perature-concentration diagram for the system carbon and iron. Places in the diagram are found for graphite, martensite, cementite, ferrite, and pearlite, while austenite is discussed. Of course, few, if any, of the points are known with accuracy; but the author's scheme is a very plausible one and will serve as a useful guide to further investigation, even though certain points should prove to need modification. The paper affords another instance of the extreme value of the phase rule, a demonstration which is the more necessary when we notice that phase rule investigations do not appear as physical chemistry in the last *Jahrbuch der Chemie*. W. D. B.

Compounds of metals with one another. *N. Kurnakoff. Jour. Russ. Soc.* 31, 927 (1899). — The melting-points of a considerable number of sodium and potassium amalgams of varying composition as well as those of some alloys or sodium with either cadmium, lead or bismuth were determined and compared. Nothing especially novel is brought out, and the whole paper is of a preliminary character. C. E. L.

The distillation of liquid air and the composition of the gaseous and liquid phases, I. *E. C. E. Baly. Phil. Mag.* [5] 49, 517 (1900). — The author has determined the boiling-point curve for oxygen and nitrogen at atmospheric pressure, and also the compositions of the coexistent phases. When the logarithms of the ratios of the constituents of the liquid and the vapor phases are plotted as abscissas and ordinates respectively, the resulting curve is a straight line. W. D. B.

Properties of liquid mixtures, III. *R. A. Lehfeldt. Phil. Mag.* [5] 47, 284 (1899). — Addition of large amounts of phenol to water at temperatures above 70° causes little or no change in the vapor-pressure. The vapor-pressure of the dineric system, aniline and water, can be calculated approximately on the assumption that water produces a normal depression in aniline, and aniline a normal depression in water. A concentration-temperature diagram for phenol and water is given, and it is shown that the cryohydric temperature can be calculated approximately by means of the van 't Hoff formula. W. D. B.

The compounds of boron and silicon, SiB_3 and SiB_6 . *H. Moissan and A. Stock. Ber. chem. Ges. Berlin*, 33, 2125 (1900). — The combination of boron and silicon only takes place near the melting-point of silicon. In order to avoid the presence of the oxides of carbon, a special apparatus is described in which the carbon electrodes pass through a long clay tube and are connected by means of a mixture of five parts of crystalline silicon and one part of boron. An alternating current of 45 volts was used. 600 amperes was the amount passed in and the experiment lasted 50 to 60 seconds.

To obtain the triboride, the crystalline mass is boiled with nitric acid which attacks the hexaboride and leaves the triboride comparatively pure after the silicic acid is removed with caustic alkali. Fused caustic alkali attacks the triboride and in this way the hexaboride may be obtained.

The halogens attack these compounds in the reverse order to their atomic weights, although iodine is without action. They are also resistant to the halogen acids. The crystals form an easily fusible alloy with platinum. The specific gravity of SiB_3 is 2.52, that of SiB_6 is 2.47. C. G. L. W.