl cyclase in normal and pathologic human muscle. Arch Neurol 1974; 30:96-102.
120. Takagi A, Schotland DL, Rowland LP. Sarcoplasmic reticulum in Duchenne muscular dystrophy. Arch Neurol 1973; 28:380-384.
121. Takagi A, Schotland DL, DiMauro S, Rowland LP. Thyrotoxic periodic paralysis: function of sarcoplasmic reticulum and muscle glycogen. Neurology 1973; 23:1008-1016.
122. Black JT, Bhatt GP, deJesus PV, Schotland DL, Rowland LP. Diagnostic accuracy of clinical data, quantitative electromyography and histochemistry in neuromuscular disease: a study of 105 cases. J Neurol Sci 1974; 21:59-70.
123. Rowland LP. Are the muscular dystrophies neurogenic? Ann NY Acad Sci 1974; 228: 244-260.
124. Boothby J, deJesus PV, Rowland LP. Reversible forms of motor neuron disease: lead "neuritis". Arch Neurol 1974; 31:18-23.
125. Rowland LP. Ethnic labels. (Letters and Comments.) Ann Intern Med 1969; 71:663.
126. Berenberg RA, Rowland LP. Diagnosis of Leigh's disease questioned, defended. (Letters to the Editor). Neurology 1974; 24:598.
127. Rowland LP and Penn AS. Heat-related muscle cramps. (Letters to the Editor). Arch Intern Med 1974; 134:1133.
128. Rowland LP. Prednisone in Duchenne muscular dystrophy. (Letters to the Editor). Lancet 1975; 1:397.
129. Bank WJ, DiMauro S, Bonilla E, Capuzzi DM, Rowland LP. A disorder of muscle lipid metabolism and myoglobinuria. N Engl J Med 1975; 292:443-449.
130. Rowland LP. Progressive external ophthalmoplegia. Handbook Clin Neurol 1975; 22:177-202.
131. DiMauro S, Penn AS, Rowland LP. Myopathies and junctional disorders. In: Tower DB (Ed). The nervous system, vol. 2. New York: Raven Press, 1975; 2:297-306.
132. DiMauro S, Rowland LP. Urinary excretion of carnitine in Duchenne muscular dystrophy. Arch Neurol 1976; 33:204-205.
133. Mawatari S, Miranda A, Rowland LP. Adenyl cyclase abnormality in Duchenne muscular dystrophy: muscle cells in culture. Neurology 1976; 26:1021-26.
134. Rowland LP. Pathogenesis of muscular dystrophies. Arch Neurol 1976; 33:315-321.

135. Berenberg RA, Pellock JM, DiMauro S, Schotland DL, Bonilla E, Eastwood A, Hays A, Vicale C, Behrens M, Chutorian A, Rowland LP. Lumping or splitting? "ophthalmoplegia-plus" or Kearns-Sayre syndrome? Ann Neurol 1977; 1:37-54.
136. Rowland LP, Clark C, Olarte M. Therapy for dermatomyositis and polymyositis. In: Griggs RC, Moxley RT eds. Treatment of neuromuscular disease. New York: Raven Press, 1977; 63-97.
137. Jaretzki A, Morrison B, Wolff M, Olarte MR, Lovelace RE, Penn AS, Rowland LP. A rational approach to total thymectomy in the treatment of myasthenia gravis. Ann Thorac Surg 1977; 24:120-130.
138. Rowland LP, ed. Pathogenesis of human muscular dystrophies. Amsterdam: Excerpta Medica, 1977.
139. Somer H, Willner J, Mawatari S, Rowland LP. Surface membranes of skeletal muscle. In: Rowland LP, ed. Pathogenesis of human muscular dystrophies. Amsterdam: Excerpta Medica,1977; 547-561.
140. Schonberg M, Miranda AF, Mawatari S, Rowland LP. Adenyl cyclase in dystrophic human muscle. In: Rowland LP, ed. Pathogenesis of human muscle dystrophies. Amsterdam: Excerpta Medica, 1977; 599-609.
141. Rowland LP. Myasthenia gravis. In: Goldensohn ES, Appel S, eds. Scientific approaches to clinical neurology. Philadelphia: Lea and Febiger, 1977; 1518-1554.
142. Rowland LP. Muscular dystrophies. In: Goldensohn ES, Appel S, eds. Scientific approaches to clinical neurology. Philadelphia: Lea and Febiger, 1977; 1633-1655.
143. Rowland LP. Glycogen-storage diseases of muscle. In: Goldensohn ES, Appel S, eds. Scientific approaches to clinical neurology. Philadelphia: Lea and Febiger, 1977; 1692-1714.
144. DiMauro S, Arnold S, Miranda A, Rowland LP. McArdle disease: the mystery of reappearing phosphorylase activity in muscle culture. Ann Neurol 1978; 3:60-66.
145. Fetell MR, Duffy PE, Rowland LP. Infiltrating lipoma: a cause of monomelic hypertrophy. Muscle Nerve 1978; 1:75-80.
146. Pellock JM, Behrens M, Lewis L, Holub D, Carter S, Rowland LP. Kearns-Sayre syndrome and hypoparathyroidism. Ann Neurol 1978; 3:455-458.
147. Rowland LP. Myasthenia gravis. In: Matthews WB, Glaser GH, eds. Recent advances in neurology, vol. 2. Edinburgh, London, New York: Churchill-Livingston, 1978; 25-46.
148. Fetell MR, Shin HS, Penn AS, Lovelace RE, Rowland LP. Combined Eaton-Lambert syndrome and myasthenia gravis (Abstract). Neurology 1978; 28:398.
149. Rowland LP, Fetell MR, Olarte MR, Hays AP, Singh N, Wanat FE. Emery-Dreifuss muscular dystrophy. Ann Neurol 1979; 2:111-117.
150. Miranda A, DiMauro S, Eastwood A, Hays A, Johnson WG, Olarte MR, Whitlock R, Mayeux R, Rowland LP. Lipid storage myopathy, ichthyosis, and steatorrhea. Muscle Nerve 1979; 2:1-13.
151. Olarte MR, Gersten JC, Zabriskie J, Rowland LP. Transfer factor is ineffective in amyotrophic lateral sclerosis. Ann Neurol 1979; 5:385-388.
152. Rowland LP. Chemistry and chemical pathology of sarcolemma. In: Aguayo AJ, Karpati G, eds. Current topics in nerve and muscle research. Amsterdam-Oxford: Excerpta Medica, 1979:16-28.
153. Rowland LP. Obituary. H. Houston Merritt 1902-1979. Neurology 1979; 29:277-279.
154. Rowland LP, Layzer RB. X-linked muscular dystrophies. Handbook Clin Neurol 1979; 40:349-414.
155. Rowland LP. Myasthenia gravis. In: Conn HF, ed. Current therapy 1977; Philadelphia: W.B. Saunders, 1977: 748-754.
156. Rowland LP. Medspeak (Letter). N Engl J Med 1979; 301:507.
157. Rowland LP. Biochemistry of muscle membranes in Duchenne muscular dystrophy. Muscle Nerve 1980; 3:3-20.
158. Rowland LP. `Ophthalmoplegia plus' or Kearns-Sayre syndrome? (Letter to the Editor). Arch Neurol 1980; 37:256.
159. Rowland LP. Therapy of myasthenia gravis: ophthalmological considerations. In: Srinivasan BD, ed. Ocular therapeutics. New York: Masson Publishing, USA, 1980: 181-187.
160. Rowland LP. Motor neuron diseases: the clinical syndromes. In: Mulder DW, ed. The diagnosis and treatment of amyotrophic lateral sclerosis. Boston: Houghton Mifflin, 1980; 7-27.

