Retiring This Year

Ian Campbell

Ian Campbell, research associate in geology who becomes professor of geology, emeritus, in July, received his AB from the University of Oregon, his AM from Northwestern University, and his PhD from Harvard. He taught at Louisiana State University and at Harvard before coming to Caltech in 1931 as assistant professor of petrology.

"During the 28 years of his Caltech residence," says Campbell's Caltech colleague, Robert Sharp, professor of geology, "he established a track record that will probably never be equaled."

Recalling those years, Campbell says, "When I was still in Pasadena, I used to say that I hoped my obituary would include the fact that, almost single-handedly, I succeeded in getting the coat-and-tie rule abrogated for luncheons at the Athenaeum during the summer." Those who have been around Caltech long enough agree that inserting the opening wedge in behalf of informality at the Athenaeum was no small accomplishment. Those who know Campbell are not surprised that he was the man who did it.

When he left Caltech in 1959 to become Chief of the California Division of Mines, Campbell was professor of petrology; he had spent ten years as associate chairman of the division of geology, two years as its acting chairman, and then seven years as executive officer for the division. He had served Caltech as a whole and the Pasadena community in numerous capacities. He had been a member of the United States Geological Survey and was a consulting economic geologist to oil, mining, and utility companies. He had also become one of the country's foremost authorities on nonmetallic deposits. One of Campbell's early important professional expeditions came about as a result of his interest in the nature, origin, and history of some of the continent's oldest basement rocks. In 1937 he and John Maxson, Caltech alumnus and former staff member, organized and led a Carnegie Institution-Caltech boat trip down the Colorado River to study pre-Cambrian rocks of the Grand Canyon.

In the last ten years the California Division of Mines has become the Division of Mines and Geology, and Campbell, before his retirement in October 1969, was not only its chief but also State Geologist. Traditionally, the division has been concerned with stewardship of the geologic resources of the state, both mineral and nonmineral, and with making information about all phases of geology and mining in the state available to the public.

Under Campbell's leadership it has greatly expanded in scope. One of the most important activities of the division today is a geologic hazards program—a study of the geologic factors that may be costly in lives, money, or deterioration of our natural environment. Campbell has supervised completion of a geological map of California, established a state geophysical program, staffed a geochemical branch of the division, and laid the foundation for work in paleontology. He has been interested in research and development of geothermal power and has been secretary of the state's Geothermal Resources Board.

Campbell is currently traveling in Europe—one of the retirement activities he has looked forward to. After he returns to California, he will pick up several continuing professional responsibilities. He is a trustee of the California Academy of Sciences and chairman of the Committee on the Geological Sciences for the division of earth sciences of the National Academy-National Research Council. He will also begin a four-year term on the State Board of Registration for Geologists.

Ian Campbell

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Victor Neher

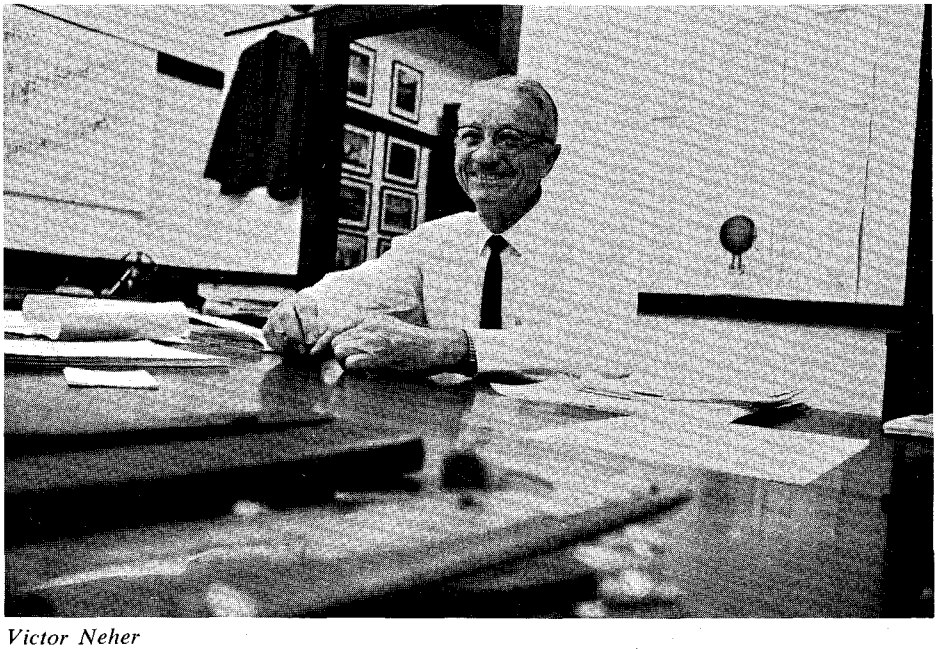
Victor Neher, who becomes professor of physics, emeritus, in July, has been on the faculty at Caltech for most of the last 42 years. This is not to suggest that he has spent all that time in Pasadena. In fact, he has logged thousands of miles crisscrossing the planet to accumulate data about cosmic rays and cycles of solar activity.

