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The author mentions in his preface, that as well as providing a reference book for those familiar with the subject, he had in mind to produce a clear and vivid textbook for those coming new to it, whether in the field of climate or in related sciences. « I was thinking of all who work on the land, in forests and gardens, the architects, geographers, country planners, entomologists, doctors, transportation engineers and others who — without having studied much physics — were anxious to acquire a knowledge of the rational, physical principles governing the meteorologic laws that they have to put into practice. » Today, one truly appreciates more than ever before, a lucid evaluation and synthesis of work done in a particular field. To quote Geiger again, «... without useful signposts no one can find his way any more in the labyrinth of science. » For this most useful signpost let us give thanks.

Cynthia WILSON

### GÉOMORPHOLOGIE

SAINT-ONGE, Denis. **La géomorphologie de l'île Ellef Ringnes**, Territoires du Nord-Ouest, Canada. Ministère des mines et des relevés techniques, Direction de la géographie, Ottawa, 1965, 58 pages ; étude géographique n° 38.

The island of Ellef Ringnes in the Canadian Arctic, contains many features of geomorphological interest. This report describes these features verbally and indicates their distribution on geomorphological maps covering a small area in detail as well as the whole island on a smaller scale. The arrangement of the report is on a systematic basis, the first main chapter being devoted to the physical environment including geology and climate. The next two chapters are concerned respectively with forms associated with permafrost and nivation. The fifth chapter describes slope development and in the sixth hydrological processes are discussed. A short chapter on glaciation demonstrates that the effect of this process is minimal in accounting for the existing landforms. The interesting superficial deposits dating from late Tertiary or early Quaternary are considered next, and the final chapter points out the value of geomorphological mapping in introducing the maps included at the end of the report. A valuable conclusion summarises the report and draws attention to the salient processes that have produced the landforms of this arctic island. It is pointed out that raised shorelines do not extend far vertically and that, in the absence of strong glacial effects, fluvial action has been and is the dominant process operating in this area. However, it is pointed out that fluvial processes in this periglacial climate, bear some resemblance to those in semi-arid areas in the very short period of rapid run-off during which the flow is very effective. Isostatic uplift, although much less than in other parts of the Canadian Arctic, is partly responsible for the effectiveness of fluvial action, allowing incision of the streams.

The report has a useful bibliography. Twenty-six photographs both from ground and air viewpoints clarify and illustrate the text very effectively. The figures include details of sediment size and shape analysis, surveyed slope profiles and climatic data. The latter illustrate clearly the much greater range of temperature recorded on the ground than in the screen. Smaller scale maps show where the photographs were taken and illustrate the drainage pattern. There are two maps of the whole island on a scale of 1:50,000. One shows the lithology and the minor periglacial forms so that the relationship between these two factors can be appreciated. The other shows the morphological features by using coloured symbols. Structural features are shown in grey, and these bring out the structural grain of the country well where this is obvious on aerial photographs, from which part of the map was compiled. Deposits of fluvial and raised marine origin are differentiated by colour, but the difference is subtle and the distinction cannot be appreciated readily. It would have been useful to indicate the position and height of the marine limit on the map. All the remaining symbols are linear and relate to small and large water courses. They indicate the type of channel and valley. The use of linear symbols to denote slope characteristics is more questionable as there is little indication of the extent of the slope. Some attempt has been made to differentiate slope height, by use of different types of line, but the result is not altogether satisfactory and is not very easy to appreciate. Nevertheless

the map as a whole does give a good indication of the characteristics of the landforms as far as the scale permits.

The more detailed map of the area around Isachsen is on a scale of 1:30,000. This allows considerably more detail to be shown by a different set of symbols. Colour is used more successfully on this map to differentiate features formed by various different processes. Orange is used for structural features, which are of limited importance in the area covered. The general impression gained from the map at a glance is a preponderance of brown colouring. This shade is used for periglacial forms which are very extensively developed. Twenty features, including slope forms, are differentiated. Red is used for fluvial features apart from the blue colour to denote the actual water courses. Nivation features are shown in green. Deposits, in mauve, are either fluvial, marine or lacustrine, the differentiation is not clearly defined, as the types frequently merge, for example in deltaic deposits. Contours at 50 feet intervals are shown in brown. The map as a whole provides a clear picture of the geomorphology of the area and the distribution and relative importance of the different features.

The report and its accompanying maps and diagrams provide a very valuable summary of the landforms and processes operating in an arctic island. The geomorphological maps are a good example of this method of terrain analysis and mapping, which could be applied with suitable modifications of the symbols to other types of environment.

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### GÉOGRAPHIE DES SOLS

BUNTING, Brian T. **The Geography of Soil.** London, Hutchison (Publisher) Ltd., 1965, 213 pages, illustrations, index, bibliography.

Substantial literature in soils geography is extremely scarce. A limited number of articles can be found but in the past books have been virtually non-existent. Soil, in the geographical sense, is often incorporated in studies focusing on soil science, land use, agricultural geography, climatology, biogeography and geomorphology, but in all cases a definitive book on soils geography is lacking. It was a joy to find a text with the title *A Geography of Soil*; hopefully a gap in geographical literature was about to be partially closed. Unfortunately this book is limited in its contribution to an understanding of soil geography.

The book, which has several faults from a geographical viewpoint, may be favorably viewed by scholars in other disciplines. Its title implies that it is geography but in actuality it is primarily soil science and not geography; this is its major deficiency.

The first chapters are entitled :

- Introduction*
- Factors of soil formation*
- The inorganic factor in soil formation*
- The organic factor in soil formation*
- Climate and soil formation*
- Geomorphic factors in soil development*
- The time factor in soil formation*
- The process of soil formation*

It is necessary to have some soil science background to fully appreciate and understand the role of soil in the total milieu, thus the subject matter of the early chapters is quite acceptable to the geographer. Mr. Bunting obviously knows his soil science and presents a variety of specific data which illustrates examples such as the changing chemical composition of the soil with climate, carbon/nitrogen ratios, variation of biomass with age and area and evapotranspiration. The text in this section is well written, but it is conceived for the individual who has some background in soil science, chemistry, botany or geology. The advanced student will find many interesting soil science topics discussed in these chapters but they are often covered rather briefly.