



NATIONAL ALMANAC

AND

TIDE TABLES

FOR THE YEAR

OF THE UNITED STATES

ROBERT B. CARROLL

NEW YORK

PICKFORD & BLACK, Importers of Welsh Bolt Iron Spikes.

ROBERT H. COGSWELL'S
 ABRIDGEMENT OF THE
 NAUTICAL ALMANAC.
 1880.

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The Equation of Time, and Sun's Right Ascension and Declination are given for Apparent Noon at Greenwich.

MACDONALD & CO., Manufacturers of Lead Water Marks.

MACDONALD & CO., Manufacturers of Patent Ships' Water Closets.—See adv. inside cover.

PICKFORD & BLACK, Importers of Refined Iron Clinch Rings.

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ROBERT H. COGSWELL'S

[1880

Chronometer Establishment,

ESTABLISHED 1830.

ROBERT H. COGSWELL, Chronometer Maker,

175 BARRINGTON ST., HALIFAX,

IMPORTER AND DEALER IN

NAUTICAL GOODS

OF EVERY DESCRIPTION.

IN preparing an abridgement of the Nautical Almanac for this year I have endeavoured to increase its usefulness by the addition of much valuable matter, which I feel assured will render it more worthy of preservation by Ship Masters, as a book of reference. I propose adding from year to year, such other nautical information as is of importance.

I call the attention of Ship Masters and owners to the following arrangements, which will, no doubt, meet the views of all concerned. As there are a great many vessels passing this harbor from all parts of the world, it is suggested to notify them that if they will hoist their number, showing where from and to, by commercial code list, it will be taken notice of at Sambro, by the Signal Master,—it will be then telegraphed to the Halifax Station, and memorandum sent to Reading Room. Also vessels owned in Halifax, when coming in by showing their private signal at Sambro, will be signalled much sooner at the Citadel.

MARINE CHRONOMETERS.

A large assortment of new and second-handed Chronometers, of various makers, at the lowest possible prices consistent with the character of the instrument. No Chronometers are offered from this establishment, either for sale or on hire, but such as have been recently put in thorough order, accurately adjusted for heat and cold, and for performing finely.

MACDONALD & CO., Manufacturers of Hand and Power Pumps.

Vessels Fitted with Plumbing Fixtures, by MACDONALD & CO.—See adv. inside cover

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FASHIONABLE HAT DEPOT.

JOHN H. PHILP,

IMPORTER AND DEALER IN

Hats, Caps, Furs, Buffalo Robes,

TRUNKS, VALISES, LEATHER HAT CASES, CARPET BAGS, ETC.

WHOLESALE AND RETAIL.

82 Upper Water Street, - Halifax, N. S.

Sign of the Gilt Hat and Cap, Opposite Tobin's Wharf.

A Splendid Stock of Ladies' Furs, and Gentlemen's Fur and Heavy Caps of every description, will be offered to intending purchasers, at the lowest prices for cash. Please give me a call.

JOHN H. PHILP, Opp. Tobin's Wharf.

A. STEPHEN & SON,

101 and 103 Barrington Street,

HALIFAX, N. S.

First-class Furniture

OF EVERY DESCRIPTION.

CHAMBER FURNITURE A SPECIALTY.

35 different styles and prices, from \$20 to \$200.

Particular Attention given to Packing and Shipping Goods.

NOW IS THE TIME TO BUY FURNITURE,
It never was so low, Prices must advance soon.

MACDONALD & CO., Brass Founders.—See adv. inside cover.

MACDONALD & CO., Importers of Steam Pumps, etc.—See adv. inside cover.

Apparent Right Ascension and Declination of Ursæ Minoris (Polaris) for the Upper Transit at Greenwich.

Day of Month.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.
	h. m. s.	° ' "	h. m. s.	° ' "	h. m. s.	° ' "	h. m. s.	° ' "	h. m. s.	° ' "	h. m. s.	° ' "
1	55.34	36.2	27.50	36.3	66.47	31.2	57.18	22.2	3.88	13.0	24.57	6.7
2	54.37	36.2	26.69	36.2	66.03	31.0	57.14	21.9	4.26	12.8	25.44	6.5
3	53.41	36.3	25.94	36.1	65.62	30.8	57.07	21.6	4.67	12.5	26.36	6.4
4	52.49	36.4	25.23	36.0	65.19	30.5	56.97	21.3	5.13	12.3	27.31	6.3
5	51.62	36.4	24.51	35.8	64.72	30.2	56.88	21.0	5.65	12.0	28.28	6.2
6	50.80	36.5	23.75	35.7	64.21	30.0	56.81	20.7	6.23	11.8	29.25	6.1
7	50.02	36.6	22.94	35.6	63.66	29.7	56.79	20.3	6.86	11.5	30.20	6.0
8	49.25	36.6	22.09	35.5	63.09	29.5	56.81	20.0	7.53	11.3	31.12	5.9
9	48.46	36.7	21.21	35.4	62.52	29.2	*	*	8.22	11.0	32.02	5.8
10	47.62	36.8	20.30	35.2	61.99	28.9	57.29	19.1	8.90	10.8	32.88	5.7
11	46.72	36.9	19.40	35.1	61.51	28.6	57.53	18.8	9.57	10.5	33.72	5.6
12	45.76	36.9	18.59	34.9	61.10	28.3	57.79	18.5	10.22	10.3	34.53	5.6
13	44.75	37.0	17.72	34.8	60.75	28.0	58.05	18.2	10.84	10.1	35.34	5.5
14	43.72	37.0	16.96	34.6	60.45	27.7	58.30	17.9	11.44	9.8	36.17	5.4
15	42.72	37.1	16.25	34.4	60.19	27.4	58.52	17.6	12.01	9.6	37.03	5.3
16	41.75	37.1	15.58	34.2	59.95	27.1	58.71	17.3	12.58	9.4	37.95	5.3
17	40.81	37.1	14.95	34.0	59.72	26.8	58.88	17.0	13.15	9.2	38.93	5.3
18	39.93	37.1	14.38	33.8	59.50	26.5	59.04	16.7	13.76	9.0	39.97	5.2
19	39.09	37.0	13.71	33.6	59.26	26.2	59.21	16.4	14.43	8.8	41.04	5.2
20	38.27	37.0	13.08	33.4	58.99	25.9	59.41	16.1	15.17	8.6	42.11	5.2
21	37.47	37.0	12.42	33.2	58.70	25.6	59.65	15.8	15.98	8.4	43.14	5.2
22	36.67	36.9	11.72	33.0	58.38	25.3	59.96	15.5	16.83	8.2	44.11	5.2
23	35.85	36.9	10.99	32.8	58.06	25.0	60.35	15.2	17.70	8.1	45.02	5.2
24	35.00	36.9	10.25	32.6	57.75	24.7	60.81	14.9	18.57	7.9	45.88	5.2
25	34.11	36.8	9.50	32.3	57.48	24.4	61.31	14.7	19.39	7.7	46.72	5.1
26	33.18	36.8	8.78	32.1	57.28	24.0	61.83	14.4	20.16	7.5	47.58	5.1
27	32.22	36.7	8.10	31.9	57.15	23.7	62.32	14.1	20.89	7.4	48.46	5.1
28	31.23	36.6	7.49	31.7	57.10	23.4	62.79	13.8	21.57	7.2	49.39	5.1
29	30.24	36.6	6.95	31.5	57.11	23.1	63.15	13.5	22.26	7.1	50.38	5.1
30	29.23	36.5	.....	.....	57.15	22.8	63.52	13.3	22.98	7.0	51.40	5.2
31	28.36	36.4	.....	.....	57.18	22.5	.....	.....	23.75	6.8	.....	.....

* On the 9th April this star will pass the meridian twice in the same day, in consequence of the sidereal day being shorter than the solar day. At the first transit the Right Ascension of the star will be 1h. 13m. 56.92s., Declination 88° 40' 19.7" and at the second its position will be Right Ascension 1h. 13m. 57.03s., and Declination 88° 40' 19.4".

MACDONALD & CO., Steam Fitters.—See adv. inside cover.

MACDONALD & CO., Manufacturers of Composition Butt Bolts and Spikes.—See inside cover.

Apparent Right Ascension and Declination of Ursæ Minoris (Polaris) for the Upper Transit at Greenwich.

Day of Month.	JULY.	
	R. A.	Dec. N.
	h. m. s.	° ' "
1	52.45	5.5
2	53.53	5.5
3	54.60	5.5
4	55.65	5.5
5	56.68	5.5
6	57.67	5.5
7	58.61	5.5
8	59.51	5.5
9	60.39	5.5
10	61.25	5.5
11	62.12	5.5
12	63.02	5.5
13	63.95	5.5
14	64.95	5.5
15	65.99	5.5
16	67.07	5.5
17	68.15	5.5
18	69.20	5.5
19	70.20	5.5
20	71.18	5.5
21	72.01	5.5
22	72.84	5.5
23	73.64	5.5
24	74.47	5.5
25	75.34	5.5
26	76.26	5.5
27	77.22	5.5
28	78.21	5.5
29	79.21	5.5
30	80.22	5.5
31	81.21	5.5

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Brass Hing

Water St.

PICKFORD & BLACK, Ship Chandlers, 51 Upper Water St., Halifax.

[1880

1880]

NAUTICAL ALMANAC.

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Apparent Right Ascension and Declination of Ursæ Minoris (Polaris) for the Upper Transit at Greenwich.

JUNE.

Dec. N.

14 38° 40'

57 6.7

44 6.5

36 6.4

31 6.3

28 6.2

25 6.1

20 6.0

12 5.9

02 5.8

38 5.7

22 5.6

13 5.6

04 5.5

17 5.4

03 5.3

05 5.3

03 5.3

07 5.2

04 5.2

1 5.2

4 5.2

1 5.2

02 5.2

08 5.2

2 5.1

08 5.1

06 5.1

09 5.1

08 5.1

0 5.2

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day, in

the first

on 88° 40'

38s., and

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ver.

Day of Month.	JULY.		AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.	
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.
	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "	h. m. ° ' "
1	52.45	5.2	22.17	8.7	46.05	16.7	59.42	27.1	60.61	38.9	48.83	48.6
2	53.53	5.2	23.08	8.9	46.58	17.0	59.60	27.5	60.52	39.2	48.32	48.8
3	54.60	5.2	23.95	9.1	47.09	17.3	59.80	27.9	60.44	39.6	47.74	49.1
4	55.65	5.3	24.77	9.3	47.60	17.6	60.06	28.3	60.33	40.0	47.09	49.4
5	56.68	5.3	25.55	9.5	48.12	18.0	60.35	28.7	60.16	40.4	46.36	49.6
6	57.67	5.4	26.30	9.7	48.69	18.3	60.66	29.1	59.92	40.7	45.59	49.9
7	58.61	5.4	27.05	9.9	49.31	18.6	60.97	29.5	59.60	41.1	44.81	50.2
8	59.51	5.5	27.82	10.2	49.96	18.9	61.25	29.9	59.23	41.4	44.03	50.4
9	60.39	5.6	28.62	10.4	50.62	19.3	61.46	30.2	58.82	41.7	43.28	50.6
10	61.25	5.7	29.46	10.7	51.28	19.6	61.59	30.6	58.39	42.0	42.58	50.9
11	62.12	5.8	30.35	10.9	51.89	20.0	61.66	31.0	57.98	42.3	41.91	51.1
12	63.02	5.9	31.28	11.1	52.43	20.3	61.67	31.4	57.59	42.7	41.26	51.3
13	63.95	6.0	32.21	11.3	52.91	20.7	61.64	31.7	57.25	43.0	40.63	51.6
14	64.95	6.1	33.12	11.6	53.33	21.0	61.61	32.1	56.94	43.4	39.99	51.8
15	65.99	6.2	33.98	11.8	53.70	21.4	61.61	32.5	56.64	43.7	39.33	52.0
16	67.07	6.3	34.79	12.1	54.04	21.7	61.64	32.9	56.33	44.1	38.63	52.2
17	68.15	6.4	35.53	12.3	54.39	22.1	61.72	33.3	56.02	44.4	37.88	52.4
18	69.20	6.5	36.21	12.6	54.78	22.4	61.83	33.7	55.69	44.7	37.08	52.6
19	70.20	6.6	36.84	12.8	55.20	22.8	61.94	34.1	55.30	45.0	36.23	52.7
20	71.13	6.7	37.43	13.1	55.66	23.1	62.03	34.4	54.85	45.4	35.35	52.9
21	72.01	6.9	38.14	13.4	56.14	23.5	62.10	34.8	54.34	45.7	34.45	53.1
22	72.84	7.0	38.84	13.6	56.63	23.8	62.13	35.2	53.79	46.0	33.54	53.2
23	73.64	7.2	39.59	13.9	57.11	24.2	62.12	35.5	53.20	46.3	32.64	53.4
24	74.47	7.3	40.38	14.2	57.56	24.5	62.05	35.9	52.59	46.6	31.76	53.5
25	75.34	7.5	41.18	14.5	57.96	24.9	61.93	36.3	51.98	46.9	30.93	53.7
26	76.26	7.6	41.98	14.8	58.31	25.3	61.76	36.6	51.38	47.2	30.14	53.8
27	77.22	7.8	42.76	15.1	58.61	25.7	61.56	37.0	50.81	47.5	29.40	53.9
28	78.21	7.9	43.51	15.4	58.85	26.0	61.33	37.4	50.27	47.8	28.67	54.1
29	79.21	8.1	44.21	15.7	59.06	26.4	61.10	37.8	49.78	48.1	27.92	54.2
30	80.22	8.3	44.87	16.0	59.24	26.8	60.89	38.1	49.31	48.3	27.14	54.3
31	81.21	8.5	45.48	16.3	.....	.....	60.73	38.5	.....	.....	26.29	54.4

In this arrangement it is necessary in many instances to continue the seconds beyond 60, as the width of the page would not permit of otherwise indicating any change in the minutes.

MACDONALD & CO., Manufacturers of Brass Binnacle Guards.—See adv. inside cover.

Brass Hinges, Hasps and Locks at MACDONALD & CO'S—See ins. cover.

PICKFORD & BLACK, American Tar, Pitch, Rosin, 51 Upper Water St.

Woodberry

MACDONALD & CO., Manufacturers of Engineers' Brass Goods. See adv. inside cover.

