

Carnegie Institution's Researches

Geodesy

Magnetic Exhibit Memorial To Ill-Fated "Carnegie"

The first monument to Capt. James P. Ault of the Carnegie Institution of Washington, who was killed when his ship, the non-magnetic "Carnegie," was destroyed by explosion and fire in Apia Harbor, Samoa, on November 29, will consist of his own work and that of his associates, which will form a special section of the institution's annual exhibition, opening in Washington on December 14.

The central figure of the memorial exhibit will be a large globe, on which will be traced the long wake the "Carnegie" left on the seven seas during her twenty years and more of voyaging. Further exhibits will show how the data on the magnetism of the earth gathered on these cruises have been put to use in scientific work and in the highly practical field of guiding ships safely to port. There will also be a model of the apparatus used to correct the compass determinations against the errors introduced by the roll and pitch of the ship, as well as displays of specimens, photomicrographs, microscope slides and graphs illustrating the many studies conducted by the scientific staff of the "Carnegie" on the physics and biology of the ocean and the geology of its bottom.

The annual exhibition of the Carnegie Institution is one of the outstanding events of the scientific year in Washington, and attracts many visitors from all parts of the country. In addition to the memorial exhibit of the work of the ill-fated "Carnegie," there will be displays of the work of other departments.

When the "Carnegie" burned as the result of a gasoline explosion in the harbor at Apia, Samoa, killing Capt. Ault, an important scientific program was interrupted when only about half completed. One of the most valuable parts of the cruise, across the South Pacific at about 60 degrees latitude, was to be made next month.

Scientific records obtained on the voyages of the ship have been mailed back as she touched various ports. As the ship had been at Samoa for several days, it is presumed that all of the latest data had already been mailed, and that none of the scientific records were destroyed. W. C. Parkinson, senior scientific officer under Capt. Ault, and who has been made acting commander, reported to the institution that the destruction of

the ship was complete, and that only the cash and the ship's books had been salvaged.

The main purpose of the "Carnegie" was to make magnetic observations in all of the seven seas. Because the magnetic poles of the earth, towards which the compass needle



CAPTAIN JAMES AULT

points, are not at the geographical poles, the compass does not point directly north or south. Instead there is a certain declination for every point on the earth's surface, which is the angle that it deviates from a north and south line. This must be allowed for by navigators of ships and by surveyors on land. As the magnetic poles do not remain in the same place, the declination at any point constantly varies. Previous voyages of the "Carnegie" had determined these values for the first time in many points in the oceans. In 1915, Capt. Ault took the "Carnegie", then on its fourth cruise, around the south polar regions in the latitudes between 50 and 60 degrees south. During the coming months it had been planned to cover much of the same track, to determine the variations in the last 15 years. In fact, many parts of the route for the present cruise were planned to duplicate previous tracks, for the same reason.

Though magnetic observations of declination, intensity, etc., were the first purpose of the "Carnegie's" voy-

ages, and the reason why it was especially built with scarcely a ton of iron or steel in its makeup, to avoid interference with the delicate magnetic instruments, many other researches entered into the program. Observations of the electricity in the atmosphere, of the cosmic rays that constantly bombard the earth from outer space, of the relation of these things to radio reception, of the depth of the ocean over which they sailed, and biological studies of the organisms in the ocean were also in progress.

On May 1, 1928, the "Carnegie" left Washington for what was intended to be a three-year cruise. On board was a crew of 17 and a scientific staff of seven. The first leg was across the Atlantic to England and Germany, where some additional instruments were obtained. Then she sailed to Iceland, south of Greenland, down the Atlantic and through the Panama Canal into the Pacific. Thence she cruised around the Pacific, finally reaching Japan, and returned to San Francisco last summer, having covered 33,000 miles. Leaving San Francisco on September 3, she sailed to Honolulu and then to Apia, covering an additional 8,100 miles.

Capt. Ault of the "Carnegie" never saw the ocean until he was 24. Since then he sailed some 200,000 miles, in all the oceans of the world. He piloted the "Carnegie" over 160,000 miles before embarking on its last ill-fated cruise.

Born in Kansas in 1881, Capt. Ault studied at Baker University, in Baldwin, Kansas. While there he acted as magnetic observer for the U. S. Coast and Geodetic Survey. In 1905 he made his first scientific ocean voyage on the Survey's ship "Bache." Later in the same year he sailed on the Carnegie Institution's first floating magnetic observatory, the brigantine "Galilee", which had been chartered for the purpose. The "Carnegie" was then built especially for the purpose with bronze nails and machinery and a minimum of iron and steel. It was a sailing ship, but with an auxiliary engine. On the "Carnegie's" third voyage, in 1914, Capt. Ault took command, which he retained on subsequent voyages, except for a short one in 1917.

Science News-Letter, December 14, 1929