TABLE XX. RATIO OF $(1-\sigma)/(1+\sigma)$

Element	$\frac{1-\sigma}{1+\sigma}$	Element	$\frac{1-\sigma}{1+\sigma}$	Element	$\frac{1-\sigma}{1+\sigma}$
3 Li	0.468	38 Sr	(0.534)[a]	65 Tb	0.586
4 Be	0.925	39 Y	0.590	66 Dy	0.609
5 B	0.837	40 Zr	0.493	67 Ho	0.594
6 C(g)	0.575	41 Nb	0.481	68 Er	0.616
6 C(d)	0.695	42 Mo	0.538	69 Tm	(0.619)[a]
11 Na	0.521	43 Tc	(0.547)[a]	70 Yb	0.558
12 Mg	0.563	44 Ru	0.555	71 Lu	(0.622)[a]
13 Al	0.493	45 Rh	0.575	72 Hf	0.538
14 Si	0.389	46 Pd	0.455	73 Ta	0.481
15 P(w, r, b)	(0.498)[a]	47 Ag	0.460	74 W	0.558
16 S(r)	0.489	48 Cd	0.538	75 Re	0.547
19 K	0.481	49 In	0.370	76 Os	(0.556)[a]
20 Ca	0.527	50 Sn(g)	0.408	77 Ir	0.587
21 Sc	(0.576)[a]	50 Sn(w)	0.504	78 Pt	0.449
22 Ti	0.487	51 Sb	0.527	79 Au	0.404
23 V	0.471	52 Te	0.504	80 Hg	0.466
24 Cr	0.654	55 Cs	(0.475)[a]	81 Tl	0.370
25 Mn	0.613	56 Ba	0.563	82 Pb	0.389
26 Fe	0.564	57 La	0.553	83 Bi	0.504
27 Co	0.499	58 Ce(α)	0.754	84 Po	(0.495)[a]
28 Ni	0.538	58 Ce(γ)	0.603	87 Fr	(0.475)[a]
29 Cu	0.487	59 Pr	0.533	88 Ra	(0.534)[a]
30 Zn	0.550	60 Nd	0.531	89 Ac	(0.576)[a]
31 Ga	0.619	61 Pm	(0.565)[a]	90 Th	0.556
32 Ge	0.575	62 Sm	0.479	91 Pa	(0.560)[a]
33 As	(0.498)[a]	63 Eu	(0.555)[a]	92 U	0.606
34 Se	(0.495)[a]	64 Gd	0.589	93 Np	(0.594)[a]
37 Rb	(0.475)[a]			94 Pu	0.739

[a] Estimated value; see text for further discussion.

The error ± 0.083 is equivalent to $\pm 15.6\%$. The values for the ratio $(1-\sigma)/(1+\sigma)$ vary from a minimum of 0.370 for indium and thallium to a maximum of 0.925 for beryllium. The estimated values lie well within this range.

The variation of the ratio $(1-\sigma)/(1+\sigma)$ for many elements is shown in Fig. 24. As would be expected, this plot is almost exactly the inverse of the plot of Poisson's ratio given in Fig. 4. The slight group dependence noted for Poisson's ratio (Section 5) is also obvious in Fig. 24.

The ratio $(1-\sigma)/(1+\sigma)$ for the rare earths, which is shown in Fig. 25a, is seen to increase with increasing atomic number. In general the points are scattered about the straight line shown in the figure, with large departures shown by cerium, samarium, and ytterbium. The anomaly for ytterbium may be due to its divalent nature,[13] but the departures shown by cerium and samarium are not understood.

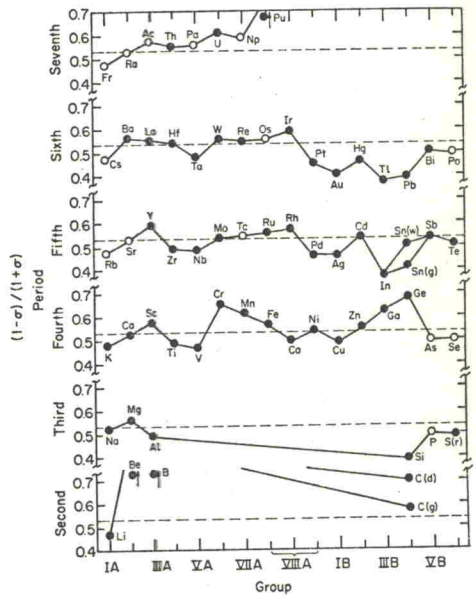

FIG. 24. The ratio $(1-\sigma)/(1+\sigma)$ of all of the elements considered in this review with the exception of the rare-earth elements. The horizontal dashed line represents the mean value of this ratio for these elements. Open points are estimated values.

Estimated Data. The values of $(1-\sigma)/(1+\sigma)$ are considered to be estimated if the value of Poisson's ratio was estimated. Estimated values are given for phosphorus, scandium, arsenic, selenium, rubidium, strontium, technetium, cesium, promethium, europium, thulium, lutetium, osmium, polonium, francium, radium, actinium, protactinium, and neptunium. The mean value of $(1-\sigma)/(1+\sigma)$ for the estimated data is 0.539, which indicates that the mean value of the experimental data would remain unchanged if the estimated values were included.