8		ROBERT H. COGSWELL'S						[1880]				
FEBRUARY.												
THE SUN'S												
Day of the Week.	Day of the Month.	Apparent Right Ascension.		Diff. for 1 hour	Apparent Declination.		Diff. for 1 h'r	Equation of time, to be added to Apparent Time.	Diff. for 1 h'r			
		h. m. s.	s.	o' "	" "	m. s.	s.					
S	1	20	58	9.28	10.197	S. 17	11	7.1	42.48	13	47.18	0.339
M	2	21	2	13.60	10.163	16	53	58.4	43.23	13	54.92	0.306
T	3	21	6	17.11	10.130	16	36	31.9	43.97	14	1.86	0.273
W	4	21	10	19.83	10.097	16	18	47.9	44.69	14	8.01	0.240
T	5	21	14	21.76	10.064	16	0	46.9	45.39	14	13.37	0.207
F	6	21	18	22.89	10.031	15	42	29.3	46.07	14	17.93	0.174
S	7	21	22	23.23	9.998	15	23	55.5	46.74	14	21.71	0.141
S	8	21	26	22.78	9.965	15	5	6.0	47.38	14	24.69	0.108
M	9	21	30	21.53	9.931	14	46	1.3	48.01	14	26.88	0.075
T	10	21	34	19.49	9.899	14	26	41.7	48.62	14	28.28	0.042
W	11	21	38	16.67	9.866	14	7	7.7	49.21	14	28.90	0.010
T	12	21	42	13.06	9.834	13	47	19.7	49.78	14	28.74	0.023
F	13	21	46	8.68	9.801	13	27	18.3	50.33	14	27.81	0.055
S	14	21	50	3.53	9.770	13	7	3.8	50.87	14	26.11	0.086
S	15	21	53	37.62	9.738	12	45	36.6	51.39	14	23.66	0.118
M	16	21	57	50.97	9.708	12	25	57.1	51.89	14	20.46	0.149
T	17	22	1	43.59	9.677	12	5	5.9	52.37	14	16.53	0.179
W	18	22	5	35.48	9.647	11	44	3.2	52.84	14	11.88	0.208
T	19	22	9	26.67	9.618	11	22	49.5	53.29	14	6.53	0.237
F	20	22	13	17.16	9.590	11	1	25.8	53.72	14	0.48	0.266
S	21	22	17	6.97	9.561	10	39	51.0	54.13	13	53.75	0.294
S	22	22	20	56.11	9.534	10	18	6.9	54.53	13	46.36	0.321
M	23	22	24	44.60	9.508	9	56	13.4	54.91	13	38.33	0.348
T	24	22	28	32.47	9.482	9	34	11.0	55.28	13	29.66	0.374
W	25	22	32	19.73	9.457	9	12	0.0	55.63	13	20.39	0.399
T	26	22	36	6.39	9.432	8	49	40.7	55.97	13	10.52	0.423
F	27	22	39	52.48	9.409	8	27	13.6	56.28	13	0.99	0.446
S	28	22	43	38.03	9.387	8	4	39.1	56.59	12	49.11	0.468
S	29	22	47	23.05	9.365	7	41	57.4	56.88	12	37.61	0.490
M	30	22	51	7.57	9.345	S. 7	19	9.0	57.15	12	25.61	0.510

Brass Ventilators made by MACDONALD & CO.—See adv. inside cover.

1880]

WOODBERRY

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MACDONALD & CO.

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QOAM

Woodberry Cotton Ducks, for sale by PICKFORD & BLACK.

1880]

NAUTICAL ALMANAC.

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THE LONDON DRUG STORE,

147 Hollis Street.

J. GODFREY SMITH,

Dispensing Chemist, Proprietor.

SHIPS' MEDICINE CHESTS FURNISHED AND FITTED.

Every Seaman previous to Sailing should be
supplied with Smith's Special Preparations.

R. H. COGSWELL,

(Successor to WM. CRAWFORD.)

Watch and Chronometer Maker,

175 BARRINGTON STREET,

HALIFAX, N. S.

Jewelry, Watches, Clocks, and Nautical Instruments,

For Sale and Repaired.

MACDONALD & CO., Importers of Engineers' Rubber Goods.— See cover.

Residences and Public Buildings Fitted with Hot Water Heating Apparatus, by MACDONALD & CO. See adv. inside cover.

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ROBERT H. COGSWELL'S

[1880

MARCH.

Chronometer of G. M. T.

MACDONALD & CO., Manufacturers of Plumbers' Brass Goods.—See adv. inside cover.

Day of the Week.		Day of the Month.		THE SUN'S		Equation of time, to be added to Apparent Time.		Diff. for 1 h'r	Chronometer of G. M. T.			
		Apparent Right Ascension.	Diff. for 1 hour	Apparent Declination.	Diff. for 1 h'r				H.	MIN.	SEC.	THS.
M	1	22 51 7.57	9.345	S. 7 19 9.0	57.15	12 25.61	0.510	1				
T	2	22 54 51.61	9.325	6 56 14.1	57.41	12 13.13	0.529	2				
W	3	22 58 35.19	9.307	6 33 13.3	57.65	12 0.20	0.548	3				
T	4	23 2 18.33	9.289	6 10 6.9	57.88	11 46.82	0.566	4				
F	5	23 6 1.06	9.272	5 46 55.3	58.08	11 33.03	0.583	5				
S	6	23 9 43.38	9.255	5 23 38.9	58.27	11 18.84	0.600	6				
S	7	23 13 25.31	9.239	5 0 18.1	58.45	11 4.25	0.615	7				
M	8	23 17 6.87	9.224	4 36 53.3	58.61	10 49.30	0.630	8				
T	9	23 20 48.07	9.210	4 13 25.0	58.75	10 33.99	0.645	9				
W	10	23 24 28.94	9.196	3 49 53.5	58.87	10 18.35	0.659	10				
T	11	23 28 9.48	9.183	3 26 19.3	58.97	10 2.38	0.672	11				
F	12	23 31 49.71	9.170	3 2 42.7	59.06	9 46.11	0.684	12				
S	13	23 35 29.66	9.159	2 39 4.2	59.14	9 29.55	0.695	13				
S	14	23 39 9.34	9.148	2 15 24.1	59.20	9 12.73	0.706	14				
M	15	23 42 48.78	9.138	1 51 42.8	59.24	8 55.65	0.716	15				
T	16	23 46 27.98	9.129	1 28 0.6	59.27	8 38.35	0.725	16				
W	17	23 50 6.96	9.120	1 4 18.0	59.28	8 20.83	0.734	17				
T	18	23 53 45.76	9.113	0 40 35.4	59.27	8 3.12	0.742	18				
F	19	23 57 24.38	9.106	S. 0 16 53.1	59.25	7 45.23	0.749	19				
S	20	0 1 2.84	9.100	N. 0 6 48.6	59.21	7 27.19	0.755	20				
S	21	0 4 41.17	9.095	0 30 29.2	59.16	7 9.01	0.760	21				
M	22	0 8 19.38	9.090	0 54 8.5	59.10	6 50.72	0.764	22				
T	23	0 11 57.50	9.087	1 17 46.0	59.02	6 32.34	0.767	23				
W	24	0 15 35.54	9.084	1 41 21.5	58.93	6 13.89	0.770	24				
T	25	0 19 13.54	9.083	2 4 54.6	58.83	5 55.38	0.773	25				
F	26	0 22 51.51	9.082	2 28 25.0	58.70	5 36.85	0.772	26				
S	27	0 26 29.49	9.083	2 51 52.4	58.57	5 18.33	0.771	27				
S	28	0 30 7.50	9.085	3 15 16.4	58.43	4 59.83	0.770	28				
M	29	0 33 45.56	9.087	3 38 36.8	58.27	4 41.38	0.767	29				
T	30	0 37 23.69	9.091	4 1 53.2	58.09	4 23.02	0.763	30				
W	31	0 41 1.93	9.096	4 25 5.3	57.91	4 4.75	0.759	31				
T	32	0 44 40.28	9.101	N. 4 48 12.8	57.71	3 46.60	0.753					

MACDONALD & CO., Manufacturers of Manrope Stanchions.—Ins. cover.

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PICKFORD & BLACK, Importers Wire Rope, Canvas, 51 Up. Water St.

12 ROBERT H. COGSWELL'S [1880]

MACDONALD & CO., Manufacturers of Patent Roller Bushings.—See adv. inside cover.

THE SUN'S										Chronometer of G. M. T.					
		Apparent Right Ascension.		Diff. for 1 hour	Apparent Declination.		Diff. for 1 h'r	Equation of time to be added to sub. from Apparent Time.		Diff. for 1 h'r	H.	MIN.	SEC.	THS.	
Day of the Week.	Day of the Month.	h.	m.	s.	s.	°	'	"	"	m.	s.	s.			
T	1	0	44	40.28	9.101	N. 4	48	12.8	57.71	3	46.60	0.753	1		
F	2	0	48	18.78	9.107	5	11	15.2	57.49	3	28.59	0.747	2		
S	3	0	51	57.43	9.114	5	34	12.3	57.26	3	10.75	0.740	3		
S	4	0	55	36.26	9.122	5	57	3.6	57.01	2	53.07	0.733	4		
M	5	0	59	15.28	9.130	6	19	48.8	56.75	2	35.58	0.724	5		
T	6	1	2	54.51	9.139	6	42	27.6	56.47	2	18.31	0.715	6		
W	7	1	6	33.96	9.149	7	4	59.6	56.18	2	1.26	0.706	7		
T	8	1	10	13.66	9.159	7	27	24.3	55.87	1	44.44	0.695	8		
F	9	1	13	53.61	9.170	7	49	41.5	55.55	1	27.88	0.684	9		
S	10	1	17	33.82	9.181	8	11	50.8	55.22	1	11.59	0.673	10		
S	11	1	21	14.32	9.194	8	33	51.9	54.86	0	55.58	0.661	11		
M	12	1	24	55.12	9.206	8	55	44.3	54.50	0	39.87	0.648	12		
T	13	1	28	36.23	9.220	9	17	27.8	54.12	0	24.47	0.635	13		
W	14	1	32	17.66	9.233	9	39	2.0	53.72	0	9.38	0.622	14		
T	15	1	35	59.42	9.247	10	0	26.5	53.31	0	5.37	0.607	15		
F	16	1	39	41.53	9.262	10	21	41.1	52.89	0	19.77	0.593	16		
S	17	1	43	24.01	9.278	10	42	45.3	52.46	0	33.82	0.577	17		
S	18	1	47	6.86	9.293	11	3	38.9	52.00	0	47.48	0.561	18		
M	19	1	50	50.09	9.310	11	24	21.4	51.54	1	0.76	0.545	19		
T	20	1	54	33.73	9.327	11	44	52.6	51.06	1	16.65	0.528	20		
W	21	1	58	17.78	9.344	12	5	12.2	50.57	1	26.12	0.511	21		
T	22	2	2	2.26	9.362	12	25	20.0	50.07	1	38.16	0.493	22		
F	23	2	5	47.18	9.381	12	45	15.4	49.55	1	49.76	0.474	23		
S	24	2	9	32.57	9.401	13	4	58.2	49.02	2	0.89	0.454	24		
S	25	2	13	18.44	9.422	13	24	28.3	48.48	2	11.55	0.434	25		
M	26	2	17	4.81	9.443	13	43	45.2	47.92	2	21.71	0.413	26		
T	27	2	20	51.69	9.464	14	2	48.7	47.36	2	31.36	0.391	27		
W	28	2	24	39.09	9.486	14	21	38.5	46.78	2	40.49	0.369	28		
T	29	2	28	27.03	9.509	14	40	14.2	46.19	2	49.08	0.347	29		
F	30	2	32	15.52	9.532	14	58	35.6	45.58	2	57.13	0.324	30		
S	31	2	36	4.56	9.555	N. 15	16	42.2	44.96	3	4.62	0.300	31		

MACDONALD & CO., Manufacturers of Copper and Lead Tanks.

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14 ROBERT H. COGSWELL'S [1880

Residences and Public Buildings Fitted with Plumbing Fixtures, by MACDONALD & CO.—See adv. inside cover.

		MAY.										Chronometer of G. M. T.				
		THE SUN'S										H.	MIN.	SEC.	THS.	
Day of the Week.	Day of the Month.	Apparent Right Ascension.			Diff. for 1 hour	Apparent Declination.			Diff. for 1 h'r	Equation of time to be sub. from Apparent Time.	Diff. for 1 h'r					
		A.	M.	S.		°	'	"				m.	s.	ths.		
S	1	2	36	4.56	9.555	N.15	16	42.2	44.96	3	4.62	0.300	1			
S	2	2	39	54.16	9.579	15	34	33.8	44.33	3	11.55	0.277	2			
M	3	2	43	44.33	9.602	15	52	10.1	43.68	3	17.92	0.254	3			
T	4	2	47	35.07	9.626	16	9	30.6	43.02	3	23.72	0.230	4			
W	5	2	51	26.39	9.650	16	26	35.1	42.35	3	28.94	0.206	5			
T	6	2	55	18.28	9.674	16	43	23.3	41.66	3	33.59	0.182	6			
F	7	2	59	10.76	9.699	16	59	54.8	40.96	3	37.66	0.157	7			
S	8	3	3	3.82	9.723	17	16	9.3	40.25	3	41.14	0.133	8			
S	9	3	6	57.46	9.747	17	32	6.6	39.52	3	44.05	0.109	9			
M	10	3	10	51.38	9.771	17	47	46.3	38.78	3	46.38	0.085	10			
T	11	3	14	46.47	9.795	18	3	8.1	38.03	3	48.14	0.061	11			
W	12	3	18	41.83	9.819	18	18	11.7	37.27	3	49.38	0.038	12			
T	13	3	22	37.76	9.842	18	32	56.9	36.49	3	49.95	0.014	13			
F	14	3	26	34.25	9.865	18	47	23.3	35.70	3	50.02	0.009	14			
S	15	3	30	31.30	9.888	19	1	30.6	34.90	3	49.54	0.032	15			
S	16	3	34	28.89	9.911	19	15	18.7	34.09	3	48.50	0.055	16			
M	17	3	38	27.03	9.934	19	28	47.1	33.27	3	46.92	0.077	17			
T	18	3	42	25.70	9.956	19	41	55.7	32.44	3	44.81	0.099	18			
W	19	3	46	24.91	9.978	19	54	44.1	31.59	3	42.17	0.121	19			
T	20	3	50	24.65	10.000	20	7	12.2	30.74	3	39.00	0.143	20			
F	21	3	54	24.90	10.021	20	19	19.7	29.88	3	35.31	0.165	21			
S	22	3	58	25.68	10.043	20	31	6.3	29.00	3	31.10	0.186	22			
S	23	4	2	26.97	10.065	20	42	31.9	28.12	3	26.38	0.207	23			
M	24	4	6	28.78	10.086	20	53	36.3	27.23	3	21.14	0.229	24			
T	25	4	10	31.09	10.107	21	4	19.2	26.33	3	15.40	0.250	25			
W	26	4	14	33.91	10.128	21	14	40.3	25.42	3	9.16	0.270	26			
T	27	4	18	37.21	10.148	21	24	39.6	24.51	3	2.43	0.290	27			
F	28	4	22	41.00	10.168	21	34	16.7	23.58	2	55.23	0.310	28			
S	29	4	26	45.26	10.187	21	43	31.5	22.65	2	47.55	0.329	29			
S	30	4	30	49.97	10.205	21	52	23.7	21.70	2	39.42	0.348	30			
M	31	4	34	55.12	10.224	22	0	53.1	20.75	2	30.84	0.366	31			
T	32	4	39	0.71	10.241	N.22	8	59.6	19.79	2	21.83	0.384	32			

Iron Pipe, all sizes, at MACDONALD & CO.'S.—See adv. inside cover.

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ROBERT H. COGSWELL'S

[1880

Vessels Fitted with Plumbing Fixtures by MACDONALD & CO.—See adv. inside cover.

