by multiplying an assumed estimated value for the entropy of fusion and the known melting point. As will be shown in Section 27, the entropy of fusion for body-centered cubic metals is 1.76 e.u. and for close-packed structures (face-centered cubic and hexagonal) it is 2.29 e.u. The entropy of fusion was assumed to be 1.76 e.u. for titanium, vanadium, zirconium, niobium, hafnium, tantalum, polonium, francium, radium, thorium, protactinium, uranium, and neptunium. Most of these metals are known or thought to be body-centered cubic just below their melting points. For the remaining elements, it was assumed that 1.76 was more representative of the entropy of fusion than was 2.29. The value 2.29 e.u. was assumed to be the entropy of fusion for boron, technetium, ruthenium, rhodium, rhenium, osmium, iridium, and actinium. All of these elements, except boron, are thought to have the closed-packed structure up to their melting points. This value of 2.29 e.u. for the entropy of fusion for boron was thought to be more representative than 1.76 e.u. The mean value for the entropy of fusion for the rare earths, which are known or thought to melt from the body-centered cubic form, is 1.48 e.u. By use of this value the heat of fusion was calculated for promethium, dysprosium, erbium, and lutetium. It should be mentioned that Kelley[54] used a value of 2.3 e.u. for the entropy of fusion to estimate the heat of fusion of any element for which the heat of fusion was not known, but Stull and Sinke[53] used 1.9 and 2.3 e.u. for body-centered cubic and close-packed metals, respectively. The technique used herein and that used by Stull and Sinke are essentially the same, except for the value used for the body-centered cubic metals. Presumably the present value is more accurate since more heats of fusion are available today than seven years ago.

VI. Boiling Point and Heat of Sublimation

10. Boiling Point

The boiling points of the elements are listed in Table XI and are shown for the elements of the fourth, fifth, and sixth periods of the Periodic Table and for the rare-earth metals in Figs. 15 and 16a, respectively.

Most of the boiling points were calculated from vapor pressure data obtained at pressures substantially below 1 atm pressure. For many elements the original investigators calculated the boiling points, but for a few the reviewer calculated the value from the low-pressure data, which were usually given in the form

$$\log p_{mm} = -(A/T) + B, \qquad (10.1)$$

Table XI. Boiling Point at 1 Atmosphere

Element	Boiling point (°K)	Boiling point (°C)	Ref.
3 Li	1600	1327	1
4 Be	3142 ±100[a]	2869[a]	2, 3
5 B	4050 ±100	2777	4
6 C	4000[b]	3727[b]	5
11 Na	1154[c]	881[c]	6
12 Mg	1385	1112	5, 7
13 Al	2333	2060	7, 8
14 Si	2753	2480	9
15 P	553	280	7, 9
16 S	717.75[c]	444.60[c]	*d*
19 K	1027[c]	754[c]	6
20 Ca	1765	1492	5, 7
21 Sc	3537 ±30[a]	3264[a]	10, 11
22 Ti	3586[a]	3313[a]	12
23 V	3582 ±42	3309	13, 14
24 Cr	2918 ±35	2645	12, 15, 16
25 Mn	2368	2095	17
26 Fe	3160	2887	5
27 Co	3229[a]	2956[a]	18, 19
28 Ni	3055[a]	2782[a]	20
29 Cu	2811 ±20[c]	2583[c]	21
30 Zn	1175[a]	902	22
31 Ga	2510	2237	5, 9
32 Ge	3100	2827	5, 9
33 As	886[b]	613[b]	5, 7, 9
34 Se	958	685	5, 9
37 Rb	959[c]	686[c]	6
38 Sr	1645	1372	5, 9
39 Y	3670[a]	3397[a]	11
40 Zr	4650	4377	5
41 Nb	4813[a]	4540[a]	23
42 Mo	5785 ±175	5512	12, 24
43 Tc	(5300)[e]	(5030)[e]	—
44 Ru	4325 ±25	4052	4, 25
45 Rh	3960 ±60	3687	26, 27, 28
46 Pd	3200	2927	29, 30
47 Ag	2468 ±15[c]	2195[c]	21
48 Cd	1038	765	5, 7
49 In	2279 ±6[c]	2006[c]	21, 31, 32
50 Sn	2766 ±14[c]	2493[c]	21, 33
51 Sb	1907 ±10[c]	1634[c]	21
52 Te	1163 ±1[c]	890[c]	34
55 Cs	939[c]	666[c]	6