161. Rowland LP. Controversies about the treatment of myasthenia gravis. J Neurol Neurosurg Psychiatry 1980; 43:644-659.
162. Rowland LP. Malignant hyperpyrexia (Letter). Muscle Nerve 1980; 2:433-444.
163. Olarte MR, Schoenfeldt RS, McKiernan G, Rowland LP. Plasmapheresis in amyotrophic lateral sclerosis. Ann Neurol 1980; 8:644-645.
164. Rowland LP, Willner J, Cerri C, DiMauro S, Miranda A. Approaches to the membrane theory of Duchenne muscular dystrophy. In: Angelini C, Danieli GA, Fontanari D, eds. Muscular dystrophy research: advances and trends. Proceedings International Symposium on Muscular Dystrophy Research, Venice, Italy, Apr 10-12, 1980. Amsterdam: Excerpta Medica, 1980: 3-13.
165. Latov N, Sherman WH, Nemni R, Galassi G, Shyong JS, Penn AS, Chess L, Olarte MR, Rowland LP, Osserman EF. Plasma cell dyscrasia and peripheral neuropathy with a monoclonal antibody to peripheral-nerve myelin. N Engl J Med 1980; 303:618-621.
166. Defendini R, Hunter SB, Schlesinger EB, Leifer E, Rowland LP. Eosinophilic meningitis in a case of disseminated glioblastoma. Arch Neurol 1981; 38:52-53.
167. Miranda AF, DiMauro S, Antler A, Stern LZ, Rowland LP. Glycogen debrancher deficiency is reproduced in muscle culture. Ann Neurol 1981; 9:283-288.
168. Cerri C, Willner JH, Rowland LP. Assay of adenylate cyclase in homogenates of control and Duchenne human skeletal muscle. Clin Chim Acta 1981; 111:133-146.
169. Davis JC, Reiffel JA, Behrens M, Rowland LP, Mascitelli R, Seplowitz A. Optic neuritis and heart block in Kearns-Sayre syndrome. NY State J Med 1981; 81:1364-1368.
170. Olarte MR, Schoenfeldt RS, Penn AS, Lovelace RE, Rowland LP. Effect of plasmapheresis in myasthenia gravis 1978-1980. Ann NY Acad Sci 1981; 377:725-728.
171. Johnson WG, Wigger HJ, Karp HR, Glaubiger IM, Rowland LP. Juvenile spinal muscular atrophy: a new hexosaminidase deficiency phenotype. Ann Neurol 1982; 11:11-16.
172. Rowland LP. Presidential address: thirty years of progress and problems in clinical neurology. Ann Neurol 1982; 11:327-334.
173. Fetell MR, Smallberg G, Lewis LD, Lovelace RE, Hays AP, Rowland LP. A benign motor neuron disorder: delayed cramps and fasciculation after poliomyelitis or myelitis. Ann Neurol 1982; 11:423-427.
174. Rowland LP, Defendini R, Sherman W, Hirano A, Olarte MR, Latov N, Lovelace RE, Inoue K, Osserman EF. Macroglobulinemia with peripheral neuropathy simulating motor neuron disease. Ann Neurol 1982; 11:532-536.
175. Sherman WH, Osserman EF, Latov N, Olarte MR, Rowland LP. Peripheral neuropathy, plasma cell dyscrasia and hot blood (Letter). Ann Neurol 1982; 12:319.
176. Rowland LP. Membrane theory of Duchenne dystrophy: In: Ebashi S, ed. Muscular dystrophy. Tokyo: University of Tokyo Press, 1982; 285-297.
177. Rowland LP. Diverse forms of motor neuron diseases. In: Rowland LP, ed. Human motor neuron diseases. New York: Raven Press, 1982; 1-13. (Adv Neurol, vol 36).
178. Rowland LP. Introduction to Merritt-Putnam Symposium. Epilepsia 1982; 23 (Suppl 1):S1-S4.
179. Rowland LP. Diseases of muscle and neuromuscular junction. In: Wyngaarden JB, Smith LH Jr, eds. Cecil textbook of medicine. 16th ed. Philadelphia: W.B. Saunders, 1982; 2166-2185.
180. Rowland LP, Ginsberg D, Abramson M, Erlanger BF, Turino GM, Yudofsky SC. P & S: an historical perspective. In: Gerst SR, ed. The student handbook of the College of Physicians and Surgeons of Columbia University 1982-83. N.Y.: P & S Club of the College of Physicians and Surgeons, Columbia University 1982; 171-181.
181. Ruderman MI, Palmer RH, Olarte MR, Lovelace RE, Haas R, Rowland LP. Tarsal tunnel syndrome caused by hyperlipidemia: reversal after plasmapheresis. Arch Neurol 1983; 40:124-125.
182. Rowland LP. Peripheral neuropathy, motor neuron disease, or neuronopathy? In: Battistin L, Hashim GA, Lajtha A, eds. Clinical and biological aspects of peripheral nerve diseases. New York: Alan R. Liss, Inc., 1983:27-41.
183. Rowland LP. Molecular genetics, pseudogenetics, and clinical neurology. The Robert Wartenberg Lecture. Neurology 1983; 33:1179-1195.
184. Bever CT, Aquino AV, Penn AS, Lovelace RE, Rowland LP. Prognosis of ocular myasthenia. Ann Neurol 1983; 14:516-519.

185. Rowland LP, DiMauro S. Glycogen-storage diseases of muscle: genetic problems. In: Kety SS, Rowland LP, Sidman RL, Matthysse SW, eds. Genetics of neurological and psychiatric disorders. New York: Raven Press, 1983:239-254.
186. Rowland LP, Hays AP, DiMauro S, DeVivo DC, Behrens M. Diverse clinical disorders associated with morphological abnormalities of mitochondria. In: Scarlato G, Cerri C, eds. Mitochondrial pathology in muscle disease. Padua, Italy: Piccin Medical Books, 1983:141-158.
187. Rowland LP. Myoglobinuria, 1984. Can J Neurol Sci 1984; 11:1-13.
188. Nobile-Orazio E, Latov N, Hays AP, Takatsu M, Abrams GM, Sherman WH, Miller JR, Messito MJ, Saito T, Tahmoush A, Lovelace RE, Rowland LP. Neuropathy and anti-MAG antibodies without detectable serum M protein. Neurology 1984; 34:218-21.
189. Rowland LP. Myasthenia gravis. In: Rakel RE, ed. Conn's Current Therapy. Philadelphia: Saunders, 1984;734-741.
190. Rowland LP, Olarte MR, Penn AS, Lovelace RE, Jaretzki A III. Therapy of myasthenia gravis, dermatomyositis and polymyositis. In: Serratrice G, Cros D, Desnuelle C, et al, eds. Neuromuscular diseases. New York: Raven Press, 1984:505-511.
191. Rowland LP. Motor neuron diseases and amyotrophic lateral sclerosis. Trends in Neurosci 1984; 7:110-112.
192. Rowland LP. The membrane theory of Duchenne dystrophy. Where is it? Ital J Neurol Sci 194; 5 (suppl 3):13-28.
193. Kushner MJ, Parrish M, Burke A, Behrens M, Hays AP, Frame B, Rowland LP. Nystagmus in motor neuron disease: clinicopathological study of two cases. Ann Neurol 1984; 16:71-77.
194. Rowland LP. Looking for the cause of amyotrophic lateral sclerosis. New Engl J Med 1984; 311:979-981.
195. Pavlakis SG, Phillips PC, DiMauro S. DeVivo DC, Rowland LP. Mitochondrial myopathy, encephalopathy, lactic acidosis, and stroke-like episodes: a distinctive clinical syndrome. Ann Neurol 1984; 16:481-488.
196. Cornelio F, Bresolin N, Singer PA, DiMauro S, Rowland LP. Clinical varieties of neuromuscular disease in debrancher deficiency. Arch Neurol 1984; 41:1027-1032.
197. Rowland LP. Living with change; changing with life. Opening Exercise 1984. J Coll Physicians & Surgeons Columbia University 1984; 4:46-47.
198. Rowland LP. Clinical perspective: phenotype expression in muscular dystrophy. In: Strohman RC, Wolf S, eds. Gene expression in muscle. New York: Plenum Press, 1985: 3-14. (Original title: Muscle-specific proteins, muscle development, and 198.
199. Rowland LP. Cramps, spasms and muscle stiffness. Rev Neurol 1985; 4:261-273.
200. Gould RJ, Steeg CN, Eastwood AB, Penn AS, Rowland LP, DeVivo DC. Potentially fatal cardiac dysrhythmia and hyperkalemic periodic paralysis. Neurology 1985; 35:1208-1212.
201. Pedley TA, Emerson RG, Warner CL, Rowland LP, Salen G. Treatment of cerebrotendinous xanthomatosis with chenodeoxycholic acid. Ann Neurol 1985; 18:517-518.
202. Rowland LP. Diseases of muscle and neuromuscular junction. In: Wyngaarden JB, Smith LH, Jr., eds. Cecil textbook of medicine, 17th edition. Philadelphia: Saunders, 1985:2198-2216
203. Rowland LP. Diseases of chemical transmission at the nerve-muscle synapse: myasthenia gravis. In: Kandel ER, Schwartz JH, eds. Principles of neural science, 2nd edition. New York: Elsevier, 1985:176-186.
204. Rowland LP. Diseases of the motor unit: the motor neuron, peripheral nerve, and muscle. In: Kandel ER, Schwartz JH, eds. Principles of neural science, 2nd edition. New York: Elsevier, 1985:196-208.
205. Rowland LP. Clinical syndromes of the spinal cord. In: Kandel ER, Schwartz JH, eds. Principles of neural science, 2nd edition. New York: Elsevier, 1985:469-477.
206. Rowland LP. Clinical syndromes of the brain stem. In: Kandel ER, Schwartz JH, eds. Principles of neural science, 2nd edition. New York: Elsevier, 1985:597-607.
207. Rowland LP. Blood-brain barrier, cerebrospinal fluid, brain edema, and hydrocephalus. In: Kandel ER, Schwartz JH, eds. Principles of neural science, 2nd edition. New York: Elsevier, 1985:837-844.
208. Rowland LP. Introduction. In: Engel AG, Banker BQ, eds. Myology. New York: McGraw Hill, 1986: XIV-XVII.