JULY.												Chronometer of G. M. T.					
		THE SUN'S															
		Apparent Right Ascension.		Diff. for 1 hour		Apparent Declination.		Diff. for 1 h'r		Equation of time, to be added to Apparent Time.		Diff. for 1 h'r		Chronometer of G. M. T.			
		h. m. s.		s.		° ' "		"		m. s. s.		s.		H. MIN. SEC. THS.			
T	1	6	43	18.48	10.335	N.23	4	53.8	10.70	3	38.22	0.478	1				
W	2	6	47	26.41	10.325	23	0	25.0	11.70	3	49.56	0.467	2				
S	3	6	51	34.07	10.313	23	55	32.0	12.71	4	0.63	0.455	3				
S	4	6	55	41.44	10.300	22	50	15.0	13.70	4	11.41	0.442	4				
M	5	6	59	48.49	10.287	22	44	34.2	14.70	4	21.87	0.429	5				
T	6	7	3	55.20	10.272	22	38	29.6	15.68	4	32.00	0.414	6				
W	7	7	8	1.55	10.256	22	32	1.5	16.66	4	41.76	0.399	7				
T	8	7	12	7.51	10.240	22	25	10.0	17.63	4	51.14	0.382	8				
F	9	7	16	13.06	10.222	22	17	55.2	18.60	5	0.11	0.365	9				
S	10	7	20	18.18	10.204	22	10	17.4	19.55	5	8.65	0.346	10				
S	11	7	24	22.85	10.185	22	2	16.8	20.50	5	16.74	0.327	11				
M	12	7	28	27.06	10.165	21	53	53.5	21.44	5	24.37	0.308	12				
W	13	7	32	30.78	10.144	21	45	7.8	22.37	5	31.51	0.287	13				
T	14	7	36	33.99	10.123	21	35	59.8	23.29	5	38.15	0.266	14				
T	15	7	40	36.69	10.102	21	26	29.7	24.21	5	44.28	0.244	15				
F	16	7	44	38.87	10.080	21	16	37.9	25.11	5	49.88	0.222	16				
S	17	7	48	40.51	10.057	21	6	24.4	26.01	5	54.95	0.200	17				
S	18	7	52	41.60	10.034	20	55	49.6	26.89	5	59.47	0.177	18				
M	19	7	56	42.13	10.010	20	44	53.7	27.77	6	3.43	0.154	19				
T	20	8	0	42.10	9.987	20	33	36.8	28.63	6	6.84	0.130	20				
W	21	8	4	41.50	9.963	20	21	59.3	29.49	6	9.68	0.106	21				
T	22	8	8	40.33	9.939	20	10	1.3	30.34	6	11.94	0.082	22				
F	23	8	12	38.58	9.915	19	57	43.1	31.18	6	13.63	0.058	23				
S	24	8	16	36.25	9.891	19	45	4.9	32.00	6	14.74	0.034	24				
S	25	8	20	33.34	9.867	19	32	6.9	32.82	6	15.28	0.010	25				
M	26	8	24	29.86	9.843	19	18	49.4	33.63	6	15.24	0.014	26				
T	27	8	28	25.80	9.819	19	5	12.6	34.43	6	14.62	0.038	27				
W	28	8	32	21.16	9.794	18	51	16.8	35.21	6	13.42	0.062	28				
T	29	8	36	15.93	9.770	18	37	2.3	35.99	6	11.64	0.086	29				
F	30	8	40	10.12	9.746	18	22	29.3	36.75	6	9.28	0.111	30				
S	31	8	44	3.72	9.721	18	7	38.1	37.50	6	6.33	0.135	31				
S	32	8	47	56.78	9.696	N.17	52	29.4	38.24	6	2.80	0.160	32				

MACDONALD & CO., Manufacturers of Deep Sea and Hand Leads.

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PICKFORD & BLACK, Importers of Ducks and Drillings, 51 Up. Water St.

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ROBERT H. COGSWELL'S

[1880

AUGUST.

Chronometer of
G. M. T.

MACDONALD & CO., Manufacturers of Copper Work for Steamers.—See adv. inside cover.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of time, to be added to sub. from Apparent Time.	Diff. for 1 h'r	Chronometer of G. M. T.				
		Apparent Right Ascension.	Diff. for 1 hour	Apparent Declination.	Diff. for 1 h'r			H.	MIN.	SEC.	THS.	
S	1	8 47 56.73	9.696	N.17 52 29.1	38.24	6 2.80	0.160	1				
M	2	8 51 49.15	9.672	17 37 2.5	38.97	5 58.67	0.184	2				
T	3	8 55 40.98	9.647	17 21 18.7	39.68	5 53.96	0.209	3				
W	4	8 59 32.21	9.622	17 5 18.0	40.38	5 48.65	0.234	4				
T	5	9 3 22.85	9.598	16 49 0.6	41.06	5 42.75	0.258	5				
F	6	9 7 12.89	9.573	16 32 26.9	41.74	5 36.25	0.283	6				
S	7	9 11 2.34	9.548	16 15 37.2	42.40	5 29.16	0.308	7				
S	8	9 14 51.19	9.523	15 58 31.9	43.04	5 21.48	0.332	8				
M	9	9 18 39.45	9.499	15 41 11.2	43.67	5 13.21	0.357	9				
T	10	9 22 27.12	9.474	15 23 35.5	44.29	5 4.35	0.381	10				
W	11	9 26 14.21	9.450	15 5 45.1	44.90	4 54.91	0.405	11				
T	12	9 30 0.73	9.426	14 47 40.3	45.49	4 44.90	0.429	12				
F	13	9 33 46.67	9.403	14 29 21.4	46.07	4 34.32	0.453	13				
S	14	9 37 32.05	9.380	14 10 48.7	46.64	4 23.18	0.476	14				
S	15	9 41 16.89	9.357	13 52 2.7	47.19	4 11.49	0.498	15				
M	16	9 45 1.18	9.334	13 33 3.5	47.73	3 59.26	0.521	16				
T	17	9 48 44.94	9.313	13 13 51.6	48.26	3 46.50	0.542	17				
W	18	9 52 28.19	9.291	12 54 27.1	48.78	3 33.23	0.564	18				
T	19	9 56 10.93	9.271	12 34 50.3	49.28	3 19.45	0.584	19				
F	20	9 59 53.18	9.251	12 15 1.6	49.77	3 5.19	0.604	20				
S	21	10 3 34.96	9.232	11 55 1.3	50.25	2 50.46	0.623	21				
S	22	10 7 16.30	9.213	11 34 49.6	50.72	2 35.28	0.641	22				
M	23	10 10 57.20	9.196	11 14 26.8	51.18	2 19.67	0.659	23				
T	24	10 14 37.69	9.179	10 53 53.1	51.62	2 3.65	0.676	24				
W	25	10 18 17.78	9.162	10 33 9.0	52.05	1 47.23	0.692	25				
T	26	10 21 57.49	9.147	10 12 14.7	52.47	1 30.43	0.708	26				
F	27	10 25 36.84	9.132	9 51 10.6	52.87	1 13.27	0.722	27				
S	28	10 29 15.83	9.118	9 29 56.9	53.26	0 55.76	0.736	28				
S	29	10 32 54.49	9.104	9 8 34.0	53.64	0 37.92	0.750	29				
M	30	10 36 32.83	9.091	8 47 2.3	54.00	0 19.73	0.763	30				
T	31	10 40 10.87	9.079	8 25 22.1	54.35	0 1.28	0.776	31				
W	32	10 43 48.61	9.067	N. 8 3 33.6	54.68	0 17.48	0.788					

MACDONALD & CO., Plumbers.—See adv. inside cover.

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SEPTEMBER.

Chronometer of G. M. T.

MACDONALD & CO., Manufacturers of Engineers' Brass Goods.—See adv. inside cover.

Day of the Week. Day of the Month.		THE SUN'S				Equation of time, to be sub. from Apparent Time.	Diff. for 1 h'r
Apparent Right Ascension.	Diff. for 1 hour	Apparent Declination.	Diff. for 1 h'r				
W	1	10 43 48.61	9.067	N. 8 3 33.6	54.68	0 17.48	0.788
T	2	10 47 26.07	9.055	7 41 37.3	55.00	0 36.52	0.799
F	3	10 51 3.27	9.045	7 19 33.5	55.31	0 55.82	0.809
S	4	10 54 40.22	9.035	6 57 22.6	55.60	1 15.37	0.819
S	5	10 58 16.94	9.025	6 35 4.8	55.88	1 35.15	0.829
M	6	11 1 53.44	9.016	6 12 40.6	56.14	1 55.15	0.838
T	7	11 5 29.73	9.008	5 50 10.3	56.38	2 15.35	0.846
W	8	11 9 5.84	9.001	5 27 34.2	56.62	2 35.74	0.853
T	9	11 12 41.78	8.994	5 4 52.6	56.84	2 56.30	0.860
F	10	11 16 17.56	8.988	4 42 6.0	57.04	3 17.02	0.866
S	11	11 19 53.20	8.983	4 19 14.6	57.23	3 37.87	0.871
S	12	11 23 28.73	8.978	3 56 18.9	57.41	3 58.83	0.876
M	13	11 27 4.15	8.974	3 33 19.0	57.57	4 19.90	0.880
T	14	11 30 39.49	8.971	3 10 15.4	57.72	4 41.06	0.883
W	15	11 34 14.77	8.969	2 47 8.3	57.86	5 2.28	0.885
T	16	11 37 50.01	8.968	2 23 58.1	57.99	5 23.53	0.886
F	17	11 41 25.24	8.968	2 0 45.1	58.10	5 44.80	0.886
S	18	11 45 0.47	8.969	1 37 29.5	58.20	6 6.06	0.885
S	19	11 48 35.73	8.971	1 14 11.7	58.28	6 27.29	0.883
M	20	11 52 11.06	8.974	0 50 52.0	58.35	6 48.46	0.880
T	21	11 55 46.48	8.978	0 27 30.7	58.41	7 9.54	0.876
W	22	11 59 22.00	8.983	N. 0 4 8.1	58.46	7 30.51	0.871
T	23	12 2 57.65	8.989	S. 0 19 15.5	58.50	7 51.35	0.865
F	24	12 6 33.47	8.996	0 42 39.7	58.51	8 12.04	0.858
S	25	12 10 9.46	9.004	1 6 4.2	58.52	8 32.55	0.850
S	26	12 13 45.64	9.012	1 29 28.6	58.51	8 52.86	0.842
M	27	12 17 22.04	9.022	1 52 52.6	58.49	9 12.96	0.833
T	28	12 20 58.68	9.032	2 16 15.9	58.45	9 32.82	0.822
W	29	12 24 35.57	9.043	2 39 38.0	58.39	9 52.43	0.811
T	30	12 28 12.74	9.055	3 2 58.6	58.32	10 11.76	0.799
F	31	12 31 50.20	9.067	S. 3 26 17.3	58.23	10 30.80	0.787

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Iron Pipe, all sizes, at MACDONALD & CO.'S.—See adv. inside cover.

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MACDON

Iron Spikes.

[1880

Chronometer of
G. M. T.

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iv. inside cover.

PICKFORD & BLACK, Importers White Lead, Paints, Oils, 51 Up. Water.

1880]

NAUTICAL ALMANAC.

23

WM. ROBERTSON,

IMPORTER OF

**Hardware,
SHIP CHANDLERY,
AGRICULTURAL IMPLEMENTS,**

Iron, Steel, Nets, Lines, Twines, Paints, Oil, Glass, &c., &c.

HEAD MITCHELL'S WHARF,

205 and 207 Lower Water Street, Halifax, N. S.

JAS. HERTLE,

Ship Carver,

MUIR & SCOTT'S WHARF.

Orders Solicited and Promptly Attended to.

MACDONALD & CO., Manufacturers of Copper and Lead Tanks.

MACDONALD & CO., Manufacturers of Patent Roller Bushings.—See adv. inside cover.

OCTOBER.

Chronometer of G. M. T.

MACDONALD & CO., Manufacturers of Brass Binnacle Guards.—See adv. inside cover.

Day of the Week.		Day of the Month.		THE SUN'S				Equation of time, to be sub. from Apparent Time.		Diff. for 1 h'r
		Apparent Right Ascension.	Diff. for 1 hour	Apparent Declination.	Diff. for 1 h'r					
		<i>h. m. s.</i>	<i>s.</i>	<i>° ' "</i>	<i>" "</i>	<i>m. s. s.</i>	<i>s.</i>			
F	1	12 31 50.20	9.067	S. 3 26 17.3	58.23	10 30.80	0.787			
S	2	12 35 27.97	9.081	3 49 33.7	58.13	10 49.53	0.773			
S	3	12 39 6.08	9.095	4 12 47.5	58.01	11 7.92	0.759			
M	4	12 42 44.53	9.110	4 35 58.4	57.88	11 25.97	0.744			
T	5	12 46 23.35	9.125	4 59 5.8	57.73	11 43.6	0.729			
W	6	12 50 2.55	9.142	5 22 9.5	57.57	12 6.97	0.713			
T	7	12 53 42.15	9.159	5 45 9.0	57.38	12 17.88	0.696			
F	8	12 57 22.16	9.176	6 8 3.9	57.19	12 34.37	0.678			
S	9	13 1 2.60	9.194	6 30 53.9	56.97	12 50.44	0.660			
S	10	13 4 43.48	9.213	6 53 38.6	56.75	13 6.07	0.642			
M	11	13 8 24.82	9.233	7 16 17.7	56.50	13 21.24	0.622			
T	12	13 12 6.64	9.253	7 38 50.7	56.24	13 35.93	0.602			
W	13	13 15 48.95	9.274	8 1 17.2	55.96	13 50.13	0.581			
T	14	13 19 31.78	9.296	8 23 37.0	55.67	14 3.82	0.559			
F	15	13 23 15.16	9.319	8 45 49.6	55.37	14 16.96	0.536			
S	16	13 26 59.09	9.343	9 7 54.8	55.05	14 29.55	0.512			
S	17	13 30 43.61	9.368	9 29 52.1	54.72	14 41.55	0.487			
M	18	13 34 28.73	9.393	9 51 41.2	54.37	14 52.95	0.462			
T	19	13 38 14.48	9.420	10 13 21.7	54.00	15 3.73	0.436			
W	20	13 42 0.87	9.447	10 34 53.2	53.62	15 13.86	0.408			
T	21	13 45 47.98	9.475	10 56 15.4	53.22	15 23.33	0.380			
F	22	13 49 35.68	9.504	11 17 27.9	52.81	15 32.11	0.351			
S	23	13 53 24.13	9.534	11 38 30.3	52.38	15 40.30	0.322			
S	24	13 57 13.29	9.564	11 59 22.2	51.94	15 47.57	0.292			
M	25	14 1 3.18	9.594	12 20 3.2	51.47	15 54.21	0.261			
T	26	14 4 53.82	9.626	12 40 32.9	50.99	16 0.11	0.230			
W	27	14 8 45.21	9.658	13 0 50.8	50.49	16 5.26	0.198			
T	28	14 12 37.38	9.690	13 20 56.6	49.98	16 9.63	0.166			
F	29	14 16 30.33	9.723	13 40 49.9	49.45	16 13.23	0.134			
S	30	14 20 24.07	9.756	14 0 30.2	48.90	16 16.04	0.100			
S	31	14 24 18.61	9.789	14 19 57.1	48.33	16 18.05	0.067			
M	32	14 28 13.96	9.823	S 14 39 10.1	47.75	16 19.24	0.033			

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MACDONALD & CO., Brass Founders.—See adv. inside cover.

R. H.

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MACDONALD

DECEMBER.

