

who want to go even further and whose ultimate goal is Home Rule. Prior to 1971 no responsible Greenland politician had ever advanced any such request, but political events in recent years, including especially the discussion about fishing limits and the referendum on Danish membership in the European Community, have given added impetus to the claim for Home Rule. At the referendum in October 1972 concerning Denmark's membership in the Common Market 70 per cent of the votes cast in Greenland were against. The Greenland electorate is growing to realize that in the case of important political issues Greenland's interests do not always coincide with the interests of Denmark as a whole.

Impressed by the results of the EEC-referendum the Provincial Council asked the Danish Government to have a committee appointed to investigate the possibilities of Home Rule in Greenland, and in January 1973 the Minister for Greenland, Mr. Hertling, acted on that request. All members of the committee are Greenlanders, but it is not expected that the committee will submit its report during the first four or five years.

One of the most difficult questions in connection with Home Rule for Greenland is how to combine any such system with the subsidy arrangement under which the Danish Government at the moment contributes Dkr. 700 million a year to Greenland. Normally, Home Rule would involve economic independence, but it is a serious question whether the economic resources of Greenland would be sufficient to finance the community in the process of development. The principal industry of Greenland — the fisheries — has during recent years been faced with considerable difficulties owing to an unfavourable climatic change, over-fishing and international restrictions. Economically, the picture may change, however, in case of a successful outcome of the prospecting for minerals and oil and the exploration activities which have been going on in recent years. In any case the royalties, viewed in the long term, should improve the economic balance in Greenland. For the time being serious consideration of the introduction of Home Rule must primarily be concentrated on finding a solution to the problem of the subsidy arrangement which would give the Greenland politicians a greater influence in allotting the funds but would at the same time be acceptable to the Danish politicians and taxpayers.

In connection with the Home Rule issue no desire has been expressed for complete severance from Denmark. On the contrary, one of the most fervent advocates of Home Rule for Greenland, Moses Olsen, has publicly stated: "One thing I have never had in mind is a

dissolution of our national union. For that, Greenland and Denmark have too many historical traditions in common — notwithstanding the great differences between them both from a cultural, geographic and industrial point of view."

The development of Greenland's policy during the coming years will be exciting. Quite a few Greenlanders are opposed to the outspokenness of the new politicians and find their views too radical. It is now a question of whether the young politicians can manage to stick together and whether they will be able to win the sympathy of the general public in Greenland for their views before the election of the Provincial Council in 1975.

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Sampling of Glacial Snow for Pesticide Analysis on the High Plateau Glacier of Mount Logan

Recently there have been a number of attempts to determine the presence of pollutants in remote areas of the world. The snow of glaciers is a particularly interesting subject for such work, since it contains a record of past years as well as the present. It has been shown¹ that there is a clear correlation between the lead concentration in old snow strata and the level of worldwide industrial activity. Such pollutants are transported by the atmosphere, and it is especially interesting to know if they are present in precipitation that forms at high altitude. As part of the Ice Field Ranges Research Project (IRRP) of 1970², we undertook the study of another common pollutant, the pesticide DDT. Here we report on our attempt to develop techniques for taking snow samples at high altitude in locations where work had to be done under adverse conditions, and with simple equipment.

Samples were taken at an elevation of 5,364 metres on Mount Logan, Yukon Territory, Canada. The arduous work of sampling was carried out by the IRRP High Altitude Support Team. Conditions at the site were quite hostile. The work was performed at temperatures below -20° C., and often in high winds. At this elevation the effects of hypoxia are quite marked, and the workers, though acclimatized by many weeks at altitude, became quickly exhausted. Psychological effects are equally important. Work was constantly hampered by a feeling of lassitude and an impairment of judgement.

By using a new SIPRE snow auger to obtain the samples, it seemed that any contamination from that source could be ruled out. However, when unpacked in the field, quantities of an oily material were found on the auger. It was not practical to achieve a thorough cleaning under field conditions, but as much of the material as possible was removed by using Coleman Fuel—a highly refined non-leaded gasoline designed for camp stoves.

Provision of suitable sample containers was an important aspect of the preparations. Two-gallon wide-mouth Nalgene jugs were used on the glacier. The mouth was large enough so that the snow core could slide into the jug directly from the auger without intermediate handling. As long as the samples remained frozen, they could be stored in plastic. However, since liquid water slowly leaches material from the jugs, the samples were transferred to glass jars as soon as they melted. The sample containers were prepared at the Water Quality Office laboratory in Cincinnati. A special effort was made in the precleaning of both jars and jugs because of the low levels of pesticide expected. They were washed with soap and water, rinsed with tap water followed by distilled water, and finally with "distilled in glass" quality acetone.

Precautions were taken to avoid contamination during sample collection. The first few samples were discarded in the hope of removing any residual contamination from the auger. During the sampling process the auger was never touched by bare hands or gloves. The only surface which came into contact with the samples before their arrival at the laboratory were the auger and the precleaned jugs and jars. At the end of the work, one sample was deliberately mishandled as a control. It subsequently showed no contamination from either polychlorinated biphenyls (PCB's) or DDT.

Nineteen samples were taken at depths of from 1 to 15 metres. The DDT analysis was carried out at the Water Quality Office Analytical Control Laboratory in Cincinnati, Ohio, using a gas chromatographic technique developed there³. DDT was not detected in any of the samples. In seven of the samples the lower limit of detectability for DDT was 5 nanograms per liter. Due to interference, apparently from PCB's, 10 to 50 ng/l. of DDT could have been present in the remaining samples and not have been detected by this method. It is suggestive that the samples showing no PCB contamination were the last ones taken. It is likely that the PCB contamination came from the oily material originally on the auger, and that the remnant of this

was removed during the early part of the drilling.

On the basis of these results it seems that sampling of glacial snow for trace organic pollutants is feasible, even when samples must be taken under unfavourable conditions with primitive techniques. It is of paramount importance to preclean every surface that will come into contact with the sample, both sampling tools, and sample containers. The details of the procedures used in this work have been recorded in the project report.⁴

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