209. Rowland LP, DiMauro S, Layzer RB. Phosphofructokinase deficiency. In: Engel AG, Banker BQ, eds. Myology. New York: McGraw Hill 1986; 1603-1617.
210. Rowland LP, Layzer RB, DiMauro S. Pathophysiology of metabolic muscle disorders. In: Asbury AK, McKhann GM, McDonald WI, eds. Diseases of the nervous system, vol 1. Philadelphia: Saunders, 1986:197-207.
211. Rowland LP. Neuromuscular diseases: the clinical impact of molecular genetics. Muscle Nerve 1986; suppl 5S: 19.
212. Shy ME, Rowland LP, Latov N, Pesce MA, Sherman WH. Characteristics of 40 patients with motor neuron diseases and monoclonal gammopathy. Muscle Nerve 1986; suppl 5S: 107.
213. Cafferty MS, Hays A, DiMauro S, Lovelace RE, Rowland LP. Adult polyglucosan body disease.
214. Muscle Nerve 1986; suppl 5S: 134.
214. Lange DJ, Fetell MR, Lovelace RE, Rowland LP. The floppy head syndrome. (Abstract). Ann Neurol 1986; 20:133.
215. Shy ME, Rowland LP, Smith TS, Trojaborg W, Latov N, Sherman WH, Pesce MA, Lovelace RE, Osserman EF. Motor neuron disease and plasma cell dyscrasia. Neurology 1986; 36:1429-36.
216. Rowland LP. Envoi: an editor leaves. Neurology 1986; 36:1547-1551.
217. Rowland LP. Searching for the cause of amyotrophic lateral sclerosis. Clin Neurol 1986; 26:1263-1267.
218. Wood DS, Zeviani M, Prelle A, Bonilla E, Salviati G, Miranda AF, DiMauro S, Rowland LP. Is nebulin the defective gene product in Duchenne muscular dystrophy? (Letter-to-the-Editor). N Engl J Med 1987; 316:107-8.
219. Galassi G, Rowland LP, Hays AP, Hopkins LC, DiMauro S. High serum levels of creatine kinase: asymptomatic prelude to distal myopathy. Muscle Nerve 1987; 10:346-350.
220. Zeviani M, Wood DS, Bonilla E, Prelle A, Miranda AF, DiMauro S, Rowland LP. Gene product in Duchenne muscular dystrophy (DMD): biochemical and morphological data indicate that nebulin is a candidate protein. Neurology 1987; 37(suppl 1): 116.
221. Younger DS, Warburton D, Tantravahi U, Hays AP, Lange DJ, Pallai M, Rowland LP. Monozygous twin carriers of the Duchenne gene: discordant for clinical myopathy. Neurology 1987; 37 (suppl 1): 222.
222. Rowland LP, Hausmanowa-Petrusewicz I, Niebroj-Dobosz I, DiMauro S, Johnson WG, Warburton D. Kearns-Sayre syndrome in twins: lethal dominant mutation or acquired disease? Neurology 1987; 37(suppl 1): 223.
223. Rowland LP. Neurology in India. Report of T.S. Srinivasan Department of Clinical Neurology and Research 1987; 2:3-6.
224. Rowland LP. Motor neuron diseases and amyotrophic lateral sclerosis: research progress. Trends Neurosci 1987; 10:393-397.
225. Zuckerman SJ, Pesce MA, Rowland LP, Sherman W, Shy ME, Latov N, Osserman EF. (Letter). An alert for motor neuron diseases and peripheral neuropathy: monoclonal paraproteinemia may be missed by routine electrophoresis. Arch Neurol 1987; 44:250-251.
226. Rowland LP. Therapy in myasthenia gravis: Introduction. Ann NY Acad Sci 1987; 505:566-67.
227. Rowland LP (Chairman). General discussion on therapy in myasthenia gravis. Ann NY Acad Sci 1987; 505:607-609.
228. Younger DS, Jaretzki A III, Penn AS, Wolff M, Olarte MR, Lovelace RE, Rowland LP. Maximum thymectomy for myasthenia gravis. Ann NY Acad Sci 1987; 505:832-835.
229. Rowland LP. Impact of molecular genetics on clinical neurology. In: DiDonato S, DiMauro S, Mamoli A, Rowland LP, eds. Molecular genetics of neurological and neuro-muscular disease. New York: Raven Press, 1988:1-15.(Advances in Neurology, vol 48.)
230. Latov N, Hays AP, Donofrio PD, Ito LH, McGinnis S, Manoussos K, Freddo L, Shy ME, Sherman WH, Change HW, Greenberg HS, Albers JW, Alessi AG, Keren D, Yu RK, Rowland LP, Kabat EA. Monoclonal IgM with unique specificity to gangliosides GM1 and GD1b and to lacto-N-tetraose associated with human motor neuron disease. Neurology 1988; 38:763-768.
231. Jaretzki A III, Penn AS, Younger DS, Wolff M, Olarte MR, Lovelace RE, Rowland LP. "Maximal" thymectomy for myasthenia gravis. J Thorac Cardiovasc Surg 1988; 95:747-57.

232. Soliven BC, Lange DJ, Penn AS, Younger D, Jaretzki A, Lovelace RE, Rowland LP. Seronegative myasthenia gravis. Neurology 1988; 38:514-517.
233. Rowland LP. Clinical concepts of Duchenne muscular dystrophy. The impact of molecular genetics. (Gordon Holmes Lecture) Brain 1988; 111: 479-495.
234. Rowland LP. Dystrophin: a triumph of reverse genetics and the end of the beginning. (Editorial) New Engl J Med 1988; 318: 1392-1394.
235. Rowland LP. Clinical Research: Recommendations for future research: Neurological disorders associated with HTLV-I. Ann Neurol 1988; 23 (suppl): S215-16.
236. Blake DT, Gilliam C, Warburton D, Rowland LP. Possible clue for chromosomal assignment of the gene for facioscapulohumeral muscular dystrophy: a family with polyposis. Ann Neurol 1988; 24 (suppl): 178.
237. Zeviani M, Moraes CT, DiMauro S, Nakase H, Bonilla E, Schon EA, Rowland LP. Deletions of mitochondrial DNA in Kearns-Sayre syndrome. Neurology 1988; 38:1339-1346.
238. Rowland LP, Hausmanowa-Petrusewicz I, Bardurska B, Warburton D, Niebroj-Dobosz, I, DiMauro S, Pallai MS, Johnson WG. Kearns-Sayre syndrome in twins: lethal dominant mutation or acquired disease? Neurology 1988; 38:1399-1402.
239. Bonilla E, Samitt CE, Miranda AF, Hays AP, Salviati G, DiMauro S, Kunkel LM, Hoffman EP, Rowland LP. Duchenne muscular dystrophy: deficiency of dystrophin at the muscle cell surface. Cell 1988; 45: 447-452.
240. Rowland LP, McLeod JG, Walton JN. Classification of Neuromuscular Diseases. World Federation of Neurology Research Committee Research Group on Neuromuscular Diseases. J Neurol Sci 1988; 86: 333-360.
241. Bonilla E, Miranda AF, Prelle A, Salviati G, Betto BS, Zeviani M, Schon EA, DiMauro S, Rowland LP. Immunocytochemical study of nebulin in Duchenne muscular dystrophy. Neurology 1988; 38:1600-1603.
242. Pavlakis SG, Rowland LP, De Vivo DC, Bonilla E, DiMauro S. Mitochondrial myopathies and encephalomyopathies. In: Plum F, editor. Advances in contemporary neurology. Philadelphia: FA Davis, 1988; 95-133.
243. Younger DS, Chou S, Hays AP, Lange DJ, Emerson R, Brin M, Thompson H Jr, Rowland LP. Primary lateral sclerosis: a clinical diagnosis reemerges. Arch Neurol 1988; 45:1304-07.
244. Rowland LP. Research progress in motor neuron diseases. Rev Neurol 1988; 144: 623-629.
245. Younger DS, Hays AP, Brust JCM, Rowland LP. Granulomatous angiitis of the brain: an inflammatory reaction of diverse etiology. Arch Neurol 1988; 45: 514-518.
246. Rowland LP. Duchenne dystrophy: behind the discoveries. MDA Newsmagazine 1989; VI: 16-20.
247. Younger DS, Rowland LP, Pesce M, Latov N, Sherman W, Lange D, Hirano M, Kim T, Rubin M. ALS: Is high CSF protein content a clue to monoclonal paraproteinemia? Neurology 1989; 39 (suppl 1): 344.
248. Moraes CT, DiMauro S, Zeviani M, Lombes A, Shanske S, Miranda AF, Nakase H, Servidei S, DeVivo DC, Rowland LP, Schon EA. Mitochondrial DNA deletions in progressive external ophthalmoplegia and Kearns-Sayre syndrome. Neurology 1989; 39 (suppl 1):
249. Blake DM, Brown R, Gilliam TC, Warburton D, Rowland LP. The second family with facioscapulo-humeral muscular dystrophy and familial polyposis coli. Neurology 1989; 39 (suppl 1): 404.
250. Moraes CT, DiMauro S, Zeviani M, Lombes A, Shanske S, Miranda AF, Nakase H, Bonilla E, Werneck LC, Servidei S, Nonaka I, Koga Y, Spiro AJ, Brownell KW, Schmidt B, Schotland DL, Zupanc M, DeVivo DC, Schon EA, Rowland LP. Mitochondrial DNA deletions in progressive external ophthal-moplegia and Kearns-Sayre syndrome. New Engl J Med 1989; 320: 1293-1299.
251. Rowland LP. Delayed onset of heritable disease. How does it happen? In: Andria G, Dagna Bricarelli F, Del PorPo G, De Marchi M, Federico A, (editors). Patologia genetica ad esordio tardivo. Bologna, Italy: Monduzzi Editore, 1989; 3-10.
252. Kurtzke R, Lange DJ, Trojaborg W, Papadimitrou A, Mills K, Newsom-Davis, J, Rowland LP. Isaacs syndrome without clinical fasciculation. (Abstract). Ann Neurol 1989; 26:186.

