

avoirdupois and troy systems. The rough equivalent "454 grammes equals 1 lb. avoirdupois" is constantly used in seed-analysis. It may be recalled that the gramme standard of weight originated in the following way: A metre, the metric unit of length, is presumed to be the ten-millionth part of a meridian line drawn from the Pole to the Equator. The one-hundredth part of a metre is a centimetre. A cubic centimetre (1 c.c.) of distilled water is the weight of 1 gramme.

Cubic Centimetre (c.c.).—The cubic centimetre is a measure of capacity under the metric system. 1,000 c.c. equals 1 litre, the unit of capacity; 1 litre equals 1.76 pints; 8 pints equals 1 imperial gallon. These equivalents link up the metric with the British measures of capacity.

Variable Measures.

Ton.—The term "ton" is applied to a variety of both weight and capacity measurements. As a measure of weight its chief use in the British Empire is to express the weight of 2,240 lb. avoirdupois. In this connection it is sometimes alluded to as the "long ton" or "gross ton." The "short ton," consisting of 2,000 lb., is the ordinary meaning of the word ton in respect to weight in the United States of America, and is thus commonly used also in Canada, South Africa, and in certain other parts of the British Empire. The metric ton consists of 2,204.6 lb.

As a measure of capacity a "register" ton is a unit of the internal capacity of ships; it consists of 100 cubic feet. The "ton" is also the unit approximately equal to the volume of a long-ton weight of sea-water, used in reckoning the displacement of vessels—35 cubic feet—called specifically a "displacement" ton. Again, the "ton" is the unit of volume for freight—approximately the volume of a ton weight of the particular commodity. In this case it is called a "shipping" ton. A ton of merchandise is often reckoned as 40 cubic feet, and a ton of timber at 42 cubic feet. The shipping ton of 40 ft. is used in New Zealand, with fractions expressed in cubic feet.

Hundredweight.—This term is applied to various measures of weight. In the British Empire it is most commonly 112 lb. avoirdupois. In the United States and various other parts, however, it is 100 lb. avoirdupois. The metric hundredweight contains 110.23 lb. avoirdupois. In each case the hundredweight represents one-twentieth of its particular kind of ton.

Quarter.—This is a term for various measures of weight and capacity, of which more strictly it always represents one-fourth. For instance, as a quarter of a hundredweight it represents in Britain 28 lb. avoirdupois, and in the United States 25 lb. avoirdupois. As a measure of capacity the quarter represents 8 bushels. Now, 1 bushel consists of 8 gallons, and 1 gallon, the standard British imperial measure, is the capacity of exactly 10 lb. avoirdupois weight of distilled water, which occupies 277,274 cubic inches of space. Thus—1 gallon = 277.274 cub. in.; ($\times 8$) 1 bushel = 1.28 cub. ft.; ($\times 8$) 1 quarter = 10.24 cub. ft. The quarter will also be seen to be approximately one-fourth of a ton as used in shipping—namely, 10.24 cub. ft. $\times 4 = 40.96$: hence its name.

Bushel.—This is a term for various measures of capacity and weight. Like the quarter of capacity, it is a multiple of the British imperial