Bi 1 - 2	Tl	Ba	Bi 3 - 5	Sn
25.4 ± 0,1	36. 7 ± 0,1	55 ± 0,5	78 ±2	102 ± 4

The case of Fe is a little different because the nucleation of the transition seems to depend greatly upon the pressure gradients inside the cell, as shown by several people (26) the present apparatus gives stresses which are of a less uniaxial character as a Drickamer or a Bridgman anvil, which might explain the high value found : 140 ± 15 kbar. It thus appears that Fe does not constitute a good reference metal and that Ba should be more desirable, although its transition pressure is higher still (144 kbar).

In order to fill up the gap in the high pressure scale , it would be desirable to find another reference element such as Germanium (30) (34).

o

o o

V - CONCLUSIONS

With a "X type anvil", inconsistencies in the high pressure scales which are currently used have been revealed. A new pressure scale which fits better this apparatus has been established, which would locate the transition pressures of Bi 3 - 5 at 78 $\pm$ 2 kbar and of Sn at 102 $\pm$ 4 kbar, and of Fe at 140 $\pm$ 15 kbar. However many authors have discussed the influence of the apparatus shape, of sample shape, (wire or ribbon) of the pressure transmiting medium, of the pressure gradients on the nucleation of the allotropic transformations under high pressure. Thus the above conclusions may be valid only for the apparatus which was used. Rather than calibrating it would be better to evaluate the pressure at all time by the continuous change in the property of a material such as the lattice parameter with X - ray diffraction. Provided the equation of state of the material is theoretically known, an apparatus such as a hexahedral press built in our laboratory (31) should bring in the future interesting results.

-o-o-o-o-o-o-o-o-o-o-

o

o o