

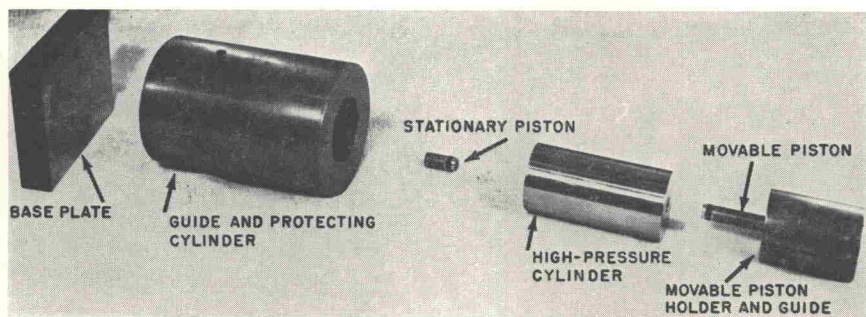


Fig. 1. Exploded view of 10 kbar high-pressure chamber.

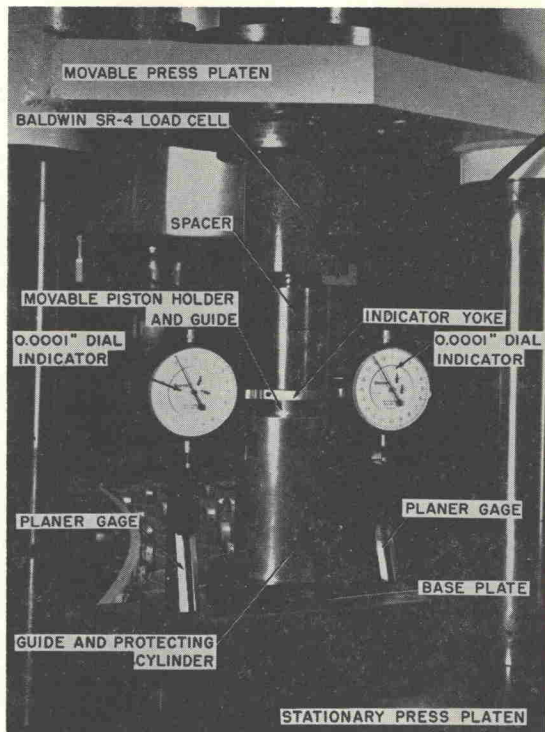


Fig. 2. Photograph of 10 kbar high-pressure apparatus.

TABLE I  
Summary of Data on Delta-Stabilized Pu-Rich Binary Alloys at High Pressures

| System | Composition | Max.<br>press.<br>(atm) | Transfor-<br>mation<br>press.<br>(atm) | Transfor-<br>mation<br>vol.<br>$\Delta V/V_0$ (%) | Perma-<br>nent<br>vol.<br>change <sup>a</sup><br>$\Delta V/V_0$<br>(%) | Compressi-<br>bility<br>( $\times 10^6$ /<br>atm) | Density                                 |                                        |
|--------|-------------|-------------------------|----------------------------------------|---------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------------|----------------------------------------|
|        |             |                         |                                        |                                                   |                                                                        |                                                   | Before<br>compres-<br>sion<br>(g/cu cm) | After<br>compres-<br>sion<br>(g/cu cm) |
| Pu-Al  | 1.7 a/o Al  | 8,880                   | 2040                                   | 16.0                                              | 16.0                                                                   | 4.1                                               | 15.73                                   | 18.67                                  |
|        | 2.5 a/o Al  | 8,920                   | 4340                                   | 11.8                                              | 10.9                                                                   | 3.8                                               | 15.66                                   | 17.70                                  |
|        | 3.4 a/o Al  | 8,920                   | 7020                                   | 6.8                                               | 6.7                                                                    | 4.0                                               | 15.60                                   | 16.71                                  |
|        | 4.0 a/o Al  | 10,060                  | N.T. <sup>b</sup>                      | —                                                 | —                                                                      | 3.4                                               | 15.50                                   | 15.49                                  |
|        | 5.0 a/o Al  | 8,670                   | N.T. <sup>b</sup>                      | —                                                 | —                                                                      | 4.5                                               | 15.31                                   | 15.26                                  |
|        | 7.5 a/o Al  | 8,470                   | N.T. <sup>b</sup>                      | —                                                 | —                                                                      | 3.9                                               | 15.38                                   | 15.48                                  |
|        | 10.0 a/o Al | 8,670                   | N.T. <sup>b</sup>                      | —                                                 | —                                                                      | 3.4                                               | 15.04                                   | 15.07                                  |
|        | 12.5 a/o Al | 8,670                   | N.T. <sup>b</sup>                      | —                                                 | —                                                                      | 3.1                                               | 14.87                                   | 14.87                                  |
| Pu-Zn  | 1.51 a/o Zn | 10,000                  | 1200                                   | 17.3                                              | 17.1                                                                   | 4.7                                               | 15.94                                   | 19.08                                  |
|        | 1.79 a/o Zn | 9,250                   | 950                                    | 16.7                                              | 16.6                                                                   | 2.4                                               | 15.85                                   | 19.08                                  |
|        | 2.16 a/o Zn | 9,250                   | 2520                                   | 16.2                                              | 15.7                                                                   | 2.0                                               | 15.75                                   | 19.08                                  |
|        | 2.92 a/o Zn | 9,100                   | 4210                                   | 15.3                                              | 14.8                                                                   | 3.8                                               | 15.71                                   | 18.53                                  |
|        | 3.35 a/o Zn | 9,880                   | 5290                                   | 15.8                                              | 15.3                                                                   | 4.0                                               | 15.70                                   | 18.29                                  |
|        | 3.89 a/o Zn | 9,250                   | 6650                                   | 13.8                                              | 12.4                                                                   | 3.2                                               | 15.64                                   | 17.82                                  |