and the changes it habitually undergoes during the processes of precipitation, melting, under pressure of dry or moist air, etc., etc.

The scientific study of snow has hitherto been undertaken by but few experts, both because of the inclement and inaccessible places where this can alone be done with any thoroughness, and also because laboratory technique has not been much developed for these special conditions. Up to the present, most of the more valuable studies have been made within the polar regions, in high mountains, or by engineers who have had to concern themselves with the practical problems connected with transportation and avalanching.

Seligman has made a great advance by instituting extended outdoor laboratory studies with the use of fairly simple apparatus, which has however permitted microscopic studies of the snow structures for most types. Out of this study has grown a great collection of photographs and almost 400 of these, and other illustrations, are reproduced in this book of 555 pages. So large a proportion of them are half tones that it has been necessary to employ a highly surfaced paper.

The book is the first systematic treatment of the subject of snow and so the author has found it necessary to give many new names for types which either have not before been described or else had not been clearly shown in their relation to others.

The book is divided into three parts. Part I, which comprises more than one-half of the book, if the appendices are excepted, after developing the method of study is devoted to the nature and structures of snow and the processes by which changes are brought about—air hoar and rime firnification, wind packing, drifting and erosion, cornices, stratification and water movements in snow.

Parts II and III are given over to avalanches, especially conditions which favor their formation, their slow movement; dry, wet, wind-slab, and ice avalanches, mixed avalanches and avalanches in series. There is then taken up from the point of view of the skier and alpinist the matter of safeguarding against accidents from avalanches, based upon the indications of danger which have been supplied by scientific studies and by experience.

It is not too much to say that this book has made a large contribution of original scientific research on the subject of snow, and has done a service of high order in bringing into an essentially new branch of science a thorough organization. The work is thoroughly documented and the literature supplied, which hitherto had been scattered, is very impressive. A detailed index of no less than 13 pages fittingly caps the effort. The work is surprisingly free from typographical errors in view especially of the foreign languages so largely represented in the references. Its timely appearance is very nearly synchronous with the organization of an International Commission on Snow which, under the chairmanship of Professor J. E. Church of the University of Nevada, held its first conference in Edinburgh in September.

William H. Hobbs

NEW MINERAL NAMES

Additional Data

Herzenbergite (Kolbeckine)

Paul Ramdohr: Vorkommen und Eigenschaften des Herzenbergits: *Zeit. Krist*, vol. **92,** pp. 186–189, 1935.

Chemical Properties: From mineralographic and x-ray studies, identical with SnS, hence not Sn_2S_3.

Mineralographic Properties: Reflection-pleochroism weak in both air and oil, $\parallel$ to (001) paler and more blue white, $\perp$ to (001) dark and in contrast, somewhat yellowish white. Extinction parallel; in 45° position with crossed nicols, red to yellowish red tone, passing on slight rotation to grayish blue to greenish blue. Inner reflection, rarely observable in oil, deep reddish brown.

ETCH REACTIONS: HCl positive; KOH etching and brown precipitate; negative with HNO_3, $FeCl_3$, $HgCl_2$, and H_2O_2.

OCCURRENCE: With pyrite, cassiterite, stannite, "brown stannite," blende and chalcopyrite, as hydrothermal sulfide. Also found very sparingly at the Stiepelmann mine, Arandis, SW. Africa.

W. F. FOSHAG

Taosite

JACQUES DE LAPPARENT: Les étapes du métamorphisme des émeris de Samos: *Compt. Rend. Acad. Sci.*, Paris, vol. **201**, No. 2, pp. 154–157, 1935.

A mineral believed to differ from corundum, showing the following properties: Uniaxial negative; very distinctly pleochroic, ϵ=clear yellow; ω=reddish yellow brown. *N* about 1.78; birefringence 0.035. It occurs as thin plates included in spinel, and arranged parallel to the direction of the faces of the octahedron. From the emery of Samos, Greece.

W. F. F.

Clinoferrosilite

N. L. BOWEN: Ferrosilite as a natural mineral: *Am. Jour. Sci.*, [5], vol. **30**, pp. 481–494, 1935.

CHEMICAL PROPERTIES: Iron metasilicate; $FeSiO_3$. Deduced from the optical properties of the mineral.

CRYSTALLOGRAPHIC PROPERTIES: Prism angle 90°50′.

OPTICAL PROPERTIES: Transparent, with trace of amber in minute crystals. $\alpha=1.763 \pm .002$, $\gamma=1.794\pm.002$. $c: \gamma=34.5°$ β nearly equal to α; 2V very small; plane optic axes is probably parallel to {100.}

OCCURRENCE: Found as minute needles in lithophysae in obsidian, with anorthoclase, cristobalite, magnetite, fayalite and biotite, near Lake Naivasha, Kenya Colony, Africa. Also from Coso Mountains, California; Hrafntinn-uhryggur, Iceland; and Obsidian Cliffs, Yellowstone National Park.

RELATIONSHIPS: A member of the pyroxene group.

W. F. F.