

fact the latter quite likely has replaced quartz which had previously replaced the tungsten mineral along the fractured surfaces of the wolframite.

Minerals thought to be earlier than wolframite from a consideration of their zonal distribution or otherwise, are not easy to arrange in a satisfactory sequence as a result of microscopic work as it is difficult, or perhaps impossible, to find them associated with each other. Lindgren (*Mineral Deposits*, p. 744) states that cassiterite when accompanied with wolframite is apparently the earlier mineral. We may thus assume the following sequence to represent the order of deposition of a few of these higher temperature minerals: cassiterite-wolframite-arsenopyrite-pyrite.

NOMINATIONS FOR OFFICERS OF THE MINERALOGICAL SOCIETY OF AMERICA FOR 1931

The Council has nominated the following for officers of the Mineralogical Society of America for the year 1931:

PRESIDENT: Alexander H. Phillips, Princeton University, Princeton, New Jersey.

VICE-PRESIDENT: William F. Foshag, United States National Museum, Washington, D. C.

SECRETARY: Frank R. Van Horn, Case School of Applied Science, Cleveland, Ohio.

TREASURER: Waldemar T. Schaller, United States Geological Survey, Washington, D. C.

EDITOR: Walter F. Hunt, University of Michigan, Ann Arbor, Michigan.

COUNCILOR (1931-1934): William S. Bayley, University of Illinois, Urbana, Illinois.

The eleventh annual meeting of the Society will be held December 29-31, 1930, at the University of Toronto, Toronto, Canada. It is planned to publish in the December issue of the *Journal* a *preliminary* list of titles of papers to be presented before the Society at its annual meeting. In order to appear on the advance program, titles of papers should be in the hands of the Secretary by *November 10*.

FRANK R. VAN HORN, *Secretary*

PROCEEDINGS OF SOCIETIES

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences, Philadelphia, May 6th, 1930.

A stated meeting of the Philadelphia Mineralogical Society was held on the above date with Mr. Toothaker presiding. Upon favorable recommendation of the Council, Mr. Henry Welkey was elected to membership. May 22nd was announced as the date of the annual exhibition of minerals by the Junior members of the Society, at North East High School.

Dr. Benjamin L. Miller, of Lehigh University, addressed the Society on "Minerals of Eastern Pennsylvania." He approached the subject from the geological side describing processes in the origin of various minerals and the location of de-

posits in the eastern part of the state. Many interesting references were made to localities familiar to members and which recalled numerous interesting and profitable trips of the past. The speaker, always a favorite with the Society, imparted a great deal of useful information in his usual pleasing and entertaining manner.

Mr. Cienkowski reported upon a trip to the Herkimer region of New York, having visited Little Falls, Middleville, Salisbury, Newport and Lionsville; at the last mentioned locality "box geodes" were obtained.

After an enthusiastic vote of thanks was tendered Dr. Miller the meeting adjourned with an attendance of 54.

LESTER W. STROCK, *Secretary*

Academy of Natural Sciences, Philadelphia, June 5th, 1930.

A stated meeting of the Philadelphia Mineralogical Society was held on the above date, Vice-President Biernbaum, presiding. Mr. Arthur H. Mason was elected to membership.

Mr. Samuel G. Gordon, the speaker of the evening, described briefly the Fourth Academy-Vaux expedition. Arriving at Mollendo, Peru, he crossed into Bolivia where considerable time was spent in collecting, then across Argentina to Buenos Aires and via steamer to Rio de Janeiro and Cape Town. His route now crossed what was formerly German Southwest Africa, Rhodesia, Union of South Africa, Belgian Congo and Tanganyika. From Daressalaam on the Indian Ocean, he embarked on a steamer for Marseilles, visiting Paris, London and other European cities before sailing for New York.

