Mr. Samuel G. Gordon of the Philadelphia Academy of Natural Science has recently spent some time collecting rare-earth minerals around Spruce Pine, North Carolina.

We regret to note the death of Sir William P. Beale, former president of the Mineralogical Society (Great Britain) and of Professor Hjalmar Sjögren, the eminent Swedish Mineralogist.

The list of appointments to science research scholarships (overseas) made by the British Commissioners includes the name of Miss M. Bentivoglio, who has received a scholarship in crystallography.

At the sixty-third annual commencement of Cooper Union, Brooklyn, New York, the degree of Chemical Engineer was conferred upon Wallace Goold Levison, a member of the night class of 1865.

The following National Research Council Fellowships along mineralogical lines have been awarded: Correlation of some optical and electrical properties of crystals, Joseph Valasek, University of Minnesota; and Factors influencing the intensity of reflection of X-rays from crystals, R. G. Dickinson, California Institute of Technology.

We are pleased to note that a well-known English mineralogist, Mr. A. Hutchinson, of Cambridge University, has been honored by being elected a Fellow of the Royal Society.

M. Pruvost has been appointed to the newly established chair of geology and mineralogy at the University of Lille.

BOOK REVIEW

PETROGRAPHY AND MINERALOGY OF THE LIMESTONE DEPOSITS OF PARAINEN (PARGAS). (*Bull.* 54). AARNE LAITAKARI. 114 pages. *Commission geologique de Finlande*, Helsingfors.(1921).

This pamphlet presents an interesting account of a famous Finnish mineral locality. The region is underlain by igneous rocks, granite, migmatite—a mixture of granite with more or less of the invaded schist—pegmatite, in part with assimilated limestone, and diabase; and metamorphic rocks, comprising the gneiss of the migmatite, limestone, quartz or wollastonite-bearing limestone, calcareous gneiss, amphibolite, and grossularite-diopside rock. The minerals present include: graphite, in most of the limestone quarries; galenite, rare; pyrrhotite, general; chalcopyrite, rare; pyrite, unknown in the main limestone body, but in one small mass being present instead of pyrrhotite; loellingite, in small grains with scapolite in the Ersby quarry; arsenopyrite, occasional; fluorite, widespread, of intense purple color; α quartz; ilmenite, rare; spinel, of 2 kinds, dark, with sp. gr. = 3.841, and n_D 1.727, containing Ti, and light, with sp. gr. 3.682 and n_D 1.718; calcite, rarely crystallized; dolomite, occasional; microcline, abundant in pegmatite,

crystallographic data being given; plagioclase, comprising oligoclase, andesine and anorthite; diopside, ranging from clear gray to green and black, analysis of the latter giving: SiO_2 49.70, Al_2O_3 1.73, Fe_2O_3 4.76, FeO 10.61, MgO 9.61, CaO 22.67, K_2O 0.19, Na_2O 0.43, TiO_2 0.43, H_2O 0.13, sum 100.26%. This is thus not augite as the color might indicate, but an Fe-rich diopside. Its indices are: α 1.692, β 1.699, γ 1.721; $\gamma-\alpha=0.029$, $2V=59°44'$, sp. gr. 3.42. Other analyses are quoted and crystallographic data given. Wollastonite is common as a contact mineral. Amphibole occurs in 2 forms, tremolite, in small amount but widespread, and pargasite, which is named after the locality and shows many noteworthy features. Detailed crystallographic data are given, as well as determinations of indices and sp. grs. on 5 different occurrences, the range in indices being α 1.613 to 1.640, β 1.618 to 1.646, γ 1.635 to 1.659; sp. gr. 3.069 to 3.189. Four new analyses on the material worked up crystallographically and optically are given. Analyses 1 and 3 respectively give: SiO_2 42.05, 48.10; TiO_2 0.91, 0.10; Al_2O_3 12.60, 11.05; Fe_2O_3 1.60, 0.67; FeO 11.51, 1.65; MgO 13.48, 20.60; CaO 11.85, 12.50; K_2O 1.90, 1.24; Na_2O 1.97, 2.54; H_2O 0.41, 0.71; F_2 1.82, 1.90; H_2O- 0.07, 0.11; sums 99.41, 100.37% In explaining the compositions of amphiboles Penfield and Stanley assumed the presence of radicles such as $(MgF)'$; $(Al_2OF_2)''$, $(MgOH)'$, $(Al_2O(OH)_2)''$, etc. As the H_2O escapes without decomposition of the mineral or loss of transparency, resulting merely in slight increase in indices, it must be present not in such radicles, but in dissolved form. Using the data and method of Ford it is found that the curve of mean index against SiO_2 is in pargasite always below that for normal amphiboles, while the Al_2O_3 curve is correspondingly higher; the curves for total Fe, MgO, Na_2O+K_2O and CaO agree essentially with those for normal amphiboles. This demonstrates clearly that in pargasite there is mutual replacement of SiO_2 and Al_2O_3. Garnet- grossularite occurs in the limestone, giving indices from 1.742 to 1.760; 2 analyses are quoted, showing it to contain about 70% of the grossularite mol. Partial analysis of the same mineral in the garnet-diopside rock gave CaO 29.38, MnO 0.40, FeO 4.27, corresponding to 63% grossularite; the $n=1.774$. Another garnet, almandite, occurs in the migmatite. Scapolite is of general occurrence in the limestone, and is the richest in forms of all known occurrences. A large number of crystals are described, the new forms recognized being (310), (301), (611), (211), (112), (332), and uncertain (411), (641), (631), and (212). The *n*s. were detd. as ranging: ω 1.581 to 1.597, ϵ 1.551 to 1.559; by plotting these values, something as to the composition of the several occurrences can be made out, both CO_2-rich and normal scapolites being represented. Vesuvianite occurs both as a contact mineral in the limestone and in pegmatite, in the latter having ω 1.726 and ϵ 1.721; zircon occurs in biotite and in gneiss. Other silicates described are epidote, allanite, prehnite, chondrodite, tourmaline, muscovite, biotite, phlogopite, clintonite, serpentine, talc, and titanite. Apatite is a common mineral in the limestone; its indices are ω 1.634, ϵ 1.631. Partial analyses show that it is a fluorapatite, with about 0.1% Cl and 0.45 to 0.65 CO_2. Finally the so-called pyrallolith and ersbyite are discussed and their indefinite character affirmed. The contact phenomena and the paragenesis of the minerals are described in detail, and an elaborate bibliography is appended.

