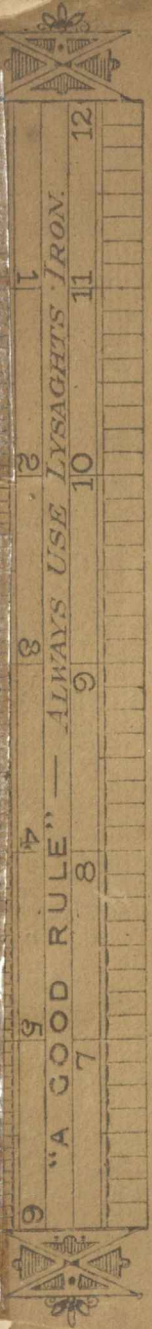
A . . .

SOUVENIR OF THE . . . .

. . . DIAMOND JUBILEE.



The Metal Trades' Referee and Storekeepers' Guide

Being a Table of Weights, Measurements, and Other . . . . Useful Information.

Troedel & Co. Print.

Lysaght's Trade Marks.

"ORB" Galvanised Corrugated Iron is favorably known and used throughout the world. Its uniformly reliable character is recognised by consumers everywhere. There are many imitations, but to those who compare its covering capacity with other nominally cheaper brands, its superiority in all respects is at once apparent.

"ORB" Tenax Flat Sheet Iron, for working up, is of the finest possible quality, suitable for special high-class work, and is, in many instances, used as a substitute for copper.

QUEEN'S HEAD

"QUEEN'S HEAD" Galvanised . . . Tinned Special Flat Sheets. This brand will stand the severest tests, and commands the confidence of iron-workers everywhere.

"BLACK SHEETS" of the same brand are extensively used by manufacturers of Ventilating and other Pipes, Trunks, Stoves, Fender Bottoms, Ovens, &c., and for all other purposes where a reliable quality is desired.


FLEUR DE LIS

"FLEUR-DE-LIS" Galvanised . . . Tinned Flat Sheets enter largely into consumption, in the lighter gauges, for that class of work in which a somewhat cheaper sheet is asked for. It will be found equal to all such requirements.

1837 A Diamond Jubilee 1897

IT may not be generally known that the introduction of GALVANISED IRON—now so important a feature of modern civilization–dates back only to 1837: the present year being in effect its **Diamond Jubilee.**

Earlier in the century various attempts had been made with a view to coating metals—chiefly by a galvanic process—which appear to have met with no commercial success. It is from these earlier methods that the term "Galvanised," as applied to Iron, has come down to the present day.

In 1837, Mr. Henry Crawford, a commander in the R.N., obtained a patent for a method of coating metals with zinc, for preventing oxidation — thus paving the way for the introduction of what is now known as Galvanised Iron.

Amongst the more prominent workers in this field of invention were Messrs. Morewood & Rogers, of Birmingham, by whom various patents were obtained, and at the date of the great Exhibition, 1851, they had so far perfected their methods as to exhibit a Galvanised Plain Sheet, 8ft. x 3ft., for which they received a gold medal. Another firm also exhibited, at the same Exhibition, a more or less crude form of Corrugated Iron, of which no notice appears to have been taken in the awards. Shortly afterwards, Morewood & Rogers introduced a Patent Galvanised Tile, known as "Morewood's Tile," some of which, on older buildings, are extant to the present day.

The application of steam to the process of Corrugating by machinery—for which a patent was taken out in 1854—appears to have given a great stimulus to the trade, rendering possible (owing to the strength

imparted to the sheets by Corrugation) cheaper methods of fixing and lighter roofs than were previously in use. This occurring almost simultaneously with the great expansion of Colonial trade which succeeded the gold discoveries of California and Australia, the use of Galvanised Corrugated Iron for roofing, etc., became immediately popular, and a constantly extending business resulted.

In the early history of the trade, the Gospel Oak brand, for a time, occupied a leading position ; but the brands of most of the other pioneers of this industry have since sunk into comparative oblivion.

A little later on—about 1860— a new brand of Galvanised Iron, possessing many remarkable features and uniformity of quality, known as LYSAGHT'S "ORB" BRAND, began to attract the attention of the trade—its manufacturer being Mr. John Lysaght, of Bristol, an engineer by profession, an energetic, far-seeing man, who, from a very small foundation, year by year worked his way up to the very foremost position in the trade ; sparing no expense to secure the very best appliances, and personally superintending every important detail of its manufacture ; establishing also Sheet Iron Works at Wolverhampton, embracing every process from Iron in its crude form to the finished sheet, thus securing that uniformity of quality for which "ORB," "QUEEN'S HEAD," "FLEUR DE LIS," and other brands of this maker are so pre-eminent.

Although the founder has passed away, the works he has established at Bristol (embracing not only Galvanised Iron, but the manufacture of structural parts for Iron buildings—such as railway stations, wharf and dock warehouses, churches, etc., and the manufacture of wire netting), remain as a monument of his industry ; and the business of John Lysaght Limited, which, by the exercise of remarkable foresight and energy he so successfully built up, is being

continued by his successors under like progressive conditions, providing employment for an army of some 4000 trained hands, and pressing onward to still greater achievements.

Already (to meet the growing necessities of the trade) preparations are being made for the erection of additional Black Sheet works at Newport, Mon., where an area of some 70 acres, with water carriage facilities, has been secured, thus permitting of the production of Steel and other sheets under more favorable conditions than have hitherto existed, and enabling the Company to keep its manufactures well abreast of the times.

The facilities for its production and the care displayed in its manufacture have secured for LYSAGHT'S GALVANISED IRON an unrivalled reputation throughout the world ; and while it is true that the sun never sets on the Queen's dominions, it is equally true that there is scarcely a country throughout the whole civilised world in which LYSAGHT'S "ORB" BRAND Galvanised Iron may not be found.

Other brands almost too numerous to mention have from time to time been placed on the market by various makers, all competing for public favor, their claims to attention being, in many instances, based on an assumed lowness of price rather than on excellence of quality.

The enormous proportions which the production of Galvanised Iron has reached in Great Britain (exceeding 230,000 tons *per annum*) would, in its earlier history, have been deemed incredible, and the area of its adaptability is constantly being extended, embracing purposes little thought of at its inception. It has revolutionized methods of construction as regards building, and has proved itself to be one of the most important evolutions of economic science for which

the "record reign" of Queen Victoria has been so pre-eminently distinguished.

Who will venture to say that science has spoken its last word in relation to improved processes of manufacture? or that a product such as Galvanised Iron, which has become a necessity of modern life, and which contributes so much to the comfort and convenience of mankind in general, has reached its ultimate development!!!

June 22nd, 1897.

THE tables given herein have been carefully compiled from various existing sources; no originality is, therefore, claimed for them.

They supply in a condensed form information not otherwise readily accessible, thus affording a convenient REFEREE to both Principal and Assistant in the many cases in which approximate information at a glance is of more importance than mere mathematical exactness.

Suggestions for improvements or additions thereto, with a view to incorporation in any later addition, will be thankfully received, and may be addressed:—

THE PUBLISHER,
Metal Trades Referee,
230 FLINDERS LANE,
MELBOURNE.

Bar Iron—Flat.

Approximate Weight per Lineal Foot.

	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1
IN.	LB.	LB.	LB.	LB.	LB.	LB.	LB.	LB.	LB.
1	·83	1·04	1·25	1·45	1·66	2·08	2·50	2·91	3.33
1⅛	·94	1·17	1·40	1·64	1·87	2·34	2·81	3·28	3 75
1¼	1·04	1·30	1·56	1·82	2 08	2·60	3·12	3·64	4·16
1⅜	1·14	1·43	1·71	2	2·29	2 86	3·43	4·01	4 58
1½	1·25	1·56	1 87	2·18	2·50	3·12	3·75	4·37	5
1⅝	1·35	1·69	2·03	2 36	2·70	3·38	4·06	4·73	5·41
1¾	1·45	1·82	2·18	2 55	2·91	3·64	4·37	5·10	5·83
1⅞	1·56	1·95	2·34	2·73	3 12	3·90	4·68	5·46	6·25
2	1·66	2·08	2·50	2·91	3 33	4·16	5	5·83	6·66
2⅛	1·77	2·21	2·65	3 09	3·54	4·42	5·31	6·19	7.08
2¼	1·87	2·34	2·81	3·28	3·75	4·68	5·62	6·56	7·50
2⅜	1·97	2·47	2 96	3·46	3 95	4·94	5·93	6 92	7·91
2½	2·08	2·60	3·12	3·64	4·16	5·20	6·25	7·29	8·33
2⅝	2·18	2·73	3·28	3·82	4·37	5·46	6·56	7·65	8·75
2¾	2·29	2·86	3·43	4·01	4·58	5·72	6·87	8·02	9·16
2⅞	2·39	2·99	3·59	4·19	4·79	5·98	7·18	8·38	9·58
3	2·50	3·12	3·75	4·37	5	6·25	7·50	8·75	10
3¼	2·70	3·38	4·06	4·73	5·41	6·77	8 12	9·47	10·83
3½	2·91	3 64	4·37	5·10	5·83	7·29	8·75	10·20	11·66
3¾	3·12	3·90	4·68	5·46	6·25	7·81	9·37	10.93	12·50
4	3·33	4·16	5	5·83	6·66	8·33	10	11·66	13·33
4¼	3·54	4·42	5·31	6·19	7·08	8·85	10 62	12·39	14·16
4½	3·75	4·68	5·62	6·56	7·50	9·37	11·25	13·12	15
4¾	3·95	4·94	5·93	6·92	7·91	9·89	11·87	13·85	15·83
5	4·17	5·20	6·25	7·29	8·33	10.41	12·50	14·58	16·66
5¼	4·37	5·46	6·56	7·65	8·75	10·93	13·12	15·31	17·50
5½	4·58	5·72	6·87	8·02	9·16	11·45	13·75	16·04	18·33
5¾	4·79	5·98	7·18	8·38	9·58	11·97	14·37	16·77	19·16
6	5	6·26	7·50	8·75	10	12·50	15	17·50	20

Round and Square Bar Iron.

