

Raff, Arthur Datus (1917-1999), Biography



Arthur Datus Raff adjusting magnetometer sensor (out of towed "fish"). Aboard USC&GS vessel EXPLORER, 1960.

Arthur Datus Raff was born on May 22, 1917 in Caracas, Venezuela to missionary parents. He entered the United States with his parents at the age of eleven and lived on a farm near Abilene Kansas. He graduated in 1940 with a B.A. degree from Union College, Lincoln, Nebraska. He served in the U.S. Army during World War II and joined the Marine Physical Laboratory at the Scripps Institution of Oceanography in 1946. He began as a Senior Laboratory Technician and

eventually advanced to Associate Engineer. There he worked for Russell Raitt on seismic-refraction studies. He talked about his work at MPL in 1948:¹

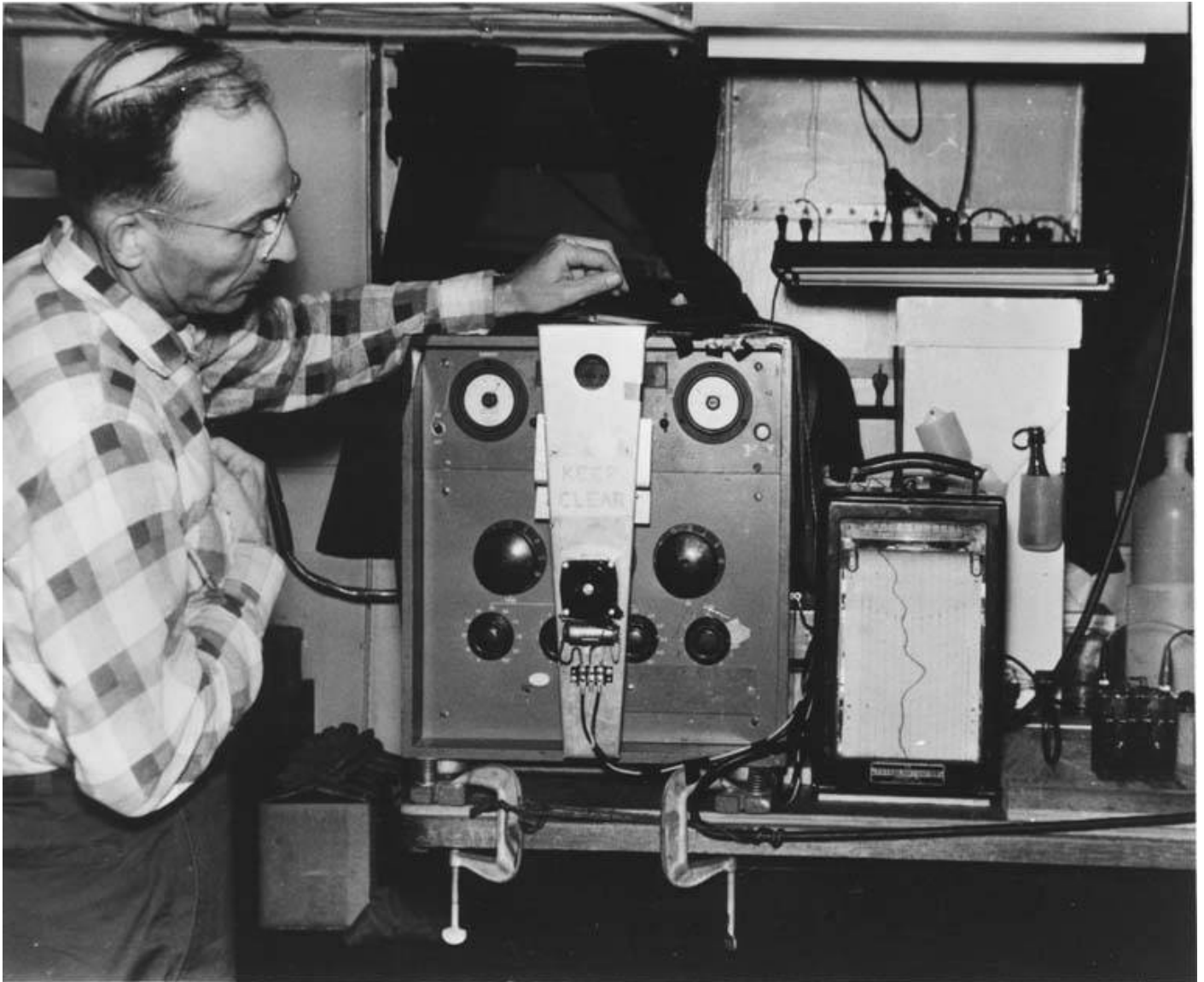
The duties I perform for the laboratory are non routine and vary greatly from month to month. It must be remembered that my work is of a research nature into new fields where techniques have not been established. This requires persons with considerable originality and adaptability, and it is not something that can be easily listed as duties performed for the laboratory.

He invented and developed a technique to make it possible aboard ships to receive and record seismic refraction signals from the deep ocean in spite of the constant motion of the sea and the ship. His technique was adopted for seismic studies by research ships of the United States and Russia. He was on Capricorn Expedition in 1952-1953. He often served on the “second ship” for refraction studies, setting off explosives from a lifeboat for the recording ship – an “eerie, lonely feeling,” he said.

He also worked to develop a reliable technique of towing a magnetometer from a ship for many months at a time, and then gathered the magnetic data and began analyzing it. It is this work that brought him great renown.

Scripps Director Roger Revelle learned in 1955 that the U.S. Coast & Geodetic Survey was planning a hydrographic survey with the ship Pioneer off the West coast on a closely spaced grid. He obtained permission for measurements of sea floor magnetism during the survey and brought Ronald Mason to Scripps for that work. Raff was put in charge of assembling the magnetometer from surplus units and repairing it, and he then went to sea on many of the Pioneer’s cruises. These were three week trips, followed by a week in port. Mason showed Raff how to analyze the data, and they were coauthors on two significant papers in 1961 in the Bulletin of the Geological Society of America. The magnetic stripes, though incomplete, started geophysical investigations of the seafloor. Victor Vacquier continued and expanded the magnetic program at MPL from 1957. This work became significant in establishing the concept of seafloor spreading, and was cited by other scientists as crucial evidence of continental drift theory.

¹ Scripps Institution of Oceanography Archives, Biographical Information Files, s.v. “Raff, Arthur Datus.”



Arthur Datus Raff (1917-) observing the onboard part of fluxgate magnetometer built by Ronald G. Mason and A.D. Raff. Aboard USC&GS vessel EXPLORER