When in Bolivia he visited Araca, Chojnacota, Caracoles, Llallagua, Monserrat, Cerro Ubina, Tasna, Chorolque and Chocaya. The finds in Bolivia included many beautiful specimens of cassiterite, pyrite, teallite, aramayoite, wurtzite, vauxite, paravauxite, and metavauxite. In the Tsumeb copper mines, S.W. Africa, Mr. Gordon was most fortunate in discovering a vug of superb azurite crystals, on the 800 foot level, some of which measured 5 inches in length; here was also secured superior specimens of smithsonite, mimetite and cerussite. Visits to Abenab, Berg Aukis and Bobos yielded descloizite and calamine. At Grootfontein he visited the largest known meteorite about which a trench has been dug and which permits a close inspection of this immense mass of metal. He next spent some time at the Kimberly diamond mines, Pretoria, the Village Deep Gold mines near Johannesburg, the platinum mines near Potgietersrust, Bandolier Kop (fine corundum crystals), Louis Trichardt in the Transvaal, also the Chromium mines at Selukwe in Southern Rhodesia. At Broken Hill Mr. Gordon secured some beautifully crystallized tarbuttite, pyromorphite and calamine. He described also visits to Bwana, M'Kubwa and Roan Antelope and in the Belgian Congo he spent some time at the mines at Ruashi, Luishia, Likasi and Kambove. A large number of beautifully colored slides vividly illustrated the account of this memorable trip which has added many splendid specimens to the Academy's Mineral Collection.

Prize winners in the Junior Mineralogical exhibition held May 22nd, were announced as follows: Messrs. Ackoff, Bernheimer, Bradley, Breichner, Busman, Day, Dornblum, Eichna, Fleming, Parish, Phillips and Wajtowicz. Mr. Parish, Junior President, thanked the Society for its co-operation and presented an honorary membership in the North East Mineralogical Club, to Mr. Charles R. Toothaker.

A rising vote of thanks was tendered Mr. Gordon for the excellent account of his long trip. The meeting adjourned with an attendance of 75.

LESTER W. STROCK, *Secretary*

MINERALOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

MINERALOGICAL SOCIETY, *June 3.*—DR. L. J. SPENCER: *A new meteoric iron from Piedade do Bagre, Minas Geraes, Brazil.* This mass, found in 1922 and weighing 130 lbs., is of special interest in showing on one corner a well-marked octahedral fracture, and on a polished and etched section taken from this portion of the mass a complex system of very distinct Neumann lines. Neumann lines are twin-lamellae produced by gliding on planes of the icositetrahedron (211); and it is believed that these, as well as the octahedral fracture, were developed by the shock of impact when the meteorite fell with its corner on hard rock.

MISS JESSIE M. SWEET: *Notes on British barytes.* It is shown that the localities of barytes and fluorite follow the outcrop of the Whin Sill in the north of England and of the toadstones in Derbyshire. Attention is drawn to a change in colour from yellow to blue in some barytes crystals from the Mowbray mine, Frizington, Cumberland, on exposure to the light. Zoned crystals and some rare crystal-forms are described.

MR. M. H. HEY: *On face- and zone-symbols referred to hexagonal axes.* The three hexagonal zone-symbols for any one zone referred to the Bravais axial system and obtained by cross multiplication of face-symbols dropping the first, second, or third index, all obey the Weiss zone-law and when added together applying a factor of $2/3$ for the fourth index yield a four index zone-symbol identical with that obtained for the zone from the gnomonic or linear projection. This four index zone-symbol also obeys the Weiss zone-law if a factor of $3/2$ be applied to the unique index when operating upon the face-symbols of a face in the zone. General expressions are obtained for passing from any-one of the three index zone-symbols to the other two and also to the four index symbol and vice-versa.

DR. L. J. SPENCER: *Biographical notices of mineralogists recently deceased (fourth series).* For the past three years thirty eight biographies are included. Ages range from 32 to 91 years with an average of 68. Prominent are P. Groth and G. Tschermak, who both died in 1927.

DR. F. WALKER: *A tholeiitic phase of the quartz-dolerite magna of Central Scotland.* The tholeiites of Dalmeny and Kinkell are described and shown to contain chlorophasite. It is demonstrated by means of analyses and refractive index determinations that the residual glass is of acid composition in both rocks, a conclusion which does not support some of the ideas of Dr. C. M. Fenner on the crystallization of basalt.

MR. M. H. HEY: *On pink epsomites and fauserite.* A supposed specimen of the latter in the British Museum proves to be pink epsomite. Fauserite is a doubtful species.

W. CAMPBELL SMITH, *General Secretary*