THE DESTRUCTION OF THE LIÉGE MUSEUM

J. D. H. Donnay, *Hercules Powder Company, Experiment Station, Wilmington, Delaware.*

> *". . . les minéraux cristallisés, je les aime à cause de leur transparence ou de leur éclat, de leurs belles couleurs si variées et de leurs formes si harmonieuses, si caractéristiques et souvent si compliquées en apparence."*
>
> *G. Cesàro*
> *(Jubilee Speech, July 16, 1929)*

A short letter, dated October 23, 1944, has just been received from Professor H. Buttgenbach, Director of the Mineralogical Museum of the University of Liége, Belgium. The following statement is quoted from this letter: "*The whole museum (except for a few pieces which were in the vault) and all the other facilities were burned the day the Germans left! It is a great disaster.*"

All lovers of minerals will be stunned by the shocking news and will share the grief of their Belgian colleagues. Rare and well crystallized specimens, patiently accumulated for over a century, things of beauty, many of them irreplaceable, are lost forever.

Professor Buttgenbach had published a brief history and a description of his museum shortly before the war (1938). He recounts that the University of Liége was founded in 1817 and that a course in mineralogy was offered from the very beginning. H. M. Gaède was the first professor; he formed the nucleus of the collection. For two years (1828–30) the French crystallographer A. Lévy taught at Liége. His system of form notation, modified after that of Haüy, is still used, jointly with Miller indices, in French publications. He assembled a large collection of minerals from the famous Moresnet district, where he found the "new" species *willemite* six years after Vanuxem and Keating had reported a "siliceous oxide of zinc" from New Jersey, in the *Journal of the Philadelphia Academy* (1824). Lévy is also remembered for his work on the Heuland Cabinet, and his name was given by Brewster to a zeolite of the chabazite group (*lévyne*).

The great geologist André Dumont, who, while still in his teens, had shown "that the order of superposition of strata, as found in the field, is not necessarily the order of deposition," taught mineralogy and geology from 1835 to 1857. He contributed more than 3500 specimens to the museum. His name lives in the mineral *dumontite*. He was succeeded by another geologist, G. Dewalque (1857–91). A mineral was named *dewalquite*, but is now generally known as *ardennite* for reasons of priority.

Dewalque chose as his successor a man without any university degree, but who was to become the shining light of the Institute of Crystallography and Mineralogy, G. Cesàro. The latter lectured from 1891 to 1921 and kept up a steady flow of contributions for half a century, until 1939, when he died at the age of 89. He gave a strong impulse to crystallographic studies; his most celebrated memoir is probably his description of the calcite crystals from Rhisnes, Belgium. *Cesàrolite,* a lead manganate, was named after him by the present incumbent, Professor H. Buttgenbach, who has occupied the chair since 1921, and whose own name is recalled by a mineral from the Congo, *buttgenbachite.* Other members of the Liége faculty took an interest in the museum and fostered its development. The names of many of them have been given to minerals—Davreux, de Koninck, Lohest, Destinez, Fraipont, and Fourmarier.

New mineral names that originated at Liége include, besides *willemite* and *cesàrolite* already mentioned, *delvauxine, salmite, fraipontite, richellite, cornetite, destinezite, lohestite, sharpite, katangite, fourmariérite, droogmansite,* and *berthonite.* The new minerals from the Belgian Congo have been studied principally by Professor Buttgenbach, who described several of them.

In 1937 the collections were moved to a new building, a former bank, especially well suited for the purpose. The show-cases were housed in the main concourse, under a high glass roof, which flooded them with sky light. The following year, the Ungemach Collection, of Strasbourg, France, famed for the quality of its crystallized material, was added. At about the same time, Professor Buttgenbach donated his personal collection, which had been housed in Brussels up to then.

Last summer, before the disaster, the Mineralogy Museum comprised over 32,000 specimens, distributed as follows. (1) The Systematic Collection, over 21,000 specimens belonging to 831 different species. (2) The Collection of Minerals from Belgium, over 4500 specimens representing the 114 species found in that small country. (3) The Collection of Minerals from the Belgian Congo, 360 specimens representing 138 species. (4) The Ungemach Collection, over 6000 specimens, stressing the variations of crystal habit from locality to locality. (5) The Cesàro Type-Material Collection, comprising all the crystals which Cesàro studied and described in his publications; for instance, the Belgian calcite crystals and the minerals from Vesuvius and Monte Somma. (6) Several Special Collections, mainly of didactic interest, illustrating twinning, mineral associations, pseudomorphs, gem minerals, synthetic gems, igneous rocks, and meteorites (four falls in Belgium were represented). Also worthy of mention was an excellent collection of more than 850 wooden models, showing the habits of individual minerals. Every one of the specimens was carefully indexed. As Professor Buttgenbach proudly stated in his description of the museum, "I have made it a point to prepare a complete catalogue, on filing cards, so that we know exactly what we possess."

Now the Liége Mineralogical Museum, sharing the fate of the historic Law Courts, is a charred heap of rubble. Gone, the unique heterobrochantite. Gone, the beautiful kipushite. Gone, the rare Moresnet hopeite of 1826. Gone, the exquisite ruby silvers of Ungemach. Gone, the Rhisnes calcites. Gone, all of them! Destroyed—along with Ungemach's goniometer, the keepsake which his children had presented to the Institute, along with the microscopes, the refractometers, the books, the laboratories, the offices, the shop—and the catalogue. Today, Professor Buttgenbach and his associates, Messrs. Mélon and Bailly, no longer need their complete catalogue, with its thousands of cards, to know exactly what they possess.

REFERENCE

BUTTGENBACH, H., *Le Musée de Minéralogie de l'Université de Liége*, 41 pages. H. Vaillant-Carmanne, Liége **(1938)**.

BOOK REVIEW

THE PHOTOGRAPHY OF THE RECIPROCAL LATTICE by M. J. BUERGER. ASXRED MONOGRAPH NO. 1. Published by the American Society for X-ray and Electron Diffraction. ix+27 pp., 18 figs. Copies may be obtained from the Murray Printing Company, 18 Ames St., Cambridge 42, Mass. Price $1.50.

This monograph describes a method of photographing the reciprocal lattice which is based upon the geometrical principles of de Jong and Bouman for obtaining undistorted projections of the reciprocal lattice, combined with a precessing motion of the crystal, first described by the author in his "X-ray Crystallography." The method is consisely but clearly presented, and the underlying theory, the apparatus design, and the types of photographs secured are well illustrated.

Interpretation of the photographs is comparatively simple, since they are scaled photographs of individual lattice levels. Thus the method is of special value for crystals with very large unit cell dimensions. In setting the apparatus for *n*-level photographs, each precession photograph contains a measure of the error in the reciprocal lattice value used. The method can be used to locate a rational axis in an unoriented crystal fragment. Exposure times for regular exposures are short, and for orientation, exposures of a few minutes suffice for correction purposes. Perfection of the crystal is required only for a very small cylindrical volume through the crystal; possible adjacent twinned or distorted areas do not enter the *x*-ray beam. Compared with the Weissenberg method, less of the reciprocal lattice is recorded, and *n*-level photographs lack a record in the center.

L. S. RAMSDELL