Archean rapakivi with coarse texture and large phenocrysts. Two large outcrops of alkaline granite in the east half of the peninsula contain crossite and aegirine for their mafic minerals.

There are many intrusions of basic rocks, also of two ages. The older ones are the oldest known intrusives here: the metamorphosed gabbros and pyroxenites at the head of Kandalaksha Bay. The later ones, of possible Cambro-Silurian age, are fresh and more widespread. Two 70-foot sills are found, with enstatite and olivine segregated at the bottom, fine-grained labradorite in the middle, and coarse labradorite at the top.

One chapter is devoted to a description of the many and varied dikes of the Turya Cape. Another includes the other alkaline rocks: natrolite syenite dikes of the northern region, shonkinite dikes of the western, and most important, the two great masses of the west central part. The western one of these two masses has, excluding the endocontact rocks, a very coarse border of hibinite with 35% of nepheline. Inside this is a series of fine-grained nepheline syenites, and at the core is a coarse foyaite with 20% of nepheline. In tabular masses within the southwest part of the hibinite occur the economically valuable rocks: urtite with 80–90% of nepheline, and an apatite rock with 60–85% of apatite. The urtite is to be used as an ore of aluminum, and the apatite is being quarried for phosphate from a billion-ton deposit. Kupletski favors Bowen's or Smyth's hypothesis in explaining the genesis of these rocks, but does not discuss the question at length. The eastern mass is somewhat similar, with local sodalite, eudialyte, and cancrinite syenites.

The sedimentary rocks around the rim include sandstones (some glauconitic) and shales, non-fossiliferous and possibly of Silurian age.

Besides nepheline and apatite, economically useful materials include magnetite, diatomite, ores of copper and nickel, and many less abundant ones. Extensive nepheline sands near the main alkaline mass are being used for glass manufacture.

The mineral assemblages of the Hibina Tundra nepheline rocks include many unique and beautiful minerals. Their description and a discussion of the geochemistry of the rocks is given by Fersman in this journal, volume 11 (1926), pages 289–299.

CHARLES D. CAMPBELL

PROCEEDINGS OF SOCIETIES

MINERALOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

MINERALOGICAL SOCIETY, June 7, 1934, SIR THOMAS J. HOLLAND, President, in the chair. PROF. C. PALACHE: *The form relations of the lead oxychlorides, laurionite, paralaurionite, and fiedlerite.* The separate identity of each of the first two minerals is confirmed and their homoeomorphism is exhibited by a re-orientation of laurionite. The form series of fiedlerite has been simplified by the choice of a new unit form. New forms are described on paralaurionite and fiedlerite. The crystallography of all three species is summarized in new angle tables, and their habits are illustrated by a series of drawings.

MR. F. A. BANNISTER: *The crystal-structure and optical properties of matlockite* (PbFCl). W. Nieuwenkamp's recent work proving the identity of matlockite with artificial lead fluochloride PbFCl has been confirmed. New chemical analyses,

x-ray work and optical measurements have been carried out on single crystals of matlockite from Cromford, Derbyshire. Single crystal photographs of the mineral have also confirmed the crystal-structure proposed for artificial PbFCl. Artificial BiOCl, BiOBr and BiOI have crystal-structures of the same type and the relationship between matlockite and these and other compounds is discussed. Artificial Pb_2OCl_2 has a crystal-structure quite different from that of matlockite. Mendipite, $Pb_3O_2Cl_2$ contains no fluorine and it is improbable that fluorine has been overlooked in the oxychloride minerals from Laurium, Greece.

Dr. V. Zsivny and Dr. L. Zombory: *Berthierite from Kisbánya, Carpathians.* This rare mineral, previously known from two localities in old Hungary, is now described from a third, namely Kisbánya in comitat Szatmár (now Chiuzbaia in Satu Mare, Romania) where it occurs as bundles of needles with stibnite and rhombohedral carbonates. Analysis agrees closely with the formula $FeS \cdot Sb_2S_3$, but the specific gravity 4.65 is much higher than values previously recorded.

Dr. L. J. Spencer: *Beryllium minerals (euclase and phenakite) from Africa.* Apart from beryl, there are very few recorded occurrences of beryllium minerals in the whole of Africa. Euclase is described from pegmatite on the Lukangasi mica claim, Morogoro district, Tanganyika Territory. The main crystal on the single specimen collected measures 7.2 by 3.5 cm., being much larger than any euclase crystal hitherto known. Seventeen crystal-forms were determined. Small crystals of phenakite from pegmatite at the Klein Spitzkopje, South-West Africa, are of two distinct habits, prismatic and lenticular.

Mr. A. C. Skerl and Mr. F. A. Bannister: *Lusakite, a cobalt-bearing silicate from Northern Rhodesia.* The mineral occurs embedded in quartz-magnetite-kyanite-rock of gneissoid appearance from 80 miles east of Lusaka. Crystals, generally tabular to (010) varying up to 5 mm. in length, are black in hand-specimens, but show a deep cobalt-blue colour, and strong pleochroism in thin section. The mean refractive index is approximately 1.74 and 2V is near 90°. Oscillation, Laue, and rotation photographs show that lusakite has an orthorhombic unit cell with edges $a=7.86$, $b=16.62$, $c=5.63$ Å., and space-group V_h^{17}. The unit cell contains 8 $(RO \cdot Al_2SiO_5)$ where R represents Fe, Co, Ni, Mg, Al, and H. The cobalt content is unique for a silicate and reaches $8\frac{1}{2}\%$ CoO or nearly two atoms of cobalt per unit cell. It is almost identical in physical properties with staurolite and x-ray photographs show that it possesses the same type of crystal-structure.