Chronometer of G. M. T.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of time, to be sub. from added to Apparent Time.	Diff. for 1 h'r	Chronometer of G. M. T.					
		Apparent Right Ascension.	Diff. for 1 hour	Apparent Declination.	Diff. for 1 h'r			H.	MIN.	SEC.	THS.		
W	1	16 32 16.17	10 822	S. 21 55 23.4	22.62	10 34.67	0.963	1					
T	2	16 36 36.21	10 848	22 4 13.9	21.57	10 11.25	0.989	2					
F	3	16 40 56.87	10 873	22 12 38.8	20.50	9 47.22	1.013	3					
S	4	16 45 18.10	10 896	22 20 37.9	19.42	9 22.61	1.037	4					
S	5	16 49 39.87	10 918	22 28 10.8	18.32	8 57.46	1.059	5					
M	6	16 54 2.16	10 939	22 35 17.4	17.22	8 31.80	1.079	6					
T	7	16 58 24.93	10 958	22 41 57.5	16.11	8 5.66	1.099	7					
W	8	17 2 48.15	10 976	22 48 10.8	14.99	7 39.07	1.117	8					
T	9	17 7 11.80	10 994	22 53 57.1	13.87	7 12.05	1.134	9					
F	10	17 11 35.85	11 010	22 59 16.3	12.73	6 44.64	1.150	10					
S	11	17 16 0.27	11 025	23 4 8.1	11.59	6 16.85	1.165	11					
S	12	17 20 25.03	11 038	23 8 32.4	10.44	5 48.72	1.179	12					
M	13	17 24 50.11	11 051	23 12 29.2	9.29	5 20.28	1.191	13					
T	14	17 29 15.49	11 063	23 15 58.2	8.13	4 51.54	1.203	14					
W	15	17 33 41.12	11 078	23 18 59.3	6.96	4 22.55	1.213	15					
T	16	17 38 6.98	11 081	23 21 32.5	5.80	3 53.33	1.222	16					
F	17	17 42 33.03	11 089	23 23 37.7	4.63	3 23.91	1.229	17					
S	18	17 46 59.26	11 096	23 25 14.7	3.45	2 54.32	1.236	18					
S	19	17 51 25.62	11 100	23 26 23.5	2.28	2 24.60	1.240	19					
M	20	17 55 52.08	11 104	23 27 4.1	1.10	1 54.78	1.244	20					
T	21	18 0 18.62	11 107	23 27 16.4	0.08	1 24.88	1.247	21					
W	22	18 4 45.20	11 108	23 27 0.3	1.26	0 54.94	1.248	22					
T	23	18 9 11.78	11 107	23 26 15.9	2.44	0 24.99	1.247	23					
F	24	18 13 38.34	11 106	28 25 3 2	3.62	0 4.93	1.245	24					
S	25	18 18 4.85	11 103	23 23 22.2	4.80	0 34.79	1.242	25					
S	26	18 22 31.27	11 098	23 21 12.9	5.98	1 4.57	1.238	26					
M	27	18 26 57.57	11 092	23 18 35.3	7.15	1 34.23	1.233	27					
T	28	18 31 23.71	11 085	23 15 29.6	8.32	2 3.74	1.225	28					
W	29	18 35 49.67	11 077	23 11 55.9	9.49	2 33.05	1.216	29					
T	30	18 40 15.39	11 066	23 7 54.2	10.65	3 2.13	1.206	30					
F	31	18 44 40.84	11 054	23 3 24.7	11.80	3 30.95	1.194	31					
S	32	18 49 5.98	11 040	S. 22 58 27.7	12.95	3 59.45	1.180						

MACDONALD & CO., Importers of Ships' Well Pumps.—See adv. inside cover.

MACDONALD & CO., Hot Water and Steam Engineers.—See ins. cover.

ROBT. 175

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MACDONALD &

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PHASES OF THE MOON—1880.

Mean Time at Greenwich.

MACDONALD & CO., Manufacturers of Composition Clinch Rings.—See inside cover.

January.

	d.	h.	m.
☾ Last Quarter.....	4	18	48.5
● New Moon.....	11	10	39.6
☽ First Quarter.....	18	18	40.2
☾ Full Moon.....	26	22	12.0
☾ Perigee.....	9	13	
☾ Apogee.....	21	8	

February.

	d.	h.	m.
☾ Last Quarter.....	3	3	38.3
● New Moon.....	9	23	17.2
☽ First Quarter.....	17	15	45.7
☾ Full Moon.....	25	13	21.6
☾ Perigee.....	6	6	
☾ Apogee.....	18	5	

March.

	d.	h.	m.
☾ Last Quarter.....	3	11	6.1
● New Moon.....	10	12	46.9
☽ First Quarter.....	18	12	36.2
☾ Full Moon.....	26	1	23.3
☾ Perigee.....	2	6	
☾ Apogee.....	17	1	
☾ Perigee.....	28	21	

April.

	d.	h.	m.
☾ Last Quarter.....	1	18	12.7
● New Moon.....	9	3	7.1
☽ First Quarter.....	17	7	14.4
☾ Full Moon.....	24	10	50.1
☾ Apogee.....	13	19	
☾ Perigee.....	25	22	

May.

	d.	h.	m.
☾ Last Quarter.....	1	1	52.5
● New Moon.....	8	18	16.4
☽ First Quarter.....	16	22	23.9
☾ Full Moon.....	23	18	38.7
☾ Apogee.....	30	10	53.0
☾ Perigee.....	11	7	
☾ Perigee.....	24	6	

June.

	d.	h.	m.
● New Moon.....	7	9	55.1
☽ First Quarter.....	15	9	51.5
☾ Full Moon.....	22	1	45.6
☾ Last Quarter.....	28	21	57.2
☾ Apogee.....	7	12	
☾ Perigee.....	21	16	

July.

	d.	h.	m.
● New Moon.....	7	1	21.2
☽ First Quarter.....	14	18	15.8
☾ Full Moon.....	21	9	2.1
☾ Last Quarter.....	28	11	40.5
☾ Apogee.....	4	17	
☾ Perigee.....	20	0	

August.

	d.	h.	m.
● New Moon.....	5	15	48.3
☽ First Quarter.....	13	0	42.4
☾ Full Moon.....	19	17	18.4
☾ Last Quarter.....	27	4	14.8
☾ Apogee.....	1	4	
☾ Perigee.....	17	1	
☾ Apogee.....	28	21	

September.

	d.	h.	m.
● New Moon.....	4	4	52.1
☽ First Quarter.....	11	6	24.6
☾ Full Moon.....	18	3	28.8
☾ Last Quarter.....	25	23	8.6
☾ Perigee.....	12	23	
☾ Apogee.....	25	17	

October.

	d.	h.	m.
● New Moon.....	3	16	49.3
☽ First Quarter.....	10	12	34.8
☾ Full Moon.....	17	16	26.3
☾ Last Quarter.....	25	19	0.3
☾ Perigee.....	7	22	
☾ Apogee.....	23	13	

November.

	d.	h.	m.
● New Moon.....	2	3	54.8
☽ First Quarter.....	8	20	19.9
☾ Full Moon.....	16	8	39.3
☾ Last Quarter.....	24	14	5.4
☾ Perigee.....	4	8	
☾ Apogee.....	20	7	

December.

	d.	h.	m.
● New Moon.....	1	14	56.2
☽ First Quarter.....	8	6	38.4
☾ Full Moon.....	16	3	36.1
☾ Last Quarter.....	24	6	56.7
☾ Apogee.....	31	1	56.2
☾ Perigee.....	2	14	
☾ Apogee.....	17	17	
☾ Perigee.....	31	3	

MACDONALD & CO., Manufacturers of Copper and Zinc Baths.

Showing the approxi
which will be
Water at Hall

Amet Sound, N. S.
Andrews St. N. B.
Annapolis, N. S.
Anne, St B., C. B.
Anthony Strait, Nfld
Anticosti Island, Gu
rence, East Cap
Antigonish Harb'r, I
Antrobus Island, Gu
Appetetat Bay, Gu
Argyle, Bay of Fund
Arichat, C. B.
Avon River, N. S.

Baltimore, U. S.
Barbe, St. Harbour,
Bangor, U. S.
Barnstable, U. S.
Barrow Harbour, N
Basque Port, Nfld.
Bathurst, Gulf St L
Batiscan, R. St Lav
Bear Cape, P. E. Is
Bear Head, C. B. Is
Beaubère Island, G
Beaver Harbour, N
Bedeque Harbour, I
Bermuda, Ireland I
Bersimis R. Gulf S
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Bié Island, Gulf St
Black Rock, Bay of
Blind Bay, N. S.
Bonavista, Nfld.
Bonne Esperance I
St Lawrence
Boston Light, U. S.
Boughton Harb'r, I
Braha Harbour, N
Brandy Pots, River
Bridgewater, N. S.
Brig Bay, Nfld.
Buctouche River, I
Bull Island, Newfo
Burgeo Islands,
Burn Harbour,
Burnt Island,
Campbelltown, Gu
Campobello, Bay of
Canso Gut, (N. en

51 Upper Water St.

PICKFORD & BLACK, Ship Chandlers, Manilla and Hemp Rope.

[1880

TIDE TABLE

Showing the approximate time of High Water at the undermentioned places— which will be found by adding to or subtracting from the time of High Water at Halifax, on any given day, as follows:

	H. M.		H. M.
Amet Sound, N. S.	....add 2 41	Canso Gut, (Plaister Cove)....	add 1 21
Andrews St. N. B.	....add 3 1	Canso Harbour, C. B. Island...	sub 0 1
Annapolis, N. S.	....add 3 11	Caraquette Harbour, Gulf St.	
Anne, St B., C. B.	....add 0 45	Lawrence	....sub 5 9
Anthony Strait, Nfld.	....sub 0 39	Carbonear, Newfoundland....	sub 0 29
Anticosti Island, Gulf St. Law-		Cardigan Bay, P. E. I.	....add 0 51
rence, East Cape	....sub 9 49	Carsbou Harbour, N. S.	....add 2 11
Antigonish Harb'r R. St Law.	add 1 11	Carleton Point, Gulf St Law.	sub 4 49
Antrobus Island, Gulf St Law.	add 2 41	Carouge River, R. St. Law...	sub 0 34
Appetetat Bay, Gulf St Law.	add 3 21	Cascumpeque Harbour, P. E. I.	sub 2 9
Argyle, Bay of Fundy	....add 1 38	Castors Harbour, Nfld.	....add 3 1
Arichat, C. B.	....add 0 21	Catalina Harbour, "	....sub 0 59
Avon River, N. S.	....add 4 41	Cawee Islands, Gulf St Law.	sub 5 59
Baltimore, U. S.	....sub 1 16	Champlain, R. St. Lawrence.	add 1 56
Barbe, St. Harbour, Nfld.	....add 2 11	Change Island, Newfoundland.	sub 0 29
Bangor, U. S.	....add 2 17	Chester Harbour, N. S.	....sub 0 5
Barnstable, U. S.	....add 3 33	Cheticamp, C. B. Island	....add 0 26
Barrow Harbour, Nfld.	....sub 1 36	Civil East Cove, Long Harbour,	
Basque Port, Nfld.	....add 1 6	Newfoundland	....add 0 19
Bathurst, Gulf St Law'nce.	....sub 4 34	Clam Point, Bay of Fundy...	add 0 38
Batiscan, R. St. Lawrence....	add 1 59	Clarke Harbour, Bay of Fundy.	add 0 51
Bear Cape, P. E. Island	....add 1 11	Clearwater Point, Gulf St. Law.	add 3 21
Bear Head, C. B. Island	....add 0 41	Coacoacha Bay, "	sub 3 19
Beaubère Island, Gulf St Law.	sub 1 19	Cocagne River, "	sub 0 19
Beaver Harbour, N. S.	....sub 0 9	Cod Cape, United States	....add 3 41
Bedeque Harbour, P. E. I....	add 2 26	Conroy Island, Nfld	....add 1 26
Bermuda, Ireland Island	....sub 0 35	Conway Cove, Ship Harbour,	
Bersimis R. Gulf St Law	....sub 5 49	Newfoundland	....add 0 11
Becheween Harbour, Gulf /St		Cook Harbour, Newfoundland.	sub 0 11
Lawrence	....add 3 43	Condres Island, Prairie Bay),	
Bic Island, Gulf St Law	....sub 5 34	R. St. Lawrence.	....sub 3 25
Black Rock, Bay of Fundy....	add 3 40	Cow Head Harbour. Nfld....	add 2 52
Blind Bay, N. S.	....sub 0 3	Crane Island, R. St. Lawrence.	sub 2 25
Bonavista, Nfld.	....sub 0 24	Crapaud, P. E. I.	....add 2 11
Bonne Esperance Harbour, Glf		Cremaillère Harbour, Nfld....	sub 0 36
St Lawrence	....add 1 26	Crox Harbour, "	....sub 1 19
Boston Light, U. S.	....add 3 23	Crow Harbour, N. S.	....add 0 11
Boughton Harb'r, P. E. I....	add 0 51	Cumberland Basin, Bay of	
Braha Harbour, Nfld.	....sub 0 49	Fundy	....add 4 6
Brandy Pots, River St Law....	sub 4 49	Cutwell Harbour, Nfld	....sub 0 49
Bridgewater, N. S.	....add 0 17	Chignecto Cape, Bay of Fundy.	add 3 11
Brig Bay, Nfld.	....add 1 57	Charlottetown P. E. I.	....add 2 56
Buctouche River, Gulf St Law.	sub 4 19	Dalhousie Harb'r Glf St. Law.	sub 4 39
Bull Island, Newfoundland....	sub 0 27	Deer Harbour, Nfld	....sub 0 1
Burgeo Islands, "	....add 0 43	Digby Gut, Bay of Fundy....	add 3 11
Burin Harbour, "	....add 0 56	East Point, P. E. I.	....add 0 41
Burnt Island, "	....sub 0 1	Eastport, U. S.	....add 3 14
Campbelltown, Gulf St Law..	sub 3 49	Egg Island, Gulf St Law....	sub 5 49
Campobello, Bay of Fundy....	add 3 32	Egmont Bay, P. E. I.	....sub 4 49
Canso Gut, (N. entrance)N. S	add 1 26		

MACDONALD & CO., Manufacturers of Plumbers' Brass Goods.—See adv. inside cover.

MACDONALD & CO., Importers of Engineers' Rubber Goods.—See cover.

-1880.

uly.

d.	h.	m.
7	1	21.2
14	18	15.8
21	9	21
28	11	40.5
4	17	
20	0	

ust.

d.	h.	m.
5	15	48.3
13	0	42.4
19	17	18.4
27	4	14.8
1	4	
17	1	
28	21	

ber.

d.	h.	m.
4	4	52.1
11	6	24.6
18	3	28.8
25	23	8.6
12	23	
25	17	

d.

d.	h.	m.
3	16	43.3
10	12	34.8
17	16	26.3
25	19	0.3
7	22	
23	13	

d.

d.	h.	m.
2	3	54.8
8	20	19.9
6	8	39.3
4	14	5.4
4	8	
0	7	

h.

h.	m.
14	56.2
6	38.4
3	36.1
6	56.7
1	56.2

14
17
3

aths.

MACDONALD & CO., Importers of Steam and Vacuum Gages.—See adv. inside cover.

