

gives on analysis figures which correspond to the formula Au_2C_2 . Carbide of gold is highly explosive. Water decomposes it into its elements; hydrochloric acid liberates acetylene.

On the Decomposition of Nickel Carbonyl in Solution. By VICTOR LENHER AND HERMANN A. LOOS. *J. Am. Chem. Soc.*, 22, 114-116.—The authors have confirmed the experiments of Berthelot, Mond, and others, that nickel carbonyl is decomposed by moisture. When dissolved in acetone, chloroform, benzene, toluene, or methyl alcohol, there is produced a green precipitate, the composition of which seems to be variable.

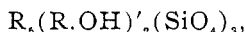
GEOLOGICAL AND MINERALOGICAL CHEMISTRY.

M. L. FULLER, REVIEWER.

Some New Minerals from the Zinc Mines at Franklin, N. J., and Note Concerning the Chemical Composition of Ganomalite.

By S. L. PENFIELD AND C. H. WARREN. *Am. J. Sci.*, 158, 339-353.—The new minerals hancockite, nasonite, glaucochroite, and leucophoenicite were taken mostly from the 1000-foot level of the Parker Shaft on North Mine Hill, where they are associated with native lead and copper, clinohedrite, roeblingite, axinite, willemite, vesuvianite, datolite, barite, garnet, phlogopite, and franklinite. Careful analyses were made of each of the new minerals, and their formulæ computed. 1. Hancockite. This is a brownish-red mineral crystallizing in very minute, lath-shaped crystals, resembling those of epidote, of hardness 6.5-7, and specific gravity 4.030. The analysis gives the empirical formula $H_2R''_2(R'''.OH)R''''_2(SiO_4)_3$ or $R''_2(R'''.OH)R''''_2(SiO_4)_3$. The general formula is that of epidote, differing principally in having the bivalent metals lead (18.53 per cent.) and strontium (3.89 per cent.) isomorphous with calcium. It should be placed, therefore, in the epidote group next to piedmontite. It is named after E. P. Hancock, of Burlington, N. J. 2. Glaucochroite. Glaucochroite occurs in small orthorhombic prisms or columnar aggregates, and is sometimes twinned. It has a hardness of about 6, a specific gravity of 3.407, and in color is a delicate bluish-green. The analysis, disregarding 1.74 per cent. of lead, gives the formula $CaMnSiO_4$, which places it next to monticellite in the chrysolite group. The name is from the Greek, meaning *blue-green color*. 3. Nasonite. This is a white, massive mineral with greasy to adamantine luster, hardness about 4, specific gravity 5.425, and usually shows numerous inclusions of axinite, garnet, and glaucochroite. Its crystallization is probably tetragonal, though this could not be proved. The analyses show the general formula to be $R_{10}Cl_2Si_6O_{21}$, in which R is mostly lead and calcium. Allowing for a few particles of clinohedrite that were

noticed intimately associated with the nasonite the empirical formula $Pb_6Ca_4Cl_2(Si_2O_7)_3$, or $Pb_4(PbCl)'_2Ca_4(Si_2O_7)_3$, is obtained. It is named for F. L. Nason, West Haven, Conn. 4. Leuco-phoenicite. This mineral, which is conspicuous on account of its light purplish-red color, occurs in small crystalline masses having vitreous luster, hardness 5.5-6, and specific gravity 3.848. The system of crystallization could not be determined but is probably inclined. The analyses gave the formula



in which R is mostly Mn, but with some Zn and Ca. Structurally it is the exact equivalent of humite. The name is from the Greek, meaning *pale purple-red*. 5. Chemical Composition of Ganomalite. From a study of analyses, and of the analogous mineral nasonite, the authors are led to discard the formula $Pb_3Ca_2Si_3O_{11}$ for ganomalite and to substitute the formula $Pb_4(Pb.OH)_2Ca_2(Si_2O_7)_3$. Both nasonite and ganomalite are salts of the acid $H_6Si_3O_{11}$, which is intermediate between the orthosilicic acid H_4SiO_4 and metasilicic acid H_2SiO_3 . The name *mesosilicic acid* (*meso* from the Greek, meaning *between*) is suggested for this intermediate acid in place of Groth's name *di-orthosilicic acid*, which the authors consider inappropriate, as the acid in question is not an orthosilicic acid, as the name would signify, but is a derivative of orthosilicic acid.

