vernier so that the distance between the edge of any dust heap and the nearest division of the standard yard could be accurately determined. The mean of 24 observations on the value of $\frac{\lambda}{2}$ in air gave 7·1757 cms., the greatest divergence from this number being the values 7·1788 and 7·1723 cms.

The mean of three readings of the length of the rod gave 75·0484 cms. The specific gravity of the rod was determined by finding its volume and weight, corrections being carefully made for the very small holes made in the rod in attaching the disc on the end inserted in the dust-tube. The average of 15 readings on the diameter of the rod gave 1.2675 cms. The corrected volume of the rod was 94.6949 ccs.; the weight of the solid rod was 805·19 grams, which brings the density equal to 8·503.

If V_1 denotes the velocity of sound in brass, V_2, that in air, λ_1, the wave-length in brass, λ_2, the wave-length in air,

$$V_1 = V_2 \cdot \frac{\lambda_1}{\lambda_2}\cdot$$

This gives from the above results $$V_1 = V_2 \times \frac{75\cdot0484}{7\cdot1757}.$$

The results given for the value of V_2 for air in tubes are as follows:—

Kayser	(1877)	332·5	metres per sec. at 0°C.
Wüllner	(1878)	331·9	" " " "
Müller	(1902)	331·9	" " " "

One is doubtless justified in taking as the most probable value of V_2, 331·9 metres per second. We have still to correct for the temperature as the above result refers to air at 0° C. and the equation connecting the velocity at 0° C. and t° C. is, for small values of t, $V_t = V_o (1 + \frac{1}{2} at)$, where "a" is the coefficient of expansion of air. Therefore the value of V_2, the velocity of sound in air at 15° C., the temperature at which the above experiments were carried out, is

34105 cms. per second.

Introducing this value in the equation for V_1, we get as the value for the velocity in the brass rod at 15° C.—358,080 cms.per second.

From the equation $q' = V_1^2.d$, we obtain $q' = 10\cdot902 \times 10^{11}$ dynes per square centimetre.