PROCEEDINGS OF SOCIETIES

NEW YORK MINERALOGICAL CLUB

American Museum of Natural History, New York City, December 15, 1937

The meeting was called to order by first Vice-President Dr. Olaf Andersen with 52 members and guests present. Dr. Philip Krieger then spoke to the Club upon some "Observations during the International Geologic Congress in Russia."

The Congress meets every three or four years, in various parts of the world. The last convention in Russia was some 40 years ago, and at the present gathering a number of the same localities were visited. At the conclusion of the Congress observation trips were arranged, and those with special interests had an opportunity to observe the work in their own field.

During the Congress itself a novel plan was instituted, eliminating the language difficulty. All in attendance wore earphones, and were connected to translators. An address delivered in any one of six languages was simultaneously translated by interpreters, so that everyone attending the Congress was fully aware of the proceedings. All that was necessary was to plug in on the proper hook-up.

The mines and mining industries are owned by the government and are operated by mining trusts, under the supervision of the Soviet. The greatest disappointment was the appearance of the Ural Mountains. Instead of the tall, rugged peaks and ranges expected, they turned out to be, for the most part, low hills, similar to those of Connecticut. Only the extreme northern and southern portions were "respectable mountains." A brief outline of the mines and minerals observed during the course of the field trips follows:

Chromite:—At Mt. Saranovskoye the chromite occurs as lenses in the peridotites (altered to serpentine). They are bordered on the west by paleozoic schists and on the east by metamorphosed diorite. Later dikes have cut the chromite lenses into a number of segments. The deposit is about 800 meters long and an estimated 150 meters deep. The ore averages between 32 and 38 per cent Cr_2O_3, with iron and aluminum running high. Associated minerals are clinochlore, uvarovite, fuchsite and a chrome-perovskite.

Iron:—A number of localities were visited. Mt. Blagodat, discovered in 1735, is of the typical contact metamorphic type, carrying garnet, epidote, scapolite, etc. The ore here is primarily magnetite, with a large portion of hematite (martite), which is secondary. About 300,000 tons is the yearly production.

The Mt. Vysokaya deposit was discovered in 1702. This is the second largest deposit in the Urals and is similar to that of Mt. Blagodat. About 1,000 tons of concentrates are produced daily. A number of other iron mines in this district are in operation. The entire yearly output of iron from this section is about 8 million tons. In the Bakal Area other types of iron ore are mined. These are siderite and limonite. About a half million tons are produced annually. At Magnetogorsk are located the largest iron mines and steel plants in the Urals. The ores are similar in formation and type to those near Blagodat and Vysokaya. The mine produces some five and half a million tons of ore annually. Only the oxidized ores are being mined as the primary ores contain up to 6% sulphur.

Platinum:—Near Nizhny Taguil we find a series of ultra basic igneous rocks (dunite and peridotite). Here a number of pits show platinum bearing dunites, with associated chromite. This lode material is low grade and is not being worked. To the north the placer deposits are being operated. Here American made dredges, each with a capacity of 350 cubic yards per hour, are functioning, reworking gravels that had previously been mined by hand, and again by steam shovel. The gravels yield from 30 mg. to 1.5 gr. per cubic meter. There are large areas yet to be worked.

Asbestos:—Russia is singularly fortunate in having good deposits of asbestos. At Bazhenov (about 85 kilometers northeast of Sverdslovsh) is located the main asbestos bearing belt, about 28 kilometers long and a full kilometer wide. Estimates give Russia an asbestos reserve of 25 million tons. At this locality the asbestos is associated with serpentine intrusive rocks and the asbestos belts seem to be related to the fracture zones. The quality of the mineral is excellent, the fibres reaching a length of 80 mm. Discovered in 1825, the deposit was first exploited in 1899 and is in active production today. A considerable quantity is exported. Mining is mainly by the open pit method, although recent operations have been underground.

Gold:—East of Sverdslovsh, formerly known as Ekaterinburg, are located the Berezovsk gold deposits. The gold is low grade and is found in very thin, flat quartz veins, which occur in great profusion. These are associated with quartz porphyry dikes. Only the oxidized ores are being worked, as the primary ores were admittedly too lean to pay.

Magnesite:—Satka, (near Ufa) is the site of an enormous deposit of pure magnesite. The mineral occurs as a replacement in limestone and is the main source of magnesite in Russia. Open cut methods of mining are used, with a full complement of machine and electrical units. The annual production is about 6 million tons, and much of the material is exported to England, France and Germany. The beds are up to 80 meters thick, and the estimated reserve is about 145 million tons.

Coal:—The only coal deposit visited was the Koskino deposit at Cheliabuish, south of Sverdslovsh. Low grade sub-bituminous coal is produced. Most of the foundries and steel plants in the Urals are supplied by this mine.

Nickel:—The need for this metal has caused intensive preparations for mining at Kalilova, near Orsh, in the southern Urals. The ore is composed of garnierite and a nickel-bearing chalcedony, disseminated through the weathered serpentine. The richest portion will average but 1.5% nickel.

Conclusions:—Russia is not particularly rich in metallic resources. Although some copper, zinc and lead are mined, a considerable quantity is imported. However, the Soviet has a large supply of the non-metallic minerals, and asbestos, magnesite, phosphate and manganese are shipped to other nations. Although industry has increased by leaps and bounds during the past 10 years (primarily with the aid of foreign technical assistance) the quality of much of the Russian ores is poor. The greatest advances in Russia today seem to be in the fields of science and education, where rapid strides are being made.

The interesting talk was well illustrated with lantern slides. The meeting adjourned at 9:50 P.M.

