

*Analysis of Aragonite from Shetland.*

By J. STUART THOMSON.

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**F**EW, if any, analyses of British aragonites have been published ; that which I now submit was executed upon a specimen forwarded to me by Professor Heddle, who has supplied me with the following notes of its occurrence.

It was obtained by him at Sobul Hill, in Unst, Shetland.

The west side of the hill of Sobul is pitted for the extent of nearly a mile with quarry holes, opened in a search for chromite.

The material which was wrought seems to have occurred after the manner of an irregular vein, with occasional nodular masses. Much rock had to be raised to win the substance sought after ; and both this rock and that substance yet remain, the latter built into stacks.

The inferior chromite, which was formerly wrought near Balta Sound in Unst, had very much the appearance of coarse-grained gunpowder, sprinkled throughout a yellow clay ; when it became valuable the dark granules of chromite occurred in such proportionally large amounts as to coalesce or even to exclude the matrix, which is a massive granular serpentine.

The appearance of the masses now stacked together is very similar ; their specific gravity and their hardness, however, are much less, and their composition is very different. The serpentine matrix is much the same, but the darker granules and masses are of the nature of an impure picotite—there being sometimes only traces of chromite.

Dr. Heddle is of opinion that if chromite is to be regarded as essential to the rock *dunite*, then this as a whole may be regarded as a methylosed *dunite* ; the chromiferous spinel having given place to the magnesian one. The quality of all the Shetland chromite was always dependent upon the amount of magnesian replacement.

On the south slopes of Neuker and Nicaford Hills Dr. Heddle has found pure picotite—transparent in microscopic sections. Such speci-

mens are not to be distinguished by the eye, either from poor chromite or from the substance here brought to the surface.

The aragonite sent me was found by Dr. Heddle in veins along with precious serpentine. Cavities in these veins contained radiating groups of crystals of aragonite, which were over two inches in length by half-an-inch in thickness. Such groups had all the normal appearance as well as the crystalline form of aragonite. The radiations were in flat arrangements in the narrow cavities.

Occasionally, however, the serpentine was absent, and the rent was totally filled by grouped bundles of crystals which passed transversely across the vein, filling it completely, and radiating from one side only.

Though the stoutness of the crystals and the nature of the matrix alike negatived the supposition that this was a zeolite, the appearance was that of zeolitic arrangement. As there was a decided pearly lustre in some positions, and as the hardness was not only greater than that of calcite, but somewhat superior to that of the associated aragonite, Dr. Heddle had some hope that these crystals would prove to be *hydrodolomite*, a mineral which he had found in a northern locality in Unst, and in this hope he requested me to analyse them.

I found their specific gravity to be 2·876, and upon analysis I obtained :—

Calcium Carbonate	...	...	...	=	98·77
Magnesium	,,	...	...	=	·50
Water...	...	...	...	=	·76
					—————
					100·03

They are thus merely aragonite. The large crystals of recognised aragonite yielded 0·53 per cent. of water—no unusual amount for this mineral.