

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

$T$ ( $^{\circ}\text{K}$ )	$\rho_i/T^* (10^{-8} \Omega \text{ cm deg K}^{-1})$			(4)
	(1)†	(2)†	(3)	
273.15	2.360 <sub>1</sub>	2.360 <sub>1</sub>	2.360 <sub>1</sub>	1.000
170.9 <sub>4</sub>	2.133 <sub>7</sub>	—	2.061	1.035
108.7 <sub>0</sub>	1.979 <sub>6</sub>	—	1.872	1.058
90.5 <sub>6</sub>	1.919 <sub>1</sub>	—	1.793	1.070
90.2 <sub>1</sub>	1.906 <sub>4</sub>	—	1.791	1.064
87.8 <sub>1</sub>	—	1.836 <sub>2</sub>	1.780	1.031
77.6 <sub>0</sub>	—	1.774 <sub>6</sub>	1.721	1.031
72.9 <sub>6</sub>	1.816 <sub>2</sub>	—	1.689	1.075
72.2 <sub>0</sub>	1.798 <sub>3</sub>	—	1.685	1.067
56.8 <sub>4</sub>	1.649 <sub>5</sub>	—	1.538	1.073
56.4 <sub>1</sub>	1.662 <sub>1</sub>	—	1.532	1.085
20.62	0.633 <sub>0</sub>	—	0.565	1.122
20.42	0.638 <sub>6</sub>	0.619 <sub>0</sub>	0.556	{ 1.150
18.47	0.533 <sub>8</sub>	—	0.471	{ 1.113
17.19	0.471 <sub>2</sub>	—	0.414	1.144
16.39	0.432 <sub>6</sub>	—	0.379	1.138
14.27	0.336 <sub>4</sub>	—	0.288	1.141
				1.168

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

† Specimens in glass capillary tubes.

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

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

(3) This work.

(4)  $\rho_i$  (capillary specimen)/ $\rho_i$  (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  $0 \text{ }^{\circ}\text{K}$  under zero pressure, is 3%.

### 3.2. Sodium

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