Approximate Weight per Lineal Foot.

Diameter or Side.	Square Bars.	Round Bars.	Breadth or Diam. in inches.	Square Bars.	Round Bars.	Breadth or Diam. in inches.	Square Bars.	Round Bars.
1/4	·209	·164	1 1/4	5·25	4·09	3	30·07	23·60
5/16	·326	·256	1 3/8	6·35	4·96	3 1/4	35·28	27·70
3/8	·470	·369	1 1/2	7·51	5·90	3 1/2	40·91	32·13
7/16	·640	·502	1 5/8	8·82	6·92	3 3/4	46·97	36·89
1/2	·835	·656	1 3/4	10·29	8·03	4	53·44	41·97
9/16	1·057	·831	1 7/8	11·74	9·22	4 1/4	60·32	47·38
5/8	1·305	1·025	2	13·36	10·49	4 1/2	67·63	53·12
11/16	1·579	1·241	2 1/8	15·08	11·84	4 3/4	75·35	59·18
3/4	1·879	1·476	2 1/4	16·91	13·27	5	83·51	65·58
13/16	2·205	1·732	2 3/8	18·84	14·79	5 1/4	92·46	72·30
7/8	2·556	2·011	2 1/2	20·87	16·39	5 1/2	101·03	79·35
15/16	2·936	2·306	2 5/8	23·11	18·07	5 3/4	110·13	86·73
1	3·34	2·62	2 3/4	25·26	19·84	6	120·24	94·43
1 1/8	4·22	3·32	2 7/8	27·61	21·68	—	—	—

Weight-Bearing Iron.

Approximate Weight per Square Foot.
(Corrugations 4 inches wide by 2½ inches deep).

Gauge.	Weight.	
	lbs.	ozs.
16	5	8
18	4	4
20	3	12
22	2	14
24	2	6

LYSAGHT'S Weight-bearing Iron is of the well-known "Orb" brand of English manufacture, and has secured the highest approval of architects and others wherever it has been used. It is made in almost any desired Corrugation or Gauge, black or galvanised, curved or otherwise.

Galvanised Corrugated Iron.

Approximate No. of Sheets to a Case (Ordinary Corrugations) weighing about 10 cwt.

Length.	Gauges.					
	18	20	22	24	26	28
5 feet	47	56	65	83	115	124
6 ,,	39	46	55	70	96	103
7 ,,	33	40	47	60	82	88
8 ,,	29	35	41	52	72	77
9 ,,	26	30	36	47	64	68
10 ,,	23	28	33	42	57	61

LYSAGHT'S "Orb" Brand Corrugated Iron usually contains sheets in excess of the numbers given in the above tables, and is made in all lengths up to 12 feet, the heavier gauges to special order. Corrugations from 1 to 5 inches, those chiefly in use being 1-inch for ceilings, fences, &c., and 3-inch for ordinary purposes.

Galvanised Plain Iron.

Approximate number of 6 feet sheets to a case, Plain Iron averaging about 10 cwt.				Approximate weight per sheet 6 feet long, in lbs.			
Gauge.	Width.			Gauge.	Width.		
	24	30	36		24	30	36
16 g.	37	29	24 shts.	16 g.	32	40	48 lbs.
18 g.	47	39	31 ,,	18 g.	25	29	36 ,,
20 g.	63	47	39 ,,	20 g.	20	25	27 ,,
22 g.	73	59	49 ,,	22 g.	17	19	23 ,,
24 g.	86	69	57 ,,	24 g.	12	16	19 ,,
26 g.	120	97	78 ,,	26 g.	9	12	14 ,,
28 g.	139	109	85 ,,	28 g.	8	11	13 ,,

QUEEN'S HEAD

LYSAGHT'S "Queen's Head" Special Flat somewhat exceeds the number of sheets given in the above tables. It is also obtainable in special sizes other than the above, to order.

LYSAGHT'S "Fleur de Lis" Plain Iron is largely used for the manufacture of the lighter classes of guttering, downpipe, ridging, &c., its smoothness of surface and freedom from buckle being conspicuous features.


FLEUR DE LIS

Black Sheet Iron.

Approximate Number of Sheets contained in 20 Bundles of Black Sheet Iron, averaging about 20 cwt.

Gauge.	WIDTH.		
	24	30	36
16g.	76	62	50
18	96	76	64
20	118	100	76
22	168	120	94
24	190	156	126
26	220	184	164
27	280	216	174
28	340	256	208

LYSAGHT'S "Orb" Brand Tenax Special Flat Steel Sheets are obtainable in both Black and Galvanised. They have secured the approval of Ironworkers everywhere for those purposes in which a very high grade of quality is necessary, being almost as tough as copper.

LYSAGHT'S "Queen's Head" Black Sheet Iron is recognised as the standard of perfection. It will stand any and every possible test, characteristics which have secured for it a reputation almost world-wide.

QUEEN'S HEAD

LYSAGHT'S "Southern Cross" Black Sheets are largely used for certain classes of work in which economy of production is the primary consideration.

TABLE SHEWING WEIGHT IN POUNDS

OF VARIOUS AREAS OF

IRON PLATES OF DIFFERENT THICKNESS.

Area in Feet.	THICKNESS IN FRACTIONS OF AN INCH.									
	1/8	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
1	5	10	12·5	15	17·5	20	25	30	35	40
2	10	20	25·0	30	35·0	40	50	60	70	80
3	15	30	37·5	45	52·5	60	75	90	105	120
4	20	40	50·0	60	70·0	80	100	120	140	160
5	25	50	62·5	75	87·5	100	125	150	175	200
6	30	60	75·0	90	105·0	120	150	180	210	240
7	35	70	87·5	105	122·5	140	175	210	245	280
8	40	80	100·0	120	140·0	160	200	240	280	320
9	45	90	112·5	135	157·5	180	225	270	315	360
10	50	100	125·0	150	175·0	200	250	300	350	400
11	55	110	137·5	165	192·5	220	275	330	385	440
12	60	120	150·0	180	210·0	240	300	360	420	480
13	65	130	162·5	195	227·5	260	325	390	455	520
14	70	140	175·0	210	245·0	280	350	420	490	560
15	75	150	187·5	225	262·5	300	375	450	525	600
16	80	160	200·0	240	280·0	320	400	480	560	640
17	85	170	212·5	255	297·5	340	425	510	595	680
18	90	180	225·0	270	315·0	360	450	540	630	720
19	95	190	237·5	285	332·5	380	475	570	665	760
20	100	200	250·0	300	350·0	400	500	600	700	800
30	150	300	375·0	450	525·0	600	750	900	1050	1200
40	200	400	500·0	600	700·0	800	1000	1200	1400	1600
50	250	500	625·0	750	875·0	1000	1250	1500	1750	2000
60	300	600	750·0	900	1050	1200	1500	1800	2100	2400
70	350	700	875.0	1050	1225	1400	1750	2100	2450	2800
80	400	800	1000	1200	1400	1600	2000	2400	2800	3200
90	450	900	1087	1350	1575	1800	2250	2700	3150	3600
100	500	1000	1250	1500	1750	2000	2500	3000	3500	4000

Various Metals.

The Comparative Weight of a Superficial Foot.

