

in constant darkness there is a definite diurnal rhythm in its position.

In the later part of June and in early July 1959 Mrs. D. H. Steele, the research assistant, and the writer carried out the following experiments in the Defence Research Northern Laboratory, Fort Churchill, Man. *Gammarus oceanicus*, collected in that area, were subjected for one and one-half hours to temperatures of 2°, 6°, 11°, and 20°C. and illuminations of 0.0001, 0.001, 0.01, 0.1, and 1 ft-c., and sampled. Their rates of oxygen consumption under these conditions were also studied. In addition, experiments were designed to ascertain whether the retinal pigment displayed any diurnal rhythm in its position, when the animals were subjected to constant light or darkness.

The eyes of the animals sampled are being sectioned, stained, and examined, and the data concerning oxygen consumption will be analysed. A detailed report will be published later.

M. A. ALI

Glaciological and Botanical Studies in northern Ellesmere Island, 1959

The writers spent the summer season from May 18 to August 18 in the region of the Gilman Glacier, about 82°08'N. 70°57'W., in northeastern Ellesmere Island. The investigations undertaken under a Banting grant in aid were mainly complementary to the glaciological and botanical work of the expedition "Operation Hazen" sponsored by the Defence Research Board of Canada in 1957-8.

The work of the party can be divided into four separate phases. After arrival at the Gilman Glacier camp of 1958 on May 18 supplies and equipment were moved from there to a new camp at the glacier snout. Some food and other stores were cached on a nunatak at the east side of the glacier. During this period all ablation and movement stakes that had been established in 1957-8 were visited by Sagar in order to gather ablation and accumulation data for 1958.

By June 1, after the base camp had been established some 120 yards from

the glacier snout, a series of meteorological and radiation observations was started, but a full program could not be begun until June 13 after all installations had been completed. During this second period the ablation stakes on the lower 8 miles of the glacier were examined. Additional ablation stakes were installed in the face of the snout. Botanical reconnaissance surveys of the snout area and neighbouring slopes were made by Powell.

From June 13 to August 5 systematic series of synoptic and micro-meteorological readings were taken, but they were occasionally interrupted by other duties or by breakdown of equipment. Surveys of the glacier terminus, visits to a nearby drift glacier and to a small valley glacier were also made. Investigations of plant ecology and of plant communities in specific areas of the Lake Hazen-Gilman Glacier region were carried out.

Less detailed meteorological observations only could be undertaken from August 6 to 17 after heavy and bulky equipment had been removed by helicopter to the USCGS icebreaker *Westwind*. Dr. G. F. Hattersley-Smith joined the party during this final period and took part in the glaciological work. All glacier stations were revisited in order to collect ablation data. Late summer plant and seed collections were made by Powell.

The party left the glacier camp on August 18 and walked to the east shore of Lake Hazen where they were picked up by an R.C.A.F. plane on the 24th.

A preliminary examination of the glaciological data allows one to draw certain conclusions. A direct comparison with some relevant records of 1957 and 1958 shows that accumulation of snow was approximately the same in each of the three years. In 1959 ablation was appreciably less than in 1958 and still more so than in 1957. The ablation season of 1959 was shorter and probably cooler than those of 1957 and 1958. Linear snout recession due to melting was relatively small in 1959. The present morphology of the glacier terminus indicates that a slight readvance of the ice

during a whole year may be taking place at present. A close relationship between the amount of ablation over the lower part of the glacier and the solar radiation income was observed. It is hoped to present the results of the glaciological investigations in full in a later paper, in which both the ablation process and the structural changes at the snout will be discussed.

The botanical studies served to confirm distributional features noted before. Further ecological and phenological notes on flowering plants were taken and collections of all the species found were made. The collections of higher plants and less complete collections of mosses, lichens, and fungi have been deposited in the National Museum of Canada. Among the collections are a number of holarctic range extensions. The phenological data for 1959 as compared with those for 1958 support the evidence that the summer of 1959 was cooler than that of the previous year. This is also indicated by the fact that the snow melt was appreciably later in 1959 than in the two preceding years.

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J. M. POWELL
R. B. SAGAR

Obituary

PAUL WALKER 1934-1959

Paul Walker was a research scientist who had worked for the Arctic Institute in the Arctic and the Antarctic. He was born in California and graduated from Occidental College, Los Angeles in 1956, majoring in geology. He had visited Alaska and already spent one summer in Greenland before graduating. On leaving college he took part in the work at Red Rock Lake, Greenland, helping to map shear zones in ice cliffs. In October 1956 he went to Antarctica to participate in the I.G.Y. program. Based at Ellsworth Station he worked on the Filchner Ice Shelf, and was selected to

go with the traverse party, which covered 1,100 miles in 80 days in the area south and west of the base. Walker returned to the U.S. in 1958 to help with the compilation and analysis of glaciological and geological data from Antarctica that was being undertaken at Ohio State University. In 1959 he was appointed glaciologist with the U.S.A.F. Ellesmere Island Ice Shelf Project. He went into the field with the party in May and in early August was paralyzed by a brain seizure. Flown out by light aircraft on August 10, 1959, he was taken to California. An operation brought only temporary relief and he died after great suffering, paralyzed and nearly blind, in hospital a few months later.

Paul Walker was young scientist of great promise, a hard and careful worker in the field, and the best of companions. His death is a great loss in a very real way to the polar world he loved.

The Canadian Board on Geographical Names has approved the name "Walker Hill" for the prominent 1400-foot feature on Ward Hunt Island, named in commemoration of Paul Walker by his companions.

JIM LOTZ

Activities of the Geographical Branch in northern Canada, 1958 and 1959*

An outline of the geographical studies of the Geographical Branch in northern Canada from 1947 to 57 was published in *Arctic* 10:246-50. This note summarizes the activities and publications of the Branch concerning this area in 1958 and 9.

Terrain analysis and physiographic studies

Physiographic studies of Melville Peninsula¹ were continued in 1958 and 9 by V. W. Sim² 3. In 1958 Sim, assisted by R. Moskal, investigated the north-west coast and north central interior

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