No. 3.

RULE FOR COMPUTING THE OVERPROOF ON SPIRITS IN BOTTLE.

REDUCE the gallons and gills into gills; multiply by the strength per cent.; set off the decimal point, and divide by 100.

EXAMPLE.

	Case.	Bottles.	Gills.	Gills.	Total Strength. O.P.
J.W.	No. 1.	24 ×	5 =	120	8.5
					8.5

$$*10.200 = 10 \text{ gills.}$$
$$\frac{120}{130} = 4\tfrac{2}{32} \text{ galls. for duty.}$$

				O.P.
No. 2.	36 ×	4½ =	162	3.4
				3.4

$$*5.508 = 6 \text{ gills.}$$
$$\frac{162}{168} = 5\tfrac{8}{32} \text{ galls. for duty.}$$

AVOIRDUPOIS WEIGHT.

16 drachms make	...	...	1 ounce (oz.)	28 pounds	1 quarter (qr.)
16 ounces ,,	...	...	1 pound (lb.)	4 qrs., or 112 lbs.	1 hundred (cwt.)
14 pounds ,,	...	...	1 stone (st.)	20 cwts.	1 ton (ton)

TROY WEIGHT.

$$24 \text{ grains} = 1 \text{ dwt.} = 24 \text{ grains}$$
$$20 \text{ dwts.} = 1 \text{ ounce} = 480 \text{ ,,}$$
$$12 \text{ ounces} = 1 \text{ pound} = 5760 \text{ ,,}$$

These are the denominations of Troy weight where used for weighing gold, silver, and precious stones (except diamonds). But Troy weight is also used by apothecaries in compounding medicines, and by them the ounce is divided into 8 drams, and the dram into 3 scruples, so that the scruple is equal to 20 grains. For scientific purposes the grain only is used; and sets of weights are constructed in decimal progression, from 10,000 grains downward to 1-100th part of a grain.

The *carat*, used for weighing diamonds, is 3 grains and 1-6th. The term, however, when used to express the fineness of gold, has a relative meaning only. Every mass of alloyed gold is supposed to be divided into 24 square parts; thus the standard for coin is 22 carats fine, that is, it consists of 22 parts of pure gold, and 2 parts of alloy.

ALE, BEER, AND PORTER MEASURE.

4 gills	make	...	...	1 pint	2 firkins, or 18 gallons	make	...	1 kild.
2 pints	,,	...	...	1 quart	2 kilderkins, or 36 gallons	,,	...	1 bar.
4 quarts	,,	...	...	1 gallon	3 kilderkins, or 54 gallons	,,	...	1 hhd.
9 gallons	,,	...	...	1 firkin	2 hogsheads, or 108 gallons	,,	...	1 butt

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WINE AND SPIRIT MEASURE.

4 gills	make	...	...	1 pint	84 gallons ...	...	make	1 puncheon
2 pints	,,	...	...	1 quart	2 hhds., or 126 galls.	...	,,	1 pipe or butt
4 quarts	,,	...	...	1 gallon	4 hhds., or 252 galls.	...	,,	1 tun
63 gallons	,,	...	...	1 hhd.				

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* The fractional part being rejected in all cases when not exceeding, and charged when exceeding, one-half part.

MEASURE OF LENGTH

12 inches	=	1 foot
3 feet	=	1 yard
5½ yards	=	1 rod or pole
40 poles	=	1 furlong
8 furlongs	=	1 mile
69 miles 34½ yards	=	1 degree of a great circle of the earth

An inch is the smallest lineal measure to which a name is given, but sub-divisions are used for many purposes. Among mechanics the inch is commonly divided into eighths. By the officers of the revenue, and by scientific persons, it is divided into tenths, hundredths, &c.

PARTICULAR MEASURES OF LENGTH.

A nail	=	2¼ inches	
Quarter	=	4 nails	} Used for measuring cloth of all kinds.
Yard	=	4 quarters	
Ell	=	5 quarters	
Hand	=	4 inches	Used for height of horses.
Fathom	=	6 feet	Used for measuring depths.
Link	=	7.92 inches	} Measure to facilitate computation of the content,
Chain	=	100 links	} 100 square chains being equal to an acre.

GRAIN, FLOUR, AND BREAD

		lbs.			lbs.
A bushel of wheat weighs	...	60	A bushel of barley	...	47
A bushels of beans	...	63	A bushel of peas	...	64
A bushel of oats	...	40	A bushel of rye	...	53

6 bushels of wheat yield of fine flour 280lbs.
280 lbs. of flour (1 sack) make 400 lbs. of white bread.
A man's average annual consumption of bread is 572 lbs.

		lbs.	oz.	dr.			lbs.	oz.	dr.
A peck loaf weighs	...	17	6	1	A half peck	...	8	11	0
A quartern	...	4	5	8	A peck or stone of flour	...	14	6	0
A bushel of flour	...	56	0	0	10 pecks or stones, a bolt	...	140	0	0
A barrel (American)	...	196	0	0	A pack or load of flour	...	240	0	0
5 bushels, or one sack	...	280	0	0	Potatoes, uncleaned, 120 lbs. to the cwt.				

SQUARE, OR LAND MEASURE

144 inches	...	make	...	...	1 square foot	...	s. f.
9 feet	...	,,	...	...	1 square yard	...	s. yd.
100 feet	...	,,	...	...	1 square of flooring		s. fl.
272¼ feet	...	,,	...	...	1 rod of brickwork		r. b. w.
30¼ yards	...	,,	...	...	1 pole, rod, or perch		p.
16 poles	...	,,	...	...	1 chain	...	ch.
40 poles, or 1210 yards	,,	...	...	1 rood	...	r.	
4 roods, or 10 chains, or 160 poles, or 4840 yards		...	...	1 acre	...	a.	
640 acres	...	,,	...	...	1 mile	...	m.

LAND is measured by Gunter's Chain, which is as follows:

Length.—7.92 inches make 1 link; 12 inches, or 1.515 links make 1 foot; 36 inches, or 4.545 links, make 1 yard; 198 inches, or 25 links, make 1 pole or perch; 702 inches, or 100 links, or 66 feet, or 22 yards, or 4 poles, make 1 chain; 7920 inches, or 1000 links, or 10 chains, make 1 furlong; 63,360 inches, or 8000 links, or 80 chains, make 1 mile.

Square—62.726 square inches make 1 square link; 2.295 square links make 1 square foot; 22.661 square links make 1 square yard; 625 square links make 1 square pole; 10,000 square links make 1 square chain; 25,000 square links, or 2.5 square chains, make 1 square rood; 100,000 square links, or 10 square chains, make 1 square acre.

MEASURE OF CAPACITY

4 gills	=	1 pint	=	34¾ cubic inches, nearly
2 pints	=	1 quart	=	69½ ,,
4 quarts	=	1 gallon	=	277¼ ,,
2 gallons	=	1 peck	=	554½ ,,
8 gallons	=	1 bushel	=	2218 & 1-5th ,,
8 bushels	=	1 quarter	=	10½ cubic feet, nearly
5 quarters	=	1 load	=	51⅓ ,,