Thickness in inches.	Wrought Iron.	Cast Iron.	Steel.	Copper.	Brass.	Lead.	Zinc.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1/16	2·526	2·344	2·552	2·891	2·734	3·708	2·344
1/8	5·052	4·687	5·104	5·781	5·469	7·417	4·687
3/16	7·578	7·031	7·656	8·672	8·303	11·125	7·031
1/4	10.104	9·375	10·208	11·563	10 938	14 833	9·375
5/16	12 630	11·719	12·760	14·453	13·672	18 542	11.719
3/8	15·156	14 062	15·312	17·344	16·406	22·250	14 062
7/16	17·682	16·406	17·865	20·234	19.141	25·958	16·406
1/2	20·208	18·750	20·417	23·125	21·875	29·667	18·750
9/16	22·734	21·094	22·969	26·016	24·609	33 375	21·094
5/8	25·260	23·437	25·521	28·906	27·344	37·083	23·437
11/16	27·786	25·781	28 073	31·797	30·078	40·792	25·781
3/4	30·312	28·125	30·625	34·688	32·813	44·500	28·125
13/16	32 839	30·469	33·177	37·578	35·547	48·208	30·469
7/8	35·635	32·812	35·729	40·469	38·281	51·917	32·812
15/16	37·891	35·156	38 281	43·359	41·016	55·625	35·156
1	40·417	37·500	40·833	46·250	43 750	59·333	37·500

Gauge.	Iron.	Copper.	Brass.	Gauge.	Iron.	Copper.	Brass.
30	·48	·550	·527	15	2·88	3·298	3·161
29	·52	·595	·579	14	3·32	3·801	3·644
28	·56	·641	·615	13	3·80	4·351	4·170
27	·64	·733	·702	12	4·36	4·992	4·785
26	·72	·824	·790	11	4·89	5 496	5·268
25	·80	·916	·878	10	5·36	6 137	5·883
24	·88	1·008	·966	9	5·92	6·778	6·497
23	1·00	1·145	1·097	8	6·60	7·557	7·243
22	1·12	1·282	1·229	7	7·20	8·244	7·902
21	1·28	1·466	1·405	6	8·12	9·297	8.912
20	1·40	1·603	1·536	5	8·80	10·076	9·658
19	1·68	1·924	1·844	4	9·52	10·900	10·448
18	1·96	2·244	2·151	3	10·36	11·862	11·370
17	2·32	2 656	2·546	2	11·36	13·007	12·468
16	2·60	2·977	2·853	1	12·00	13·740	13·170

Tanks—Square Black Iron.

100 gallon measures	...	2ft. 4in. square.
200 „ „	...	3ft. 8in. „
400 „ „	...	4ft. 0in. „

Tanks—Corrugated Iron

(CIRCULAR).

Reputed Capacity.

Diameter.	Height of Tank.				
	4 feet.	5 feet.	6 feet.	7 feet.	8 feet.
	gallons.	gallons.	gallons.	gallons.	gallons.
3 feet 3 inches	200	250	300	..	...
3 „ 6 „	240	300	360	...	...
3 „ 9 „	280	350	420	...	...
4 „ 0 „	310	390	470	...	...
4 „ 4 „	...	...	540	...	...
4 „ 6 „	...	...	590	...	...
5 „ 0 „	...	...	720	840	960
6 „ 0 „	...	...	1050	...	...

Tank Makers should specify **LYSAGHTS "ORB"** Brand Corrugated Iron—it will stand any and every possible test in curving or otherwise, being almost as tough as copper.

It is obtainable up to 12 feet in length.

Hoop Iron.

A Bundle weighing 56-lbs. contains approximately:—

Size.	Feet.	Size.	Feet.
½ x 22	1075	1⅛ x 16	155
½ x 24	1350	1½ x 18	225
¾ x 20	570	1¾ x 14	130
⅞ x 19	425	1¾ x 17	173
1 x 11	340	2 x 14	107
1 x 20	425	2 x 16	124
1⅛ x 17	270	2¼ x 13	90
1⅛ x 18	300	2½ x 12	73
1¼ x 16	210	2½ x 16	107
1¼ x 18	268	3 x 12	59

Nails.

WIRE.

Approximate Number per lb.

Size.	Nails to lb.	Size.	Nails to lb.
1 x 16	1080	2½ x 11	130
1 x 15	840	2½ x 10	100
1 x 14	723	2½ x 9	80
1⅛ x 14	460	2½ x 8	65
1½ x 13	340	3 x 10	81
1½ x 12	240	3 x 9	67
1½ x 11	206	3 x 8	60
2 x 14	280	3 x 7	48
2 x 13	230	3 x 6	39
2 x 12	190	3½ x 8	44
2 x 11	158	3½ x 7	40
2 x 10	120	4 x 7	35
2 x 9	100	4 x 6	30
2½ x 13	200	5 x 5	21
2½ x 12	150	6 x 4	13

Zinc.

Weight per Super Foot (Ordinary Wire Gauge).

Gauge.	Lbs.	Gauge.	Lbs.	Gauge.	Lbs.
10	5·2	16	2·3	22	1·2
11	4·6	17	2·1	23	1·1
12	4·1	18	1 8	24	1·0
13	3·5	19	1·7	25	0·9
14	2·8	20	1·5	26	0·8
15	2·6	21	1 4	27	0·7

Zinc Sheets.—(Approximate Weight of).

Zinc Gauge.	Ozs. per sq. foot.	Weight per Sheet, 7 x 3 feet.	Zinc Gauge.	Ozs. per sq. foot.	Weight per Sheet, 7 x 3 feet.
		lbs. ozs.			lbs. ozs.
4	5	6 9	11	15	19 11
5	6	7 14	12	17	22 5
6	7	9 3	13	19½	25 9½
7	8	10 8	14	22	28 14
8	9	11 13	15	24	31 8
9	11	14 7	16	26	34 2
10	13	17 1	17	30	39 6

Lead.

Weight per Super Foot.

Inch.	Lbs.	Inch.	Lbs.	Inch.	Lbs.
1/16	3·7	7/16	25·9	3/4	44·7
1/8	7·4	1/2	29·5	13/16	48·3
3/16	11·1	9/16	33·2	7/8	51·0
1/4	14·8	5/8	36·9	15/16	55·1
5/16	18·5	11/16	40·6	1	59·4
3/8	22·2				

Lead—Sheet.

Weight per Roll—30 feet x 7 feet 9 inches.

	C.	Q.	L.		C.	Q.	L.
3 lbs. ...	6	0	14	5 lbs. ...	10	1	14
3½ ,, ...	7	0	20	6 ,, ...	12	1	0
4 ,, ...	8	1	0	7 ,, ...	14	2	0
4½ ,, ...	9	1	0				

Tin—Sheets.

Weight per Super Foot.

Inch.	Lbs.	Inch.	Lbs.	Inch.	Lbs.
1/16	2·4	7/16	16·17	3/4	28·5
1/8	4·8	1/2	19·0	13/16	30·9
3/16	7·3	9/16	21·4	7/8	33·3
1/4	9·5	5/8	23·8	15/16	35·7
5/16	11·9	11/16	26·2	1	38·0
3/8	14·3				

Solders.

For Lead	...	1 part Tin, 2 parts Lead.
For Brass	...	2 parts Brass, 1 part Zinc.
Hard Solder	...	2 parts Copper, 1 part Zinc.
Soft Solder	...	2 parts Tin, 1 part Lead.

Fluxes for Soldering.

Tinned Iron	...	Resin or Spirits of Salts.
Copper and Brass	...	Sal. Ammonia or Spirits of Salts.
Zinc	...	Spirits of Salts.
Lead... ...	...	Resin.

Slates—Roofing.

(Approximate).

Description.	Size.	No. required to cover 100 feet super.	Weight per 1000.
Duchess	24 x 12	120	2 10 0 0
Countess	20 x 10	182	1 10 1 14
Viscountess	18 x 10	208	1 10 0 0
Ladies	16 x 8	300	1 0 3 14

Tin Plates.

Sheets and Weights.

Mark.	Inches.	Sheets.	Cwts.	Qrs.	Lbs.
IC	14 x 10	225	0	3	24
IX	14 x 10	225	1	0	24
IXX	14 x 10	225	1	1	17
IXXX	14 x 10	225	1	2	10
IXXXX	14 x 10	225	1	3	3
IC	14 x 20	112	0	3	24
IX	14 x 20	112	1	0	24
IXX	14 x 20	112	1	1	17
IXXX	14 x 20	112	1	2	10
IXXXX	14 x 20	112	1	3	3
IC	28 x 20	56	0	3	24
IX	28 x 20	56	1	0	24
IXX	28 x 20	56	1	1	17
IXXX	28 x 20	56	1	2	10
IXXXX	28 x 20	56	1	3	3
IC	12 x 12	225	0	3	24
IX	12 x 12	225	1	0	24
IXX	12 x 12	225	1	1	17
IXXX	12 x 12	225	1	2	10
IXXXX	12 x 12	225	1	3	3
DC	17 x 12½	100	0	3	10
DX	17 x 12½	100	1	0	8
DXX	17 x 12½	100	1	1	3
DXXX	17 x 12½	100	1	1	24
DXXXX	17 x 12½	100	1	2	17
DC	17 x 25	50	0	3	10
DX	17 x 25	50	1	0	8
DXX	17 x 25	50	1	1	3
DXXX	17 x 25	50	1	1	24
DXXXX	17 x 25	50	1	2	17
DC	34 x 25	25	0	3	10
DX	34 x 25	25	1	0	8
DXX	34 x 25	25	1	1	3
DXXX	34 x 25	25	1	1	24
DXXXX	34 x 25	25	1	2	17
SDC	15 x 11	200	1	1	27
SDX	15 x 11	200	1	2	20
SDXX	15 x 11	200	1	3	13
SDXXX	15 x 11	200	2	0	6
SDXXXX	15 x 11	200	2	0	27
SDC	15 x 22	100	1	1	27
SDX	15 x 22	100	1	2	20
SDXX	15 x 22	100	1	3	13
SDXXX	15 x 22	100	2	0	6
SDXXXX	15 x 22	100	2	0	27

Iron Fencing Wire.