	H. M.		H. M.
Ellenwood's Anchorage, Bay of Fundy	add 2 5	Isle-au-Condres, R. St. Law.	sub 3 24
Escumenac Point, Glf St Lawrence	sub 3 39	Ipswich, U. S.	add 3 37
Fall River, U. S.	add 0 22	Jeboque, Bay Fundy	add 2 15
Famish Gut, Nfld	add 0 15	Jedore, N. S.	sub 0 34
Fear Cape, U. S.	sub 0 49	John, St., N. B., Bay Fundy	add 3 32
Ferolle Cove, Nfld	add 3 1	John's St., Newfoundland	sub 0 19
Ferolle Harbour, Old, Nfld	add 1 39	Jouriman Island, N. B.	add 1 41
Fish Heap, Grand Manan, Bay Fundy	add 3 27	Kegashka Bay, Glf St. Law.	add 2 56
Flat Island Cove, Nfld	add 0 38	Kings Cove, Nfld.	sub 3 34
Fleur de Lis Harbour, Nfld	sub 0 34	Kirpon Harbour, Nfld.	sub 0 44
Florida Cape, U. S.	add 0 47	La Hune Bay, Nfld.	add 0 51
Fogo Island, Nfld	sub 0 29	La Polie Bay, Nfld.	add 1 11
Folly Point, Peticodiac River, Bay Fundy	add 4 0	Lamalin, Nfld.	add 1 26
Francois Bay, Nfld	add 0 51	Lark Harbour, Nfld.	add 2 48
Frechette Island, R. St. Law.	add 0 11	Lawn, Great and Little, Nfld.	add 0 26
Freshwater Bay, Nfld.	sub 0 19	Lawrence, St. Harbour, Nfld.	add 0 41
Funk Island, Nfld.	sub 0 49	La Have, N. S.	add 0 2
Gander Bay, Nfld.	add 0 6	Lunenbourg,	add 0 5
Gaspé Basin, Gulf St Law.	sub 5 9	Lepreau, Bay Fundy,	add 3 29
George Cape, N. S.	add 1 26	L'Etang Harbour, Bay Fundy	add 3 30
George Port, Bay Fundy	add 3 28	Liscomb Harbour, N. S.	add 0 11
George, St. Harb'r, Nfld	add 2 14	Little Metis, Gulf St. Law.	sub 5 39
Georgetown, U. S.	add 0 51	Little Natashquan,	add 3 11
Cloucester Harbour, U. S.	add 3 15	Little Port, Newfoundland.	add 2 53
Good Bay, Nfld.	add 2 51	Little Placentia,	add 0 9
Goodbout River, Gulf St Law.	sub 5 57	Little River,	add 0 51
Goose Bay, Nfld.	sub 0 27	Little Tancock Island, N. S.	sub 0 6
Grand Harbour, Grand Manan, Bay Fundy	add 3 18	Liverpool Bay, N. S.	add 0 1
Grand Passage, Bay Fundy	add 2 54	Louisburg Harbour, C. B.	add 0 11
Grand Rustico, P. E. I.	sub 1 9	Lunaire, St., Bay, Nfld.	sub 0 43
Grande-digue, Madame I, C.B.	add 0 6	Lynn Harbour, U. S.	add 3 20
Great St. Law. Harbour, Nfld.	add 0 41	Mabou River, C. B.	add 1 11
Green Island, River St. Law.	sub 5 4	Machias, Seal Is., Bay Fundy,	add 3 16
Green's Harbour, Nfld	sub 1 5	Magdalen Islands,	add 0 31
Grigust Bays, Nfld.	sub 0 49	Magdalen River, R. St. Law.	sub 6 34
Grindstone Island, Bay Fundy	add 3 58	Mahone Bay, N. S.	add 0 11
Guysborough, N. S.	add 0 31	Manicouago R., R. St. Law.	sub 5 34
Habitants Harbour, C. B.	add 0 31	Maquereau Port, G. St. Law.	sub 5 49
Halifax Harbour, N. S.	0 0	Marblehead, U. S.	add 3 41
Hands Harbour, Nfld.	sub 0 36	Margaret's, St., Bay, N. S.	sub 0 2
Harbour Grace, Nfld.	sub 0 24	Margaret's, Nfld.	add 1 39
Harbour Island, N. S.	sub 0 9	Mary, Cape St, Nfld.	add 0 41
Hatteras, Cape, U. S.	add 1 11	Matan River, Gulf St. Law.	sub 5 34
Hawke Isle, Bay Fundy	add 3 32	May, Cape, U. S.	add 0 30
Hawke Bay, Nfld.	add 3 11	Menadon Cape, C. B.	add 0 26
Hearts Content, Nfld.	sub 0 19	Merigomish, N. S.	add 2 17
Hillsborough River, P.E. I.	add 2 56	Medway, Port, N. S.	add 0 1
Holmes Hole, U. S.	add 3 54	Mingan Harbour, G. St. Law.	sub 6 33
Horton Bluff, Bay Fundy,	sub 7 19	Minemegash, P. E. I.	add 4 19
Island, (Country) Harb'r, N. S.	sub 0 9	Miquelon Road, Nfld.	add 0 44
		Miramichi (Bar), G. St. Law.	sub 2 19
		Miscoon, G. St. Lawrence	sub 5 19
		Moncton (Railway), Bay Fundy,	sub 7 34
		Monts, Point de, G. St. Law.	sub 7 49
		Mount Louis Bay, R. St. Law.	sub 5 49

MACDONALD & CO., Coppersmiths.—See adv. inside cover.

Mouton, Port, N. S.
Nantucket, United Sta
Negro Harbour, N. S.
Neuf, Port, Gulf St. L.
Neuf, Port, River St.
New Bedford, (entranc
ed States.
New Haven, United S
New Perlican Harbour
New York, United Sta
Newburyport, United
Nicholas St., Harbour
Lawrence
Noel Bay, Bay Fundy
North Cape, C. B.
North Harbour, Newfo
Oderin, Newfoundland
Orleans Island, River
Parrsboro', Bay Fund
Paul, St., Gulf St. La
Peter, St., Bay, C. B.
Peter, St., Harbour, N
Petit Passage, Bay F
Petit Port, B. of Islan
Philadelphia, United
Pictou Harbour, N. S.
Pierre, Strait, Newfo
Pillars, River St. Law
Placentia, Newfoundl
Plymouth, United Sta
Pomquet, N. S.
Pool's Harbour Newf
Port-au-Choit, Newfo
Port Hood, C. B.
Portland, United Sta
Poulamente Bay, Ma
land, C. B.
Prospect River, N. S.
Providence, United S
Provincetown, United
Pubnico, (Beech Pt.)
Pugwash Harbour, N
Quaco, Bay Fundy
Quebec, River St. La
Race, Cape, Newfoun
Random Head Harbo
Rencontré Bay, (th
Newfoundland
Richibucto River, Gf
Richmond, United S
Richmond Harbour,

MACDONALD &

H. M.
 St. Law...sub 3 24
add 3 37
add 2 15
sub 0 34
 Fundy...add 3 32
 land...sub 0 19
 B.add 1 41
 Law...add 2 56
sub 3 34
sub 0 44
add 0 51
add 1 11
add 1 26
add 2 48
 Nfld...add 0 26
 Nfld...add 0 41
add 0 2
add 0 5
add 3 29
 Fundy...add 3 30
add 0 11
 Lawr'ce,sub 5 39
add 3 11
add 2 53
add 0 9
add 0 51
 S...sub 0 6
add 0 1
add 0 11
sub 0 43
add 3 20
add 1 11
 ndy,add 3 16
 add 0 31
 w...sub 6 34
add 0 11
 w...sub 5 34
 w...sub 5 49
add 3 41
sub 0 2
add 1 39
add 0 41
sub 5 34
add 0 30
add 0 26
add 2 17
add 0 1
 w...sub 6 33
add 4 19
add 0 44
sub 2 19
sub 5 19
 y,sub 7 34
 sub 7 49
 y,sub 5 49

	H. M.		H. M.
Mouton, Port, N. S.	add 0 05	Restigouche River, Campbell-	
		town, Gulf St. Lawr'ce, ..sub	3 49
Nantucket, United States,	sub 7 25	Roehe Cape, River St. Law...	add 1 41
Negro Harbour, N. S.	add 0 23	Sable Cape, (Clarks' Harbour),	
Neuf, Port, Gulf St. Law.....	sub 5 39	Bay Fundy	add 1 9
Neuf, Port, River St. Law.....	add 0 41	Sable Island, N. Side, N. S. ...	sub 0 19
New Bedford, (entrance), Unit-		Sable Island, S. Side N. S. ...	sub 1 19
ed States.	add 0 8	Sacred Bay, Newfoundland ..	sub 0 26
New Haven, United States,	add 3 27	Saguenay, Chicoutimi, Gulf St.	
New Perlican Harbour, Nfld, ..	sub 0 19	Lawrence	sub 3 38
New York, United States,	add 0 24	Saguenay, Tadousac, Gulf St.	
Newburyport, United States, ..	add 3 33	Lawrence	sub 5 4
Nicholas St., Harbour, Gulf St		Salem, United States	add 3 24
Lawrence	sub 5 54	Sandy Cove, E., Bay Fundy, ..	add 2 44
Noel Bay, Bay Fundy	sub 7 8	Sandy Cove, W., Bay Fundy ..	add 2 58
North Cape, C. B.	add 0 11	Sandy Hook, United States ..	sub 0 20
North Harbour, Newfoundland, ..	add 0 11	Seal Cove, Grand Manan, Bay	
Oderin, Newfoundland,	add 0 17	Fundy	add 3 6
Orleans Island, River St. Law	sub 2 9	Seal Island, Cape Sable, Bay	
Parrsboro', Bay Fundy,	sub 7 32	Fundy	add 2 0
Paul, St., Gulf St. Lawrence, ..	add 0 11	Seldom-come-by, Newfoundl'd.	sub 0 36
Peter, St., Bay, C. B.	sub 0 19	Seven Islands Bay, Gulf St.	
Peter, St., Harbour, P. E. Is. ..	add 0 41	Lawrence	sub 0 36
Petit Passage, Bay Fundy,	add 2 52	Sheet Harbour, N. S.	add 0 17
Petit Port, B. of Islands, Nfld, ..	add 2 53	Shelburne, N. S.	add 0 15
Philadelphia, United States, ..	sub 6 31	Sheldrake Is., Gulf St. Law...	sub 1 49
Picton Harbour, N. S.	add 2 11	Ship Harbour, N. S.	add 0 5
Pierre, Strait, Newfoundland, ..	add 0 44	Shippigan, Gulf St. Lawrence	sub 4 7
Pillars, River St. Lawrence, ..	sub 2 49	Smith Sound, Newfoundland, ..	sub 0 41
Placentia, Newfoundland	add 1 26	Spaniards Bay,	sub 0 4
Plymouth, United States	add 3 30	Spencer's Anchorage, B. Fundy	add 3 53
Pomquet, N. S.	add 1 26	Spicer's Cove, Bay Fundy, ..	add 3 46
Pool's Harbour Newfoundl'd, ..	sub 0 49	Sydney Harbour, C. B.	add 1 11
Port-au-Choit, Newfoundland ..	add 2 58	Tatamagouche, N. S.	add 2 11
Port Hood, C. B.	add 1 11	Tracadie Harbour, N. S.	sub 0 19
Portland, United States,	add 3 36	Trepassey, Newfoundland, ..	sub 0 16
Poulamente Bay, Madame Is-		Trinity Bay, (Bull's Is) Nfld, ..	sub 0 27
land, C. B.	add 0 1	Trinity Harbour, Newfld, ..	sub 0 39
Prospect River, N. S.	sub 0 6	Triton Harbour, "	sub 0 19
Providence, United States,	add 0 27	Turner C., P. E. I.	sub 1 39
Provincetown, United States, ..	add 3 33	Verte Bay, N. S.	add 2 11
Pubnico, (Beech Pt.) B. Fundy	add 1 36	Vin Harbour, Gulf St. Law...	sub 2 4
Pugwash Harbour, N. S.	add 2 41	Wallace Harbour, N. S.	add 2 41
Quaco, Bay Fundy	add 3 46	Wapitagn Harbour, Gulf St.	
Quebec, River St. Lawrence ..	sub 1 11	Lawrence	add 2 41
Race, Cape, Newfoundland	sub 0 19	Washington Navy Yard, U. S.	sub 0 6
Random Head Harbour, Nfld, ..	sub 0 19	West Quoddy, Bay Fundy, ..	add 3 23
Rencontre Bay, (the Cove.)		Whitehaven, N. S.	add 0 11
Newfoundland	add 1 6	Wilmington, United States, ..	add 1 17
Richibucto River, Gf. St. Law	sub 4 19	Yarmouth N. S.	add 2 20
Richmond, United States	sub 3 21	York Harbour, Newfoundland,	add 2 48
Richmond Harbour, P. E. Is.	sub 1 49		

Vessels fitted with Plumbing Fixtures by MACDONALD & CO.—See adv. inside cover.

TIDES—1880.

Mean Time of High Water at Halifax, N. S.

MACDONALD & CO., Manufacturers of Brass Binnacles, and Stands.—See adv. inside cover.

Day Month.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
	Morn.	After.	Morn.	After.	Morn.	After.	Morn.	After.	Morn.	After.	Morn.	After.
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
1	9 55	10 12	10 48	11	6 10	24 10	42	11 30	11 55	0 21	1 36	2 7
2	10 31	10 49	11 23	11 43	11 2	11 20	0 55	1 31	2 2	2 41	3 45	4 16
3	11 7	11 27		0 4	11 41							
4	11 47		0 26	0 49	0 5	0 31	2 12	2 57	3 21	3 57	4 47	5 18
5	0 10	0 32	1 17	1 49	0 59	1 33	3 45	4 29	4 31	5 2	5 46	6 13
6	0 56	1 23	2 25	3 8	2 13	3 2	5 6	5 38	5 31	5 58	6 35	6 57
7	1 50	2 21	3 57	4 45	3 53	4 39	6 7	6 31	6 22	6 42	7 18	7 39
8	2 57	3 38	5 29	6 8	5 23	6 0	6 54	7 15	7 3	7 24	7 59	8 16
9	4 17	4 56	6 41	7 8	6 32	6 57	7 33	7 52	7 42	8 0	8 33	8 50
10	5 35	6 11	7 34	7 58	7 18	7 42	8 9	8 25	8 16	8 33	9 7	9 24
11	6 42	7 11	8 19	8 39	8 1	8 19	8 41	8 58	8 51	9 8	9 41	10 0
12	7 39	8 5	8 59	9 19	8 35	8 52	9 14	9 30	9 24	9 41	10 18	10 36
13	8 29	8 51	9 36	9 53	9 9	9 25	9 46	10 3	9 59	10 17	10 54	11 12
14	9 15	9 38	10 12	10 29	9 42	9 57	10 20	10 36	10 34	10 52	11 31	11 51
15	9 59	10 19	10 47	11 1	10 14	10 30	10 52	11 9	11 9	11 30		0 14
16	10 39	10 58	11 16	11 32	10 45	11 0	11 28	11 49	11 54		0 38	1 4
17	11 16	11 34	11 50		11 15	11 33		0 11	0 16	0 41	1 32	2 0
18	11 53		0 8	0 28	11 52		0 38	1 8	1 8	1 39	2 28	3 0
19	0 14	0 33	0 50	1 14	0 14	0 36	1 40	2 16	2 11	2 46	3 35	4 8
20	0 53	1 15	1 44	2 18	1 3	1 37	2 58	3 41	3 22	3 53	4 41	5 15
21	1 41	2 9	2 59	3 50	2 17	3 0	4 18	4 50	4 25	4 55	5 46	6 17
22	2 40	3 20	4 36	5 17	3 50	4 34	5 20	5 46	5 23	5 51	6 45	7 15
23	4 4	4 43	5 53	6 25	5 11	5 44	6 10	6 31	6 16	6 41	7 43	8 10
24	5 22	5 58	6 50	7 11	6 11	6 34	6 52	7 13	7 6	7 29	8 36	9 3
25	6 28	6 53	7 30	7 49	6 54	7 14	7 33	7 54	7 55	8 21	9 27	9 52
26	7 16	7 35	8 6	8 23	7 32	7 52	8 15	8 38	8 45	9 11	10 15	10 40
27	7 55	8 13	8 39	8 55	8 8	8 25	8 59	9 22	9 37	10 2	11 5	11 28
28	8 29	8 47	9 12	9 30	8 44	9 2	9 45	10 10	10 27	10 53	11 51	
29	9 3	9 19	9 47	10 5	9 22	9 41	10 34	11 0	11 19	11 46	0 13	0 38
30	9 37	9 54			10 2	10 23	11 25	11 52		0 13	1 0	1 25
31	10 13	10 29			10 44	11 7		0 39	1 7			

Brass Hinges, Hasps and Locks at MACDONALD & CO.'S—See ins. cover.

Mean T

Day Month.	JULY.		AUG.	
	Morn.	After.	Morn.	After.
	h. m.	h. m.	h. m.	h. m.
1	1 50	2 18	3	
2	2 48	3 21	4	
3	3 58	4 31	5	
4	5 6	5 38	6	
5	6 7	6 34	7	
6	6 57	7 19	7	
7	7 39	7 59	8	
8	8 17	8 33	9	
9	8 50	9 8	9	
10	9 25	9 43	10	
11	10 0	10 18	10	
12	10 34	10 52	11	
13	11 10	11 28		
14	11 48		0	
15	0 8	0 31	1	
16	0 56	1 21	2	
17	1 48	2 19	4	
18	2 56	3 36	5	
19	4 15	4 53	6	
20	5 33	6 10	7	
21	6 39	7 7	8	
22	7 35	8 3	8	
23	8 27	8 51	9	
24	9 13	9 36	10	
25	9 59	10 21	10	
26	10 40	11 1	11	
27	11 20	11 39	11	
28		0 0	0	
29	0 20	0 40	1	
30	1 2	1 26	2	
31	1 53	2 25	3	

Iron Pipe, all s

ors, 51 Up. Water.