253. Younger DS, Rowland LP, Sherman W, Hays AP, Powers J, Vallejos H, Lange DJ, Trojaborg W, Blake D, Miller JR, Fetell MR, Latov N. Lymphoma, motor neuron diseases, and amyotrophic lateral sclerosis. (Abstract) Ann Neurol 1989; 26:187.
254. Rowland LP. Life before Medline: myasthenia gravis, muscular dystrophy, and myasthenic myopathy. (Letter-to-the-Editor). Arch Neurol 1989; 46: 1047-48.
255. Rowland LP. Kearns-Sayre syndrome: does it exist? In: Serratrice G, Pellissier J, Desnuelle C, Pouget J (eds.). Myelopathies, neuropathies et myopathies: acquisitions recentes (Advances in neuromuscular diseases). Paris: Expansion Scientifique Francaise, 1989; 322-326.
256. Rowland, LP. HTLV-1 and the nervous system. TINS 1989; 12: 414-415.
257. Rowland, LP. The transformation of clinical concepts and clinical practice by molecular genetics. In: Rowland LP, Wood DS, Schon EA, DiMauro S, eds. Molecular genetics in diseases of brain, nerve, & muscle. New York: Oxford Univ. Press, 1989, pp 8-23.
258. Younger DS, Rowland LP, Latov N, Sherman W, Pesce M, Lange DJ, Trojaborg W, Miller JR, Lovelace RE, Hays AP, Kim TS. Motor neuron disease and amyotrophic lateral sclerosis: relation of high CSF protein content to paraproteinemia and clinical syndromes. Neurology 1990; 40:595-599.
259. Bonilla E, Younger DS, Chang HW, Tantravahi U, Miranda AF, Medori R, DiMauro S, Warburton D, Rowland LP. Partial dystrophin deficiency in monozygous twin carriers of the Duchenne gene discordant for clinical myopathy. Neurology 1990; 40: 1267-1270.
260. Hays AP, Roxas A, Sadiq SA, Vallejos H, D'Agati V, Thomas FP, Torres R, Sherman WH, Bailey-Braxton D, Hays AG, Rowland LP, Latov N. A monoclonal IgA in a patient with amyotrophic lateral sclerosis reacts with neurofilaments and surface antigen on neuroblastoma cells. J Neuropathol Exp Neurol 1990; 49: 383-398.
261. Chairman. Surgery for Epilepsy, NIH Consensus Development Conference. Statement 1990 Mar 19-21; 8: 1-20.
262. Warner CL, Servidei S, Lange DJ, Miller E, Lovelace RE, Rowland LP. X-linked spinal muscular atrophy (Kennedy Syndrome): a kindred with hypobetalipoproteinemia. Arch Neurol. 1990; 47: 1117-1129.
263. Daroff RB, Rowland LP, Rossi A, Stevens-Ross L. Suggestions to authors. Neurology 1990; 40: 1907-1908.
264. Younger DS, Rowland LP, Latov N, Hays AP, Lange DJ, Sherman W, Inghirami, G, Pesce MA, Knowles DM, Powers J, Miller JR, Fetell MR, Lovelace RE. Lymphoma, motor neuron diseases, and amyotrophic lateral sclerosis. Ann Neurol 1991; 29: 78-86.
265. Cafferty MS, Lovelace RE, Hays AP, Servidei S, DiMauro S, Rowland LP. Polyglucosan body disease. Muscle Nerve 1991; 14: 102-107.
266. Rowland LP. Ten central themes in a decade of ALS research. In: Rowland LP (ed). Amyotrophic lateral sclerosis and other motor neuron diseases. New York: Raven Press, 1991: 3-23. (Advances in Neurology, vol. 56).
267. Sanders KA, Rowland, LP, Younger DS, Pesce M, Lange DJ, Latov N, Murphy PL. Motor neuron diseases and amyotrophic lateral sclerosis: GM1 antibodies and paraproteinemia. Neurology 1991; 41 (Suppl 1): 314.
268. Trojaborg W, Lange DJ, Latov D, Younger DS, Lovelace RE, Rowland LP. Conduction block and other abnormalities of nerve conduction in motor neuron disease: a review of 110 patients. Neurology 1990; 40 (Suppl 1): 182.
269. Rowland LP. Meeting report: VII International Congress on Neuromuscular Diseases (9/16-22/90, Munich Germany). Neuromuscular Disorders 1991; 1: 59-68.
270. Rowland LP, Blake DM, Hirano M, DiMauro S, Schon EA, Hays AP, De Vivo DC. Clinical syndromes associated with ragged red fibers. Rev Neurol 1991; 147: 467-473.
271. Rowland LP, Santoro M, Lange DJ, Hays AP, Thomas F, Fink ME, Wadia N, Latov N. Diagnosis of ALS. Letter-to-the-Editor. Ann Neurol 1991; 30: 225-7.
272. Ricci E, Ciafaloni E, Hirano M, Shanske S, Schon E, De Vivo DC, Rowland LP, DiMauro S. Diagnostic value of molecular genetic analysis in MELAS syndrome. (Abstract) Ann Neurol 1991; 30: 234.
273. Hirano M, Ricci E, Rowland LP, De Vivo DC, DiMauro S. Clinical definition of MELAS. (Abstract) Ann Neurol 1991; 30: 299.

274. Rowland LP. Neuromuscular disease: editorial overview. Curr Opin Neurol Neurosurg 1991; 4:661-663.
275. Rowland LP. Motor neuron diseases and motor neuropathy. Curr Opin Neurol Neurosurg 1991; 4:699-706.
276. Younger DS, Latov N, Sherman W, Pesce MA, Powers JM, Fetell MR, Lange DJ, Rowland LP, Hays AP, Inghirami G, Knowles DM, Miller JR, Lovelace RE. Does a retrovirus cause amyotrophic lateral sclerosis? Letter-to-the- Editor. Reply. Ann Neurol 1991; 30: 431-433
277. Rowland LP. Diseases of chemical transmission at the nerve-muscle synapse: myasthenia gravis. In: Kandel ER, Schwartz JH, Jessell TM eds. Principles of neural science, 3rd edition. New York: Elsevier, 1991: 235-243.
278. Rowland LP. Diseases of the motor unit. In: Kandel ER, Schwartz JH, Jessell TM eds. Principles of neural science, 3rd edition. New York: Elsevier, 1991: 244-257.
279. Rowland LP. Clinical syndromes of the spinal cord and brain stem. In: Kandel ER, Schwartz JH, Jessell TM eds. Principles of neural science, 3rd edition. New York: Elsevier, 1991: 711-730.
280. Rowland LP, Fink ME, Rubin L. Cerebrospinal fluid: blood-brain barrier, brain edema, and hydrocephalus. In: Kandel ER, Schwartz JH, Jessell TM eds. Principles of neural science, 3rd edition. New York: Elsevier, 1991: 1050-1060.
281. Daroff RB, Rowland LP, Rossi A, Stevens-Ross LM. Suggestions to authors. Neurology 1991; 41: 2011-12.
282. Wapner F, Lovelace RE, Odel JG, Behrens MM, Rowland LP. Charcot-Marie-Tooth disorder with optic atrophy: More genetic heterogeneity. Ann Neurol 1991; 30: 264.
282a. Ricci E, Ciafaloni E, Hirano M, Shanske S, Schon E, Rowland LP, DeVivo DC, DiMauro S. Diagnostic value of molecular genetic analysis in MELAS syndrome. Ann Neurol 1991; 30: 234.
283. Rowland, LP. Surgical treatment of cervical spondylotic myelopathy: time for a controlled trial. Neurology 1992; 42:5-13.
284. Lange DJ, Trojaborg W, Latov N, Hays AP, Younger DS, Uncini A, Blake DM, Hirano M, Burns SM, Lovelace RE, Rowland LP. Multifocal motor neuropathy with conduction block: Is it a distinct clinical entity? Neurology 1992; 42: 497-505.
285. Kinsella LJ, Lange DJ, Latov N, Trojaborg W, Lovelace RE, Rowland LP. Clinical and electrophysiological correlates of abnormal GM1 antibody titers. Neurology 1992; 42 (Suppl 3): 177.
286. Ciafaloni E, Ricci E, Shanske S, Moraes CT, Silvestri G, Hirano M, Simonetti S, Angelini C, Donati A, Garcia C, Martinuzzi A, Mosewich R, Servidei S, Zammarchi E, Bonilla E, DeVivo DC, Rowland LP, Schon EA, DiMauro S. MELAS: Clinical features, biochemistry, and molecular genetics. Ann Neurol 1992; 31: 391-398.
287. Rowland LP, Sherman WH, Latov N, Lange DJ, McDonald TD, Younger DS, Murphy PL, Hays AP, Knowles D. Amyotrophic lateral sclerosis and lymphoma: bone marrow examination and other diagnostic tests. Neurology 1992; 42: 1101-1102.
288. Diaz-Arrastia R, Younger DS, Hair L, Inghirami G, Knowles DM, Odel J, Fetell MR, Lovelace RE, Rowland LP. Neurolymphomatosis: A patient with orbital tumor and sensorimotor neuropathy. Neurology 1992; 42: 1136-1141.
289. Hoffman EP, Arahata K, Minetti C, Bonilla E, Rowland LP. Dystrophinopathy in isolated cases of myopathy in females. Neurology 1992; 42: 967-975.
290. Rowland LP. The first decade of molecular genetics in neurology; changing clinical thought and practice. Ann Neurol 1992; 32: 207-214.
291. Hirano M, Ricci E, Koenigsberger MR, Defendini R, Pavlakis SG, DeVivo DC, DiMauro S, Rowland LP. MELAS: An original case and clinical criteria for diagnosis. Neuromuscul Disord 1992; 2:125-135.
292. Rowland LP. The need for reliable diagnostic laboratory tests: Problems in clinical diagnosis illustrated by inclusion body myositis, granulomatous angiitis of the brain, and the stiff-man syndrome (Moersch-Woltman Syndrome). Merritt's Textbook of Neurology, Update 12, Eighth Edition. Philadelphia: Lea and Febiger, 1992, pp. 3-12.
293. Rowland LP. Amyotrophic lateral sclerosis and autoimmunity. N Engl J Med 1992; 327: 1752-3.
294. Rowland LP. Neuromuscular disease: editorial overview. Curr Opin Neurol Neurosurg 1992; 5:597-599.