Gauge.	WEIGHT OF		LENGTH OF	
	100 yds.	1 mile.	1 cwt.	1 ton.
	lbs.	lbs.	yards.	yards.
4	40·6	714	276	5520
5	33 8	595	332	6640
6	28·2	495	397	7940
7	23·4	412	479	9580
8	19·6	344	573	11460
9	16·5	290	680	13600
10	13·7	241	819	16380
11	8	142	1393	27860
12	4·8	85	2322	46440

Steel Wire.

Table showing quantity required per mile of fencing.

Gauge.	Length per Cwt.	WEIGHT REQUIRED PER MILE.											
		One Wire.			Two Wires.			Three Wires.			Four Wires.			Five Wires.		
NO.	YDS.	C.	Q.	L.	C.	Q.	L.	C.	Q.	L.	C.	Q	L.	C.	Q.	L.
4	255	6	3	17	13	3	6	20	2	23	27	2	12	34	2	1
5	303	5	3	6	11	2	12	17	1	18	23	0	24	29	0	2
6	361	4	3	14	9	3	0	14	2	14	19	2	0	24	1	19
7	428	4	0	13	8	0	26	12	1	11	16	1	24	20	2	9
8	509	3	1	23	6	3	18	10	1	13	13	3	8	17	1	3
9	609	2	3	15	5	3	2	8	2	17	11	2	4	14	1	19
10	747	2	1	12	4	2	24	7	0	8	9	1	20	11	3	4
12	1,244	1	1	18	2	3	8	4	0	26	5	2	16	7	0	6
14	2,240	0	3	4	1	2	8	2	1	12	3	0	16	3	3	20
15	2,800	0	2	14	1	1	0	1	3	14	2	2	0	3	0	14
16	3,500	0	2	0	1	0	0	1	2	0	2	0	0	2	2	0
18	6,222	0	1	4	0	2	8	0	3	12	1	0	16	1	1	20
20	11,200	0	0	18	0	1	8	0	1	26	0	2	16	0	3	6

Wire.

Comparative Weight of 100 Lineal Feet.
Standard Gauge.

Gauge.	Iron.	Steel.	Brass.	Copper.
	lbs.	lbs.	lbs.	lbs.
0	27·77	28·06	30·58	31·78
1	23·81	24·05	26·21	27·24
2	20·15	20·36	22·19	23·06
3	16·80	16 97	18·50	19·22
4	14·24	14·39	15·68	16·29
5	11·89	12·01	13·09	13·61
6	9·75	9·85	10·74	11·16
7	8·19	8 28	9·02	9·38
8	6·77	6·84	7·46	7·45
9	5·49	5·42	6·04	6·28
10	4·33	4 38	4·77	4·96
11	3·60	3·60	3·92	4·07
12	2·86	2·89	3·15	3·27
13	2·24	2·26	2·47	2·56
14	1·69	1·71	1·86	1·94
15	1·37	1·39	1·51	1·57
16	1·08	1·10	1·19	1·24
17	·83	·84	·92	·95
18	·61	·62	·67	·70
19	·42	·43	·47	.49
20	·34	·35	·38	·39

Weight of a Cubic Inch of

Lead	equals	·4103 lb.
Copper, sheet	,, ...	·3225 ,,
Brass, ,,	,, ...	·3037 ,,
Iron, ,,	,, ...	·279 ,,
Iron, cast	,, ...	·263 ,,
Tin, ,,	,, ...	·2636 ,,
Zinc, ,,	,, ...	·26 ,,
Water	,, ...	·03617 ,,

Barb Wire.

No. 12 contains 440 yards per cwt.
No. 14 contains 710 yards per cwt.

Wire Netting.

Approximate weight per Mile, 24 inches wide.

(Other widths may be estimated *pro rata*.)

Size.	Weight.	Size.	Weight.
inches.	cwt. qr. lbs.	inches.	cwt. qr. lbs.
24 x ½ x 20	18 0 26	24 x 2 x 19	6 1 21
24 x ¾ x 19	16 3 25	,, x 2 x 18	8 1 12
,, x ¾ x 20	12 2 12	,, x 2 x 17	12 0 14
24 x 1 x 19	12 2 8	,, x 2 x 16	14 0 25
,, x 1 x 20	9 3 17	24 x 2½ x 18	6 3 8
24 x 1¼ x 19	9 3 8	,, x 2½ x 17	9 3 17
,, x 1¼ x 18	12 0 10	,, x 2½ x 16	11 2 15
,, x 1¼ x 17	16 2 19	24 x 3 x 18	5 1 8
24 x 1½ x 19	8 2 14	,, x 3 x 17	7 2 16
,, x 1½ x 18	11 1 1	,, x 3 x 16	9 2 18
,, x 1½ x 17	14 1 10	,, x 3 x 15	13 0 14
24 x 1⅝ x 19	7 0 17	,, x 3 x 14	15 0 12
,, x 1⅝ x 18	8 2 7	24 x 4 x 16	7 2 22
,, x 1⅝ x 17	13 1 6	,, x 4 x 15	9 2 6
		,, x 4 x 14	11 0 26

Many makers supply Netting of the several reputed gauges, whose weights are lighter than the above, while others somewhat exceed these weights. LYSAGHT'S Netting—both English and Colonial—is of the highest grade, and may be obtained in any desired weight.

(Weights of Tie Wire refer table page 18).

(VICTORIAN HARDWARE ASSOCIATION "YARD" LIST)

Wire Netting : Galvanised

List Price per Yard.

Mesh.	Gauge	24	30	36	42	48
1/2 IN.	22	2 9	3/5½	4/1½	4/9¾	5/6
	20	3/0	3/9	4/6	5/3	6/0
	19	3/4	4/2	5/0	5/10	6/8
	18	4/3	5/3¾	6/4¼	7/5¼	8/6
	17	4/9	5/11¼	7/1½	8/3¾	9/6
5/8 IN.	22	2/0	2/6	3/0	3/6	4/0
	20	2/3	2/9½	3/4½	3/11½	4/6
	19	2/6	3/1½	3/9	4/4½	5/0
	18	2/9	3/5¼	4/1½	4/9¾	5/6
	17	3/3	4/0¾	4/10½	5/8¼	6/6
	16	3/9	4/8¼	5/7½	6/6¾	7/6
3/4 IN.	20	1/3	1/6¾	1/10½	2/2¼	2/6
	19	1/6	1/10½	2/3	2/7½	3/0
	18	1/9	2/2¼	2/7½	3/0¾	3/6
	17	2/6	3/1½	3/9	4/4½	5/0
	16	3/3	4/0¾	4/10½	5/8¼	6/6
	15	4/0	5/0	6/0	7/0	8/0
7/8 IN.	20	1/0	1/3	1/6	1/9	2/0
	19	1/2	1/5½	1/9	2/0½	2/4
	18	1/4	1/8	2/0	2/4	2/8
	17	1/9	2/2¼	2/7½	3/0¾	3/6
	16	2/3	2/9¾	3/4½	3/11¼	4/6
1 IN.	20	-/10	1/0½	1/3	1/5½	1/8
	19	-/11	1/1¾	1/4½	1/7¼	1/10
	18	1/1½	1/5	1/8¼	1/11¾	2/3
	17	1/6	1/10½	2/3	2/7½	3/0
	16	2/0	2/6	3/0	3/6	4/0
	15	2/9	3/5¼	4/1½	4/9¾	5/6
1 1/4 IN.	19	-/9	-/11½	1/1½	1/3¾	1/6
	18	-/11	1/1¾	1/4½	1/7¼	1/10
	17	1/3	1/6¾	1/10½	2/2¼	2/6
	16	1/6	1/10½	2/3	2/7½	3/0
	15	2/0	2/6	3/0	3/6	4/0
	14	2/3	2/9¾	3/4½	3/11¼	4/6
1 1/2 IN.	19	-/6	-/7⅛	-/9	-/10½	1/0
	18	-/7	-/8¾	-/10⅛	1/0¼	1/2
	17	-/9	-/11¼	1/1½	1/3¾	1/6
	16	-/11	1/1¾	1/4½	1/7¼	1/10
	15	1/5	1/9¼	2/1½	2/5¾	2/10
	14	1/8	2/1	2/6	2/11	3/4

