since no glacial striae are visible, and the weathered crust is relatively thin. While it is by no means a universal rule, meteorites that have been found in glacial drifts usually have a much thicker crust than this mass.

Nomenclature

This mass will be known as the Osseo Iron, very coarse kamacitic octahedrite.

Acknowledgements

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ZEOLITES IN NEW MEXICO

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The writer has been unable to find any occurrences of zeolites described from New Mexico. Consequently, the two localities mentioned below are possibly the first on record from this state. Both localities are near Socorro, the first about twelve miles northeast, the other about three miles west of Socorro.

Valle del Ojo de la Parida

The Valle del Ojo de la Parida is a depression lying in the northeastern corner of the Socorro quadrangle. It represents a remnant of a great area of pediment[1] cut mainly in Paleozoic, Mesozoic, and Tertiary rocks. Residual hills over the valley are capped with the Santa Fe formation of late Pliocene age, the main body of the Santa Fe being largely eroded from this immediate vicinity. Bordering the valley on the west is a belt of Tertiary volcanic rocks. It is in one of these volcanic flows that the zeolites are found.

The zeolite rock is a dark colored andesite, possibly extruded in Santa Fe time and covered shortly after extrusion with Sante Fe sediments. Although several andesite flows are found within the Santa Fe formation near Socorro, only this one is known to contain zeolites.

The Sante Fe formation in this locality is a very coarse, poorly sorted gravel. It is clearly of fluvial origin, swept out from the nearby hills by ephemeral streams and deposited as alluvial fans along the fronts of the

[1] Bryan, Kirk, The formation of pediments: *Rpt. of XVI International Geological Congress, Washington.* Preprint, **1933.**

hills. Subsequent erosion has stripped away the Santa Fe sediments, leaving the andesite uncovered and weathered.

Thomsonite. The most abundant zeolite in the andesite is thomsonite. It is white and has a radial structure. It shows perfect cleavage parallel to [010], fuses easily to a white enamel, and gelatinizes with hydrochloric acid. Its optical properties are as follows: weak birefringence, biaxial, optically positive, $2V = 55°$ (estimated), $\gamma = c =$ elongation, α near 1.517, β near 1.519, γ near 1.528. It fills cavities and lines cracks in the altered andesite.

Analcite. Associated in very small amounts with the thomsonite is a colorless mineral occurring in irregular glassy grains. Most of the grains are isotropic and have an index of refraction near 1.490. Other grains show very weak birefringence and exhibit cross twinning to a marked degree. This mineral evidently is analcite.

Natrolite. Also in small amounts with the thomsonite and analcite is colorless to white natrolite. Its optical properties are: biaxial positive, weak birefringence, $2V = 60°$ (estimated), $\beta = 1.482 \pm .001$.

Socorro Mountains

The Socorro Range rises about three miles west of Socorro and extends approximately parallel to the Rio Grande for several miles to the north and south. It represents great piles of Tertiary flows and pyroclastic rocks resting on Pennsylvanian sediments. The range lies along a zone of strong faulting, most of the faults striking roughly with the elongation of the range. Much of the faulting took place in post-Santa Fe time, that is, at the close of the Pliocene, or at the beginning of the Pleistocene. The faulting was accompanied, or followed shortly, by ascending thermal waters, the alteration effects of which are plainly seen in a number of places along the front of the range.

Near the base of the Tertiary sequence are beds of andesitic breccia and white tuffs. In places the tuffs grade upward and laterally into rhyolitic material, and in other places into a coarse sand and gravel consisting almost entirely of fragments of vitrophyre. The glass of the vitrophyre has an index of refraction of $1.487 \pm .002$ and thus is seen to be highly silicic. In other exposures fragments of andesite and quartz are common in the tuffs, also some glass with an index of refraction of $1.507 \pm .003$.

Both breccia and tuff have undergone considerable hydrothermal alteration along the fault zone. The most common alteration product in them is a cream-colored to pale green clay mineral, identified as beidellite. Along the north side of Blue Canyon the bentonitic tuff contains quantities of a zeolite whose optical properties are identical with the thomsonite described from Valle del Ojo de la Parida, except β is near 1.516.

Here, however, the thomsonite occurs as irregular clusters of botryoidal forms imbedded in the altered tuff. The mineral is commonly pale pink and has a radial structure. Thus far, no other zeolite has been found in the tuff.

Origin of the Zeolites

Two theories may be suggested to explain the origin of the zeolites in the andesite in Valle del Ojo de la Parida. The first is that they were formed by the interaction between the dissolution products of the andesite and the meteoric waters percolating through the Santa Fe gravels. The second is that the zeolites resulted from the interaction of hot solutions from the lava with certain early formed silicate minerals in the andesite.

It is doubtful if evidence is at hand to prove either theory. The writer believes that mineralized magmatic waters are more effective than meteoric waters in altering silicates to zeolites.

Regarding the thomsonite in the Socorro Range, the writer believes the mineral was formed by the hydrothermal alteration of a tuff consisting essentially of siliceous volcanic material admixed with some quantity of an intermediate composition. The alteration of siliceous rocks to zeolites is undoubtedly a much less common phenomenon than the alteration of basic rocks to the same minerals.

THE POCKET MINERALOGICAL OR POLARIZING MAGNIFIER

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The author had the pleasure of demonstrating both to the members at the meeting of mineralogists of U.S.S.R., held in Moscow in May 1937, and to the members of the XVII Session of the International Geological Congress, a small instrument, shown in figure 1. This instrument, named "the pocket mineralogical or polarizing magnifier," permits convenient identification in the field of non-opaque minerals and rocks by petrographic-optical methods. The instrument consists of a disc, graduated on the circumference, holding the object glass and attached to a handle. On the two sides of the disc round polaroid plates are placed, which may be rotated simultaneously, with reading of the degrees of rotation on the circumference of the disc. Over the polaroid-polarizer, directly under the object glass, a round glass plate is placed, rotating simultaneously with the polarizer, with a cross cut on it.