

The shapes of the curves have been analyzed by constructing difference tables, as described in appendix A. If we express the resistance as a power series function of the pressure $R = R_0(1 + Ap + Bp^2 + Cp^3 \dots)$, the coefficients A, B, C may be obtained from the difference tables. Only these three coefficients are needed to express our experimental results; they are included in table 4.

TABLE 3. A COMPARISON OF RESULTS FOR THE IDEAL RESISTIVITY OF POTASSIUM AT ZERO PRESSURE

T ($^{\circ}\text{K}$)	ρ_i/T^* ($10^{-8} \Omega \text{ cm deg K}^{-1}$)			
	(1)†	(2)†	(3)	(4)
273.15	2.360 ₁	2.360 ₁	2.360 ₁	1.000
170.9 ₄	2.133 ₇	—	2.061	1.035
103.7 ₉	1.979 ₈	—	1.872	1.058
90.5 ₈	1.919 ₁	—	1.793	1.070
90.2 ₁	1.906 ₄	—	1.791	1.064
87.8 ₁	—	1.836 ₂	1.780	1.031
77.6 ₀	—	1.774 ₈	1.721	1.031
72.9 ₆	1.816 ₂	—	1.689	1.075
72.2 ₀	1.798 ₃	—	1.685	1.067
56.8 ₄	1.649 ₃	—	1.538	1.073
56.4 ₁	1.662 ₁	—	1.532	1.085
20.62	0.633 ₉	—	0.565	1.122
20.42	0.638 ₈	0.619 ₀	0.556	{ 1.150 1.113
18.47	0.533 ₈	—	0.471	1.144
17.19	0.471 ₂	—	0.414	1.138
16.39	0.432 ₆	—	0.379	1.141
14.27	0.336 ₄	—	0.288	1.168

* Normalized to $2.3601 \times 10^{-8} \Omega \text{ cm deg K}^{-1}$ at 273.15°K .

† Specimens in glass capillary tubes.

(1) Results from Woltjer & Kamerlingh Onnes (1924).

(2) Results from Meissner & Voigt (1930).

(3) This work.

(4) ρ_i (capillary specimen)/ ρ_i (bare wire).

3.1.3. The correction to constant density conditions

This correction is made in the way described in appendix A. The results of the calculations are given in tables 2 and 4 and they are also illustrated in figures 1 and 2. The systematic error given in table 2 arises from uncertainties in the equation of state of potassium; the error limits we have quoted are based on the supposition that at room temperature the error in the value of p' , the pressure required to increase the density of potassium to its value at 0°K under zero pressure, is 3%.

3.2. Sodium

The results for sodium are similar in general form to those for potassium. Below about 40°K there is, however, the extra complication of the martensitic transformation (cf. Dugdale & Gugan 1960). Details of the specimens studied are given in table 5.