Mesh.	Gauge	24	30	36	42	48
1 5/8 IN.	19	-/5½	-/7	-/8¼	-/9¾	-/11
	18	-/6½	-/8¼	-/9¾	-/11½	1/1
	17	-/8¼	-/10¾	1/0¾	1/3	1/5
	16	-/10¼	1/1	1/3½	1/6	1/8½
	15	1/2	1/5½	1/9	2/0½	2/4
	14	1/6	1/10½	2/3	2/7½	3/0
	13	1/9	2/2¼	2/7½	3/0¾	3/6
2 IN.	19	-/4¼	-/5½	-/6½	-/7½	-/8½
	18	-/5	-/6¼	-/7½	-/8¾	-/10
	17	-/6½	-/8¼	-/9¾	-/11½	1/1
	16	-/8	-/10	1/0	1/2	1/4
	15	1/0	1/3	1/6	1/9	2/0
	14	1/3	1/6¾	1/10½	2/2¼	2/6
	13	1/6	1/10½	2/3	2/7½	3/0
2 1/4 IN.	19	-/4	-/5	-/6	-/7	-/8
	18	-/5	-/6¼	-/7½	-/8¾	-/10
	17	-/6	-/7½	-/9	-/10½	1/0
	16	-/7	-/8¾	-/10½	1/0¼	1/2
	15	-/9½	1/0	1/2¼	1/4¾	1/7
	14	1/0	1/3	1/6	1/9	2/0
	13	1/3	1/6¾	1/10½	2/2¼	2/6
2 1/2 IN.	19	-/4	-/5	-/6	-/7	-/8
	18	-/5	-/6¼	-/7½	-/8¾	-/10
	17	-/6	-/7½	-/9	-/10½	1/0
	16	-/7	-/8¾	-/10½	1/0¼	1/2
	15	-/11	1/1¾	1/4½	1/7¼	1/10
3 IN.	19	-/3	-/3¾	-/4½	-/5¼	-/6
	18	-/4	-/5	-/6	-/7	-/8
	17	-/5	-/6¼	-/7½	-/8¾	-/10
	16	-/6	-/7½	-/9	-/10½	1/2
	15	-/8	-/10	1/0	1/2	1/4
	14	-/10	1/0½	1/3	1/5½	1/8
	13	1/1	1/4½	1/7½	1/10¾	2/2
4 IN.	19	-/2½	-/3¼	-/3¾	-/4½	-/5
	18	-/3¼	-/4¼	-/5	-/6	-/6½
	17	-/4	-/5	-/6	-/7	-/8
	16	-/4½	-/5¾	-/6¾	-/8	-/9
	15	-/6	-/7½	-/9	-/10½	1/0
	14	-/7	-/8¾	-/10½	1/0½	1/2
	13	-/9	-/11½	1/1½	1/3¾	1/6

WIRE NETTING.—(ENGLISH "ROLL" LIST).

Per Roll of 50 Yards.

MESH.	GAUGE.	12-IN.	18-IN.	24-IN.	30-IN.	36-IN.	42-IN.	48-IN.	60-IN.	72-IN.
½-in.	22	13/3	19/11	26/6	33/2	39/9	46/5	53/0	66/4	...
,,	20	16/0	24/0	32/0	40/0	48/0	56/0	64/0	80/0	...
⅝-in.	20	8/0	12/0	16/0	20/0	24/0	28/0	32/0	40/0	48/0
,,	19	10/3	15/5	20/6	25/8	30/9	35/11	41/0	51/4	61/6
1-in.	20	6/5	9/7	12/9	16/0	19/2	22/4	25/6	...	...
,,	19	7/3	10/11	14/6	18/2	21/9	25/5	29/0	...	...
,,	18	8/9	13/2	17/6	21/11	26/3	30/8	35/0	...	...
1¼-in.	19	5/9	8/8	11/6	14/5	17/3	20/2	23/0	28/10	34/6
,,	18	7/0	10/6	14/0	17/6	21/0	24/6	28/0	35/0	42/0
,,	17	9/5	14/1	18/9	23/6	28/2	32/10	37/6	47/0	56/4
,,	16	12/6	18/9	25/0	31/3	37/6	43/9	50/0	62/6	...
1½-in.	19	4/9	7/2	9/6	11/11	14/3	16/8	19/0	23/9	28/6
,,	18	5/9	8/8	11/6	14/5	17/3	20/2	23/0	28/9	34/6
,,	17	7/3	10/11	14/6	18/2	21/9	25/5	29/0	36/3	43/6
,,	16	9/6	14/3	19/0	23/9	28/6	33/3	38/0	47/6	57/0
1⅝-in.	19	4/5	6 7	8/9	11/0	13/2	15/4	17/6	21/11	26 3
,,	18	5/5	8/1	10/9	13/6	16/2	18/10	21/6	26/11	32/3
,,	17	7/0	10/6	14/0	17/6	21/0	24/6	28/0	35/0	42/0
,,	16	8/9	13/2	17/6	21/11	26/3	30/8	35/0	43/9	52/6
2-in.	19	3/6	5/3	7/0	8/9	10/6	12/3	14/0	17/6	21/0
,,	18	4/5	6/7	8/9	11/0	13/2	15/4	17/6	21/11	26/3
,,	17	5/11	8/10	11/9	14/9	17/8	20/7	23/6	29/5	35/3
,,	16	7/6	11/3	15/0	18/9	22/6	26/3	30/0	37/6	45/0
,,	15	9/3	13/11	18/6	23/2	27/9	32/5	37/0	46/3	55/6
2½-in.	19	...	4/11	6/6	8/2	9/9	11/5	13/0	16/3	19/6
,,	18	...	6/3	8/3	10/4	12/5	14/6	16/6	20/8	24/9
,,	17	...	7/11	10/6	13/2	15/9	18/5	21/0	26/3	31/6
,,	16	...	10/2	13/6	16/11	20/3	23/8	27/0	33/9	40/6
3-in.	18	...	...	6/9	8/6	10/2	11/10	13/6	16/11	20/3
,,	17	...	...	8/9	11/0	13/2	15/4	17/6	21/11	26/3
,,	16	...	...	11/0	13/9	16/6	19/3	22/0	27/6	33/0
,,	15	...	...	13/0	16/3	19/6	22/9	26/0	32/6	39/0
,,	14	...	...	15/9	19/9	23/8	27/7	31/6	39/5	47/3
4-in.	16	...	...	8/0	10/0	12/0	14/0	16/0	20/0	24/0
,,	15	...	...	10/6	13/2	15/9	18/5	21/0	26/3	31/6
,,	14	...	...	12/6	15/8	18/9	21/11	25/0	31/3	37/6

Piping.

Compo Pipe.—For Gas Fittings.

Size.	Feet in Coil.	Ozs. per ft.	Size.	Feet in Coil.	Ozs. per ft.
¼	328	4	¾	82	16
⅜	218	6	1	55	24
½	164	8	1	33	40
⅝	101	13			

Galvanised Piping (Iron).

Weight per 100 feet.

Size.	Per 100 Feet. C. Q. L.	Size.	Per 100 Feet. C. Q. L.
½	0 3 0	1½	2 3 2
¾	1 0 5	2	4 0 6
1	1 1 22	3	6 0 8
1¼	2 1 10		

Lead Pipe.—For Water Connections, &c.

Size.	Feet in Coil.	Lbs. per yd.	Size.	Feet in Coil.	Lbs. per yd.
½	170	3½	1¼	63	12
½	127	4½	1¼	38	18
½	100	5	1½	57	12
½	100	6	1½	55	14
⅝	90	6½	1½	37	16 & 18
⅝	76	7½	1½	37	20 & 22
¾	120	5	1¾	38	17
¾	100	6	2	37	17
¾	84	7	2	37	20
¾	74	8	2	37	22
¾	64	9	2	31	30
1	76	8	2½	11	30
1	66	10	3	13	35
1	56	12	3½	13	40
1¼	66	10	4	13	50

Where two or more weights of the same size appear in the lead pipe, the heavier may be taken as the standard.

(Trade List.)

Gas Pipes and Fittings.

