

*Methods*, or some other text of a similar character. The laboratory manual contains much of the material originally published in the author's *Determination of Rock-Forming Minerals*, but the scope of this work has been somewhat enlarged by including modes of occurrence, distinguishing characters of similar minerals, and a survey of a quantitative mineralogical classification of igneous rocks.

The main optical constants of the rock-forming minerals are very conveniently condensed into six one page charts. This has been made possible by grouping the minerals having birefringences greater or less than quartz, and refractive indices greater or less than Canada balsam (1.537); thus avoiding needless repetition and saving the student considerable time.

The portion devoted to the determination of the feldspars is both helpful and suggestive. Thirteen methods (one physical and twelve optical) are discussed for determining the various members of the plagioclases, and in many instances the results obtained are plotted graphically. The separation lines between the various plagioclases are now given at 5, 27½, 50, 72½, and 95 per cent anorthite. Albite and anorthite have been limited to a variation of only 5 per cent since these names are also applied to the pure end members. Compound names such as oligoclase-albite, labradorite-bytownite, etc., have been dropped.

The portion dealing with a summary of the optical methods used in determining minerals hardly seems adequate, as the space thus devoted is limited to three pages and placed *after* the description of the minerals, instead of *before* where it logically belongs.

A very welcome contribution is the portion, consisting of 9 pages and 4 tables, relating to the writer's quantitative mineralogical classification of igneous rocks. Rules for the determination of rocks are likewise given, so that when the minerals and their percentages have been ascertained, the rock name also may be known.

Because of the convenient and condensed manner in which the material has been presented and the up-to-date treatment of the subject, especially from the quantitative view-point, this book should make a strong appeal to every student of petrography.

W. F. H.

## NEW MINERALS: NEW SPECIES

FAMILY: SILICATES. DIVISION: R'':R''' = 1:2.

### Gillespite

WALDEMAR T. SCHALLER: Gillespite, a new mineral. *J. Wash. Acad. Sci.*, 12(1), 7-8, 1922.

NAME: After Frank *Gillespie* of Richardson, Alaska, its discoverer.

CHEMICAL PROPERTIES: *Formula*: FeO.BaO.4SiO<sub>2</sub> or FeBaSi<sub>4</sub>O<sub>10</sub>. Not closely related to any well-marked mineral group. Before the blowpipe it fuses easily to non-magnetic globule; in closed tube darkens but regains original color on cooling. Readily decomposed by HCl with the separation of flakes of silica, which are doubly refracting; also decomposed by H<sub>2</sub>SO<sub>4</sub>. A hand-picked sample gave, SiO<sub>2</sub> 50.08, FeO 14.60, BaO 31.02, Al<sub>2</sub>O<sub>3</sub> 0.34, Fe<sub>2</sub>O<sub>3</sub> 0.56, "Mn<sub>2</sub>O<sub>3</sub>" 0.14, insol. 2.20, H<sub>2</sub>O (non-essential) 0.82, sum 99.76%. Ratios very close to 4:1:1 for first 3 oxides.

CRYSTALLOGRAPHIC AND OPTICAL PROPERTIES: System either tetragonal or hexagonal, only basal planes being definitely recognizable. Uniaxial negative with very low birefringence; strongly pleochroic. Refractive indices:  $\epsilon$  (rose-red) 1.619,  $\omega$  (pale pink) 1.621.

MISCELLANEOUS PHYSICAL AND MECHANICAL PROPERTIES: Color red (Ridgway XII 71 i to XXVI 71 b); streak pink; luster vitreous; translucent. The color is suggested to be due to manganic manganese, supplementing ferric iron. Brittle, with well developed basal cleavage; H. = 4; sp. gr. = 3.33.

OCCURRENCE: Represented by a small rock specimen found in a moraine near the head of Dry Delta, Alaska range, Alaska. Admixed with diopside and bariumfeldspar, and probably of contact-metamorphic origin.

DISCUSSION: The abstractor does not consider it probable that any manganese could occur in the manganic state in the presence of excess ferric iron, and would prefer to class this among minerals the cause of whose color is as yet undetermined.

E. T. W.

### REDEFINITION OF SPECIES

FAMILY: SILICATES. MINERALOID DIVISION: R''': R''''': H<sub>2</sub>O = 1:1:X.

#### Neotocite

N. NORDENSKIOELD, 1852 (Including "stratopeite" and perhaps other "minerals"). Redefined by PARDEE, LARSEN, AND STEIGER, *J. Wash. Acad. Sci.*, **11**, (2), 31, 1921.

CHEMICAL PROPERTIES: *Formula*: Variable because of colloidal nature but roughly MnO: SiO<sub>2</sub>: XH<sub>2</sub>O or MnSiO<sub>3</sub>+XH<sub>2</sub>O. Percentage of MnO (with some replacement) approximately 7/6 that of SiO<sub>2</sub>; water (adsorbed) usually 14-17%, escaping more or less continuously as temperature is increased from 50°.

A new analysis by Steiger on material associated with the Washington bementite agrees essentially with the five earlier ones on material from various localities in Sweden, Finland and Germany. Difficultly fusible. Decomposed readily by HCl with separation of sandy silica.

CRYSTALLOGRAPHIC AND OPTICAL PROPERTIES: Amorphous, tending to become cryptocrystalline (metacoloidal). Under the microscope brown, isotropic, with *n* ranging from 1.45 to 1.56; the metacolloid approaches bementite in optical properties.

PHYSICAL PROPERTIES: Color black. Streak brown. Resembling a black glass in aspect and in conchoidal fracture. H. 3-4; sp. gr. averaging 2.8.

OCCURRENCE: An alteration product of various manganese silicates.

DISCUSSION: It is recommended that the name neotocite should be definitely limited to amorphous (colloidal) manganese silicates with ratio approximating 1:1.

E. T. W.