Chemical Foods in Germany. By O. J. D. Hughes. *U. S. Consular Rep.*, 64, 23.—This contains a short list of the more important artificial food-products containing albuminose bodies.

New German Glass. *U. S. Consular Rep.*, 64, 131.—"Theophilus glass" is the name of a new material which, like the "Tiffany glass of this country," is intended for artistic uses.

Composition of the Ashes of Some Raw Tanning Materials. By Wm. K. Alsop and J. H. Yocum. *J. Am. Chem. Soc.*, 20, 338–340.—Tables are given showing the composition of the tanning material and giving complete analyses of its ash. The materials examined were chestnut-oak bark, hemlock bark, quebracho wood, and oak-bark extract.

Killing Weeds with Chemicals. By L. R. Jones and W. A. Orton. *Vt. Agr. Expt. Sta. Rep.*, 1899, 182–188.—The authors have tried the effects of salt, copper sulphate, potassium sulphide, sodium arseniate, arsenious oxide mixed with sal soda, kerosene, crude carbolic acid, and some other substances, in killing weeds in gravel walks, tennis courts, and other dry beaten soils. About 8 gallons of solution were applied to each square rod of area, the weeds chiefly present being knotweed, grasses, plantain, dandelion, and others. Knotweed was hardest to destroy. Salt requires heavy application, in the dry form, and is liable to be washed onto neighboring lawns and borders; crude carbolic acid is quick and powerful, but not enduring. Arsenical compounds, especially sodium arseniate, are effective, but their use depends upon convenience and expense.

Analyses of Fertilizers. *Mass. (Hatch) Agr. Expt. Sta. Rep., 1899*, 108–122; *Bull.* 65; *N. H. Agr. Expt. Sta. Bull.*, 69; *N. Y. Agr. Expt. Sta. Bull.*, 173, 531–552; *Vt. Agr. Expt. Sta. Rep.*, 1899, 148–150; *W. Va. Agr. Expt. Sta. Bull.*, 63, 115–152; *Wis. Agr. Expt. Sta. Bull.*, 81; *N. Da. Agr. Expt. Sta. Rep.*, 1899, 13–14; *Wash. Agr. Expt. Sta. Bull.*, 40; *N. J. Agr. Expt. Sta. Rep.*, 1899, 17–85; *Me. Agr. Expt. Sta. Bull.*, 60, 23–30; 66, 117–132; *Mass. State Board Agr. Rep.*, 1899, 131–169; *Md. Agr. Coll. Quart.*, 1900, 67; *R. I. Agr. Expt. Sta. Bull.*, 60, 67, 70, 73; *S. C. Agr. Expt. Sta. Bull.*, 53, 54; *Ky. Agr. Expt. Sta. Bull.*, 85, 88.

GEOLOGICAL AND MINERALOGICAL CHEMISTRY.

C. H. Warren, Reviewer.

Action of Ammonium Chloride upon Analcite and Leucite. By F. W. Clarke and G. Steiger. *Am. J. Sci.*, 159, 117–124.—The article records the results of an investigation on the action

of ammonium chloride upon the minerals analcite and leucite when the latter are heated separately with this reagent in sealed tubes at 350° C. ; also the meaning which the results obtained have in regard to the chemical constitution of the two minerals. Both minerals suffer a substitution of their alkali by ammonium, yielding the same compound whose composition is that of an ammonium leucite, $NH_4AlSi_2O_6$. This fact is believed to indicate an original similarity in the two minerals, which is also borne out by crystallographic and other resemblances. A further study of the chemical properties of the ammonium derivative leads the authors to think that analcite and leucite are not true metasilicates, but either salts of a polymeric metasilicic acid or a mixture of ortho- and tri-silicates.

Chemical Study of the Glaucophane Schists. By H. S. WASHINGTON. *Am. J. Sci.*, **161**, 31–59.—A consideration of the chemical and mineralogical composition of the above class of metamorphic rock as shown by a series of admirable chemical analyses of specimens from some seven localities, leads to conclusions concerning their classification and origin, which are briefly and concisely given by the author in his summary as follows : "The Glaucophane schists belong to two main groups, sharply separated from each other. The larger one is basic, composed chiefly of glaucophane and epidote, often with abundant garnet, zoisite, diallage, and sometimes smaller amounts of mica, feldspar, and quartz, and rutile and titanite as frequent accessories. Chemically, these closely resemble the composition of the rocks of the gabbro family, and are apparently divisible into two subgroups, one high in lime the other low in it. These are in most cases almost undoubtedly derived from such igneous rocks or their tuffs, but also possibly in rarer cases from sediments or slates of similar composition. These basic glaucophane schists scarcely differ in composition from the amphibolites and eclogites, and the difference in their formation is probably to be ascribed to differences in the conditions of metamorphism. A smaller, but widely spread, group is acid in composition, and these are composed largely of quartz and glaucophane, with mica and sometimes albite. These are derived from cherts, quartzites, or quartzose shales and sandstones. The existence is indicated of a third, still smaller, group of intermediate mineralogical composition, and chemically like the diorites. The glaucophane schists are apparently the result of both regional and contact metamorphism, and in many regions they occur together. This last seems to be the rule in glaucophane schist areas of any size, and where only the one kind is found the area is apt to be small."