295. Rowland LP. Progressive external ophthalmoplegia. In: Rowland LP, DiMauro (editors). Myopathies. Handbook of Clinical Neurology, Amsterdam: Elsevier Science Publishers, vol 18, 1992; 287-329.
296. Tein I, DiMauro S, Rowland LP. Myoglobinuria. In: Rowland LP, DiMauro (editors). Myopathies. Handbook of Clinical Neurology, Amsterdam: Elsevier Science Publishers, vol 18, 1992; pp 553-593.
297. Rowland LP. Comprehensive neurology. Rosenberg RN (Ed). New York: Raven Press 1991. Book Review: Ann Neurol 1992; 32:413.
298. Rowland LP. Forward: Neurologic disorders of the larynx. Blitzer A, Brin MF, Sasaki CT, Fahn S, Harris KS (Eds). New York: Thieme Medical Publishers, Inc, 1992.
299. Rowland LP. Babinski and the diagnosis of amyotrophic lateral sclerosis. Ann Neurol 1993; 33:108.
300. Sanders KA, Rowland LP, Murphy PL, Younger DS, Latov N, Sherman WH, Pesce M, Lange DJ. Motor neuron diseases and amyotrophic lateral sclerosis: GM1 antibodies and paraproteinemia. (Brief Communication). Neurology 1993; 43: 418-420.
301. Rowland LP. Frederick Tilney, 1876-1938 (Vignette). Ann Neurol 1993; 33: 229-30.
302. Louis ED, Rowland LP, Sherman WH, Murphy P, Knowles DM, Lange DJ; Trojaborg W, D.S. Younger DS, Lovelace RE, Latov N. Motor neuron disease and bone marrow biopsy: frequency of lymphoma, Waldenström macroglobulinemia and multiple myeloma. Neurology 1993; 43: A256.
303. Rowland LP. Motor neuron diseases and monoclonal paraproteinemia: progress and challenges. In: Serratrice G, Pellissier JF, Pouget J, Blin O, Figarella-Branger D, Bille-Turc F, Azulay JP (eds). Nervous system muscles and systemic diseases. Paris: Expansion Scientifique Francaise, 1993; 233-237.
304. Rowland LP. Natural history and clinical features of amyotrophic lateral sclerosis and related motor neuron diseases. In: Calne DN (Ed). Neurodegenerative Diseases, 3rd edition, Philadelphia: W.B. Saunders Co., 1993, pp 507-521.
304.a Pica A, Blake D, Steinglass J, Nygaard TG, Rowland LP, Wilhelmsen KC. Scapuloperoneal muscular dystrophy is genetically distinct from facioscapulohumeral muscular dystrophy. (Abstract) Neurology 1993; 43:A210.
305. Rowland, LP. Review. Peripheral Neuropathy. Dyck PJ, Thomas PK, Griffin JW, Low PA, Poduslo JF (eds). 3rd edition, Philadelphia: W.B. Saunders Co., 1993. Mayo Clinic Proceedings 1993; 68:1034-1038.
306. Moraes CT, Ciacci F, Bonilla E, Jansen C, Hirano M, Rao N, Lovelace RE, Rowland LP, Schon EA, DiMauro S. Two novel pathogenic mitochondrial DBA mutations affecting organelle number and protein synthesis: is the tRNA$^{Leu(UUR)}$ gene an etiologic hot spot? J Clin Invest 1993; 92: 2906-2915.
307. Rowland LP. Amyotrophic lateral sclerosis: theories and therapies. Ann Neurol 1994; 35: 129-130.
308. Rowland LP. Riluzole for the treatment of amyotrophic lateral sclerosis - too soon to tell. N Engl J Med 1994; 330: 636-7.
309. Hirano M, Silvestri G, Blake DM, Lombes A, Minetti C, Bonilla E, Hays AP, Lovelace RE, Butler I, Bertorini TE, Threlkeld AB, Mitsumoto H, Salber LM, Rowland LP, DiMauro S. Mitochondrial neurogastrointestinal encephalomyopathy (MNGIE): clinical, biochemical, and genetic features of an autosomal recessive mitochondrial disorder. Neurology 1994; 44: 721-727.
310. Rowland LP. Riluzole in amyotrophic lateral sclerosis. (Letter-to-the-Editor). N Engl J Med 1994; 331: 274.
311. Rowland LP. Andersen's syndrome? Or Klein-Lisak-Anderson syndrome? (Letter-to-the-Editor). Ann Neurol 1994; 36: 252-3.
312. Rowland LP. Amyotrophic lateral sclerosis. Curr Opin Neurol 1994; 7: 310-315.
313. Walton JN, Rowland LP, McLeod JG. Classification of Neuromuscular Diseases. World Federation of Neurology Research on Neuromuscular Diseases. J Neurol Sci 1994; 124 (Suppl): 109-130.
314. Majoor-Krakauer D, Ottman R, Johnson WG, Rowland LP. Familial aggregation of amyotrophic lateral sclerosis, dementia, and Parkinson's disease: evidence of shared genetic susceptibility. Neurology 1994; 44:1872-1877.

315. Lynch T, Sano M, Marder KS, Bell KL, Foster NL, Defendini RF, Sima AAF, Keohane C, Nygaard TG, Fahn S, Mayeux R, Rowland LP, Wilhelmsen KC. Clinical characteristics of a family with chromosome 17-linked disinhibition-dementia-parkinsonism-amyotrophy-complex. Neurology 1994; 44:1878-1884.
316. Fahn S, Mayeux, R, Rowland LP. A new eponym: Wilhelmsen-Lynch disease. (Letter-to-the Editor). Neurology 1994; 44:1980.
317. Walton J, Rowland LP. Clinical examination, differential diagnosis and classification. In: Walton J, Karpati G, Hilton-Jones D (eds.). Disorders of voluntary muscle, 6th edition. London: Churchill Livingstone, 1994, pp 499-542.
318. Rowland LP. Mitochondrial encephalomyopathies: lumping, splitting and melding. In: Schapira AHV, DiMauro S (eds). Mitochondrial disorders in neurology, vol 14. London: Butterworth-Heinemann International Medical Reviews, 1994, pp 116-129.
319. Rowland LP. Thornton-Griggs-Moxley disease: myotonic dystrophy type 2. (Letter-to-the Editor). Ann Neurol 1994; 36:803-804.
320. Rowland LP, Louis E, Younger DS, Hays AP, Latov N, Lovelace RE, Murphy P, Trojaborg W, Lange DJ. Lymphoproliferative diseases and motor neuron disease. In: Rose FC (ed). ALS - from Charcot to the present and into the future. (Advances in ALS/MND:3). London: Smith-Gordon, 1994, pp 113-116
320a. Lynch T, Vu TH, Pech RS, Goldman JB, Hays AP, Rowland LP. (Abstract). Amyotrophic lateral sclerosis and dementia: a retrospective review of autopsy cases. Ann Neurol 1994; 36: 321.
321. Daroff RB, Rossi A, Stevens-Ross LM, Rowland LP. Suggestions to authors. Neurology 1995; 45:199-201.
322. Rowland LP. Minutes of Executive Committee: WFN Research Group on Neuromuscular Diseases (7/14/94, Kyoto, Japan). J Neurol Sci 1995; 128: 114-5.
323. Rowland LP. Commentary. Amyotrophic lateral sclerosis. Human challenge for neuroscience. Proc Nat Acad Sci (USA) 1995; 92:1251-3.
324. Rowland LP, Sherman WL, Hays AP, Lange DJ, Latov N, Trojaborg W, Younger DS. Autopsy-proven amyotrophic lateral sclerosis, Waldenstrom's macroglobulinemia, and antibodies to sulfated glucuronic acid paragloboside. Neurology 1995; 45:827-29.
325. Bejaoui K, Hirabayashi K, Hentati F, Haines JL, Ben Hamida C, Belal S, Miller RG, McKenna-Yasek, BSN, Weissenbach J, Rowland LP, Griggs RC, Munsat TL, Ben Hamida M, Arahata K, Brown, RH Jr. Linkage of Miyoshi myopathy (distal autosomal recessive muscular dystrophy) locus to chromosome 2p12-14. Neurology 1995; 45:768-72.
326. Donaldson D, Fernando S, Murphy PL, Lange DJ, Latov N, Rowland LP, Przedborski S. Blood superoxide dismutase, catalase, and glutathione peroxidase activity in amyotrophic lateral sclerosis. Neurology 1995; 45 (suppl):A221.
327. Brannagan TH, Nagle KJ, Lange DJ, Rowland LP. Complications of intravenous immune globulin (IVIG) therapy in neurologic patients. Neurology 1995; 45 (suppl):A235
328. Stefanis L, Rowland LP. H. Houston Merritt and neurosyphilis, then and now. P&S Medical Review 1995; 2:28-35.
329. Rowland LP. Preface. In: Griggs RC, Mendell JR, Miller RG (eds). Evaluation and treatment of myopathies. Philadelphia: FA Davis Co., 1995.
330. DiMauro S, Tsujino S, Shanske S, Rowland LP. Biochemistry and molecular genetics of human glycogenoses: an overview. Muscle Nerve 1995; supplement 3:S10-S17.
331. Rowland LP. A clinical example: myasthenia gravis. In: Kandel ER, Schwartz JH, Jessell TM eds. Essentials of neural science and behavior. Norwalk: Appleton & Lange, 1995, pp 307-315.
332. Rowland LP. ALS and related diseases. In: Mohr JP, Gautier JG (eds). Guide to clinical neurology. New York: Churchill Livingstone, 1995. 795-8.
333. Rowland LP. Amyotrophic lateral sclerosis with paraproteins and autoantibodies. In: Serratrice G, Munsat T (eds). Pathogenesis and therapy of amyotrophic lateral sclerosis. Philadelphia: Lippincott-Raven Publishers, 1995, vol. 68, pp 93-105 (Advances in Neurology).
334. Griggs RC, Askanas V, DiMauro S, Engel A, Karpati G, Mendell JR, Rowland LP. Inclusion body myositis and myopathies. Ann Neurol 1995; 38:705-713.
335. Rowland LP. Obituary: Harry M. Zimmerman, 1901-1995. Ann Neurol 1995; 38:834.