LEO NEAL YEDLIN, *Acting Secretary*

Meeting of January 19, 1938

The meeting was called to order by Second Vice-President H. R. Lee with 89 members and guests present. The speaker of the evening was Mr. Arthur Montgomery who addressed the Club upon "Four Seasons of Collecting."

Mr. Montgomery told how he had decided five years ago to collect mineral specimens of high quality and had contacted Edwin Over of Colorado Springs who had similar interests. Their first work was in the topaz locality of the Thomas Range, Utah, where fine, deep-colored crystals were collected from cavities in rhyolite. Their important contribution at this locality was the discovery of an occurrence of pseudobrookite in larger and finer crystals than any previously known from any locality. Finding a few needles on the slope of one of the peaks, Over traced them to their source where blasting revealed pockets containing the slender crystals.

Next they went to Devil's Head, a peak in the Front Range of the Rockies between

Denver and Colorado Springs, to investigate a locality at which a schoolboy had found a topaz crystal. Similar crystals had been found by a prospector many years ago. The discovery of some old, tree-grown dumps and a few emptied pegmatite pockets soon convinced them that they had rediscovered the lost locality. Intensive prospecting, followed by quarrying operations revealed a thin horizontal lens of pegmatite in the Rocky Mountain granite, parallel to the top of the ridge and only a few feet below the surface. Occasional bulges in the dike indicated the existence of pockets 18 inches to 2 feet below the surface of the contact. In these pockets crystals of smoky quartz, feldspar and topaz were found, embedded in red mud. After moving many tons of rock and overburden they found that the dike thinned out and became barren. About 25 or 30 good topaz crystals were secured, all more or less etched and showing interesting accessories.

More ambitious plans were made for the summer of 1935 and the San Diego Mine, at Mesa Grande, California, was leased in the hope of obtaining good tourmaline specimens. However, an incline sunk to a depth of 150 feet yielded practically nothing.

The summer of 1936 was more successful, with Montgomery and Over joining with Henderson and Ferguson on a trip to the epidote localities of Prince of Wales Island, Alaska, where many fine specimens were collected. Upon their return, Over and Montgomery stopped at an old variscite locality at Fairfield, Utah, where they collected some interesting specimens on the dumps and in an old drift. As the spot seemed very promising, they decided to commence their field activities there in the summer of 1937.

A lower drift had been tunneled into the hill in an endeavor to strike the nodule bearing zone of the limestone at a lower point, but their efforts were unsuccessful. After digging several branch drifts, Montgomery and Over struck the richest portion and were rewarded by finding a zone rich in the phosphate nodules. Most of them had altered completely to pseudowavellite but some were quite fresh. The variscite found was of very fine quality and color, as evidenced by the specimens on display, but still more interesting were the many rare minerals which are found only at this locality. Gordonite was found in fine crystals, colorless, white, pink and blue. Some brilliant specimens of wardite were also collected, and many other minerals still to be described.

They then moved to the vicinity of Butte, to try and locate a pegmatite on Timber Butte Hill from which two fine sphene crystals were known to have come. A quick survey showed the dike to be small and the pocket to have been probably the only one. They accordingly moved on to the Little Pipestone District to try to rework the old amethyst and tourmalinated quartz locality. Finding this dike, they cleaned out the old debris and discovered a large pocket in a quartz-rich portion which was lined with smoky quartz with later growths of amethyst. Some fine scepter crystals and parallel growths of the amethyst on portions of the smoky quartz were exhibited. Small brookite crystals were found with quartz in this pocket.

After the address, the Club adjourned to inspect the many beautiful specimens collected by Mr. Montgomery and to look over reprints of the papers describing the minerals collected on these trips.

F. H. Pough, *Secretary*

NOTES

Teaching Fellowship in Mineralogy

A teaching fellowship in mineralogy at Stanford University is now open to properly qualified graduate students who intend to specialize in mineralogy. Preference will be given to those who have had two years of graduate work. The chief duty of the fellow is to assist in laboratory instruction. Not more than eight or nine hours a week are required. The amount of the fellowship is $750.

Application for the year 1938–39, accompanied by a photograph of the candidate and supported by testimonial letters, should be made to Professor Austin F. Rogers, Box 87, Stanford University, California.

A new journal has appeared recently in the field of mineralogy, *Zeitschrift für angewandte Mineralogie*, issued under the editorship of F. K. Drescher-Kaden of Göttingen. Assisting in the editorial work are: G. Angenheister (Göttingen), P. J. Beger (Hannover), M. Berek (Wetzlar), C. W. Correns (Rostock), W. Eitel (Berlin-Dahlem), R. Nacken (Frankfurt a.M.), G. Masing (Göttingen), P. Ramdohr (Berlin), H. Rose (Hamburg), W. Schmidt (Charlottenburg), K. Spangenberg (Breslau) and H. Steinmetz (Munich). The issues will appear at irregular intervals with approximately four issues constituting a volume. The subscription price, if ordered in advance, is RM 28 for the volume. The first issue appeared Jan. 19, 1938.

Conference on Petrofabrics at the University of Michigan

Dr. Earl Ingerson of the Geophysical Laboratory of the Carnegie Institution of Washington, D.C., will give a series of lectures to advanced students of geology and mineralogy on the technique and methods of interpretation of petrofabrics, from March 21 to March 28. The following lectures, accompanied by demonstrations, have been arranged:

March 21. What is petrofabrics?
March 22. Field and preliminary laboratory study. Measurement of uniaxial minerals.
March 23. Measurement of biaxial minerals; cleavage and twinning planes. Preparation and rotation of diagrams.
March 24. Orientation rules. Symmetry of diagrams.
March 25. Theories of schistosity.
March 26. Geologic applications.
March 28. Practical applications; summary.