For use, a curve is laid down, giving the volume of the stem for every division of the scale, measured from the lowest one, and another curve, giving the volume of the body of the instrument, upon the lowest division of the scale in the stem, for different temperatures. When, therefore, in calculating the specific gravity of a liquid, we require to find the volume of the instrument immersed, from the one curve we get the volume of the stem, and from the other that of the body of the instrument immersed. The sum of the two gives the volume of the liquid displaced. The weight *in vacuo* of the hydrometer, together with plate and weight divided by the volume so found, gives the specific gravity of the liquid for the temperature during observation, that of water at 4° C. being unity.

The instrument at present in use has the following elements:

Weight of hydrometer *in vacuo*	160.2128	grammes.
Weight of table	0.8360	"
Weight of Weight I	0.8560	"
" " II	1.6010	"
" " III	2.4225	"
" " IV	3.2145	"
" " V	4.0710	"
" " VI	4.8245	"

The diameter of the stem is as nearly as possible 3 millimetres, the volume of 100 millimetres (the length of the scale) being 0.86 cc. Had the volume of the stem been determined by weighing the instrument in water at 4° C. instead of 15° C., the volume would have been found to be 0.8607 cc., instead of 0.86 cc. The difference between the two is wholly inappreciable.

The volume of the body of the instrument at 0° is 160.3 cc., and at 22°.2 160.4, the co-efficient of expansion having been found, by immersion in distilled water of different temperatures, to be 0.000027.

The bulk and weight of the body, taken along with the slimness of the stem, make great care in handling it necessary, and,