336. Lange DJ, Trojaborg W, Latov N, Hays AP, Rowland LP. Multifocal motor neuropathy: Is conduction block the only manifestation? (Abstract) Ann Neurol 1995; 38:303.
337. Anonymous. Position statement on the physician workforce in neurology. American Academy of Neurology. Neurology 1996; 46:1184-5.
338. Latov N, Brannagan T, Rowland LP, Sherman WH, Hays AP, Lange DJ, Trojaborg W, Younger DS. (Letter-to-the-Editor) SGPG in ALS. Neurology 1996; 46:1195-6.
339. Wilhelmsen KC, Blake DM, Lynch T, Mabutas J, De Vera M, Neystat M, Bernstein BA, Hirano M, Gilliam TC, Murphy PL, Sola MD, Bonilla E, Schotland DL, Hays AP, Rowland, LP. Chromosome 12-linked autosomal dominant scapuloperoneal muscular dystrophy. Ann Neurol 1996; 39:507-520.
340. Rowland LP. Lou Gehrig's disease: A starting lineup on treatments. In: Nevins J (Ed). Data Base, 4/21/1996. The Dana Alliance for Brain Initiatives (pamphlet).
341. Brannagan TA, Nagle KJ, Lange DJ, Rowland LP. Complications of intravenous immune globulin treatment in neurologic disease. Neurology 1996; 47:674-77.
342. Louis ED, Hanley AE, Brannagan TH, Sherman W, Murphy P, Lange DJ, Trojaborg W, Younger DS, Lovelace RE, Latov N, Rowland LP. Motor neuron disease, lymphoproliferative disease, and bone marrow biopsy. Muscle Nerve 1996; 19:1334-1337.
343. Rowland LP, Gordon PH, Louis ED, Lange DJ, Trojaborg W, Lovelace RE, Younger DS, Hays AH, Murphy P, Latov N. Motor neuron disease with lymphoproliferative disease. In: Nakano I, Hirano A (Eds). Amyotrophic lateral sclerosis: Progress and perspectives in basic research and clinical application. Amsterdam: Elsevier Science, 1996, pp 178-84.
344. Rowland LP: The Babinski sign: A centenary. J. Van Gijn, Utrecht, Heidelberglaan, the Netherlands. (Book Review). N Engl J Med 1996; 335:1075.
345. Rowland LP, Lange DJ, Murphy P. Amyotrophic lateral sclerosis. In: Johnson RT, Griffin JW (eds). Current therapy in neurological diseases, 5th edition. St. Louis: Mosby-Year Book, Inc. 1996, pp 307-311.
346. Gordon PH, Hays AP, Rowland LP, Dickoff DJ, Schotland DL, Rosenberg RN, Wolfe DE, Lange DJ, Lovelace RE. Erroneous diagnosis corrected after 28 years: Not spinal muscular atrophy with ophthalmoplegia but minicore myopathy. Arch Neurol 1996; 53: 1194-96.
347. Miller, RG. Interview with Lewis P. Rowland. Point Counterpoint (Neurology) 1996; 1: 1-5.
348. Rowland LP. Controversies about amyotrophic lateral sclerosis. Neurologica 1996;11:72-74.
349 Rowland LP. Minutes of Executive Committee: WFN Research Group on Neuromuscular Diseases (3/26/96, San Francisco). J Neurol Sci 1996; 144: 220.
350. Abouzahr MK, Lange DJ. Latov N, Olarte M, Rowland LP, Hays AP, Corbo M. Diagnostic biopsy of the motor nerve to the gracilis muscle. Neurosurg Focus 1996; 1:1-3.
351. Rowland LP. Molecular genetics and clinical neurology: allelic heterogeneity, locus heterogeneity, gene-defining mutations and clinical syndromes. Cardiomyologica 1996; VIII: 41-51.
352. Rowland LP. Muscular atrophies, motor neuropathies, amyotrophic lateral sclerosis and immunology. In: Kimura J, Kaji R, eds. Physiology of ALS and related diseases. Amsterdam: Elsevier Science, 1997, pp 3-11.
353. Gordon PH, Rowland LP, Younger DS, Sherman WH, Hays AP, Louis ED, Lange DJ, Trojaborg W, Lovelace RE, Murphy PL, Latov N.. Lymphoproliferative disorders and motor neuron disease. Neurology 1997; 48:1671-78.
354. Rowland LP. Dr. Rowland's six levels of hope. ALSD33ALS-On-Line. ALS Interest Group. ALS Digest #332. May 27, 1997.
355. Thomas CE, Mayer SA, Gungor BS, Swarup R, Webster EA, Chang I, Brannagan TH, Fink MD, Rowland LP. Myasthenic crisis: clinical features, mortality, complications, and risk factors for prolonged intubation. Neurology 1997; 48: 1253-1260.
356. Manfredi G, Vu T, Bonilla E, Schon EA, DiMauro S, Arnaudo E, Zhang L, Rowland LP, Hirano M. Association of myopathy with large-scale mitochondrial DNA duplications and deletions: which is pathogenic? Ann Neurol 1997; 42:180-188.
357. Al-Shahi R, Lynch T, Murphy PL, Vu TH, Goldman JE, Hays AP, Rowland LP. Heterogeneity in amyotrophic lateral sclerosis dementia: autopsy data in 14 cases. Ann Neurol 1997; 42:397.
358. Rowland LP. The quality of neurological care, 1997. (Editorial) Arch Neurol 1997; 54:1327-8.

359. Rowland LP, Hirano M, DiMauro S, Schon EA. Oculopharyngeal muscular dystrophy, other ocular myopathies, and progressive external ophthalmoplegia. Neuromuscular Disorders; 1997; (suppl 7):S15-S-21.
360. Rowland LP. Memoriam, Ade T. Milhorat, MD (1899-1997). Neurology 1997; 49:1752.
361. Rowland LP. (Editorial). Paraneoplastic primary lateral sclerosis and amyotrophic lateral sclerosis. Ann Neurol 1997; 41: 703-705.
362. Rowland LP, Gordon PH, Younger DS, Sherman WH, Hays AP, Louis ED, Lange DJ, Trojaborg W, Lovelace RE, Murphy PL, Latov N. (Letter-to-the-Editor). Lymphoproliferative disorders and motor neuron disease. Neurology 1998; 50:576.
363. Rowland LP. Molecular basis of genetic heterogeneity: role of the clinical neurologist. (Carrell-Krusen Symposium Invited Lecture). J Child Neurol 1998; 13:122-132.
364. Rowland LP. What's in a name? Amyotrophic lateral sclerosis, motor neuron disease, and allelic heterogeneity. Ann Neurol 1998; 43: 691-4.
365. Rowland LP. Assisted suicide and alternatives in amyotrophic lateral sclerosis. N Engl J Med 1998; 339:987-89
366. Rowland LP. Diagnosis of ALS. J Neurol Sci 1998; 160: S6-S24.
366a. Landmark article. Neurology 1998; 51: 1525. Original: Zeviani M, Moraes CT, DiMauro S, Nakase H, Bonilla E, Schon EA, Rowland LP. Deletions of mitochondrial DNA in Kearns-Sayre syndrome. Neurology 1988; 38:1339-1346.
367. Rowland LP (Review). Martin JB (ed). Scientific American molecular neurology. J.B. Martin (Editor). Trends Neurosci 1999; 22:186-7.
368. Rowland LP. Syndromes characterized by myotonia. In: I. Hausmanova-Petrusewicz (ed). Choroby Nerwowo-Miesniowe. Warsaw: Wydawnictwo Naukowe 1999, pp 283-296.
369. Albert SM, Murphy PL, Del Bene ML, Rowland LP. A prospective study of preferences and actual treatment choices in ALS. Neurology 1999; 53: 278-283.
370. Rowland LP. Practice parameter: care of patients with ALS (Comment). Journal Watch Neurology 1999; 1:17.
371. Rowland LP, Trojaborg W, Haller RG. Muscle contracture: physiology and classification. Serratrice G, Pouget J, Azulay J.-Ph (Eds). In: Exercise intolerance and muscle contracture. Paris: Springer, 1999, pp 161-170.
372. Serratrice G, Rowland LP. Reconciling language differences in describing states of muscle shortening: muscle contracture and related conditions. Serratrice G, Pouget J, Azulay J.-Ph (Eds). In: Exercise intolerance and muscle contracture. Paris: Springer, 1999, pp 155-159.
373. Serratrice G, Rowland LP. Editorial. Les contractures musculaires. Essao d'approche physiopathologique pour une clarification de las nomenclature. La Press Medicale 1999; 28: 1519-1521.
374. Chan S. Shungu DC, Douglas-Akinwande AC, Lange DJ, Rowland LP. Motor neuron diseases: Comparison of single-voxel, proton MR spectroscopy of the motor cortex with MR imaging of the brain in motor neuron diseases. Radiology 1999; 212:763-9.
375. Rowland LP. Primary lateral sclerosis: disease; syndrome, both or neither? J Neurol Sci 1999; 170:1-4.
376. Worrall BB, Rowland LP, Del Bene M, Leung D, Chin SS. Mother with amyotrophic lateral sclerosis and daughter with Creutzfeldt-Jakob disease: coincidence or genetic risk factor for both diseases? Arch Neurol 1999;56:1502-4.
377. Rowland LP. Myopathies, cardiomyopathies, and heart transplantation: a tribute to Giovanni Salviati. Ital J Neurol Sci 1999; 20:381-385.
378. Albert SM, Murphy PL, Del Bene ML, Rowland LP. Prospective study of palliative care in ALS: choice, timing, outcome. J Neurol Sci 1999; 169: 108-113.
379. Leung DK, Hays AP, Karlikaya G, Del Bene ML, Rowland LP. Diagnosis of ALS: Clinicopathologic analysis of 76 autopsies, Neurology 1999; 52: A164.
380. Rowland LP. A century and a half of modern neurology, a decade of the brain, and the millennium. Arch Neurol 2000; 57:52.
381 Worrall BB, Rowland LP, Chin SS-M, Mastrianni JA. Amyotrophy in prion disease. Arch Neurol 2000; 57:33-39.