The Mode of Occurrence of Topaz near Ouro Preto, Brazil. By ORVILLE A. DERBY. *Am. J. Sci., No. 165*, 25–34. The arti-

cle gives the results of a study of the associated earths and rocks where the topaz is found. The mineral itself is found in a dark-colored earth, which is thought, from its mineralogical character and its geological relations, to represent the remains of an igneous dike in which the topaz was an original mineral. What the exact nature of the igneous dike was cannot be told on account of its extreme state of alteration.

Carnotite and Associated Vanadiferous Minerals in Western Colorado. By W. F. Hillebrand and F. Leslie Ransome. *Am. J. Sci.*, **160**, 120–144.—The paper embodies the results of investigations concerning the occurrence and nature of the uranium and vanadium ores of Western Colorado. A somewhat detailed description of the various ore deposits is given by Dr. Ransome from a study of the region made by him and A. C. Spencer. He concludes that the ores are recent impregnations in the sandstones. The chemical researches made and recorded by Dr. Hillebrand furnish not only valuable data concerning the composition of the ores and their constituent minerals, but afford the chemist excellent descriptions of the analytical methods involved in the analysis of the uranium and vanadium ores. The summary made by the authors is as follows: "The body called carnotite is probably a mixture of minerals of which analysis fails to reveal the exact nature. Instead of being the pure uranyl-potassium vanadate, it is to a large extent made up of calcium and barium compounds. Intimately mixed with it, and entirely obscured by it, is an amorphous substance—a silicate or mixture of silicates—containing vanadium in the trivalent state, probably replacing aluminium. The deposits of carnotite, though distributed over a wide area of country, are, for the most part, if not altogether, very superficial in character and of recent origin. The green coloring and cementing material of certain sandstones near Placerville, Colorado, is a crypto-crystalline alumino-vanadio-potassium silicate resembling roscoclite, but with the percentage proportions of Al_2O_3 and V_2O_3 reversed. It constitutes over 25 per cent. of the sandstone at times, and contains nearly 13 per cent. of V_2O_3, the latter amounting in the maximum case observed to 3.5 per cent. of the sandstone. As yet these highly vanadiferous sandstones have been found only at Placerville, where it is intended to work them for vanadium. Carnotite is associated with them in only trifling amount. Other sandstones noticed owe their bright green color to chromium. In yet another case, where the color was dull green, this was not due to either chromium or vanadium.

Notes on the Tellurides from Colorado. By Charles Palache. *Am. J. Sci.*, **160**, 419–427.—The article gives the results of a careful and admirable crystallographic study of the

mineral sylvanite, together with a chemical investigation of the same. The analyses show the composition to be represented by the formula $AuAgTe_4$, thus confirming the conclusions previously reached by Pearce from analyses made by him on massive material from Cripple Creek. The goldschmidtite of Hobbs is shown by the author to be identical in crystallization with sylvanite. Owing to this identity it is thought that the analyses made by Hobbs may have been rendered inaccurate by the extremely small quantity with which he worked, and in a note incorporated in the article, Prof. Hobbs withdraws the name goldschmidtite as representing a distinct species. The article is concluded by a note on the crystal habit of hessite from Boulder, Colorado.

Mohawkite, Stibio-Domeykite, Domeykite, Algodonite, and Some Artificial Copper Arsenides. By GEORGE A. KOENIG. *Am. J. Sci.*, **160**, 439–448.—The copper arsenides occurring in the Keweenaw copper formation of Michigan are found only in veins intersecting the bedded deposits of native copper, and have so far been observed only near the foot of the formation toward the southeast. The new mineral mohawkite occurs in a vein at the Mohawk Mine associated with other copper arsenides in a gangue of quartz and calcite. The mineral is massive, structure granular to compact, color a gray, tinged with yellow, taking readily a brassy to purplish tarnish. It is brittle, hardness about 3.5, with a specific gravity of 8.07. A chemical analysis gives its composition as follows: Cu, 61.67; Ni, 7.03; Co, 2.20; Fe, trace; As, 28.85; this gives the mineral the formula $(Cu,Ni,Co)_3As$. The author shows also that nickel and cobalt are present in small quantities in the mineral domeykite Cu_3As, and that the specific gravity of the latter should be 7.94 instead of 6.7 to 7.5, as given by the mineralogies. By volatilizing arsenic over red hot copper in a combustion tube, sealed at one end, two arsenides were obtained, one having the composition Cu_2As and resembling chalcocite, the other consisting of groups of minute crystals and identical with domeykite in composition. By the name stibio-domeykite the author designates a mineral from the Mohawk Mine, closely resembling domeykite but containing a small percentage of antimony, and by the name mohawk-whitneyite a very intimate mixture of the two minerals mohawkite and whitneyite. The results of several analyses of these last mixtures accompany the article. The correctness of the formula $(Cu,Ni,Co)4As$, which was assigned to mohawkite by Ledoux (*Eng. Min. J.*, April, 1900) is strongly denied by the author. He concludes his with a new analysis of algodonite, confirming the formula Cu_6As. Its specific gravity was found to be 8.383, instead of 7.62, as previously given.