instances of petroleums found in quicksilver veins in Europe and in other metallic veins could be cited, in which the solfataric volcanic origin of not only the mercury or other metals, but also of the petroleum, is very apparent. The petroleum in such deposits cannot possibly have an origin different from that of the metals themselves.

3rd. Graphite and natural gas in the metalliferous vein of Silver Islet, and graphite in the veins at Cobalt and Ducktown, Tenn.:—The natural gas and graphite found in abundance at the Silver Islet mine has often been cited (14). Graphite was found there not only in the metalliferous vein intimately associated with rich native silver ores, but also in the norite or gabbro dyke accompanying the vein. At Cobalt graphite is also found in many of the complex cobalt-nickel arsenides and silver veins (15). Prof. J. F. Kemp in his paper on (16) "The Deposits of Copper Ores of Ducktown, Tenn.," says "graphite or some closely related carbon-mineral is met in occasional specimens of the ores of the Mary mine. It appears to specially favor the crushed masses and was probably of late introduction. It not only forms fine leaf-like aggregates but in thin section may be detected by the microscope as minute spheroids in the midst of other minerals, such as calcite and chalcopyrite. It must have been introduced as some gaseous or very mobile liquid hydrocarbon which has penetrated into minute cavities and filled larger cracks and has been subsequently changed to graphite."

4th. Solid petroleums in pegmatite dykes, and other veins, associated with uranium, radium and vanadium:—J. Obalski, in a very interesting paper (17) read before the Annual Meeting of this Institute, 1904, mentioned the fact that he found in a pegmatite dyke worked for mica a radio-active carbonaceous material burning quite easily and leaving ashes containing oxide of uranium, and also that he found in the same dyke some "eleveite," an ore of uranium strongly radio active and containing one tenth of a milligram of radium. Similar so-called "coals," which are, how-

14. Eng. and Min. Journ., Vol. XXXIV, pp. 320, 323, 453. See also—Ore Deposits of the U.S. and Canada by J. F. Kemp, p. 283, and Eng. and Min. Journ., Vol. XXIII, pp. 54–55 and 70–71.

15. Prof. W. G. Miller, Bureau of Mines Report, Ontario, 1907, Pt. II.

16. Trans. Am. Inst. Min. Eng., XXXI, 261.

17. Journ. Can. Min. Inst., Vol. VII, pp. 245, 256.