On these trips Neher launches balloons that soar as high as 135,000 feet above the earth's surface—expanding to as much as 40 feet in diameter as they ascend—before they burst. Suspended from each balloon is an instrument package that measures the intensity of cosmic rays in the atmosphere and transmits the data back for processing and analysis. The results have enabled Neher to plot a picture of the earth that reveals the pattern of the density of cosmic ray bombardment. It is much greater at the poles than at the equator, and it varies inversely with the amount of solar activity.

Neher estimates that since 1935, when cosmic ray investigations first took to the air, he has released approximately 400 balloons. The balloons themselves have had to be regarded as expendable, but getting the instrument package back as often as possible has been important enough that for many years each package has carried the offer of a reward for its return. The amount has varied from an early-day low of two rupees in India to a current high of $15 in the United States, and Neher estimates that the total paid out has been about $800.

With an AB from Pomona College, Neher came to Caltech in 1926 to do graduate work in physics. After he got his PhD in 1931, he was appointed a research fellow, and for the next 20 years he worked with Robert A. Millikan on cosmic rays—an association that he prizes. Neher feels particularly honored that in 1964 he was chosen to give the first Millikan Lecture for the American Association of Physics Teachers. That lecture, appropriately, was titled "Millikan—Teacher and Friend."

One of the scientific results of the Millikan-Neher collaboration was confirmation, by use of cosmic particles, that the earth's magnetic center is 250 miles from its geological center, which accounts for the fact that the geomagnetic poles are many miles from the geographic poles.



Victor Neher

During World War II Neher spent five years at the Radiation Laboratory at MIT designing and making microwave vacuum tubes; he had a State Department appointment to the Physical Research Laboratory in Ahmedabad, India, in 1955-56; and in 1968-69 he filled in at the University of Hawaii for several professors on leave of absence. While there he also designed and supervised the installation of a Foucault pendulum.

In preparation for retirement Neher has constructed a scale model of the ten-acre site near Santa Cruz that will be home after he leaves Caltech. He grew up on a large ranch in the San Joaquin Valley and is looking forward to developing his own smaller version. There will be a vegetable garden, fruit trees, and pasture for the horses he plans to keep. As for the necessary buildings —a house, garage, and stable, for a start—the Nehers will be doing most of the construction themselves.

Charles Richter

Charles F. Richter received his AB from Stanford in 1920 and his PhD from Caltech in 1928. He has been so closely associated with seismology ever since that few people remember that he took his degrees in physics. Back in 1927 the Seismological Laboratory—located in Pasadena but at that time under the direction of the Carnegie Institution of Washington—needed a physicist as a research assistant. Robert Millikan recommended Richter for the job. When the laboratory was transferred in 1937 to the geology division of the Institute, he became assistant professor of seismology. In July of this year he becomes professor of seismology, emeritus.

In the intervening years Richter's name has become known all over the world, largely because for a long time no news story about an earthquake has been complete without mention of its magnitude on the "Richter Scale."

The scale, which is not an instrument but a system of tables and charts for reduction of the indications of seismological instruments, was developed in 1932 to cope with an emergency. The Seismological Laboratory wanted to list in its regular bulletin the 200-300 earthquakes recorded as occurring in southern California each year. However, the staff was fearful of the alarm such a list might create if there was no really accurate way to distinguish between large and small shocks.

At that time the accepted way to describe an earthquake was in terms of its intensity, which is a rating of the shaking at a particular point. What was needed to supplement that data was a measurement of the magnitude of the earthquake as a whole, independent of its effects at any particular points. And so the Richter instrumental earthquake magnitude scale was created.

From the beginning the scale astonished seismologists with its precision. Later, some refinements worked out with the aid of the late Beno Gutenberg produced a second surprise—the range of its applicability. The scale turned out to be an excellent way to measure large earthquakes anywhere in the world.

Being considered the authority on earthquake magnitude—and an expert in many other areas of seismology as well—has had its drawbacks, one of which was being on call day and night to interpret earthquake data for the news media. For many years a small seismograph installed in his living room was a time-saver for Richter both during real emergencies and in the case of false alarms. It enabled him to keep track of what was going on seismologically and to decide whether or not to make a middle-of-the-night trip to the laboratory to read the more sophisticated instruments there and to consult with the other members of the staff.

But for the last several years he has politely but firmly requested the news media to call the lab directly for information. This has been done with the double aim of assuring his own uninterrupted sleep and to give the press the advantage of the data available from newer, larger, and better instruments.

During his retirement Richter, who is author of *Elementary Seismology* and co-author of two other books, hopes to do some more writing. He will also continue to do consulting and a limited amount of speaking to groups that want to hear about earthquakes directly from the man who knows about them.

Charles Richter