[1880

PICKFORD & BLACK, Importers of Welsh Bolt Iron Spikes.

1880]

NAUTICAL ALMANAC,

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TIDES—1880

Mean Time of High Water at Halifax, N. S.

Day Month.	JULY.		AUGUST.		SEPTBER.		OCTOBER.		NOVEMBER		DECEMBER.	
	Morn.	After.	Morn.	After.	Morn.	After.	Morn.	After.	Morn.	After.	Morn.	After.
1	1 50	2 18	3 0	3 44	5 5	5 40	5 28	5 54	6 14	6 35	6 21	6 46
2	2 48	3 21	4 24	5 3	6 7	6 32	6 16	6 38	6 56	7 17	7 11	7 34
3	3 58	4 31	5 40	6 9	6 53	7 12	6 56	7 15	7 36	7 57	7 58	8 22
4	5 6	5 38	6 37	6 59	7 31	7 49	7 32	7 49	8 16	8 38	8 48	9 12
5	6 7	6 34	7 20	7 40	8 4	8 19	8 5	8 23	8 59	9 22	9 36	10 2
6	6 57	7 19	7 58	8 15	8 36	8 51	8 40	8 59	9 44	10 8	10 27	10 53
7	7 39	7 59	8 30	8 47	9 7	9 25	9 18	9 37	10 31	10 56	11 17	11 43
8	8 17	8 33	9 3	9 19	9 44	10 1	9 58	10 18	11 23	11 51		0 9
9	8 50	9 8	9 36	9 54	10 20	10 37	10 39	11 2		0 20	0 36	1 4
10	9 25	9 43	10 10	10 28	10 57	11 18	11 27	11 55	0 53	1 27	1 33	2 3
11	10 0	10 18	10 44	11 2	11 40			0 25	2 4	2 41	2 34	3 11
12	10 34	10 52	11 19	11 40	0 5	0 32	0 58	1 38	3 23	3 57	3 46	4 19
13	11 10	11 28		0 2	1 3	1 40	2 20	3 7	4 31	5 3	4 52	5 22
14	11 48		0 24	0 51	2 24	3 11	3 50	4 29	5 32	5 58	5 52	6 19
15	0 8	0 31	1 20	1 52	4 0	4 44	5 6	5 36	6 20	6 42	6 43	7 4
16	0 56	1 21	2 31	3 16	5 22	5 56	6 2	6 25	7 5	7 25	7 27	7 46
17	1 48	2 19	4 3	4 48	5 23	6 48	6 47	7 9	7 44	8 2	8 3	8 21
18	2 56	3 36	5 29	6 4	7 11	7 33	7 29	7 47	8 20	8 37	8 38	8 55
19	4 15	4 53	6 34	7 2	7 52	8 11	8 5	8 22	8 54	9 11	9 14	9 33
20	5 33	6 10	7 27	7 50	8 28	8 47	8 39	8 55	9 28	9 46	9 49	10 5
21	6 39	7 7	8 11	8 33	9 4	9 23	9 14	9 32	10 4	10 21	10 22	10 39
22	7 35	8 3	8 54	9 13	9 40	9 58	9 48	10 5	10 38	10 56	10 57	11 14
23	8 27	8 51	9 32	9 52	10 15	10 32	10 21	10 38	11 15	11 36	11 33	11 53
24	9 13	9 36	10 11	10 28	10 47	11 5	10 56	11 15	11 59			0 13
25	9 59	10 21	10 46	11 4	11 24	11 44	11 36	11 58	0 22	0 47	0 36	0 59
26	10 40	11 1	11 21	11 39		0 6		0 25	1 15	1 44	1 26	1 53
27	11 20	11 39	11 59		0 31	0 58	0 55	1 26	2 16	2 53	2 24	2 58
28		0 0	0 20	0 43	1 32	2 10	2 3	2 43	3 29	4 1	3 36	4 12
29	0 20	0 40	1 7	1 38	2 54	3 43	3 26	4 1	4 33	5 3	4 45	5 20
30	1 2	1 26	2 11	2 53	4 22	4 57	4 34	5 4	5 30	5 37	5 53	6 24
31	1 53	2 25	3 44	4 27	.....	.....	5 31	5 55	.....	.....	6 52	7 20

MACDONALD & CO, Manufacturers of Engineers' Brass Goods.—See adv. inside cover.

ins. cover.

Iron Pipe, all sizes, at MACDONALD & CO'S.—See adv. inside cover.

PHENOMENA 1880.

Mean Time, Greenwich.

MACDONALD & CO., Manufacturers of Patent Roller Bushings.—See adv. inside cover.

OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.
Jan. 3.	21	Q	greatest Hel. Lat. N.	6	6	N.																							
8.	8	Q	greatest Hel. Lat. N.	6	6	N.																							
9.	23	Q	greatest Hel. Lat. N.	1	47	N.																							
11.	—	Q	eclipsed, invis. at Green'h.																										
12.	8	Q	in Q																										
15.	6	Q	greatest Hel. Lat. N.	2	6	S.																							
17.	13	Q	greatest Hel. Lat. N.	8	21	S.																							
20.	15	Q	greatest Hel. Lat. N.	2	31	S.																							
22.	13	Q	in Aphelion.																										
Feb. 7.	0	Q	greatest Hel. Lat. N.	1	47	N.																							
9.	20	Q	greatest Hel. Lat. N.	5	15	S.																							
11.	23	Q	greatest Hel. Lat. N.																										
12.	3	Q	greatest Hel. Lat. N.	6	16	S.																							
14.	2	Q	greatest Hel. Lat. N.	8	7	S.																							
14.	7	Q	Sup. Q																										
17.	22	Q	greatest Hel. Lat. N.	1	37	S.																							
23.	0	Q	greatest Hel. Lat. N.																										
25.	15	Q	greatest Hel. Lat. N.																										
28.	13	Q	greatest Hel. Lat. N.	0	40	N.																							
28.	23	Q	in Q																										
Mar. 1.	22	Q	in Q																										
6.	12	Q	in Perihelion.																										
8.	0	Q	greatest Hel. Lat. N.	3	20	S.																							
11.	0	Q	greatest Hel. Lat. N.	6	26	S.																							
11.	7	Q	greatest elong.	18	15	E.																							
12.	4	Q	greatest Hel. Lat. N.	3	3	S.																							
12.	16	Q	greatest Hel. Lat. N.	7	52	S.																							
15.	8	Q	greatest Hel. Lat. N.																										
16.	20	Q	greatest Hel. Lat. N.	0	23	S.																							
17.	12	Q	greatest Hel. Lat. N.																										
18.	11	Q	Stationary.																										
19.	17	Q	enters ♄, Spring com.																										
28.	12	Q	Inf. Q																										
Apr. 3.	6	Q	in Aphelion.																										
7.	4	Q	greatest Hel. Lat. N.	6	50	S.																							
7.	17	Q	greatest Hel. Lat. N.	5	0	S.																							
7.	20	Q	greatest Hel. Lat. N.	6	36	S.																							
7.	22	Q	greatest Hel. Lat. N.	1	35	N.																							
9.	6	Q	greatest Hel. Lat. N.	7	43	S.																							
9.	8	Q	in Q																										
9.	22	Q	Stationary.																										
Apr. 14.	18	Q	greatest Hel. Lat. N.	0	19	N.																							
15.	3	Q	greatest Hel. Lat. N.	1	5	N.																							
15.	14	Q	greatest Hel. Lat. N.	0	30	S.																							
17.	21	Q	greatest Hel. Lat. N.	0	48	S.																							
19.	12	Q	in Aphelion.																										
25.	9	Q	greatest elong.	26	57	W.																							
25.	19	Q	greatest Hel. Lat. N.																										
May 1.	3	Q	greatest Hel. Lat. N.	0	47	N.																							
5.	14	Q	greatest Hel. Lat. N.	6	47	S.																							
6.	2	Q	greatest Hel. Lat. N.	0	41	S.																							
6.	19	Q	greatest Hel. Lat. N.	7	41	S.																							
6.	21	Q	greatest Hel. Lat. N.	8	18	S.																							
7.	8	Q	greatest Hel. Lat. N.	6	32	S.																							
9.	22	Q	greatest Hel. Lat. N.																										
11.	22	Q	Stationary.																										
13.	0	Q	greatest Hel. Lat. N.																										
13.	21	Q	greatest Hel. Lat. N.	2	39	N.																							
19.	16	Q	greatest Hel. Lat. N.	0	25	S.																							
25.	9	Q	greatest Hel. Lat. N.																										
28.	21	Q	in Q																										
June 2.	0	Q	Sup. Q																										
2.	6	Q	greatest Hel. Lat. N.	6	55	S.																							
2.	12	Q	in Perihelion.																										
3.	7	Q	greatest Hel. Lat. N.	7	44	S.																							
6.	13	Q	greatest Hel. Lat. N.	3	12	S.																							
8.	2	Q	greatest Hel. Lat. N.	0	3																								

PHENOMENA—1880.

Mean Time, Greenwich.

h.	o	i	h.	o	i	S.				
July 13.	12	♀	Sap. ♂ ☉	Oct. 16.	23	♂	♂ ☾ ♀	7	1	S.
16.	11	♂	in Aphelion.	17.	22	♂	♂ ☾ ♀	7	44	S.
20.	13	♂	☽ ☽	18.	0	♂	♂ ☽ ☽			
21.	2	♂	Stationary.	25.	8	♂	♂ ☽ ☽			
24.	16	♀	in Perihelion.	Nov. 1.	20	♂	♂			greatest Hel. Lat. S.
27.	8	♂	♂ ☾ ♀	2.	2	♂	♂ ☾ ♀	4	20	N.
28.	0	♂	greatest Hel. Lat. S.	2.	11	♂	♂	23	14	E.
28.	3	♂	♂ ☾ ♀	3.	20	♂	♂ ☾ ♀	0	49	S.
Aug. 4.	20	♂	Inf. ♂ ☽	4.	8	♂	♂ ☾ ♀	0	17	N.
5.	12	♂	♂ ☾ ♀	13.	1	♂	♂ ☾ ♀	7	7	S.
5.	21	♂	greatest Hel. Lat. S.	13.	2	♂	♂			Stationary.
6.	9	♂	♂ ☾ ♀	13.	22	♂	♂			in Aphelion.
8.	1	♂	♂ ☾ ♀	14.	2	♂	♂ ☾ ♀	7	51	S.
8.	16	♂	Stationary.	20.	20	♂	♂			in ☽
10.	0	♂	greatest Hel. Lat. S.	23.	7	♂	♂			Inf. ♂ ☽
10.	19	♂	Stationary.	25.	10	♂	♂			in Perihelion.
14.	9	♂	Stationary.	26.	12	♂	♂			in ☽
15.	14	♂	greatest Hel. Lat. N.	28.	11	♂	♂ ☽ ♀	2	17	N.
22.	18	♂	greatest elong. 18 21 W.	30.	16	♂	♂ ☾ ♀	5	26	N.
23.	17	♂	♂ ☾ ♀	30.	20	♂	♂ ☾ ♀	2	33	N.
24.	11	♂	♂ ☾ ♀	Dec. 1.	—	♂	♂			eclipsed, invis. at Green'h.
24.	21	♂	in ☽	2.	17	♂	♂			Stationary.
29.	11	♂	in Perihelion.	4.	6	♂	♂ ☾ ♀	4	3	S.
Sept. 1.	0	♂	♂ ☽	4.	11	♂	♂			Stationary.
3.	9	♂	♂ ☾ ♀	4.	21	♂	♂ ☽			☽ ☽
5.	15	♂	♂ ☾ ♀	5.	18	♂	♂			greatest Hel. Lat. N.
5.	17	♂	♂ ☾ ♀	6.	12	♂	♂			greatest Hel. Lat. S.
7.	6	♂	♂ ☽ ♀	10.	5	♂	♂ ☾ ♀	7	6	S.
8.	18	♂	greatest Hel. Lat. N.	11.	5	♂	♂ ☾ ♀	7	53	S.
16.	21	♂	Sup. ♂ ☽	11.	9	♂	♂	21	5	W.
19.	21	♂	♂ ☾ ♀	16.	—	♂	♂			eclipsed, vis. at Green'h.
20.	18	♂	♂ ☾ ♀	18.	15	♂	♂			Stationary.
22.	4	♂	☽ enters ♄, Autumn com.	20.	22	♂	♂			☽ enters ♃, Winter com.
25.	12	♂	in Perihelion.	23.	1	♂	♂ ☽ ♀	1	5	N.
28.	6	♂	♂ ☽ ♀	25.	1	♂	♂			Stationary.
Oct. 2.	6	♂	in ☽	29.	5	♂	in ☽			
4.	9	♂	♂ ☾ ♀	29.	16	♂	♂ ☾ ♀	0	27	N.
4.	20	♂	♂ ☾ ♀	30.	0	♂	♂ ☾ ♀	0	13	N.
5.	13	♂	♂ ☾ ♀	31.	—	♂	♂			eclipsed, vis. at Green'h.
6.	22	♂	♂ ☽	31.	15	♂	♂ ☽			☽ ☽
10.	15	♂	in ☽	31.	22	♂	in Perigee.			
12.	11	♂	in Aphelion.							

MACDONALD & CO., Manufacturers of Brass Sliding Door Rollers.—See adv. inside cover.

Brass Ventilators made by MACDONALD & CO.—See adv. inside cover.

Tanks.

Woodberry Cotton Ducks. for sale by PICKFORD & BLACK.

ROBERT H. COGSWELL'S

SUN'S SEMI-DIAMETER.

Mean Noon, Greenwich.

MACDONALD & CO., Manufacturers of Plumbers' Brass Goods.—See adv. inside cover.

Day Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	16 18	16 15	16 10	16 1	15 53	15 48	15 45	15 47	15 53	16 1	16 9	16 15
2	16 18	16 15	16 9	16 1	15 53	15 47	15 45	15 48	15 53	16 1	16 10	16 16
3	16 18	16 15	16 9	16 1	15 53	15 47	15 45	15 48	15 54	16 2	16 10	16 16
4	16 18	16 15	16 9	16 0	15 53	15 47	15 45	15 48	15 54	16 2	16 10	16 16
5	16 18	16 15	16 9	16 0	15 53	15 47	15 45	15 48	15 54	16 2	16 10	16 16
6	16 18	16 15	16 8	16 0	15 52	15 47	15 45	15 48	15 54	16 2	16 11	16 16
7	16 18	16 14	16 8	16 0	15 52	15 47	15 46	15 48	15 55	16 3	16 11	16 16
8	16 18	16 14	16 8	15 59	15 52	15 47	15 46	15 48	15 55	16 3	16 11	16 16
9	16 18	16 14	16 8	15 59	15 52	15 47	15 46	15 49	15 55	16 3	16 11	16 16
10	16 18	16 14	16 7	15 59	15 51	15 47	15 46	15 49	15 55	16 4	16 11	16 17
11	16 18	16 14	16 7	15 59	15 51	15 46	15 46	15 49	15 56	16 4	16 12	16 17
12	16 17	16 14	16 7	15 58	15 51	15 46	15 46	15 49	15 56	16 4	16 12	16 17
13	16 17	16 13	16 7	15 58	15 51	15 46	15 46	15 49	15 56	16 4	16 12	16 17
14	16 17	16 13	16 6	15 58	15 51	15 46	15 46	15 49	15 56	16 5	16 12	16 17
15	16 17	16 13	16 6	15 57	15 50	15 46	15 46	15 50	15 57	16 5	16 13	16 17
16	16 17	16 13	16 6	15 57	15 50	15 46	15 46	15 50	15 57	16 5	16 13	16 17
17	16 17	16 13	16 5	15 57	15 50	15 46	15 46	15 50	15 57	16 5	16 13	16 17
18	16 17	16 12	16 5	15 57	15 50	15 46	15 46	15 50	15 57	16 6	16 13	16 17
19	16 17	16 12	16 5	15 56	15 50	15 46	15 46	15 50	15 58	16 6	16 13	16 17
20	16 17	16 12	16 5	15 56	15 50	15 46	15 46	15 51	15 58	16 6	16 14	16 17
21	16 17	16 12	16 4	15 56	15 49	15 46	15 46	15 51	15 58	16 7	16 14	16 17
22	16 17	16 12	16 4	15 56	15 49	15 46	15 46	15 51	15 59	16 7	16 14	16 18
23	16 17	16 11	16 4	15 55	15 49	15 46	15 47	15 51	15 59	16 7	16 14	16 18
24	16 17	16 11	16 4	15 55	15 49	15 46	15 47	15 51	15 59	16 7	16 14	16 18
25	16 16	16 11	16 3	15 55	15 49	15 46	15 47	15 52	15 59	16 8	16 14	16 18
26	16 16	16 11	16 3	15 55	15 49	15 46	15 47	15 52	16 0	16 8	16 15	16 18
27	16 16	16 10	16 3	15 54	15 48	15 46	15 47	15 52	16 0	16 8	16 15	16 18
28	16 16	16 10	16 2	15 54	15 48	15 46	15 47	15 52	16 0	16 8	16 15	16 18
29	16 16	16 10	16 2	15 54	15 48	15 46	15 47	15 53	16 0	16 9	16 15	16 18
30	16 16	...	16 2	15 54	15 48	15 45	15 47	15 53	16 1	16 9	16 15	16 18
31	16 16	...	16 2	...	15 48	...	15 47	15 53	...	16 9	...	16 18

Lead Scupper Pipes, all sizes, at MACDONALD & CO.'S—See ins. cover.

