The structure in the area of mineralization on Ulveryggen, Repparfjord, Finnmark

BY

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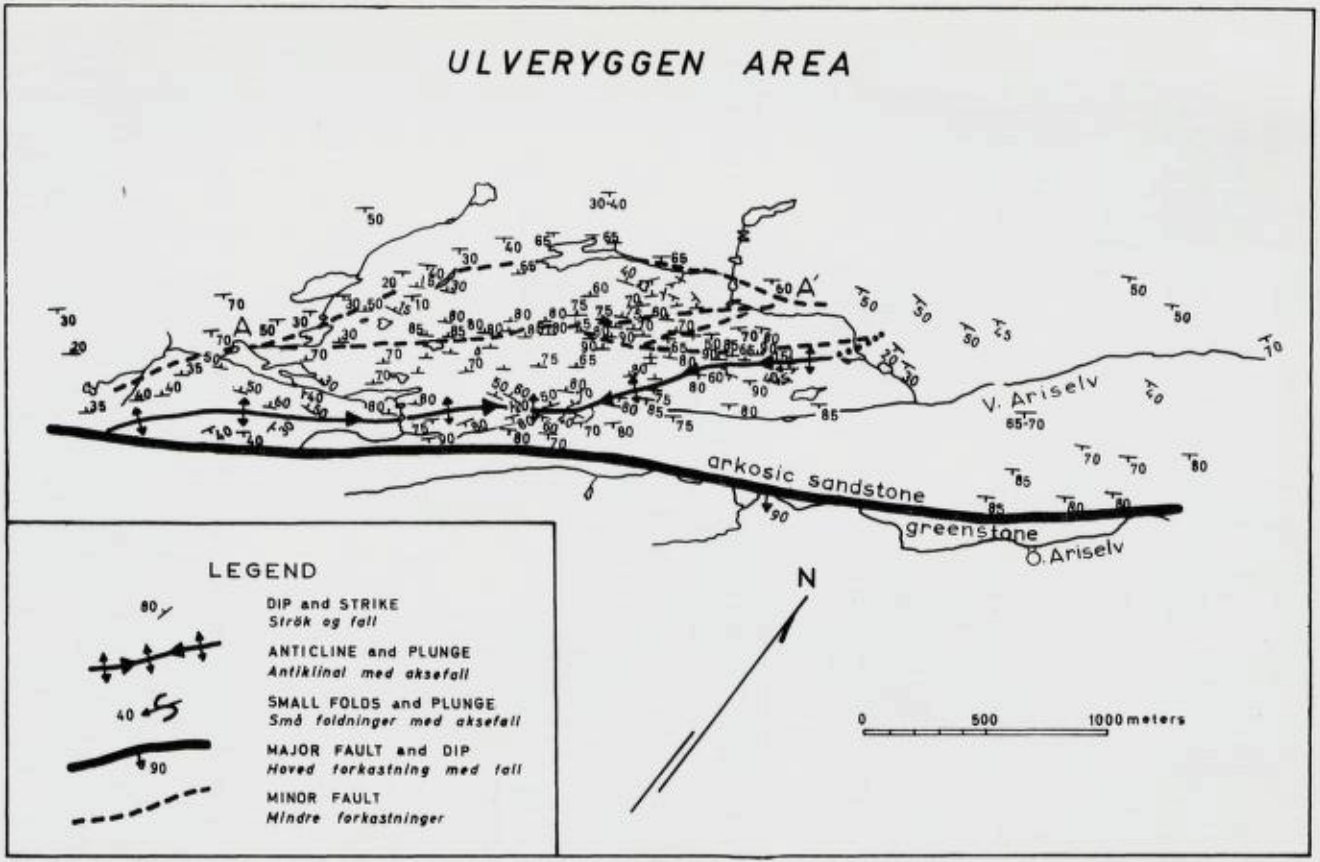
With 1 text-figure

In the Norges Geologiske Undersøkelse Årbok 1956, Vokes (1957) published a report on some copper sulphide parageneses from the Raipas formation of Northern Norway. This report included a discussion of the disseminated mineralization in the arkosic sandstone of Ulveryggen, which is to be found on topographic map sheet Repparfjord V 3, at 70° 26′ N and 13° 32′ E Oslo. Since that time the writer has made an examination of the structure of and around the area of known mineralization on Ulveryggen as a part of a general geological investigation of the northernmost Raipas tectonic "window". It is therefore thought advisable to supplement and amplify Vokes' report on the mineralization of Ulveryggen at the earliest possible time by the publication of the map included here, even though the investigation of the entire Raipas "window" now being conducted by Norges Geologiske Undersøkelse is not yet completed.

For a description of the general geology of the area the reader is referred to Holtedahl (1918), (1953), Strand (1952) and Vokes (1957).

