south face of the peak. By cutting diagonally to the right, we arrived at the base of the southeast arête of the mountain. This is a long, high ridge broken by numerous little gullies encased in ice and snow outlined against the sky. We cut and kicked steps up a steep couloir to the lowest visible point and ascended this arête over easy rocks to the foot of a steep rock face lying across the arête. I kept to the right at the foot of the rock face and ascended the edge of the east face of the peak over good rock, utilizing small pinch holds. The summit rocks were reached directly. The other four members of the party roped up and traversed under the face to a shallow couloir on the south face. Ascending the couloir for 25 to 30 feet, they then climbed diagonally up a wide crack which leads to the summit rocks and reached the summit at noon. On top there spread out before us an unlimited view of the entire ice field with its numerous peaks and pinnacles rising out of the snow. We built a cairn, took photos, and consumed a leisurely lunch before descending and returning via the same route.

ROBERT GOODWIN

Mt. Wrangell Project. (The following is an excerpt from a report by Philip C. Bettler, leader of the 1954 project.—Editor.)

The Mt. Wrangell high-altitude laboratory was reoccupied during the summer of 1954 and operated for the period from June 28th to August 22nd. Two research programs were carried on: 1) the cosmic ray group from New York University made measurements of the cosmic ray neutron flux variation, 2) a group from the Arctic Aeromedical Laboratory at Ladd Air Force Base, Fairbanks, Alaska, studied the physiological effects of cold and high altitude.

The Mount Wrangell Laboratory was established during the summer of 1953 by the joint efforts of the cosmic ray group from New York University under the leadership of Dr. S. A. Korff and a group from the University of Alaska headed by Dr. Terris Moore. The project was made possible by the support of the Office of Naval Research and by Dr. Moore through his donation of time and the use of his especially equipped plane for the transportation of personnel and supplies to the top of the moun-

tain. The laboratory is situated near the summit of Mt. Wrangell at an elevation of 13,700 feet. It is on the edge of a large snow-covered plateau about a half mile by a mile in size. This plateau is believed to represent the snow-filled area of a dormant volcanic crater. The laboratory huts are on a dirt and rock outcrop on the south rim of the crater, which is kept relatively free of snow and ice by the winds and by the warmth of the ground below.

As usual in any high-mountain area the *weather* may be quite variable, and one may expect rapid changes from completely calm, good weather to violent storms. In general about 50% good weather and 50% stormy weather were experienced. Temperatures varied from a high of 30°F. to —1°F., with an average of approximately 20°F. However, August 1954 was quite different with considerably more stormy periods. The most violent storm experienced to date came during that period and lasted about six days from July 28th to August 3rd. Winds rose as high as 60 to 70 miles per hour and approximately five feet of new snow were deposited on the summit plateau. The Jamesway huts withstood the storm fairly well, but considerable snow drifted in through the cracks and seams of the overlapping blankets which form the roof of the huts. During the height of the storm the wind blowing down the smokestack extinguished the stove quite often, causing the personnel to resort to sleeping bags to keep warm. Conditions were such, both inside and out, that it was extremely difficult to carry on normal operation.

Research programs: A. Cosmic Ray Studies—Dr. S. A. Korff and his group at New York University have for many years been engaged in the study of cosmic ray phenomena. The continuation of this work led to the establishment of the Mt. Wrangell High Altitude Laboratory. The high energy charged particles which constitute the primary and much of the secondary cosmic radiation are highly absorbed by the earth's atmosphere and are deflected by the earth's magnetic field such that the total intensity of the radiation as measured near the vicinity of the earth increases as one goes to higher altitudes and latitudes. The mountain areas of Alaska offer a unique place on the earth's surface, combining to the greatest degree high altitude with high geomagnetic latitude. The study of the time variations of cosmic radia-

tion requires permanent stations such as can be maintained at present only on the surface of the earth.

Work in recent years by a number of investigators has shown that the intensity of the nucleonic component of cosmic radiation is particularly sensitive to changes in the intensity of low energy, primary cosmic radiation. The measurement of the cosmic ray neutron flux affords a convenient method of measuring the time-dependent variations of this nucleonic component. There is need to monitor these variations at various places on the surface of the earth to help understand cosmic ray phenomena.

A neutron counter pile for continuous monitoring of the neuton flux at the top of Mt. Wrangell was set up and operated. A certain amount of data was obtained. However, considerable difficulty was encountered with the counting and scaling circuits because of electrical noise from the engines and generators and frequency variation of the power system. Attempts to filter the noise from the system were not entirely effective. It is believed that the difficulty was mainly due to the lack of adequate shielding of the counter and scaling chassis.

B. Physiological Studies: Recent work by Elsner at the Aeromedical Laboratory and by others suggests that some physiological effects of prolonged exposure to cold may be beneficial to subsequent exposure to an environment of low oxygen tension. Similarities in the processes of acclimatization to both forms of stress are also suspected. A study of the ability of men to control body temperature during exposure to cold before and after acclimatization to low oxygen tension would be of considerable value in elucidating the interrelationships of adaptations to cold and hypoxia. Experimental procedures were carried out at the summit station involving assessment of physical fitness and adrenocortical function in four subjects. In addition controlled studies of body temperature regulation were performed at the Arctic Aeromedical Laboratory before and after the period on Mt. Wrangell.

CANADA

Kaskawulsh Group, Yukon Territory. In 1954 a number of summits forming the divide between the Kaskawulsh River and