chemists, Emil Fischer, about 1900 to his two young assistants, O. Ruff and A. Stock, when first causing them to work on the subject of inorganic chemistry. The literature shows how much these two men and their students have since contributed to the subject, and one can admire the prescience of Fischer at a time when organic chemistry was so vigorous. It is to be hoped both that the British authors will imitate the men mentioned and that their book will inspire others to do likewise.

The time worn method of discussing the elements by groups has been abandoned. First comes atomic, then molecular structure, followed by

chapters on co-ordination compounds and inorganic stereochemistry, which leads up to polyacids and silicates. Hydrogen and the hydrides receive a chapter, as do the peroxides and peracids, the carbonyls, etc. Another section deals with reactions in liquid ammonia and liquid sulphur dioxide, and a final one with radioactivity and atomic disintegration.

At bottom the book is essentially chemical, and though stiff reading to many of us, it is as clearly written as is possible in these days when scientific language contains so many coined words that it requires the aid of a glossary to interpret it.

E. F. A.

Rock Carvings in the Far North

Monumental Art of Northern Europe from the Stone Age

By Gustaf Hallström. 1: The Norwegian Localities. Pp. 544 + 64 + 48 plates. (Stockholm: Bokforlags Aktiebolaget Thule, 1938.) n.p.

THE occurrence of rock carvings in Norway and Sweden has long been known. They are found on hard rock surfaces on the west coasts of Scandinavia from the county of Tromsø right up in the north to the extreme south of Sweden. They also occur inland in Jemtland and elsewhere. More than one technique can be observed and palimpsests also have been found. Clearly this art includes figures of very different ages. Actually two distinct groups can be distinguished. One is centred in Bohuslän, north of Göteborg, and is well known, being characterized by the large number of ships depicted; it dates for the main part to the Bronze Age and has been well studied and published; figures belonging to it are found so far north as the Trondhjem district.

The second group, with which the present work is concerned, is the older. This can be demonstrated at Bardal where a superposition occurs, figures belonging to the Bronze Age group being uppermost. For the most part these older rock carvings are of animals executed in a naturalistic or semi-naturalistic way, but signs and other figures do also occur. Very occasionally paintings both of human beings and of animals are found, but these are invariably extremely conventionalized. This earlier art group can be subdivided, a three-fold chronological sub-division having been determined by considering (a) palimpsests, (b) style, (c) position. As many of the decorated rocks occur on raised beaches which were once under

the sea, it is sometimes possible to be certain of a date *post quem*, at any rate. This art is usually connected with the Arctic Culture, the roots of which lie far back in mesolithic times. The motives underlying its production are completely unknown.

The present work is in the nature of a catalogue of this early art group in Norway. The second volume, dealing with the sites in Sweden, Finland and Russia, will be published in about a year's time. Actually, of course, the title is misleading. These glacier-worn surfaces of rock covered with engravings or pockings should not be described as monuments, but this does not detract from the very great importance of the work as a whole, and archaeologists will be particularly grateful to Dr. G. Hallström for having at last put on record a corpus of the finds. The system he has adopted is geographical, and a numbered sketch map gives the position of the various sites, which are then described in order. There is a number of illustrations at the end of the volume and a separate portfolio of reproductions of the drawings.

In no sense is the work meant for armchair reading. It is a catalogue, but none the less important for that. The English, though sometimes a trifle quaint, is not obscure. May I recommend that anyone wishing to spend an interesting vacation abroad should acquire this book and visit some of the sites therein described. Doubtless the explorer will find it wise to bind up the work in three or four smaller fascicules for convenience of handling, but I know I can promise him a very interesting expedition, made possible for the first time by the publication of this work. We all eagerly await the second volume.

M. C. BURKITT.