382. Nishino I, Spinazzola A, Papdimitriou A, Rowland LP, DiMauro S, Hirano M. Mitochondrial neurogastrointestinal encephalomyopathy: an autosomal recessive disorder due to thymidine phosphorylase mutations. Ann Neurol 2000; 47:792-800.
383. Rowland LP. Book review. Neurology in Clinical Practice, 3rd ed, Bradley WG, Daroff RB, Fenichel GM, Marsden CD. Arch Neurol 2000:57:1084.
384. Rowland, LP: End-of-life issues in neurology, in Merritt's Neurology, 10th ed, Lippincott Williams & Wilkins, Phila., 2000.
384A Rowland LP: Six important themes in amyotrophic lateral sclerosis (ALS) research, 1999. Review article. Journal of the Neurological Sciences 2000; 180:2-6.
385. Kaufmann P, Shungu DC, Pullman SL, Chan S, Vu T, Rowland LP, Mitsumoto H: Magnetic resonance spectroscopy and transcranial magnetic stimulation in the evaluation of upper motor neuron involvement. ALS 2001; 2, (Suppl 2):118 (abstract).
386. Rowland LP: Reality Check. Soap Opera Digest, September 26, 2000, p79.
387. Albert SM, Murphy PL, Del Bene M, Rowland LP, Mitsumoto H: Incidence and predictors of PEG placement in ALS/MND. J Neuro Sci 2001, 191:115-119.
388. Rowland LP: How Amyotrophic lateral sclerosis got its name. The clinical-pathologic genius of Jean-Martin Charcot. Arch Neurol 2001; 58:512-515.
389. Rowland LP: Decoding Darkness: The search for the genetic causes of Alzheimer's disease, Book Review, N Engl J Med, 2001; 344:1101-02.
390. Rowland LP: ALS: One disease or many? Profile, issue 12, March 2001.
391. Rowland LP, Schneider, NA: Amyotrophic lateral sclerosis. Review Article. N Engl J Med, 2001 344:1688-1700.
392. Joynt RJ, Rowland LP: Changes-People-Comments. Neurology 2001:57: 27A
393. Dabby R, Lange DJ, Trojaborg W, Hays AP, Lovelace RE, Brannagan TH, Rowland, LP: Inclusion body myositis mimicking motor neuron disease. Arch Neurology, August 2001;58:1253-1256.
394. McDermott MP, Rowland LP: ALS defeats gabapentin - Reflections on another failed treatment. Neurology 2001; 56:826-827.
395. McDermott MP, Rowland LP: Reply from the authors to Brigell MG, Taylor CP: ALS defeats gabapentin: Reflections on another failed treatment. Neurology 2001;57:1524-25.
396. Albert S, Murphy PL, Del Bene M, Rowland LP. (Abstract). Family caregiver burden and tracheostomy decisions. International Conference on ALS/MND 2001.
397. Rowland LP, Leung D, Hays AP: A clinically pure lower motor neuron syndrome. In Schapira AHV, Rowland LP eds. Clinical cases in neurology, Butterworth-Heinemann, Oxford, 2001, pp 47-54.
398. Rowland LP, Marder K, Hays AP, Pedley TA: Weak legs with both neurogenic and myopathic features. In Schapira AHV, Rowland LP, eds. Clinical cases in neurology, Butterworth-Heinemann, Oxford, 2001, pp 183-190.
399. Rowland LP: Microarrays: Implications for clinical neurology. Journal Watch Neurology 2002; 4 (5):40.
400. Scarmeas N, Shih T, Stern Y, Ottman R, Rowland LP: Premorbid weight, body mass, and varsity athletics in ALS. Neurology, 2002; 59: 773-775.
401. Rowland LP. Stroke, spasticity, and botulinum toxin (Perspective). N Engl J Med. 2002 Aug 8;347(6):382-3.
402. Rowland LP: Parkinson's disease: Diagnosis and Clinic Management (book review), N Engl J Med, 2002, 347:1387.
403. Barohn RJ, Rowland LP: Neurology and Gulf War veterans. Editorial, Neurology 2002; 59:1484-1485.
404. Rowland LP: Channelopathies of the Nervous System (Book review), Neurology 2002, 59:965.
405. Przedborski S, Mitsumoto H, Rowland LP: Recent advances in amyotrophic lateral sclerosis Research. Curr Neurol Neurosci Rep 2003, 3:70-77.
406. Rowland LP. Facioscapulohumeral muscular dystrophy, In Medlink, Electronic Textbook of Neurology 1995, 1997, 1999, 2001, 2003.
407. Rowland LP. Progressive external ophthalmoplegia. In Medlink, Electronic Textbook of Neurology. 1998, 1999, 2001, 2003.

408. Chong J, Rowland LP, Utiger R: Hashimoto encephalopathy: syndrome or myth? Arch Neurol 2003, 60:164-171.
409. Reply from the Authors to Vanacore N: Premorbid weight, body mass, and varsity athletics in ALS. Neurology 2003, 61 (1of2): 1024.
410. Rowland, LP: Clinical aspects of sporadic ALS/MND. In Shaw PJ, Strong MJ eds, Motor neuron disorders. Butterworth-Heinemann, London, 2003, pp 111-141.
411. Rowland, LP. Book Review: Structural and molecular basis of skeletal muscle diseases by Karpati G. Arch Neurol 2003, 60:1022.
412. Rowland LP. Book Review: Neurological therapeutics: principles and practice by Noseworthy J. N Engl J Med 2003, 349:12,1194.
413. Rowland LP: Book Review: Two compelling accounts of the race to decipher the human genome by Wickelgren I. Neurology Today 2003, June, p21.
414. Rosenberg RN, Pedley TA, Baringer JR, Fahn S, Lisak RP, Mayeux RP, Olson SF, Ringel SP, Rowland LP, Selzer ME: At jeopardy: the NIH as we know it. Arch Neurol 2003 Sept; 60(9):1191-2.
415. Neurology in Cuba and the US embargo. Neurology Today, Oct., 2003
416. Rowland LP: Letters to the Editor Response: Cuban Neurology and the Embargo. Neurology Today, 2004, Mar, p 7.
417. Rowland LP. Book Review: Jonathan Weiner, My Brother's Keeper, N Engl J Med, 2004; 350: 2012-3.
418. Mitsumoto H, Gordon P, Kaufmann P, Gooch C, Przedborski S, Rowland LP: Randomized control trials in ALS: lessons learned. ALS and other motor neuron disorders 2004, 5(Suppl 1) 141-143.
419. Rowland LP: Summing up: an action plan for ALS research. ALS and other motor neuron disorders 2004 5(Suppl 1) 141-143.
420. Kaufmann P, Pullman SL, Shungu DC, Chan S, Hays AP, Del Bene ML, Dover MA, Vukic M, Rowland LP, Mitsumoto H: Objective tests for upper motor neuron involvement in amyotrophic lateral sclerosis (ALS). Neurology 2004, 62(10):1753-7.
421. Kaufmann P, Levy G, Thompson JLP, Del Bene ML, Battista BA, Gordon PH, Rowland LP, Levin B, Mitsumoto H: The ALSFRSr predicts survival time in an ALS clinic population. Neurology 2005, 64:38-43.
422. Rowland LP. Book Review: Andrew G. Engel and Clara Franzini-Armstrong, eds. Myology, 3rd edition, McGraw-Hill, 2004, Arch Neurol 2005, 62:1171-72.
423. Gordon PH, Katz IB, Pinto M, Kaufmann P, Mitsumoto H, Rowland LP: The natural history of primary lateral sclerosis. Neurology 2005. 64 (Supp 1): A206(PO3.166),
424. Rowland LP: Research advances in amyotrophic lateral sclerosis (ALS): a personal view. Neurol Neurochir Pol. 2005 Jan-Feb; 39(1):3-10.
425. Pedley TA, DeVivo DC, Rowland LP: Obituary, Sidney Carter, MD (1912-2005), Neurology 2005, 64:1500-01.
426. Rowland LP. Book Review: Stephen Waxman, ed. From Neuroscience to Neurology: Neuroscience, Molecular Medicine, and the Therapeutic Transformation of Neurology. N Engl J Med, May 26, 2005, p 2253-54.
427. Majoor-Krakauer D, Mulder PGH, Rowland LP, Ottman R: A link between ALS and short residence on Guam. Neurology 2005, 64(2):1819-20.
428. Rowland LP. Review Article. Primary lateral sclerosis, hereditary spastic paraplegia, and mutations in the *alsin* gene: historical background for the first international conference. ALS Other Motor Neuron Disorders. ALS 2005, 6:67-76.
429. Rowland LP. Comment. Is Soccer Playing a Risk Factor for ALS? Chio A, Severely increased risk of amyotrophic lateral sclerosis among Italian professional football players. Journal Watch Neurology 2005,7(6):45-46.
430. Swash M, Rowland LP: Meeting Report. European ALS Consortium (EALSC): Second annual Research Workshop, a summary report. ALS 2005, 6:125-128.
431. Rabkin J, Albert S, Del Bene M, O'Sullivan I, Tider T, Rowland LP. Mitsumoto H. Prevalence of depressive disorders and change over time in late-stage ALS. Neurology, 2005, 65:(1) 62-67).