Andesites of the Aroostook Volcanic Area of Maine. By HERBERT E. GREGORY. *Am. J. Sci.*, 158, 359-369.—The paper includes descriptions of the field relations and petrography of the andesite area in the towns of Chapman, Mapleton, and Castle Hill, Aroostook Co., Maine. The andesites are Paleozoic lava flows and breccias, with their associated tuffs, lying upon the upturned edges of Silurian sandstone. The augite and hornblende types predominate, but stages between andesite and trachyte, and also dacite facies are sometimes found. Exhaustive analyses show that the Maine andesites agree with the types of their class. No more alteration is found than in many of the comparatively recent flows.

On a New Mode of Occurrence of Ruby in North Carolina. By J. W. JUDD AND W. E. HIDDEN. **Crystallographic Notes.** By J. H. PRATT. *Am. J. Sci.*, 158, 370-381.—The Cowee district, which is the locality of the rubies described, is in Macon County, a few miles north of the town of Franklin. The rubies occur mostly in tabular rhombohedral or short prismatic crystals in a basic, garnet-bearing, crystalline rock, and often inclose small crystals of the garnet rhodolite. The mode of occurrence resembles in many points that of the rubies in the crystalline

limestone of Burma. The difference in the matrix in the two instances would be of less significance if it could be established, as has been urged by one of the authors, that the Burma limestone has resulted from the slow alteration of a lime feldspar.

Note on a New Meteoric Iron found near Iredell, Bosque County, Texas, U. S. A. BY WARREN M. FOOTE. *Am. J. Sci.*, 158, 415-416.—This meteorite, some three pounds in weight, presented a somewhat rusty surface with a slight exudation of lawrencite and streaks of schreibersite. The cleavage, though not well marked, was apparently dodecahedral. An analysis showed the presence of 93.75 per cent. of iron, 5.51 per cent. of nickel, and slight amounts of cobalt, phosphorus, and sulphur. Weak etching figures were developed by dilute nitric acid.

On a New Occurrence of Nepheline Syenite in New Jersey. BY F. LESLIE RANSOME. *Am. J. Sci.*, 158, 417-426.—The syenite described was found near the town of Brookville, where it occurs in gabbroitic trap intrusive into the Newark formation. The exposures are not sufficiently good to definitely establish the relations of the syenite and trap, but the author considers that the syenite is to be regarded as dike-like intrusions, or inclosures brought up from some underlying formation, rather than as a product of magmatic differentiation of the trap. The syenite is of three varieties, nepheline syenite, hornblende syenite, and biotite syenite. In addition to the description of the occurrence and characters of the rock a very complete chemical analysis is given.

On Graftonite, a New Mineral from Grafton, New Hampshire, and Its Intergrowth with Triphylite. BY S. L. PENFIELD. *Am. J. Sci.*, 159, 20-32.—The graftonite occurs in pegmatite, where it is found as a lamellar intergrowth with triphylite. The form of the crystals is monoclinic. When fresh the mineral has a delicate salmon color resembling that of lithiophilite, but on account of the oxidation of the iron, principally in the triphylite, the color is usually dark. The specific gravity is 3.672, hardness 5, and luster vitreous to resinous. The analysis, the method of which is described in outline, gave the formula $R_3P_2O_8$, in which R stands for bivalent iron, manganese, and calcium. Detailed descriptions of its optical and crystalline properties, with a discussion of its intergrowth with triphylite, is also given.