		Internal Diameter ...	⅛	¼	⅜	½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3	3½	4
TUBES.		Tubes ... ... ℔ ft.	-/2	-/2½	-/3	-/4¼	-/6	-/8½	1/0	1/3	1/6	1/9	2/7	3/3	4/0	4/6	5/6	7/0
	1	Long Screws, over 12in. Each	-/5	-/7	-/9	-/11	1/2	1/6	2/0	2/6	3/3	4/0	5/6	7/0	8/6	10/0	12/6	15/6
	2	,, ,, under 12in. ,,	-/4	-/5	-/6	-/8	-/10	1/0	1/3	2/0	2/6	3/0	4/6	5/6	6/6	7/6	8/6	10/0
		Bends ... ... ,,	-/5½	-/6½	-/7	-/8	-/11	1/3	1/9	2/3	3/3	4/3	6/6	10/0	12/0	16/0	25/0	32/6
		Springs, not socketed ,,	-/4	-/5	-/6	-/7	-/9	-/11	1/4	1/8	2/6	3/3	5/6	7/6	10/0	12/0	19/0	26/0
FITTINGS.	3	Elbows... ... ... ,,	-/6	-/6½	-/7	-/8	-/10	1/2	1/9	2/3	3/0	3/6	5/6	8/6	11/0	14/0	22/0	28/0
	4	Tees .. .. ,,	-/6	-/6½	-/7	-/9	1/0	1/3	1/9	2/6	3/0	3/9	6/0	9/6	12/6	16/6	24/0	30/0
	5	Crosses ... ... ,,	1/2	1/4	1/4	1/11	2/4	3/0	4/0	4/8	6/0	7/0	14/0	21/4	28/0	40/0	56/0	66/8
	6	Plain Sockets... ... ,,	-/1½	-/1½	-/2	-/3	-/3½	-/4	-/6	-/7	-/9	1/0	1/6	2/6	3/0	3/6	5/0	6/0
	7	Diminished Sockets ,,	..	-/3	-/4	-/5	-/6	-/7	-/9	-/11	1/1	1/3	2/0	3/0	4/0	5/0	7/0	9/0
	8	Flanges ... ... ,,	-/8	-/9	-/10	1/0	1/2	1/4	1/6	1/9	2/0	2/6	3/9	5/0	6/9	8/6	10/0	11/6
	9	Caps and Plugs ... ,,	-/2	-/3	-/3	-/4	-/5	-/6	-/8	-/10	1/0	1/3	2/0	2/6	3/6	4/9	7/0	10/0
	11	Back Nuts and Nipples ,,	-/1	-/2	-/2	-/3	-/3½	-/4	-/6	-/8	-/10	1/0	1/9	2/3	3/0	3/6	4/6	5/6
	13	Round Elbows ... ,,	-/7	-/7	-/8	-/9	1/0	1/4	1/11	2/6	3/4	3/10	6/6	10/0	13/0	16/0	25/0	32/0
	14	Iron Main Cocks ... ,,	2/3	2/3	2/9	3/6	4/6	6/6	8/6	11/0	14/0	18/0	27/0	36/0	44/0	50/0	75/0	90/0
		,, ,, with Brass Plugs ,,	...	...	4/6	5/6	7/6	10/6	15/0	19/6	25/0	32/0	47/0	60/0	90/0	110/0	140/0	190/0
		Round-way Iron Cocks ,,	...	...	3/6	4/0	5/6	7/6	10/0	13/0	17/6	22/0	38/0	54/0	62/0	70/0	100/0	160/0
		,, with Brass Plugs ,,	...	...	5/0	6/6	9/0	13/0	19/0	28/0	36/0	42/0	60/0	85/0	105/0	120/0	180/0	280/0

Chains.

Weights and Strengths of Chains. Short Links.

Diameter in inches of Link.	Weight in lbs. per fathom.	Proof strain in cwts.
5/16 inches	5½ lbs.	25½ lbs.
3/8 ,,	8 ,,	36¾ ,,
7/16 ,,	11 ,,	51¼ ,,
1/2 ,,	14 ,,	65½ ,,
9/16 ,,	18 ,,	85 ,,
5/8 ,,	23 ,,	102 ,,
11/16 ,,	28 ,,	127 ,,
3/4 ,,	32 ,,	147 ,,
13/16 ,,	38 ,,	177 ,,
7/8 ,,	44 ,,	200 ,,
15/16 ,,	50 ,,	236 ,,
1 ,,	56 ,,	268 ,,
1 1/8 ,,	71 ,,	334 ,,
1 1/4 ,,	87 ,,	408 ,,

Ropes and Chains.

Comparative Sizes.

Iron Chain.	Weight per fathom.	Equivalent to Hemp Rope.
1/4 inches	5 lbs.	2½ in. circ'mfrnce
3/8 ,,	8 ,,	3½ in. ,,
1/2 ,,	14 ,,	4 in. ,,
5/8 ,,	24 ,,	5½ in. ,,
3/4 ,,	32 ,,	7½ in. ,,
1 ,,	56 ,,	9½ in. ,,

Birmingham Wire Gauge.

Comparative Sizes.

No.	1	4	7	11	16	22	gauges =
	5/16	1/4	3/16	1/8	1/16	1/32	of an inch.

Ropes.

Flat Ropes (Manilla).

Size.	Weight per 100 feet.		
	cwt.	qrs.	lbs.
4 inches	1	3	0
4½ ,,	2	0	0
5 ,,	2	0	14
5½ ,,	2	1	0
6 ,,	2	2	0

Round Manilla.

Weights of Manilla Rope in Coils of 140 Fathoms = 840 Feet.

Circ'mf'ren'e	Approximate Weight per Coil 140 Fathoms.			Estimated Safe Load.		
	cwts.	qrs.	lbs.	cwts.	qrs.	lbs.
1	0	1	0	0	1	3
1¼	0	1	7	0	2	3
1½	0	1	14	0	4	0
1¾	0	3	7	0	5	2
2	1	0	5	0	7	0
2¼	1	0	25	0	9	0
2½	1	2	0	0	11	0
2¾	1	3	14	0	13	2
3	2	0	20	0	16	0
3½	3	0	0	1	1	0
4	4	0	10	1	8	2
4½	5	0	0	1	16	0
5	6	0	0	2	4	2
6	9	2	0	3	4	0

Wire Rope.

FLAT IRON.

			Approximate Weight Per Fathom.	Breaking Strain.
Inch.		Inch.	Lbs.	Tons.
2 1/4	wide x	1/2	11	20
2 1/2	,,	1/2	13	23
2 3/4	,,	5/8	15	27
3	,,	5/8	16	28
3 1/4	,,	5/8	18	32
3 1/2	,,	5/8	20	36
3 3/4	,,	11/16	22	40
4	,,	11/16	25	45
4 1/4	,,	3/4	28	50
4 1/2	,,	3/4	32	56
4 5/8	,,	3/4	34	60
4 3/4	,,	7/8	37	64
5	,,	7/8	40	68

FLAT STEEL.

			Approximate Weight Per Fathom.	Breaking Strain.
Inch.		Inch.	Lbs.	Tons.
2 1/4	wide x	1/2	12	36
2 1/2	,,	1/2	13	40
2 3/4	,,	5/8	15	45
2	,,	5/8	16	50
3	,,	5/8	18	56
3 1/2	,,	5/8	20	60
3 3/4	,,	3/4	22	64
4	,,	3/4	24	68

ROUND IRON.

Circumference.		Diameter.	Approximate Weight Per Fathom.	Breaking Strain.
Inch.		Inch.	Lbs.	Tons.
1	or	5/16	1	1
1 1/2	,,	1/2	2	2
1 3/4	,,	9/16	2 1/2	4
2	,,	5/8	3 1/2	6
2 1/4	,,	11/16	4 1/2	8
2 1/2	,,	13/16	5 1/2	10
2 3/4	,,	7/8	6 1/2	12
3	,,	1	7 1/2	14
3 1/4	,,	1 1/16	8 1/2	16
3 1/2	,,	1 1/8	10	18
3 3/4	,,	1 3/16	12	22
4	,,	1 1/4	14	24
4 1/4	,,	1 3/8	15	28
4 1/2	,,	1 7/16	18	34
4 3/4	,,	1 1/2	20	38
5	,,	1 5/8	22	40
5 1/2	,,	1 3/4	26	54
6	,,	1 7/8	32	70

ROUND STEEL.

Circumference.		Diameter.	Approximate Weight Per Fathom.	Breaking Strain.
Inch.		Inch.	Lbs.	Tons.
1	or	5/16	1	2
1 1/2	,,	1/2	2	4
1 3/4	,,	9/16	2 1/2	8
2	,,	5/8	3 1/2	10
2 1/4	,,	11/16	4	12
2 1/2	,,	13/16	5 1/4	16
2 3/4	,,	7/8	6	18
3	,,	1	7	20
3 1/4	,,	1 1/16	8	24
3 1/2	,,	1 1/8	9	34
3 3/4	,,	1 3/16	12	38
4	,,	1 1/4	14	54
4 1/4	,,	1 3/8	15	70

Hints for Reckoning.

TO FIND THE SUPERFICIAL MEASUREMENT OF TIMBER.

Mulitiply the breadth by the thickness in inches, divide by 12, then multiply product by the length.

TO FIND THE VALUE OF A GIVEN WEIGHT AT A GIVEN PRICE PER TON.

EXAMPLE— Tons. cwt. qrs. lbs.
2 10 1 18 @ £5/10/- per ton.

Reckon the tons as pounds; cwts. as shillings; each qr. as 3d. and for every 9 lbs. 1d., equals

£2 10 5 multiplied by the price per ton = 5½ pounds sterling.

£12 12 1
1 5 2½

£13 17 3½ Answer.

TO FIND THE PREMIUM OR DISCOUNT OF ANY SUM.

EXAMPLE:—£24/10/6 @ 3½%.

Multiply the sum named by double the rate per cent. and point off the product one to the right.

£24 10 6
double 3½ = 7

£17·1 13 6 Answer 17 1/10th of a shilling, say 17/2

ANOTHER SIMPLE CALCULATION is to divide the discount rate by 5; and multiply the amount to be dealt with by the quotient; then by reading the pounds as shillings, and the shillings in equal proportion, the result will be the amount of discount or premium, as the case may require.

EXAMPLE:—£9 10 0 @ 40%.

Divide 40 by 5 leaves 8, multiply

£9 10 0
by 8

£76 0 0 Answer 76 shillings.

Ready Reckoner.

