

the writer in the field and imprinted to him in deliberately varied degrees. Control observations have been made on wild ducklings varying from one-day old to almost fledged and from single individuals to many hundreds at one time<sup>8,9</sup>.

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<sup>1</sup>Driver, P. M. 1958. Biological studies in Ungava during 1958. *Arctic* 11:191-3.

<sup>2</sup>Driver, P. M. 1959. Wildfowl of the Hemicarctic. Wildfowl Trust Rept. 1958, pp. 141-3.

<sup>3</sup>Results of the first season's work were also presented in papers read at meetings of the Can. Biol. Soc., Ottawa, January 1959 and the Students Ornith. Conf., Oxford, January 1959.

<sup>4</sup>See Tinbergen, N. 1951. *The study of instinct*. Oxford: Oxford University Press.

<sup>5</sup>Kuo, Z. Y. 1932. Ontogeny of embryonic behaviour in aves. *J. Exp. Zool.* 61:395-430.

<sup>6</sup>Driver, P. M. 1960. A possible fundamental in the behaviour of young nidifugous birds. *Nature* 186:416.

<sup>7</sup>Fabricius, E. 1951. Zur Ethologie junger Anatiden. *Acta Zool. Fenn.* 68:1-178.

<sup>8</sup>A more complete account of this work was presented at the McGill Psychology Dept. Colloquium, January 22, 1960.

<sup>9</sup>Driver, P. M. 1960. Behaviour studies in sea ducklings. Ph. D. Thesis, Montreal: McGill University. Unpublished.

### Glaciological studies of the Mendenhall Glacier, Alaska

In May 1960 a group of Japanese scientists from Hokkaido University, led by Dr. Akira Higashi, left Yokohama for

Alaska to conduct a study of the Mendenhall Glacier for a period of 6 weeks.

The group included the following members: Dr. Higashi, Dr. Seiji Hashimoto, and Mr. Kazuhiko Itagaki of the Physics Department; Mr. Hiromu Shimizu, of the Department of Meteorology; Mr. Sujio Kymano, of the Department of Geology; Mr. Katsuhiko Kikuchi and Mr. Tsutomu Takahashi, graduate students of the Department of Geophysics.

Objectives of the project were the collecting of large single ice crystals at a lake at the terminus of Mendenhall Glacier and glaciological investigations of the glacier to elucidate the mechanism of the formation of large single ice crystals. Single ice crystals of large size are urgently needed by physicists at Hokkaido University, who are studying the solid state physics of ice crystals. This is one of the reasons that prompted the University to send the field party to Alaska.

The planned glaciological investigations include measurements of the speed of flow at various points of the glacier; determination of crystal orientation, grain size, and impurity content in the crystal grain and grain boundary of each sample taken at different places. A geological survey of nunataks and cirques near the upper part of the glacier and studies of firn snow were also planned, as well as comparative studies of the Taku Glacier, which is apparently different from the Mendenhall Glacier in many respects.

The work schedule was planned as follows: first week, aircraft reconnaissance of the glacier and the Juneau Ice Field, determination of the location of observation sites from air photographs, establishment of a base camp at the terminus of the glacier; second week, search for and collecting of large single ice crystals at the glacier snout and putting them into cold storage in Juneau, establishing a base line across the glacier near the terminus for the determination of the speed of flow; third week, move to the second camp, routine glaciological work at two crevasses of medium altitudes; fourth week, move to the third camp, glaciological work at two

crevasses of high altitudes, special work on the firn of the ice field and on the geology of nunataks and cirques at the upper part of the glacier; fifth week, move to Taku Glacier, comparative studies of ice at the lower part of the glacier; sixth week, move to the upper part of Taku Glacier and continuation of the work of the previous week on the higher part of the glacier.

The project has been supported in part by the Arctic Institute of North America under contract with the Office of Naval Research and by Hokkaido University.

#### **Investigation of the adjustment of the Eskimos at Barter Island, Alaska to rapid cultural changes.**

The main objective of the field work carried out in March-April 1960 was the testing of a method that will make possible a relatively quick survey of the physical and mental health in an Eskimo community like that on Barter Island. After discussions with health survey specialists at the Harvard School of Public Health, the Cornell Medical Index Questionnaire (CMI) was chosen as the main instrument to be tried out in the field. The CMI contains 195 questions and was originally devised to collect a large body of medical and psychiatric data from American patients in a minimal amount of time. Revision of the questionnaire, necessary to meet the educational and cultural differences present in the village, was accomplished in consultation with various public and mental health specialists familiar with Eskimo concepts of health and disease.

Following a preliminary test at Barrow, the final form of the CMI was administered to the Barter Island Eskimos by three specially trained native interviewers. A 91 per cent sample of all adults over the age of seventeen ( $n = 51$ ) was obtained. The results were then briefly compared with some of the medical records of the sample population at the native hospital at Barrow. While it is hoped that a much more thorough comparative analysis can be made during the summer of 1961, the preliminary findings suggest that the questionnaire can be used profitably in a non-western cultural setting. In the relatively few instances in which individual responses indicate a strong cultural bias, anthropological knowledge can be used to interpret the results correctly. For example, questions about difficulties in making decisions (as an index of "inadequacy") were answered positively by a large majority of Eskimo women. In view of the passive role played by women in this society, a resolute woman should be considered deviant rather than adequate. Further analysis of the questionnaire should contribute additional knowledge to the whole area of cross-cultural health testing.

The general anthropological investigation of the effects of rapid change on the Eskimos of Barter Island was also continued. The health survey and the main anthropological study are closely interrelated, the degree of physical and mental health serving as one important index of the overall process of adjustment.

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