MICHEL-LÉVY (CHRISTOPHE). *Tableaux des Mineraux des Roches*. Centre National de la Recherche Scientifique, Paris, 1959. Price: Nf. 12.

This slim Royal 4to paperback publication is the successor to a similar volume, with the same name, by Auguste Michel-Lévy and Alfred Lacroix, published in 1899. It is a key to the identification of certain minerals that can be identified in thin sections of rocks, excluding almost all opaque minerals, water-soluble minerals, and most of the minerals of metalliferous veins.

In a preliminary two-page table the various symmetry systems (with tetragonal to triclinic each split into optically negative and optically positive groups) are read against a series of intervals for the values of maximum birefringence. The pigeonholes of the grid, so constructed, each contain the name or names of minerals appropriate to them, together with the mean refractive index of each mineral. After optical examination, therefore, an unknown mineral is placed within a single pigeonhole by identification of its symmetry and birefringence and tentatively identified with the mineral in that pigeonhole whose mean refractive index most closely agrees with it. The mineral so obtained is then looked up in the second and principal part of the book, namely an alphabetical arrangement of all the minerals covered, with the simplification that mineral families are grouped together under the single entry of the family name. Each mineral entry provides the chemical formula, density, symmetry system, space group, cleavages, &c., optical orientation, 2V, dispersion, refractive indices, birefringence, crystallographic parameters, and remarks.

This new tabulation will probably be particularly welcomed in France, but perhaps less elsewhere, for so many standard reference books and also tabulations more or less similar to this one are now in use. This volume is, indeed, the last of a long line of such tabulations.

An exhaustive list of minor errata would be impractical and also discourteous in a review of this sort. The tables are, broadly speaking, accurate and certainly of value for students. A few observations do, however, appear worth while. Firstly, the minerals pollucite, gonnardite, rhomb-feldspar (potash oligoclase), stilpnomelane, and various chlorites are omitted. The chlorites included belong to the French classification, but those omitted occur in a later review of the chlorites (Min. Mag. **30**–277). Amongst points raised by the optical descriptions one notes the blank space for optic axial dispersion in hambergite, which in fact has appreciable dispersion. Beryllonite $\{010\}$ cleavage flakes give good centred acute bisectrix figures, but the tables state that the optic axes

are parallel to the cleavage. On p. 27 lazurite is a feldspathoid, on p. 26 it is not. The statement that chrysoberyl has $2V-45°$ is misleading because its optic axial angle is very variable. Garnierite, saponite, sepiolite, and "attapulgite" are not serpentines. There are a few definite spelling errors, such as "ashkroftine" (p. 6), "corundophyllite", "saphirine", "xantophyllite", "rumplite" (p. 9), and "kuntzite". Other spellings strike an English-speaker as strange, such as the acute accent in pricéite and wadéite. If å is used in låvenite (p. 8), why not in åkermanite?; the *umlaut* is used haphazardly in kämmererite (cf. pp. 8, 18), as is the å in låvenite (p. 32). G. H. F.

ABELSON (PHILIP HAUGE), Editor. *Researches in Geochemistry.* New York (Wiley), 1959, x+511 pp., 73 tables; 3 pl., 127 text-figs. (1 folded insert). Price 88*s*.

This volume consists of the following 23 self-contained essays, based upon seminars held during 1957–8 at the Geophysical Laboratory in Washington, and at Johns Hopkins University:

Sedimentation on the ocean floor (G. O. S. Arrhenius, 24 pp.); Rates of geochemical reactions at low temperatures and pressures (R. M. Garrels, 13 pp.); Geochemical indicators of marine and freshwater sediments (M. L. Keith and E. T. Degens, 24 pp.); Geochemical prospecting (H. E. Hawkes, 17 pp.); Geochemistry of organic substances (P. H. Abelson, 25 pp.); Some chemical aspects of petroleum genesis (W. E. Hanson, 14 pp.); Mineral assemblages of the Green River formation (C. Milton and H. P. Eugster, 33 pp.); Tritium in hydrology and meteorology (W. F. Libby, 18 pp.); Measurement and use of natural radiocarbon (H. de Vries, 21 pp.); Geochronology (G. R. Tilton and G. L. Davis, 27 pp.); The variations of the O^{18}/O^{16} ratio in Nature and some geologic implications (S. Epstein, 24 pp.); Isotopic fractionation of sulfur in geochemical processes (W. U. Ault, 19 pp.); The use of equilibrium calculations in finding the composition of a magmatic gas phase (K. B. Krauskopf, 19 pp.); The chemical environment of ore deposition and the problem of low-temperature ore transport (P. B. Barton, 22 pp.); Sulfide systems as geological thermometers (G. Kullerud, 35 pp.); Some aspects of the geochemistry of carbonates (J. R. Goldsmith, 23 pp.); Diffraction effects of short-range ordering in layered sequences (F. Chayes, 18 pp.); Hydrothermal investigations of amphiboles (F. R. Boyd, 20 pp.); Reduction and oxidation in metamorphism (H. P. Eugster, 30 pp.); Local equilibrium in metasomatic processes (J. B. Thompson, 31 pp.); Activation analysis applied to geochemical problems