

be regarded as evidence that the difference in the energy of mixing does not depend on the concentration (i.e., that the approximation on which the calculation was based is valid). Figure 2 shows the diagrams of the three systems in question.

Fig. 3.

Data relating to the equilibrium phase diagram of the gold-palladium system were published in /5/ ; here the decomposition curves of the solutions also formed an "asymmetric cigar". Calculation of the ~~quantity~~ ^{quantity} ~~.....~~ ~~from~~ based on the deviation of thecurve from ~~the~~ ^a straight line giveserg/particle for this system ; criterion (1) ~~was~~ ^{is} not, however, satisfied. The equation.....~~was~~ ^{is} valid, from which it follows that the diagram should contain a point of equal concentrations (see below) at $y = x = 0.905$. It is easy to establish from the experimental diagram that in the present case the discrepancy may be explained by measuring inaccuracies, since the region of phase separation near $x = 1$ is very narrow. In Fig. 3 the continuous line gives the experimental diagram and the broken line the calculated one. In the experimental diagram, in the range of concentrations close to unity, no region of phase separation is ^{in general} given ~~at all~~ ; in the range of concentrations around 15% the ~~is~~ solid and liquid solutions are contiguous along a line, which is well known to be impossible.

2. Diagrams with a Point of Equal Concentrations. It follows