No	¼d.	½d.	¾d.	1d.	2d.	3d.	4d.	5d.	6d.	7d.	8d.	9d.	10d.	11d.	No
1	0 0½	0 0½	0 0¾	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	0 10	0 11	1
2	0 0½	0 1	0 1½	0 2	0 4	0 6	0 8	0 10	1 0	1 2	1 4	1 6	1 8	1 10	2
3	0 0¾	0 1½	0 2¼	0 3	0 6	0 9	1 0	1 3	1 6	1 9	2 0	2 3	2 6	2 9	3
4	0 1	0 2	0 3	0 4	0 8	1 0	1 4	1 8	2 0	2 4	2 8	3 0	3 4	3 8	4
5	0 1¼	0 2½	0 3¾	0 5	0 10	1 3	1 8	2 1	2 6	2 11	3 4	3 9	4 2	4 7	5
6	0 1½	0 3	0 4½	0 6	1 0	1 6	2 0	2 6	3 0	3 6	4 0	4 6	5 0	5 6	6
7	0 1¾	0 3½	0 5¼	0 7	1 2	1 9	2 4	2 11	3 6	4 1	4 8	5 3	5 10	6 5	7
8	0 2	0 4	0 6	0 8	1 4	2 0	2 8	3 4	4 0	4 8	5 4	6 0	6 8	7 4	8
9	0 2¼	0 4½	0 6¾	0 9	1 6	2 3	3 0	3 9	4 6	5 3	6 0	6 9	7 6	8 3	9
10	0 2½	0 5	0 7½	0 10	1 8	2 6	3 4	4 2	5 0	5 10	6 8	7 6	8 4	9 2	10
11	0 2¾	0 5½	0 8¼	0 11	1 10	2 9	3 8	4 7	5 6	6 5	7 4	8 3	9 2	10 1	11
12	0 3	0 6	0 9	1 0	2 0	3 0	4 0	5 0	6 0	7 0	8 0	9 0	10 0	11 0	12
13	0 3¼	0 6½	0 9¾	1 1	2 2	3 3	4 4	5 5	6 6	7 7	8 8	9 9	10 10	11 11	13
14	0 3½	0 7	0 10½	1 2	2 4	3 6	4 8	5 10	7 0	8 2	9 4	10 6	11 8	12 10	14
15	0 3¾	0 7½	0 11¼	1 3	2 6	3 9	5 0	6 3	7 6	8 9	10 0	11 3	12 6	13 9	15
16	0 4	0 8	1 0	1 4	2 8	4 0	5 4	6 8	8 0	9 4	10 8	12 0	13 4	14 8	16
17	0 4¼	0 8½	1 0¾	1 5	2 10	4 3	5 8	7 1	8 6	9 11	11 4	12 9	14 2	15 7	17
18	0 4½	0 9	1 1½	1 6	3 0	4 6	6 0	7 6	9 0	10 6	12 0	13 6	15 0	16 6	18
19	0 4¾	0 9½	1 2¼	1 7	3 2	4 9	6 4	7 11	9 6	11 1	12 8	14 3	15 10	17 5	19
20	0 5	0 10	1 3	1 8	3 4	5 0	6 8	8 4	10 0	11 8	13 4	15 0	16 8	18 4	20
21	0 5¼	0 10½	1 3¾	1 9	3 6	5 3	7 0	8 9	10 6	12 3	14 0	15 9	17 6	19 3	21
22	0 5½	0 11	1 4¼	1 10	3 8	5 6	7 4	9 2	11 0	12 10	14 8	16 6	18 4	20 2	22
23	0 5¾	0 11½	1 5¼	1 11	3 10	5 9	7 8	9 7	11 6	13 5	15 4	17 3	19 2	21 1	23
24	0 6	1 0	1 6	2 0	4 0	6 0	8 0	10 0	12 0	14 0	16 0	18 0	20 0	22 0	24
25	0 6¼	1 0½	1 6¾	2 1	4 2	6 3	8 4	10 5	12 6	14 7	16 8	18 9	20 10	22 11	25
26	0 6½	1 1	1 7½	2 2	4 4	6 6	8 8	10 10	13 0	15 2	17 4	19 6	21 8	23 10	26
27	0 6¾	1 1½	1 8¼	2 3	4 6	6 9	9 0	11 3	13 6	15 9	18 0	20 3	22 6	24 9	27
28	0 7	1 2	1 9	2 4	4 8	7 0	9 4	11 8	14 0	16 4	18 8	21 0	23 4	25 8	28
29	0 7¼	1 2½	1 9¾	2 5	4 10	7 3	9 8	12 1	14 6	16 11	19 4	21 9	24 2	26 7	29
30	0 7½	1 3	1 10¼	2 6	5 0	7 6	10 0	12 6	15 0	17 6	20 0	22 6	25 0	27 6	30
33	0 8¼	1 4½	2 0¾	2 9	5 6	8 3	11 0	13 9	16 6	19 3	22 0	24 9	27 6	30 3	33
36	0 9	1 6	2 3	3 0	6 0	9 0	12 0	15 0	18 0	21 0	24 0	27 0	30 0	33 0	36
40	0 10	1 8	2 6	3 4	6 8	10 0	13 4	16 8	20 0	23 4	26 8	30 0	33 4	36 8	40
42	0 10½	1 9	2 7½	3 6	7 0	10 6	14 0	17 6	21 0	24 6	28 0	31 6	35 0	38 6	42
45	0 11¼	1 10½	2 9¾	3 9	7 6	11 3	15 0	18 9	22 6	26 3	30 0	33 9	37 6	41 3	45
48	1 0	2 0	3 0	4 0	8 0	12 0	16 0	20 0	24 0	28 0	32 0	36 0	40 0	44 0	48
50	1 0½	2 1	3 1¼	4 2	8 4	12 6	16 8	20 10	25 0	29 2	33 4	37 6	41 8	45 10	50
51	1 0¾	2 1½	3 2¼	4 3	8 6	12 9	17 0	21 3	25 6	29 9	34 0	38 3	42 6	46 9	51
52	1 1	2 2	3 3	4 4	8 8	13 0	17 4	21 8	26 0	30 4	34 8	39 0	43 4	47 8	52
53	1 1¼	2 2½	3 3¾	4 5	8 10	13 3	17 8	22 1	26 6	30 11	35 4	39 9	44 2	48 7	53
54	1 1½	2 3	3 4½	4 6	9 0	13 6	18 0	22 6	27 0	31 6	36 0	40 6	45 0	49 6	54
56	1 2	2 4	3 6	4 8	9 4	14 0	18 8	23 4	28 0	32 8	37 4	42 0	46 8	51 4	56
60	1 3	2 6	3 9	5 0	10 0	15 0	20 0	25 0	30 0	35 0	40 0	45 0	50 0	55 0	60
72	1 6	3 0	4 6	6 0	12 0	18 0	24 0	30 0	36 0	42 0	48 0	54 0	60 0	66 0	72
84	1 9	3 6	5 3	7 0	14 0	21 0	28 0	35 0	42 0	49 0	56 0	63 0	70 0	77 0	84
100	2 1	4 2	6 3	8 4	16 8	25 0	33 4	41 8	50 0	58 4	66 8	75 0	83 4	91 8	100

WAGES TABLE.

Per Week of Six Days.	IS FOR				
	5 days.	4 days.	3 days.	2 days.	1 day.
1s.	0s. 10d.	0s. 8d.	0s. 6d.	0s. 4d.	0s. 2d.
2	1 8	1 4	1 0	0 8	0 4
3	2 6	2 0	1 6	1 0	0 6
4	3 4	2 8	2 0	1 4	0 8
5	4 2	3 4	2 6	1 8	0 10
6	5 0	4 0	3 0	2 0	1 0
7	5 10	4 8	3 6	2 4	1 2
8	6 8	5 4	4 0	2 8	1 4
9	7 6	6 0	4 6	3 0	1 6
10	8 4	6 8	5 0	3 4	1 8
11	9 2	7 4	5 6	3 8	1 10
12	10 0	8 0	6 0	4 0	2 0
13	10 10	8 8	6 6	4 4	2 2
14	11 8	9 4	7 0	4 8	2 4
15	12 6	10 0	7 6	5 0	2 6
16	13 4	10 8	8 0	5 4	2 8
17	14 2	11 4	8 6	5 8	2 10
18	15 0	12 0	9 0	6 0	3 0
19	15 10	12 8	9 6	6 4	3 2
20	16 8	13 4	10 0	6 8	3 4
30	25 0	20 0	15 0	10 0	5 0
40	33 4	26 8	20 0	13 4	6 8
50	41 8	33 4	25 0	16 8	8 4
60	50 0	40 0	30 0	20 0	10 0
70	58 4	46 8	35 0	23 4	11 8
80	66 8	53 4	40 0	26 8	13 4
90	75 0	60 0	45 0	30 0	15 0
100	83 4	66 8	50 0	33 4	16 8

BICYCLE GEAR TABLES.

26-in. Driving Wheel.

