carnegieite. On the other hand, no writer is justified in completely ignoring a convention that is already well established, as the industrial chemists have done in naming their petroleum derivatives "petrochemical," when, as nearly everybody knows, petrochemistry is the chemistry of rocks.

As an alternative for the benefit of any reader who wishes to stand firmly on the mineralogist's principle, I suggest that he call Coes' new phase of silica *silica C* and that he call Keat's phase *silica K*.

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Tavorite and Barbosalite: Two New Phosphate Minerals from Minas Gerais, Brazil

Two more new phosphate minerals—tavorite and barbosalite—have been discovered in the Sapucaia pegmatite mine in Minas Gerais, Brazil. Three other minerals, recently described in the mineralogical literature, were named frondelite, faheyite, and moraesite. The Sapucaia permatite is granitic in composition, is confocally zoned on the basis of texture and mineral composition, and has had a significant production of muscovite and beryl.

Tavorite and barbosalite are intimately intergrown secondary phosphate minerals that occur with many other phosphate minerals in the pegmatite: heterosite, ferrosicklerite, hureaulite, vivianite, strengite, metastrengite, childrenite, variscite, frondelite, faheyite, moraesite, triphylite, montebrasite, and apatite. Other accessory minerals include spodumene, beryl, tourmaline, and sulfides. Quartz, perthite, albite, and muscovite are the essential minerals of the rock.

Tavorite is a hydrous lithium ferric phosphate, the ferric analog of montebrasite with which it is isostructural. It is named in honor of Elysiario Tavora, professor of mineralogy, Universidade do Brasil, Rio de Janeiro. The mineral occurs as a yellow very fine grained aggregate with a mean index of refraction of 1.807 and a specific gravity of 3.29. The chemical analysis shows the following percentages: Li_2O 7.64, FeO 2.39, MnO 1.47, Fe_2O_3 42.57, P_2O_5 39.78, H_2O^+ 5.76, and H_2O^- 0.40. The formula, as derived from the chemical analysis, is

$$(Li_{0.90},Fe^{II}{}_{0.06},Mn^{II}{}_{0.04})Fe^{III}{}_{0.94}(PO_4)_{0.99}(OH)_{1.13}$$

as compared with the ideal formula $LiFe(PO_4)(OH)$. X-ray powder data show principal *d*-spacings at 3.045, 3.285, 4.99, 4.68, and 2.474 A.

Barbosalite is a hydrous ferrous ferric phosphate, the ferric analog of scorzalite. It is named in honor of A. L. de M. Barbosa, professor of geology, Escola de Minas, Minas Gerais, Brazil. The mineral occurs in black nearly opaque grains and masses that may be very fine grained aggregates. Thin grain edges are dark blue-green with evident pleochroism. The apparent mean index of refraction is 1.810, and the specific gravity is 3.60. The chemical analysis, recalculated to 100 percent after subtracting admixed tavorite, is FeO 13.12, MnO 2.82, Fe_2O_3 41.70, P_2O_5 37.54, and H_2O 4.92 percent. Its ideal chemical formula is $Fe^{II}Fe^{III}{}_2(PO_4)_2(OH)_2$. X-ray powder data indicate principal *d*-spacings at 3.361, 3.313, 4.84, 3.239, 3.160, and 2.327 A. The mineral is structurally identical with a synthesized compound described by Gheith as ferrous ferric lazulite and both are closely related to, but have a larger cell size than, scorzalite.

Tavorite and barbosalite are examples of complete substitution of trivalent iron for aluminum in known mineral structures.

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A Simplified Method for Determining Radioisotopes in Tissues

Several years ago, Schwebel, Isbel, and Karabinos [*Science* **113**, 465 (1951)] described a method for the measurement of C^{14} labeled carbohydrates, dissolved in pure foramamid; this served primarily as a medium of low vapor pressure usable in a modified flow gas counter. During a current study of the distribution in the body of a group of beta-emitting colloids (Au^{198}, $CrPo_4$, Y^{90}, it became necessary to have a method that would make possible rapid disintegration of entire organs of moderate-sized animals and of the entire bodies of smaller species. Formamid, even when hot, does not effect such solution directly, but we have found that when it is added to freshly prepared homogenates of animal tissues, a clear colloidal solution results even at room temperature. Such a solution may be rapidly liquid-counted at infinite thickness employing the usual end-window Geiger tube.

There is no need for prolonged acid or alkali digestion of tissues or evaporation of assay samples. As a result, there is a marked saving of time, and data can usually be completed on the same day the animals are sacrificed.

The method is equally applicable to gamma-emitters since the 50-percent formamid can be pipetted easily in the small volumes required for well types of scintillation tubes.

Organs that may be broken down in the Potter-Elvehjem homogenizer are so treated, in the presence of 10 to 100 ml H_2O. Larger samples and small animals are first broken up in a Waring Blendor, and a suitable aliquot put through the Potter-Elvehjem. We have found it advisable to pour, rather than pipette, 10-ml samples of this homogenate into graduates or volumetric flasks and to add an equal volume of formamid, with measurement in 30-ml beakers, at constant distance from the counting tube. An inexpensive and portable rate meter, such as the 1615 B, or a comparable instrument, has served adequately, and the direct readings again facilitate the running of a large num-