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The estimated shear moduli for promethium, thulium, and lutetium were estimated from the straight line shown in Fig. 2b. The estimated value for europium was assumed to be equal to the mean value of barium and ytterbium, because europium is the mid-member of the divalent 4*f*

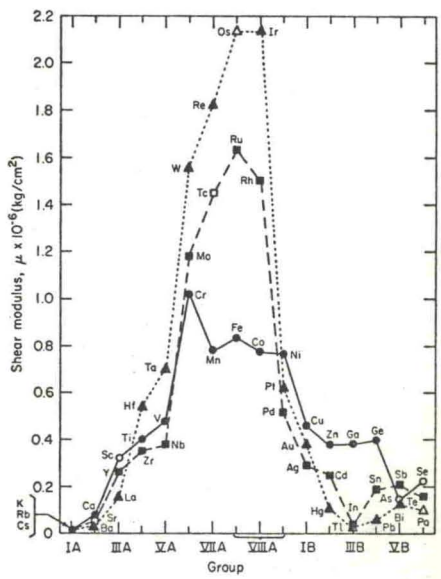

FIG. 3. Shear modulus of the elements of the fourth, fifth, and sixth periods of the Periodic Table. Open points are estimated values.

series and barium and ytterbium are, respectively, the first and last members of this series.[13]

5. Poisson's Ratio

The values of Poisson's ratio are listed in Table III, and are shown in Fig. 4 for all the elements. Köster and Franz[12] recently reviewed this subject quite thoroughly.

The minimum and maximum values for Poisson's ratio are zero and 0.5. It was noted more than a century ago that Poisson's ratio is approximately a constant for most materials; the standard textbooks usually give a value of $\frac{1}{3}$ for this constant. Examination of Table III shows that the minimum value experimentally determined is 0.039 for beryllium and the maximum is 0.46 for indium and thallium. The estimated values all lie within this range. The mean value of Poisson's ratio for the 64 experimental values is 0.301 $\pm$0.079. The standard deviation is equivalent to