OF NOVA

On December 31

[All bearings are magnetic high

GEORGE'S ISLAND, W. 63 33 20 W, two 30 feet high, dra the S, and into h seen. Vessels g keep the light o vessels in and o Lighted 1876. the westward of

CHEBUCTO HEAD, W. 63 30 50 W, whi high, white squ Automatic Sign fathoms of wat inch whistle. 1 7-8 mile. San the Buoy at th magnetic, will l and at a distanc house. Similar From this Buoy Island N 7-8 W

SAMBRO, middle of light, 2nd order feet high. Lig Island, and elev snow storms, interval of 50 Sambro, and on Sambro.

BETTY'S ISLAND, revolving red high, visible 14 wood, height 54

PEGGY POINT, east 63 55 W, fixed feet high. Lig

MARGARET'S BAY, W, red and w building white light.

CHESTER, E Ironb Mabone Bay, visible 16 miles

TER.

	October.	November.	December.
16	1 16	9 16	15 16
16	1 16	10 16	16 16
16	2 16	10 16	16 16
16	2 16	10 16	16 16
16	2 16	11 16	16 16
16	3 16	11 16	16 16
16	3 16	11 16	16 16
16	3 16	11 16	16 16
16	4 16	11 16	17 16
16	4 16	12 16	17 16
16	4 16	12 16	17 16
16	4 16	12 16	17 16
16	5 16	12 16	17 16
16	5 16	13 16	17 16
16	5 16	13 16	17 16
16	5 16	13 16	17 16
16	6 16	13 16	17 16
16	6 16	14 16	17 16
16	7 16	14 16	17 16
16	7 16	14 16	18 16
16	7 16	14 16	18 16
16	8 16	14 16	18 16
16	8 16	15 16	18 16
16	8 16	15 16	18 16
16	9 16	15 16	18 16
16	9 16	15 16	18 16
16	9 16	15 16	18 16
16	9 16	15 16	18 16

LIGHT HOUSES

OF NOVA SCOTIA, NEW BRUNSWICK, &c.

On December 31st, 1878. Arranged from the Dominion Official List.

[All bearings are magnetic, and are given from seaward; height of light from high water, and of building from base to vane.]

GEORGE'S ISLAND, west side of Island, Halifax Harbor, lat 44 38 30 N, lon 63 33 20 W, two fixed white catoptric lights, vertical, 20 feet apart, 50 and 30 feet high, drab square building, 21 feet high. Lights show seaward on the S, and into harbor on the N side; on W side the upper light only can be seen. Vessels going into Halifax Harbor, passing Meagher's Beach, will keep the light on starboard bow. The light is for the purpose of guiding vessels in and out of the Harbor, through the channel west of the Island. Lighted 1876. These lights open to westward of Meagher's Beach, clear the westward of Thrum Cap Shoal.

WEST FROM HALIFAX, N. S.

CHEBUCTO HEAD, west side of entrance to Halifax Harbor, lat 44 30 20 N, lon 63 30 50 W, white light, revolving every minute, visible 18 miles, 132 feet high, white square wooden building, height 22 feet. Lighted 1872. An Automatic Signal Buoy, placed in lat 44 31 42 N, lon 63 29 28 W, in 21 fathoms of water, N E 1/2 E, 1 7/8 mile from Chebucto Head, sounds a ten inch whistle. From this Buoy Chebucto Head bears S W 1/2 W, magnetic, 1 7/8 mile. Sandwich Point N by W, 4 miles. Passing to the westward of the Buoy at the distance of half a cable and steering a N 1/2 W course, magnetic, will lead up the Harbor to the eastward of the Neverfail Shoal, and at a distance of two cables to the westward of Meagher's Beach light house. Similar Buoy in lat 44 28 25 N, lon 63 22 10 W, in 36 fathoms. From this Buoy Sambro Island light bears W 1-3 N 8 1-3 miles; Devil's Island N 7-8 W 7 1-3 miles, and the inner signal Buoy N W 1/2 N 6 miles.

SAMBRO, middle of Island, lat 44 26 10 N, lon 63 33 30 W, fixed white dioptric light, 2nd order, visible 20 miles, 115 feet high, building white, octagonal, 60 feet high. Lighted 1758. A steam fog whistle, erected on south side of Island, and elevated 90 feet above high water, in thick weather, fogs and snow storms, sounds each minute a blast of 10 seconds' duration, with an interval of 50 seconds. A Spar Buoy has been placed off the S W Breaker, Sambro, and one on the Pollock, and another on the Whippey Shoal, near Sambro.

BETTY'S ISLAND, on Brig Point, near Prospect, lat 44 26 22 N, lon 63 45 54 W, revolving red catoptric light, greatest brilliancy every 2 minutes, 75 feet high, visible 14 miles, building white, with two horizontal red bands, square, wood, height 54 feet, dwelling attached. Lighted 1875. Coast light.

PEGGY POINT, east side of entrance to St Margaret's Bay, lat 44 29 30 N, lon 63 55 W, fixed red catoptric light, 65 feet high, building white, square; 26 feet high. Lighted 1868. Lantern on dwelling.

MARGARET'S BAY, on Green Island, Lunenburg County, lat 44 23 N, lon 64 2 45 W, red and white catoptric light, revolving alternately every half minute, building white, square, wood, 28 feet high, with dwelling attached. Coast light.

CHESTER, E Ironbound Island, a little to the eastward of centre of Island, in Mahone Bay, lat 44 26 10 N, lon 64 4 50 W, fixed white dioptric light, visible 16 miles, 150 feet high, white oblong tower on dwelling, 46 feet high,

Residences and Public Buildings Fitted with Plumbing Fixtures, by MACDONALD & CO.—See adv. inside cover.

MACDONALD & CO., Manufacturers of Composition Clinch Rings. See inside cover.

wood lantern. Lighted 1871. Seen from all points of approach. The lantern alone is visible, building hidden by trees.

HOBSON'S NOSE, Mahone Bay, lat 44 25 N, lon 64 13 46 W, red fixed catoptric light, visible 11 miles, 68 feet high, building white, square, wood, 29 feet high. Lighted 1872.

CROSS ISLAND, east point Lunenburg Bay, lat 44 18 45 N, lon 64 10 W, 2 white catoptric lights, vertical, 45 feet apart, upper intermittent, revolving every minute, bright 45 sec, dark 15 sec, and visible 14 miles, 100 feet high; lower fixed, visible 6 miles, and 65 feet high, building red, octagonal base, height 53 feet. Lighted 1832. Pilots resort here, and vessels may take refuge in case of necessity. A Steam Fog Horn has been erected near the Light House on Cross Island off Lunenburg. On and after 12th June, 1879, the Horn will be sounded during thick weather, fogs and snow storms, for ten seconds in each minute and a half, leaving an interval of 80 seconds between each blast. N. B.—Care should be taken to distinguish this alarm from the Sambro Whistle, which sounds for ten seconds in each minute, with an interval of fifty seconds.

BATTERY POINT, Lunenburg, lat 44 21 45 N, lon 64 17 30 W, fixed white catoptric light, visible 11 miles, 50 feet high, white, square tower on dwelling, height 24 feet. Lighted 1864. This harbor is easy of access, buoys are placed in the bay and entrance to the harbor on Sculpin Rock, Haddock Shoal, Battery Point Shoal, and Head Shoal. In approaching the harbor from seaward the buoy on Sculpin Rock, painted red and black, in horizontal stripes, may be left on either hand, giving it a berth of two cables' length. The other buoys are painted black and must be left on the port hand going in. Iron can buoys in summer, spar buoys in winter.

WEST IRONBOUND ISLAND, near Cape LaHave, mouth of LaHave River, lat 44 13 45 N, lon 64 16 20 W, white catoptric light, revolving every 30 seconds, visible 13 miles, 72 feet high, building white, square, height 29 feet. Near edge of cliff, 40 feet high. Lighted 1855.

LAHAVE, on Fort Point, lat 44 17 20 N, lon 64 21 W, fixed red catoptric light, visible 8 miles, 48 feet high, building white, square, wood, height 35 feet. Lighted 1876. A fog alarm is to be established here.

MOSHER'S ISLAND, on Island, west side of entrance to LaHave River, lat 44 14 15 N, lon 64 18 50 W, fixed red catoptric light, visible 8 miles, 55 feet high, building white, square, height 26 feet. Lighted 1868.

MEDWAY HEAD, Port Medway, west side of entrance, lat 44 6 10 N, lon 64 32 15 W, fixed white catoptric light, visible 10 miles, 44 feet high, building white, square, with black square seaward, height 23 feet. Like a dwelling house. Lighted 1851. Spar buoys are placed in the channel to Port Medway harbor, on the breaking ledges, Nautilus Rock, corner ground and edge of flats off Bang's Point. In passing in from seaward the red buoys must be left on the starboard, and the black buoys on the port hand.

COFFIN ISLAND, south point, Liverpool Bay, lat 44 2 N, lon 64 37 30 W, white catoptric light, revolving every two minutes, light 30 seconds, dark 90 seconds, visible 16 miles, 65 feet high, building octagonal, horizontal stripes, red and white, sight in number, height 50 feet. Lighted 1812.

BROOKLYN PIER, on end of Breakwater, Liverpool, lat 44 2 40 N, lon 64 41 30 W, catoptric fixed light, white seaward, green towards harbor, visible 10 miles, 32 feet high, tower white, square, wood, height 33 feet. Building erected 1878.

FORT POINT, Liverpool Bay, south entrance, lat 44 2 30 N, lon 64 42 20 W, fixed red catoptric light, visible 7 miles, 30 feet high, building white, square, height 17 feet. Left on port side when entering the harbor. Lighted 1855.

PORT MOUTON, north-east point of Spectacle Island, Queen's County, lat 43 55 N, lon 64 48 W, fixed red catoptric light, visible 11 miles, 47 feet high, square wooden building, height 20 feet. For guiding vessels into harbor. Lighted 1873.

LITTLE HOPE, nearly on centre of Island, lat 43 48 30 N, lon 64 47 15 W, red

MACDONALD & CO., Importers of Engineers' Rubber Goods.—See cover.

catoptric light, red
white building, h
Visible around h
SHINGLE POINT, eas
W, fixed red ca
wooden building
CARTER'S ISLAND, I
red light, visible
29 feet. Lighte
RAGGED ISLAND, G
light, visible 10
Lighted 1853.
SAND POINT, at eas
65 19 W, fixed r
wooden building
mark the dange
opposite side of
SHELBURNE HARB
west side of Mi
fathoms, and a
BULL ROCK, a spar
S S W ½ W, ab
burne County.
CAPE ROSEWAY, DE
lat 43 37 15 N,
light visible 18
miles, octagona
Lighted 1788, r
in 9 fathoms wa
NEGRO ISLAND, on
catoptric light,
square wooden
in and out of C
BACCARO, on west
65 28 12 W, fi
square building
spar Brooy to th
BARRINGTON E. B
light, hull and
on both sides, h
Wesses' Ledge
ing S S E ½ E,
distant 6 ½ mile
Barrington Pa
CAPE SABLE, on C
light, bright 15
octagonal, buil
southern point
thick weather,
minute, with a
BRAZIL ROCK, red
water, S S E ½ E
STODDARD ISLAND
fixed red cat
tower. To gu
Harbor Sound
BON PORTAGE ISL
light, revolv

MACDONALD & CO, Manufacturers of Patent Roller Bushings.—See adv. inside cover.

wooden building, height 28 feet. Lighted 1874. For guiding vessels into Barrington West Bay and Shag Harbor.

SEAL ISLAND, south point, 1-8 mile inland, lat 43 23 34 N, lon 66 0 52 W, fixed white light, dioptric, 2nd order, visible 18 miles, 98 feet high, white octagonal building, height 60 feet. Lighted 1830. The Blonde Rock lies S by W 3 1-3 miles from light house. Between this Rock and the Island there are some dangers, the ground is rocky throughout, and large vessels ought not to attempt passing between them. A fog whistle near light house, during fogs and snow storms, sounds in each minute a blast of 5 seconds' duration, and after an interval of 5 seconds gives another blast of 5 seconds, with an interval of 45 seconds.

A Spar Buoy, painted black, has been placed in 12½ fathoms water, south about half a mile from the Blonde Rock, off Seal Island.

PUEBICO HARBOR, Beach point, east side of entrance, 120 yards from low water mark, lat 43 35 45 N, lon 65 46 54 W, fixed white catoptric light, visible 8 miles, 28 feet high, square white building, height 20 feet. Lighted 1854. Open westward of St John's Island, bearing N E by N, clears the ledge; in making harbor from any other direction, the light must be brought to the northward of E N E, before it can be steered for to avoid shoal spot off St Ann's Point. Spar buoys mark the channel. Black left on port hand, red on starboard in approaching the harbor.

ARGYLE, on south point of Whitehead Island, Yarmouth County, lat 43 39 40 N, lon 65 52 4 W, fixed red catoptric light, visible 12 miles, 115 feet high, building white, square, wood, with dwelling attached, height 28 feet. Lighted 1874. For guiding vessels into Argyle Harbor.

TUSKET RIVER, Big Fish Island, south-west point, lat 43 42 10 N, lon 65 57 15 W, 2 fixed white catoptric lights, horizontal, 8 yards apart, visible 12 miles, 50 feet high, white square wooden building, height 23 feet. Visible seaward; in windows each end of a dwelling house. Lighted 1864.

YARMOUTH OR CAPE FOURCHU, east cape, south point, lat 43 47 28 N, lon 66 9 21 W, white catoptric light, intermittent, light ¼ minute, dark ½ minute, visible 18 miles, 117 feet high, octagonal tower, vertical stripes, red and white, height 59 feet. Lighted 1839. Fog whistle on west side, sounds in fogs and snow storms 10 seconds in every minute.

BUNKER'S ISLAND, on end of reef, off S W point of Island, east side of entrance to Yarmouth harbor, lat 43 48 30 N, lon 66 8 45 W, fixed red catoptric light, visible 10 miles, 27 feet high, the lantern on a dwelling house, built on a wooden pier. Lighted 1874. A red beacon light, for the purpose of guiding vessels into the harbor. Visible from the southward between the bearings of N E by N and N ¼ E. It can also be seen on Stanwood's Beach, when bearing from S ½ E to S E ¼ E, but cannot be run for on these bearings, the only entrance to the harbor being through Yarmouth Sound and round Cape East.

