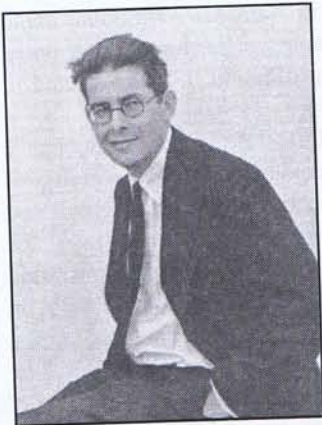


# CHARLES RICHTER (1900-1985)

Richard J. Proctor



Ca. 1925, photo courtesy of Caltech Seismological Laboratory

I am privileged to have known "Charlie" Richter the last 14 years of his life. In 1972, Richard "Dick" Jahns became a partner in the new consulting firm of Lindvall & Richter & Associates (LRA) and introduced me to Charlie, who was co-founder. (I had known Dick Jahns since 1960, when the Metropolitan Water District, where I worked until 1980, hired Dick as one of our geologic consultants.) And I got to know Charlie better when he occupied two offices: one was his emeritus office at the California Institute of Technology (Caltech), where I was a Visiting Associate Professor of

Geology; and one at LRA, where I also had an office after 1980. The following is a brief biography of this multi-talented man, the most famous seismologist in the world.

Charlie was born Charles Francis Kinsinger near Hamilton, Ohio, April 26, 1900. His parents divorced and he was given his mother's maiden name. He was raised by his mother, older sister, and grandfather. In 1909 they moved to Los Angeles. He entered USC as a freshman, but transferred to Stanford University, where he earned his BA in physics in 1920. He obtained his doctorate from Caltech in 1928, and was invited to stay on to work in the Seismological Laboratory with Dr. Beno Gutenberg.

Charlie's great fame, of course, is derived from his invention of the earthquake Magnitude Scale that bears his name. Prior to 1935, earthquakes were mainly described by using the subjective Mercalli Intensity Scale, in which one estimates the amount of damage caused by shaking. With his German-born colleague Gutenberg (Charlie spoke German), they devised a method whereby the total amount of energy released could be measured, taking into account the distance a seismograph records the shock. Thus, his scale is not subjective, but a true measure of the energy released. Each whole number is ten times the energy of the previous number, which resulted in one of Charlie's famous quotes, "I was lucky because logarithmic plots are a device of the devil." And he always felt that his colleague should get more credit saying, "The designation of the magnitude scale to my name does less than justice to the great part Dr. Gutenberg played."

Following a local earthquake, the press and TV cameramen would descend on Caltech to interview Dr. Richter. Some wished they didn't, as he was known to be short with reporters who asked stupid questions, e.g., "When's the Big One coming?" or "Could you show me your scale?"

Little-known facts about Charlie and his wife Lillian – they wrote poetry, and they were nudists. He often played chess, but one day he exclaimed, "I'll not play anymore; it is an unproductive use of time." He avidly read German and Russian seismology journals, and to some extent, Japanese journals, as he spent the year 1959 in Japan. And, he was a fan of the TV series *Star Trek*.

Two years after retiring from Caltech in 1970, he was contacted by his colleague, emeritus engineering professor Fredrick Lindvall, who suggested they form a consulting firm specializing in seismic engineering of structures and seismic hazards. The other principals of Lindvall-Richter & Associates

(LRA) included former Caltech professor (then at Stanford) Richard H. Jahns, Caltech engineering professor Ronald F. Scott, and Fred's son, Eric Lindvall (Stanford MS geology, 1958), who was made president. Dick Jahns introduced me to Eric, who said whenever I left MWD he would provide me an office at LRA as a consultant; so from 1980-85, I was affiliated with LRA. I was doubly honored when Charlie, and later Dick Jahns, asked me to be their citationist for AEG Honorary Member. Charlie also was president of the Seismological Society of America.

Humorous incident: Charlie lived alone after his wife died in 1972. Eric and I once visited him at his home in Altadena about noontime. He said "Excuse me," and went to his kitchen, opened the freezer, took out a salami, put it in a pot of boiling water; and after a few minutes, took it out, cut off a piece, ate it, put the rest in the freezer, and said, "Now let's talk."

In the 1970s, Charlie and his geologist friend Vladimir "Walley" Pentegoff were consultants to the L.A. Department of Water & Power. Walley was Chief Geologist, Los Angeles District, Army Corps of Engineers; (his memorial is in August 1982 *AEG Bulletin*). The Department was planning a major expansion of the 1913 Los Angeles ("Owens Valley") Aqueduct, involving new tunnels and pipelines crossing faults. Charlie and Walley sometimes spoke in Russian, stemming from Charlie's close association with his Caltech colleague Dr. Hugo Benioff.

From 1978-85, Charlie was a member of the Geotechnical Consulting Board of the Southern California Rapid Transit District (SCRTD), now Metropolitan Transit Authority, MTA). The Board approved preliminary geologic investigations, borings, a feasibility report, and the final routes of the L.A. Metro Subway. Other members on this board were geologists Ronald Heuer, Richard Jahns, Erick Lindvall and myself, and civil engineers Ronald Scott, Joe Sperry, and Jack Yaghoubian. (Heuer is also a CE.)

Charlie wrote a report that allayed some fears of being in a subway during an earthquake. He stated that "Tunnels are safer than surface structures during earthquake shaking." He explained that this is because tunnels are in the medium that is moving, not at an air/solid interface where other seismic waves come into play. He told of the people deep inside Crystal Cave in Sequoia National Park during the 1952 Kern County earthquake, wherein their shaken friends on the surface were fearful for their safety, but the people emerged and were unaware of the quake.

Besides the Richter Scale, Charlie is possibly best known for his acclaimed 1958 book "Elementary Seismology." It is a 768-page tome, which in fact is not very elementary. He asked his seismologist colleague Clarence Allen to help organize the 33 chapters, 17 appendices, and 29-page Index. Clarence said that Charlie put everything he knew into it.

A very good new book is "Richter's Scale, Measure of an Earthquake, Measure of a Man." 2007, by Susan Hough. She is a Scientist-in-Charge, USGS Pasadena Seismology Office, at Caltech. She included one of Charlie's last poems, "In Conclusion," which ends with these humble and poignant lines:

Some envy me, but those  
Can never know how meager is my part  
Of what they take for granted in the heard –  
Far less than they suppose

Quietly I descent  
These last long stairs, not hesitating much,  
Nor fearing that expected gentle touch  
That is to bring the end.