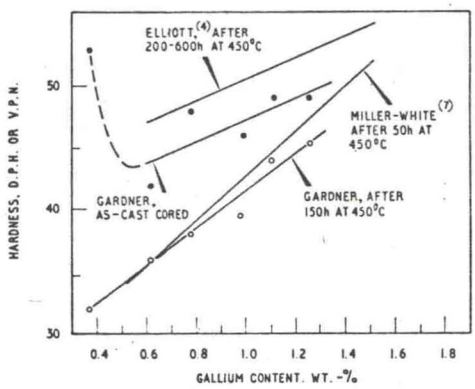
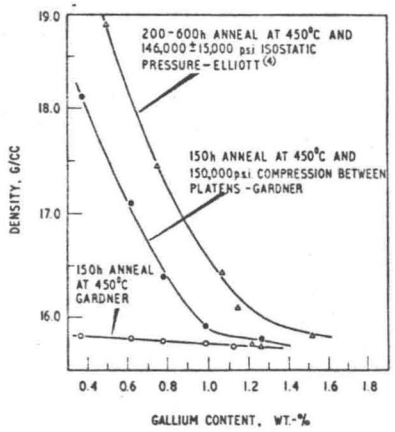
compare very well; however, for some unknown reasons the Elliott-Gschneidner data are considerably higher.



6-D



6-E

Fig 6-D Effect of Gallium Content on Hardness

Fig 6-E Effect of Composition and 150,000 lb/in^2 Pressure on Density in Plutonium-Gallium Alloys.

3.4 Metastability

3.4.1 The effect of the application of a pressure of 150,000 lb/in^2 to homogenized specimens on their density-composition relationship is illustrated in Fig 6-E. As gallium content decreases, the effect of pressure on density increases at a rapid rate because of increased alpha phase formation. Similar data obtained earlier by Elliott and Gschneidner[4] generally shows the same result except for a substantial vertical displacement, Fig 6-E. Since their pressures were nearly the same as that in the present work, the difference between the two curves may be the result of the difference between isostatic compression and that between platens.

3.4.2 The fact that alpha phase forms as a consequence of pressure in alloys containing less than 1.2 wt.-% Ga, raises the question of the stability of alpha-delta phase mixtures at room temperature and their response to annealing temperature and time, followed by storage at room temperature. Since a wide range of gallium content exists in cored alloys, its