It is indeed rare to find so well-balanced a contribution to mineralogy. It will appeal to the collector, for it tells what minerals to look for, where to look, and why (paragenetically). It contains full chemical and crystallographic descriptions

for those interested in compiling such data. But best of all is the way in which optical data are presented, not merely as a matter of record, but to throw light upon the compositions and natures of the more complex minerals of the region.

W.

NEW MINERALS—NEW SPECIES

FAMILY: PHOSPHATES, ETC. DIVISION: COLLOIDAL $X(Al_2O_3+AlF_3)+yP_2O_5+zH_2O$.

Unnamed.

OSKAR GROSSPIETSCH: Ein Tonerdephosphat von Arsita bei Jakubeny, Bukowina. (An aluminium phosphate from Arsita near Jakubeny, Bukowina.) *Verh. geol. Reichsanst. Wien*, **1919**, (6), 149-155.

CHEMICAL PROPERTIES: Analysis (judging from the summation not very accurate, and definitely stated to be "apparently inexact" as to fluorine) gave: Al_2O_3 35.06, Fe_2O_3 0.91, MnO trace, SiO_2 4.23, P_2O_5 28.18, F 4.40, H_2O 28.70, absorbed moisture 6.44, sum 107.92%. From this a highly complex constitutional formula is derived. It approximates $3Al_2O_3.AlF_3.2P_2O_5.15H_2O$, the theory for which is Al_2O_3 32.4, AlF_3 8.9, P_2O_5 30.1, H_2O 28.6, sum 100.0%; or Al_2O_3 37.8, F 6.0, P_2O_5 30.1, H_2O 28.6, less O=F 2.5, sum 100.0%.

PHYSICAL PROPERTIES: Color almost pure white; colloidal, dense; sp. gr. 1.998.

OCCURRENCE: A decomposition product of manganese silicate ores, associated with wad and limonite. Found at Oberarsita, near Jakubeny, Bukowina.

DISCUSSION: Has been described as planerite (Leitmeier, *Z. Kryst. Min.* **55**, 353, 1916; abstd. in *Am. Min.* **1**, 34, 1916) but is thought to differ in composition and properties. However, too much reliance should not be placed on analytical data obtained from colloid minerals. E. T. W.

FAMILY: SULFIDES, ETC. SUBFAMILY: HYDROCARBONS. DIVISION: $R' : R'''' = 4:3$.

Simonellite.

R. CIUSA AND A. GALIZZI: Ricerche su alcuni costituenti delle ligniti. [An investigation of certain constituents of lignites]. *Gazetta Chimica Italiana*, **51**, (1), 55-60, 1921; thru *Min. Abstr.* **1**, 202, 1921.

CHEMICAL PROPERTIES: *Formula*, probably $C_{15}H_{20}$. Analysis gave: C 89.84%, H 10.15%; mol. wt. 202-213. The mineral is soluble in benzene or ethyl acetate, but only slightly in alcohol. M. p. = 61−2°, b. p. 314−6°.

CRYSTALLOGRAPHIC PROPERTIES: Orthorhombic; $a:b:c = 0.9908:1:1.9694$ (G. Boeris). Forms: (001), (111), and (221).

PHYSICAL PROPERTIES: A white crystalline encrustation.

OCCURRENCE: On lignite from Fognano, Montepulciano, Tuscany. This lignite yields liquids with the composition $C_{15}H_{28}$ and $C_{15}H_{26}$. Lignite from Terni contains feathery masses of crystalline plates, $C_{20}H_{34}$, m. p. 74-5°, which may be *harttite*.

DISCUSSION: Probably a valid species, altho optical data are lacking.

E. F. H.