No. Teeth on Crank Wheel	No. of Teeth on Hub 8	9	10
18	58½	52	46 4-5
19	61¾	54 8-9	49 2-5
20	65	57 7-9	52
21	68¼	60 3-9	54 3-5
22	71½	63 5-9	57 1-5
23	74¾	66 4-9	59 4-5
24	78	69 3-9	62 2-5
25	81¼	72 2-9	65
26	84½	75 1-9	67 3-5
27	87¾	78	70 1-5
28	91	80 8-9	72 4-5
29	94¼	83	75 2-5
30	97½	86 2-3	78

28-in. Driving Wheel.

No. Teeth on Crank Wheel	No. of Teeth on Hub 7	8	9	10
18	72	63	56	50 2-5
19	76	66½	59 8-9	53 1-5
20	80	70	62	56
21	84	73½	65 3-9	58 1-5
22	88	77	68 4 9	61 3-5
23	92	80½	71 5-9	64 2-5
24	96	84	74 6-9	67 1-5
25	100	87½	77 7-9	70
26	—	91	80 8-9	72 4-5
27	—	94½	84	75 3-5
28	—	98	87 1-9	78 2-5
29	—	101½	90 2-9	81 1-5
30	—	105	93 3-9	84

Simple Rules of Mensuration.

The area of a circle is about three-fourths the area of a square having a side equal to its diameter.

The circumference of a circle is about three and one-seventh times its diameter.

The length, breadth, and height in feet, of a cistern, multiplied together, and the product multiplied by six and a-quarter will give the capacity in gallons.

The cubical contents of cones or pyramids are one-third that of cylinders or prisms, respectively, which have the same size base and are equal in height.

The area of the curved surface of a cone can be found by multiplying the slope of the cone by the circumference of the base and dividing by two.

Comparative Prices.

per lb.	per cwt.	per ton.
£ s. d.	£ s. d.	£ s. d.
0 0 0¼	0 2 4	2 6 8
0 0 0½	0 4 8	4 13 4
0 0 0¾	0 7 0	7 0 0
0 0 1	0 9 4	9 6 8
0 0 2	0 18 8	18 13 4
0 0 3	1 8 0	28 0 0
0 0 4	1 17 4	37 6 8
0 0 5	2 6 8	46 13 4
0 0 6	2 16 0	56 0 0
0 0 7	3 5 4	65 6 8
0 0 8	3 14 8	74 13 4
0 0 9	4 4 0	84 0 0
0 0 10	4 13 4	93 6 8
0 0 11	5 2 8	102 13 4
0 1 0	5 12 0	112 0 0

BRITISH WEIGHTS and MEASURES

IMPERIAL STANDARD.

APOTHECARIES' WEIGHT.

Used for compounding Medical Prescriptions. The Avoirdupois Weight is used to buy and sell in quantity. The Grain, Ounce, and Pound are the same as Troy.

20 Grains	= 1 Scruple	=	20 Grains	Troy.
3 Scruples	= 1 Dram	=	60 ,,	,,
8 Drams	= 1 Ounce	=	480 ,,	,,
12 Ounces	= 1 Pound	=	5760 ,,	,,

APOTHECARIES' FLUID MEASURE.

60 Minims	= 1 Dram.	20 Ounces	= 1 Pint.
8 Drams	= 1 Ounce	8 Pints	= 1 Gallon.

TROY WEIGHT.

By this Weight, Gold, Silver, Platina, and Precious Stones except Diamonds, are weighed. Diamonds and Pearls are weighed by Carats of 4 Grains each (equal only to 3·2 Troy Grains). The Troy Ounce is equal to 151½ Diamond Carats. Gold when pure is said to be 24 Carats fine; if it contains one part alloy, it is said to be 23 Carats fine, and so on.

3·17 Grains	= 1 Carat		
24 Grains	= 1 Pennyweight	=	24 Grains
20 Pennyweights	= 1 Ounce	=	480 ,,
12 Ounces	= 1 Pound	=	5760 ,,

AVOIRDUPOIS WEIGHT.

Used for all General Merchandise.

27⅓ Grains	= 1 Dram.		
16 Drams	= 1 Ounce	=	437½ Grains.
16 Ounces	= 1 Pound	=	7000 ,,
14 Pounds	= 1 Stone.		
28 Pounds	= 1 Quarter		
4 Quarters	= 1 Hundredweight	=	112 Pounds.
20 Cwts.	= 1 Ton	=	2240 ,,

The Avoirdupois Pound exceeds Troy in the proportion of 17 to 14 nearly, and the Troy Ounce is greater than the Avoirdupois in the proportion of 79 to 72 nearly.

HAY AND STRAW.

36 Pounds Straw	1 Truss.	60 Pounds New Hay	1 Truss.
56 ,, Old Hay	1 ,,	36 Trusses	1 Load.

The Load of Old Hay is 18 Cwt., of New 19 Cwt. 32 Lb., and of Straw 11 Cwt. 64 Lb.

MEASURE OF SURFACE.

144 Inches	= 1 Foot.	40 Perches	= 1 Rood.
9 Feet	= 1 Yard.	4 Roods	= 1 Acre.
30¼ Yard	= 1 Rod or Perch.	10 Chains	= 1 Acre.*
16 Rods	= 1 Chain.	640 Acres	= 1 Mile.

*That is, 10 Chains long by 1 Chain broad, or a Square whose side is 70 yards, is nearly an Acre.

Measure of Solidity.

1728 Cubic Inches	=	1 Cubic Foot.
27 Cubic Feet	=	1 Cubic Yard.
5 „ „	=	1 Barrel Bulk Shipping.
40 „ „	=	1 Ton Shipping.
40 „ „	=	1 Load Hard English timber etc.
50 „ „	=	1 Load Foreign Fir.

Geographical and Nautical Measure.

6 Feet = 1 Fathom.
110 Fathoms or 660 Feet = 1 Furlong.
6,080 Feet = 1 Knot.
3 Knots = 1 League.
20 Leagues or 60 Geographical Miles = 1 Degree.
360 Degrees, or 24,856 Miles, the Earth's circumference.

Measure of Length.

12 Inches	= 1 Foot.	4 Poles	= 1 Chain.
3 Feet	= 1 Yard.	10 Chains	= 1 Furlong.
5½ Yards	= 1 Pole.	8 Furlongs	= 1 Mile.

In scientific calculations, and by Revenue Officers, the inch is divided into tenths and hundredths. Mechanics divide it into eighths. The chain is divided into 100 links, each 7·92 inches.

Measure of Time.

60 Seconds	1 Minute.	24 Hours	1 Day.
60 Minutes	1 Hour.	7 Days	1 Week.

28 days 1 Lunar Month.
365 Days 1 Common Year.
366 Days 1 Leap Year.
365¼ Days 1 Julian Year.
365 d. 5 h. 48 m. 48 sec., 1 Solar Year.
365 d. 6 h. 9 m. 12 secs., 1 Sideral Year.

Measure of Capacity.

Used for Liquids and Dry Goods generally.

4 Gills	= 1 Pint	=	34⅔	Cubic Inches	nearly.
2 Pints	= 1 Quart	=	69⅓	„ „	„
4 Quarts	= 1 Gallon	=	277¼	„ „	„
2 Gallons	= 1 Peck	=	554½	„ „	„
4 Pecks	= 1 Bushel	=	2,218½	„ „	„
8 Bushels	= 1 Quarter	=	10¼	„ Feet	„
5 Quarters	= 1 Load	=	51⅓	„ „	„

A Bushel of Wheat, on an average, weighs 60 pounds. Barley, 47 pounds. Oats, 40 pounds. The Gallon contains 10 Pounds Avoirdupois of Distilled Water exactly.

Grain and Produce.

	Per bushel.	Average bushels per bag.		Per bushel.	Average bushels per bag.
Barley	... 50 lb.	... 4	Oats	... 40 lb.	... 4
Beans	... 60 „	... 4	Peas	... 60 „	... 4
Bran	... 20 „	... 8	Pollard	... 20 „	... 9
Maize	... 56 „	... 4	Wheat	... 60 „	... 4
Malt	... 40 „	... 4			

A Bag of Flour :—Australian 200 lb. ; English, 280 lb.

Troedel & Co., Print, 230 Flinders Lane, Melbourne.

Lysaght's Trade Marks.

"NEW GUINEA" Galvanised . . . Corrugated Sheets. This brand is manufactured principally for the West Indies, Java and Phillippine Islands, &c., &c.

GLOBE

"GLOBE" Galvanised Corrugated Sheets, used chiefly in the South American, Indian and South African Markets.

"REDCLIFFE" Corrugated Iron.—A brand of well-established repute and in large demand—occupying a premier position in those markets in which price is a primary consideration.

"WEIGHT BEARING" Iron—Lysaght's **"ORB"** brand, used for building purposes maintains the maker's reputation, and may be specified by Architects and Engineers in the full confidence that it will justify their preference.

LOYALTY

"THE CANADIAN HARDWARE JOURNAL" says:—

"SCARCELY less marked than the
"loyalty of all true Canadians
"to the Queen's sceptre is that of
"the Canadian Iron-worker to . . .
"QUEEN'S HEAD Galvanised Iron.
"Another proof that Canadians know
"a good thing when they see and
"test it."

. . . . . .

These remarks are equally true of the Ironworkers of Australia.