Dr. A. W. Groves: *The determination of small amounts of copper in rocks.* The paper describes the application to silicate analysis of the sodium diethyl-dithiocarbamate colorimetric method for copper. Data on the retention of copper by the ammonia precipitate are given. The method has a range of about 0.001% to 0.25 per cent. CuO when a sample of 2 grams is used.

Dr. L. J. Spencer: *Thirteenth list of new mineral names.* A dictionary list of 112 names collected from the literature of the past three years. Since the first list in 1897 a total of 1918 names has been collected.

Dr. L. J. Spencer: *A new meteoric stone from Silverton, New South Wales.* A beautifully oriented stone weighing 351 grams was found by Mr. R. Bedford amongst debris in the old museum at Port Adelaide, which has recently been reorganized as a Nautical Museum. It probably dates from the time (1883) of the discovery of the rich mineral deposits at Broken Hill in the Silverton district. The stone is a white hypersthene-olivine-chondrite of the Baroti type with only little nickel-iron.

MR. M. H. HEY: *Studies on the zeolites. Part VIII.* A theory of the vapour-pressure of zeolites. An equation for the water-vapour pressure of a zeolite (or other compound showing similar dissociation phenomena) is derived on simple kinetic grounds, and is shown to agree reasonably well with the available experimental data. The equation, which can only be a first approximation to the truth, is compared with other equations previously proposed. Kinetic treatment also leads to a reasonable equation for the rate of diffusion of water within a zeolite crystal. The condition of the water in the zeolites is discussed.

NEW YORK MINERALOGICAL CLUB

Minutes of the May Meeting, 1933

The New York Mineralogical Club held a regular meeting at The American Museum of Natural History on Wednesday evening, May 17th, 1933. President Hawkins called the meeting to order at 8:24 P.M. The attendance was 60. Mr. William S. Downin of Nutley, N.J., was elected an active member.

It was decided to have the usual club excursion to Bedford, N.Y., on May 30th, and another excursion to the Somerville Mine on June 11th. Mr. Stanton called attention to a specimen of kaolinite, pseudomorphic after malacolite found at 169th Street and Center Avenue, N.Y. City, by Fred Braun, and recommended that it be placed in the Club's collection of New York City minerals.

The meeting was then turned over to the members for a symposium on calcite:

Mr. Frederick I. Allen discussed the causes of interference colors in iceland spar and exhibited a specimen from Paterson, N.J. Mr. George E. Ashby described sand calcites and exhibited specimens of these from Fontainebleau, France; Vienna, Austria; and Washington County, South Dakota. He also exhibited the following specimens from his collection: spire calcite, paper calcite, globular calcite, amethyst calcite twin and calcite with "caps". Unusual specimens of calcite were also exhibited by James F. Morton, E. A. Maynard, John Reiner, Herbert Whitlock, J. W. Radu and A. C. Hawkins.

The meeting closed following a supplementary symposium on fluorescence, which Mr. Weidhaas began by calling attention to the argon tubes recently introduced on the market, which cause calcite from West Paterson to give a yellow phosphorescence; Mr. Radu continued with an account of the superior effects produced by the iron arc with Corning UV glass; while Mr. Broadwell defended the excellent behavior of the argon lamp with sphalerite from South Africa. So much interest was shown in the subject of fluorescent minerals that it was decided to devote one of the meetings of the Club to this subject.

DANIEL T. O'CONNELL, *Secretary*

Minutes of the October Meeting, 1933

The New York Mineralogical Club resumed its meetings in the fall when its members gathered at The American Museum of Natural History on the evening of October 18th, 1933. In the absence of the President, Vice-President Ashby called the meeting to order.

Professor Edward Salisbury Dana of New Haven, Conn., was elected an Honorary Member. On a motion by Mr. Frederick I. Allen, a committee consisting of the five officers of the Club was appointed to prepare the parchment certificate of

honorary membership.

It was proposed and carried that a Nico Lamp with a fluorescent mineral exhibit be presented to The American Museum of Natural History as a memorial to the late Dr. Kunz, founder of the Club, who, with Professor Charles Baskerville, was a pioneer in experimenting with fluorescent minerals, also that part of the money willed to the Club by Dr. Kunz be used to defray the expense of the installation.

Mr. Manchester reported an attendance of about 100 persons on the Club's Memorial Day excursion to Bedford Quarries. Among the rare finds made there were columbite, autunite, and torbernite by Mr. Jeffries, and peristerite by Dr. Rainsford.

Mr. McClelland, Principal of Eastchester High School, distributed polished pieces of the recently discovered Red Serpentine from Ridge Street between Rye and Portchester, N.Y. The meeting was then turned over to the members to report on their summer collecting experiences.

The following members also reported on their collecting experiences: Mr. Broadwell, marcasite nodules from Sayreville, N.J.; Mr. Maynard, minerals and photographs from Nova Scotia localities; Mr. Boyle, fluorescent wernerite from Quebec; Mr. Yedlin, quartz from Ellenville and manganpectolite ball from Paterson; Dr. O'Connell, weathered biotite recently mistaken for gold in the Bronx; Mr. O. I. Lee, thorianite; Mr. Grenzig, agate showing interference colors; and Mr. Manchester, strontiano-calcite from Franklin Furnace, N.J.

DANIEL T. O'CONNELL, *Secretary*