The area within which known mineralization on Ulveryggen occurs is located about in the center of the accompanying map. It is roughly eliptical in shape; about 1700 meters long and 400 meters broad. Within this area are zones of low-grade mineralization which are separated by barren or virtually barren sandstone.

The area shown on the map is adjacent to a high angle fault which brings the arkosic sandstone into contact with greenstones and green-


ULVERYGGEN AREA
A
A'
V. Ariselv
arkosic sandstone
greenstone
Ø. Ariselv
N
0
500
1000 meters
LEGEND
DIP and STRIKE
Strøk og fall
ANTICLINE and PLUNGE
Antiklinal med aksefall
SMALL FOLDS and PLUNGE
Små foldninger med aksefall
MAJOR FAULT and DIP
Hoved forkastning med fall
MINOR FAULT
Mindre forkastninger

schists. The fault dips at about 90 degrees to the southeast. (All angles are based on 400 degree compass.) Along the fault is a zone of phyllonite. Although the age relation between the sandstone and greenstones is not yet certain it is tentatively thought that the greenstones are older (see Strand, 1952). Thus the fault is probably a reverse fault.

The arkosic sandstone in the vicinity of the area of known mineralization occurs as an elongate dome about 9 km by 3 km, parallel to this fault. The area of known mineralization lies on the southeast flank of this dome. Throughout the major part of the dome the structures are quite regular, i. e., there are no sharp flexures, folds or significant faults. In this respect the area of known mineralization is exceptional.

Besides the faults which are shown on the map there can be seen many small zones of faulting and/or shearing; but such that there is no marked change in lithology or dip and strike on crossing these zones. These zones are usually marked by minor, elongate topographic depressions.

Following for the most part almost along the southeast side of the area of mineralization there can be seen a small anticline. The axis of the anticline strikes about N 55 E, and about opposite the middle of the mineralized zone the plunge of the anticline changes such that to the northeast the plunge is about 40 SW while to the southwest the plunge is about 20 NE.

To the southeast the area of mineralization is approximately bounded by the crest of the anticline and to the northwest by the fault running between A and A′ on the map.

The amount of displacement along the faults shown on the map is undetermined. Seen in detail there are quite considerable variations in the grain size and the sorting of the sandstone, but these variations are so similar throughout that it is at best extremely difficult to find marker beds by which the amount of displacement can be determined. However, the writer would *not* wish to rule out the possibility that by very careful investigation of the area and thorough familiarity with the lithological variations of the sandstone a competent geologist could successfully make these determinations.

An additional supplementary comment to Vokes' (1957) report, based on observations of diamond drill cores which Invex Corporation, Toronto, Canada, kindly allowed the writer to see, is that pyrite is present in the Ulveryggen mineralization. This mineral was not

present in the samples provided Vokes by Padget, McCandless and myself.

Because the accompanying map is based on aerial photographs there is a certain small amount of distortion throughout it.

Sammendrag

Strukturer i det mineraliserte område på Ulveryggen, Repparfjord, Finnmark.

I forbindelse med N. G. U.'s generelle geologiske kartlegging av det nordligste Raipas-«vinduet» har forfatteren laget et strukturelt kart over det mineraliserte området på Ulveryggen ved Repparfjord, 70° 26′ N og 13° 32′ Ø Oslo, på kartblad Repparfjord V 3. Trass i at undersøkelsen av hele «vinduet» ennu ikke er ferdig er kartet nu publisert for å utfylle Vokes' (1957) avhandling som gjaldt, blandt annet, mineralisering i Ulveryggen-forekomsten.

Det mineraliserte området ligger like ved en hovedforkastning mellom den arkosiske sandstein på Ulveryggen og grønnsteinen mot syd-øst. Området er også tydelig mere strukturelt forstyrret enn sandsteinen ellers, med en liten antiklinal langs syd-østsiden av forekomsten og en forkastning langs nord-vestsiden, som sees på kartet mellom A og A′. I området fins også mange soner med tydelige skjærbevegelser.

På grunn av mangel på ledehorisonter ble ikke størrelsen på forkastningene avgjort.

Sommeren 1957 iakttok forfatteren svovelkis i borkjernene fra Ulveryggen, som Invex Corporation, Toronto, Canada, var så vennlig å stille til N. G. U.'s disposisjon. Dette mineral var ikke tilstede i prøvene som Padget, McCandless og jeg samlet for Vokes.

Literature

Holtedahl, Olaf, 1918, Bidrag til Finmarkens geologi: Norges Geol. Undersøkelse, Nr. 84.
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Vokes, F. M., 1957, Some copper sulphide parageneses from the Raipas formation of Northern Norway: Norges Geol. Undersøkelse, Nr. 200, Årbok 1956, pp. 74—111.