432. Albert SM, Rabkin JG, Del Bene ML, Tider T, O'Sulllivan I, Rowland LP, Mitsumoto H. Wish to die in end-stage ALS. Neurology, 2005, 65:(1), 68-74.
433. Rowland LP. Book Review: Jonathan Eig, ed. Luckiest Man: The Life and Death of Lou Gehrig. N Engl J Med 2005,353;8, 854-855.
434. Rowland LP. Book Review: Edward J. Sylvester, ed. Back From the Brink. Neurology Today 2005, 5:(11), 37.
435. Li X, Rowland LP, Mitsumoto H, Przedborski S, Bird TD, Schellenberg GD, Peskind E, Johnson N, Siddique T, Mesulam M, Weintraub S, Mastrianni JA: Prion protein codon 129 genotype prevalence is altered in primary progressive aphasia. Ann Neurol 2005, 58:858-864.
436. Hirtz D, Heemskerk J, Iannaccone S, Gwinn-Hardy K, Moxley R, Rowland LP: Challenges and Opportunities in Clinical Trials for SMA. Neurology, 2005, 65:1352-57.
437. Keller CE, Hays AP, Rowland LP, Moghadaszadeh B, Beggs AH, Bhagat G: Adult-onset nemaline myopathy and monoclonal gammopathy. Arch Neurol 2006, 63:132-134.
438. Chong JY, Rowland LP: Editorial. What's in a NAIM? Hashimoto Encephalopathy, steroid-responsive encephalopathy associated with autoimmune thyroiditis, or nonvasculitic autoimmune meningoencephalitis? Arch Neurol 2006, 63:175-176.
439. Hays AP, Naini A, He CZ, Mitsumoto H, Rowland LP: Sporadic amyotrophic lateral sclerosis in breast cancer: hyaline conglomerate inclusions lead to identification of SOD1 mutation. J Neurol Sci, 2006. Epub ahead of print]
440. Rippon GA, Scarmeas N, Gordon PH, Murphy PL, Albert SM, Mitsumoto H, Marder K, Rowland P, Stern Y: An observational study of cognitive impairment in amyotrophic lateral sclerosis. Arch Neurol 63:345-352, 2006.
441. Gordon PH, Cheng B, Katz IB, BA, Pinto MD, Hays AP, Mitsumoto H, Rowland LP: The natural history of primary lateral sclerosis. Neurology 66:647-653, 2006.
442. Gordon PH, Doorish C, Montes J, Mosely RL, Diamond B, MacArthur RB, Weimer LH, Kaufmann P, Hays AP, Rowland LP, Gendelman HE, Przedborski S, Mitsumoto H: Randomized controlled phase II trial of glatiramer acetate in ALS. Neurology 2006;66:1117-1119.
443. Rowland LP: A Nobel laureate offers both personal history and a scientific tour de force on memory. Neurology Today 2006;(8):34-35.
444. Rowland LP. Book Review: Mind, Brain, Body, and Behavior: Foundations of Neuroscience and Behavioral Research at the National Institutes of Health, eds. I.D. Ferreras, C. Hannaway, V.A. Harden. Bull. Hist. Med., 2006, 80:396-398.
445. Rowland LP: Frontotemporal Dementia, Chromosome 17, and Progranulin. Editorial, Ann Neurol 2006;60:275-7.
446. Rowland LP: View Points. Why haven't we banned boxing? Neurology Today 2006; (23):5-6.
447. Rowland LP: Doctors and Patients: An Interactive Partnership. Neurology Today 2007;7(4),34-35.
448. Mitsumoto H, Ulug AM, Pullman SI, Gooch CL, Chan S, Tang M, Rowland LP, et al: Quantitative objective markers for upper and lower motor neuron dysfunction in ALS. Neurology 2007;28:1402-1410.
449. Rowland LP: The PDF Story 1957-2007. Parkinson Disease Foundation News Review, Summer 2007, pg 2.
450. Rowland LP: Risk factors for sporadic amyotrophic lateral sclerosis. Journal Watch Neurology, Oct 9, 2007. Comments on: Dunckley T et al: Whole-genome analysis of sporadic amyotrophic lateral sclerosis. N ENgl J Med 2007 Aug 23; 357:775.
451. Rowland LP: Comments on: Cronin S et al. Paraoxonase promoter and intronic variants modify risk of sporadic amyotrophic lateral sclerosis. J Neurol Neurosurg Psychiatry 2007 Sept 79:984.
452. Baker NL, Mörgelin M, Pace RA, Peat RA, Adams NE, Gardner RJ, Rowland LP, Miller G, De Jonghe P, Ceulemans B, Hannibal MC, Edwards M, Thompson EM, Jacobson R, Quinlivan RC, Aftimos S, Kornberg AJ, North KN, Bateman JF, Lamandé SR: Molecular consequences of dominant bethlem myopathy collagen VI mutations. Ann Neurol 2007;62:390-405.
453. Catarina M Quinzii, Tuan Vu, K. Christopher Min, Kurenai Tanji, Sandra Barral, Raji Grewal, Andrea Kattah, Pili Camano, David Otaegui, David M Blake, Kirk C Wilhelmsen[1] Lewis P

Rowland, Arthur P Hays, Eduardo Bonilla, Michio Hirano X-linked dominant scapuloperoneal myopathy is due to a mutation in the gene encoding four and an half LIM protein 1 (FHL1). (Abstract) 60th Annual Meeting of the American Academy of Neurology.

454. Tanji K, Kaufmann P, Naini AB, Lu J, Parsons TC, Wang D, Willey JZ, Shanske S, Hirano M, Bonilla E, Khandji A, DiMauro S, Rowland LP. A novel tRNA(Val) mitochondrial DNA mutation causing MELAS. Neurol Sci. 2008 Jul 15;270(1-2):23-7. Epub 2008 Mar 7.
455. Rowland LP: John Newsom-Davis, MD. (1932-2007) Obituary. Arch Neurol 64 (No12), Dec 2007.
456. Drachman DB, Rowland LP, Mendell JR: Muscular Dystrophy: Three Perspectives. Letter to the Editor, New York Times Feb 21, 2008.
457. Hirano M, Angelini C, Montagna P, Hays AP, Tanji K, Mitsumoto H, Gordon PH, Naini AB, DiMauro S, Rowland LP: Amyotrophic Lateral Sclerosis with ragged-red fibers. Arch Neurol 65(No 3), Mar 2008.
458. Rowland LP. Book Review: Jose Biller, ed. The Interface of Neurology and Internal Medicine. N Engl J Med 2008; 358;14, 1527.
459. Rowland LP, Bird TD: Silver syndrome. The complexity of complicated hereditary spastic paraplegia. Neurology 2008;70:1948-49.

Unpublished:

1. Rowland LP. Cervical spondylotic myelopathy: trials, outcomes, and evidence-based decisions. Prepared for international meeting, 2000; never published.

In preparation:

1. Leung DK, Karlikaya G, Hays AP, Del Bene M, Murphy P, Rowland LP. Autopsy findings in amyotrophic lateral sclerosis: clinicopathologic correlation and diagnostic value of neuronal Inclusions.
2. Frontera J, Rowland LP: ALS syndrome and HIV: Onset after successful therapy with protease inhibitors.
3. Harel N, Guo M, Lovelace RE, Rowland LP: Fasciculation in chronic inflammatory polyneuropathy.

Books:

1. Rowland LP, ed. Immunological disorders of the nervous system. Baltimore, Williams and Wilkins, 1971. (Res Publ Assoc Res Nerv Ment Dis 1971; vol 49).
2. Rowland LP, ed. Pathogenesis of human muscular dystrophies. Amsterdam: Excerpta Medica, 1977.
3. Rowland LP, ed. Human motor neuron diseases. New York: Raven Press, 1982. (Adv Neurol; vol 26).
4. Kety SS, Rowland LP, Sidman RL, Matthysse SW, eds. Genetics of neurological and psychiatric disorders. New York: Raven Press, 1983. (Res Publ Assoc Res Nerv Ment Dis; vol 60).
5. Rowland LP, ed. Merritt's Textbook of Neurology, Seventh Edition. Philadelphia: Lea and Febiger, 1984.
6. DiDonato S, DiMauro S, Mamoli A, Rowland LP, eds. Molecular genetics of neurological and neuromuscular disease. New York: Raven Press, 1988. (Advances in Neurology; vol 48).
7. Rowland LP, Wood DS, Schon EA, DiMauro S, eds. Molecular genetics in diseases of brain, nerve, & muscle. New York: Oxford University Press, 1989
8. Rowland LP, ed. Merritt's Textbook of Neurology, Eighth Edition. Philadelphia: Lea and Febiger, 1989.
9. Rowland LP, ed. Amyotrophic lateral sclerosis and other motor neuron diseases. New York: Raven Press, 1991. (Adv Neurol; vol 56).
10. Rowland LP, ed. Section on Neuromuscular Disease. Current Opinion in Neurology & Neurosurgery 1991; vol 4.
11. Rowland LP, ed. Section on Neuromuscular Disease. Current Opinion in Neurology & Neurosurgery 1992; vol 5.
12. Rowland LP, DiMauro S (eds). Handbook of Clinical Neurology, Amsterdam: Elsevier Science Publishers, revised vol 18, 1992.

13. Rowland LP, ed. Merritt's Textbook of Neurology, Ninth Edition. Media, Pa: Williams & Wilkins (Lea and Febiger), 1995.
14. Tapley DF, Morris TQ, Rowland LP, LaPook J (eds.). The Columbia University College of Physicians Complete Home Medical Guide. Third Revised Edition, New York: Crown Publishers, Inc., 1995.
15. Rowland LP, Klein DF (eds). Current Neurologic Drugs, First Edition. Philadelphia: Current Medicine, 1996.
16. Rowland LP (ed). Current Neurologic Drugs, Second Edition. Philadelphia: Williams & Wilkins, 1998.
17. Rowland LP, ed. Current Neurologic Drugs, 3rd ed, Philadelphia, Lippincott Williams & Wilkins, 2000
18. Rowland LP (ed). Merritt's Neurology, Tenth Edition. Williams & Wilkins Baltimore, 2000.
19. Mazzoni P, Rowland LP. Merritt's Neurology Handbook. Lippincott Williams & Wilkins Philadelphia, 2001.
20. Rowland, LP . NINDS at 50. NIH Publication 01-4161, 2001.
21. Schapira A, Rowland LP, eds. Clinical Cases in Neurology. Butterworth Heinemann, Reed Educational and Professional Publishing Ltd, 2001
22. Rowland LP, NINDS at 50, Demos Press, New York, 2003.
23. Rowland LP (ed). Merritt's Neurology, Eleventh Edition. Lippincott Williams & Wilkins, Philadelphia, 2005.
24. Mazzoni P, Pearson TS, Rowland LP. Merritt's Neurology Handbook. 2nd ed, Lippincott Williams & Wilkins Philadelphia, 2006.

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