TRINITY LEDGE, an iron bell Buoy, painted red, has been moored to the westward of Trinity Ledge, off Cape St Mary.

CAPE ST MARY, east side of Bay, lat 44 5 20 N, lon 66 12 40 W, red and white catoptric light, revolving alternately every 30 seconds, visible 17 miles, 103 feet high, octagonal white building, height 43 feet. Lighted 1868.

METEGHAN RIVER, at extreme end of breakwater, lat 44 13 43 N, lon 66 8 12 W, fixed green catoptric light, visible 6 miles, 23 feet high, building vertical, red stripes on seaward side, 21 feet high, lantern painted black. Lighted 1875. Beacon for guiding vessels into river. Must be left on starboard hand and passed close aboard. Tide leaves breakwater one hour before low water.

CHURCH POINT, east side of St Mary's Bay, Digby County, lat 44 19 55 N, lon 66 7 35 W, fixed red catoptric light, visible 10 miles, 36 feet high, square white wooden building, height 20 feet. Lighted 1874. For guarding against dangers in vicinity of Church Point.

SASSIBOO, south side of entrance to river, lat 44 26 30 N, lon 66 1 15 W, fixed

Brass Step Plates Manufactured by MACDONALD & CO.—See ins. cover.

white catoptric light building, height 33 WESTPORT, Peter's Is 66 20 20 W, 2 fixed 10 miles, each 40 Lighted 1850. Vis and S S W, and from N N W ¼ W. Bell

BRIER ISLAND, north-catoptric light, visible 55 feet. Lighted 18 side of light house, three blasts of 4 seconds in each minute.

BOAR'S HEAD, 17 yard white catoptric light, 10 feet high, white square Passage.

POINT PRIM, south point, lat 45 47 20 W, fixed tower, vertical red whistle on Prim Point 8 seconds in each blast.

MARSHALL COVE OR POINT, 2 fixed white catoptric white square building, dwelling; lower light

MARGARETVILLE, on north side, 2 fixed red catoptric ing, horizontal white from W S W round

ISLE HAUTE, on high light, intermittent tower white, square 53 feet. Lighted

BLACK ROCK, south light, visible 12 miles. Lighted 1848. Light

CAPE D'OR, Fog Whistle Black Rock, sound. The whistle should wind and atmosphere

KINGSPOINT, on Oak catoptric light, visible white, open from S W ¼ W round

HORTON, on bluff, white catoptric light, height 20 feet. Light

WALTON HARBOR, fixed red catoptric building, height 10 harbor.

BURNCOAT, Basin of 45 18 40 N, lon 66 10 feet high, square from all points of

SPENCER POINT, on

Street, Halifax.

S [1880

r guiding vessels into

lon 66 0 52 W, fixed
high, white octagonal
le Rock lies S by W
the Island there are
rge vessels ought not
light house, during
5 seconds' duration,
of 5 seconds, with an

water, south about

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optic light, visible 8
feet. Lighted 1854.
N, clears the ledge;
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oid shoal spot off St
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County, lat 43 39 40
miles, 115 feet high,
d, height 28 feet.

0 N, lon 65 57 15 W,
visible 12 miles, 50
Visible seaward;

47 28 N, lon 66 9 21
rk 1/2 minute, visible
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s in fogs and snow

st side of entrance
red catoptric light,
house, built on a
purpose of guiding
ween the bearings
od's Beach, when
these bearings, the
d and round Cape

ored to the west-

W, red and white
ible 17 miles, 103
d 1868.

43 N, lon 66 8 12
building vertical,
black. Lighted
left on starboard
hour before low

44 19 55 N, lon
feet high, square.
For guarding

56 1 15 W, fixed

—See ins. cover.

PICKFORD & BLACK, Iron Spikes. Cut Nails. 51 Upper Water St.

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NAUTICAL ALMANAC.

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white catoptric light, visible 8 miles, 36 feet high, white square wooden building, height 33 feet. Lighted 1870

WESTPORT, Peter's Island, entrance to Grand Passage, lat 44 15 30 N, lon 66 20 20 W, 2 fixed white catoptric lights, horizontal, 24 feet apart, visible 10 miles, each 40 feet high, square white towers, height 15 feet each. Lighted 1850. Visible from the northward between the bearings S by W and S S W, and from the southward between the bearings of N E by E and N N W 1/2 W. Bell Buoy painted red, north side of N W Ledge.

BRIER ISLAND, north-west Point, lat 44 14 57 N, lon 66 23 30 W, fixed white catoptric light, visible 13 miles, 92 feet high, white octagonal building, height 55 feet. Lighted 1809. A steam fog whistle on N W of Brier Island, south side of light house, sounds during thick and foggy weather and snow storms, three blasts of 4 seconds duration, with interval of 4 seconds between them, in each minute.

BOAR'S HEAD, 17 yards from edge of cliff, lat 44 24 16 N, lon 66 13 W, red and white catoptric light, revolving alternately every minute, visible 14 miles, 70 feet high, white square building. Lighted 1864. On south entrance to Petit Passage.

POINT PRIM, south point of entrance to Annapolis Basin, lat 44 41 34 N, lon 65 47 20 W, fixed white catoptric light, visible 13 miles, 76 feet high, square tower, vertical red and white stripes, height 22 feet. Lighted 1817. Fog whistle on Prim Point sounds in snow storms and in thick or foggy weather 8 seconds in each minute, making an interval of 52 seconds between each blast.

MARSHALL COVE OR PORT WILLIAMS, south shore, lat 44 56 52 N, lon 65 16 W, 2 fixed white catoptric lights, vertical, upper 60 feet high, visible 10 miles, white square building, height 22 feet. Lighted 1859. Lantern on top of dwelling; lower light in bow window, visible from W S W round N to E N E.

MARGARETVILLE, on extremity of point, south shore, lat 45 2 57 N, lon 65 4 W, 2 fixed red catoptric lights, 30 and 27 feet high, visible 8 miles, square building, horizontal white and black stripes, height 22 feet. Lighted 1859. Visible from W S W round N to E N E.

ISLE HAUTE, on highest point, lat 45 14 55 N, lon 65 0 45 W, white catoptric light, intermittent 40 seconds in every minute, visible 20 miles, 365 feet high, tower white, square, wood, dwelling attached, almost hidden by trees, height 53 feet. Lighted 1878.

BLACK ROCK, south shore, lat 45 10 10 N, lon 64 46 W, fixed white catoptric light, visible 12 miles, 45 feet high, square white building, height 35 feet. Lighted 1848. Light on top of dwelling, visible from all points of approach.

CAPE D'OR FOG WHISTLE, on extreme point, opposite side of channel from Black Rock, sounds during thick weather for 6 seconds in every 30 seconds. The whistle should be heard from 5 to 20 miles, according to the state of the wind and atmosphere.

KINGSPOINT, on Oak Point pier, lat 45 9 30 N, lon 64 21 45 W, fixed white catoptric light, visible 8 miles, 30 feet high, tower, upper enclosed part white, open frame, brown, height 26 feet. Lighted 1878. Visible from S W 1/2 W round by E to N W by W 1/2 W.

HORTON, on bluff, west side of Avon River, lat 45 6 15 N, lon 64 13 30 W, fixed white catoptric light, visible 20 miles, 92 feet high, white square building, height 20 feet. Lighted 1851. Light in window.

WALTON HARBOR, Basin of Minas, Hants County, lat 45 14 N, lon 64 0 45 W, fixed red catoptric light, visible 10 miles, 60 feet high, square white wooden building, height 20 feet. Lighted 1873. For guiding vessels into Walton harbor.

BURNTCOAT, Basin of Minas, north-west extremity of head, south shore, lat 45 18 40 N, lon 63 48 30 W, fixed white catoptric light, visible 13 miles, 75 feet high, square white building, height 35 feet. On dwelling; visible from all points of approach. Lighted 1859.

SPENCER POINT, on north shore, Cobequid Bay, lat 45 23 30 N, lon 63 37 W,

MACDONALD & CO., Brass Founders.—See adv. inside cover.

MACDONALD & CO., Manufacturers of Patent Ships Water Closets.—See adv. inside cover.

fixed white catoptric light, visible 6 miles, 35 feet high, window in building 20 feet high. Lighted 1863.
PARRSBORO', or Partridge Island, west side of river, lat 45 23 N, lon 64 19 W, fixed white catoptric light, visible 9 miles, 37 feet high, white square building, height 32 feet. Lighted 1852. Lantern on dwelling.
APPLE RIVER, on Cape Capston or Hetty Point, north entrance lat 45 28 20 N, lon 64 51 30 W, fixed white catoptric light, visible 12 miles, 64 feet high, building white, oblong, with tower, height 45 feet. Lighted 1870. Rebuilt about 33 yards S S E from old one.

EAST FROM HALIFAX.

MACDONALD & CO., Importers of Steam and Vacuum Gauges.—See adv. inside cover.

MEAGHER BEACH, Sherbrook Tower, east side of entrance to Halifax Harbor, lat 44 36 N, lon 63 31 50 W, fixed white catoptric light, visible 12 miles, 58 feet high, building white, with red roof, granite, height 48 feet. Lighted 1815. When Sambro light bears W S W, this light should not be brought to the westward of north, which clears the Thrum Cap Shoal. A fog bell here strikes 7 times in each minute.
DEVIL'S ISLAND, on south point of Island, at the eastern entrance to Halifax Harbor, two fixed white catoptric lights, horizontally, E $\frac{1}{2}$ N, and W $\frac{1}{2}$ S, 175 yards apart, visible 13 miles, the light E 59 feet high, W light 52 feet, both buildings white, octagonal, wood, height E 53 feet, lighted 1877, W 45 feet, lighted 1852, lat 44 34 50 N, lon 63 27 15 W. The eastern light open to the southward of western, clears to southward of the Thrum Cap Shoal. Pilots are stationed here.
EGG ISLAND, centre of Island, lat 44 39 50 N, lon 62 51 32 W, catoptric light, alternate red and white, revolving every minute, visible 15 miles, 80 feet high, octagonal building, black and white vertical stripes on seaward side, height 45 feet. Visible around horizon. Lighted 1863.
POPE'S HARBOR, on west point of Harbor Island, lat 44 47 40 N, lon 62 38 50 W, fixed red light, catoptric, visible 9 miles, 45 feet high, tower white, square, wood, with dwelling attached, height 37 feet. Lighted 1877.
SHEET ROCK, entrance to Sheet Harbor, lat 44 49 55 N, lon 62 29 40 W, red catoptric light, revolving every 40 seconds, visible 10 miles, 75 feet high, white square wooden tower, with dwelling attached, height 41 feet. Lighted 1879.
BEAVER ISLAND, S E part of East Beaver, or William Island, lat 44 48 10 N, lon 62 20 30 W, white catoptric light, revolving every 2 minutes, visible 12 miles, 70 feet high, white building with 2 black balls to seaward, S S W, 33 feet high. Lighted 1846. On dwelling.
LISCOMB, on Island, lat 44 59 20 N, lon 61 57 50 W, red and white catoptric light, alternating every two minutes, visible 15 miles, 64 feet high, white square wooden building, height 28 feet. Lighted 1872.
HOLLY POINT, west side of entrance to Isaac's Harbor, lat 45 10 15 N, lon 61 39 W, 2 fixed white catoptric lights, vertically, 20 feet apart, visible 9 miles, 80 feet high, square white building 20 feet high. Lighted 1874.
COUNTRY HARBOR, on Green Island, Guysboro' County, lat 45 6 15 N, lon 61 32 30 W, fixed white catoptric light, visible 14 to 16 miles, 51 feet high, white square wooden building, height 28 feet. Lighted 1873. Coast light, and to guide vessels frequenting Country and Fisherman's Harbors.
TORBAY, on eastern point of Berry Head, W side of entrance to Bay, Guysboro' County, lat 45 11 37 N, lon 61 18 35 W, fixed catoptric light, red to seaward, white to northward into Bay, and towards Molasses Harbor, visible 10 miles, square wooden building, white with vertical red stripes, top of lantern painted black. Lighted 1876. Height of lantern 51 feet, tower 36 feet.
WHITEHEAD ISLAND, S W extremity of Island, Guysboro' County, lat 45 12 N, lon 61 8 15 W, white catoptric light, revolving every 20 seconds, visible 11 miles, 55 feet high, pyramidal wooden building, 35 feet high, octagonal lan-

MACDONALD & CO., Steam Fitters.—See adv. inside cover.

tern. Lighted 1852 seconds duration of
CANSO CAPE, N part of fixed white catoptric visible 15, lower 9 building, horizontal A steam fog whistle weather sounds a Grimes Rock, off
SABLE ISLAND, W end three flashes at interval minute, visible 18 height 98 feet. L
SABLE ISLAND, $\frac{1}{2}$ mile dioptic light, 2nd white and brown
CANSO HARBOR, on E red catoptric light ing height 28 feet
GUYSBORO' HARBOR, lat 45 22 50 N, lon 30 feet high, white
SAND POINT, or Edd fixed white catoptric feet high, white 1851. Lights in
POINT TUPPER, Ship fixed red catoptric height 24 feet. land on the south
CREIGHTON'S HEAD, white catoptric light high, square white guiding vessels in the dangers of the
JERSEYMAN ISLAND, toptric light, visible height 28 feet. self-through Cric Range Beacon on Shoal off the entrance the Roman Catholic part of the shoal should pass to the cupola on the C which will lead in pass to the eastward. E. An Iron C length S W of the on or about the
ARICHAT, Marache 61 1 50 W, fixed white wooden bu
PETITDEGRAT, on N, lon 60 57 50 white square tower
GREEN ISLAND, sun catoptric light,

MACDONALD

Duck, No. 1 to 2.

L'S [1880

high, window in building
 at 45 23 N, lon 64 19 W,
 high, white square build-
 elling.
 entrance lat 45 28 20 N,
 12 miles, 64 feet high,
 Lighted 1870. Rebuilt

nce to Halifax Harbor,
 ight, visible 12 miles, 58
 ight 48 feet. Lighted
 should not be brought
 ap Shoal. A fog bell

n entrance to Halifax
 y, E 1/2 N, and W 1/2 S,
 ight, W light 52 feet,
 et, lighted 1877, W 45
 he eastern light open
 he Thrum Cap Shoal.

2 W, catoptric light,
 ble 15 miles, 80 feet
 pes on seaward side,

0 N, lon 62 38 50 W,
 tower white, square,
 1877.

on 62 29 40 W, red
 miles, 75 feet high,
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and, lat 44 48 10 N,
 minutes, visible 12
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nd white catoptric
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10 15 N, lon 61 39
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45 6 15 N, lon
 iles, 51 feet high,
 873. Coast light,
 Harbors.

o Bay, Guysboro'
 t, red to seaward,
 visible 10 miles,
 f lantern painted
 feet.

nty, lat 45 12 N,
 onds, visible 11
 , octagonal lan-

side cover.

PICKFORD & BLACK, Ship Chandlers, 51 Upper Water St., Halifax.

1880] NAUTICAL ALMANAC. 45

tern. Lighted 1854. Light not totally obscured during the eclipses; 10 seconds duration of flash, and 10 seconds eclipse.

CANSO CAPE, N part of Cranberry Island, lat 45 19 50 N, lon 60 55 30 W, 2 fixed white catoptric lights in one tower, vertically 36 feet apart, upper visible 15, lower 9 miles, 75 and 40 feet respectively, high, octagonal wooden building, horizontally striped red and white, height 60 feet. Lighted 1815. A steam fog whistle, about 100 yards south of the light house, in thick weather sounds a blast of 8 seconds in each minute. Bell Buoy, at the Grimes Rock, off Cape Canso.

SABLE ISLAND, W end, lat 43 57 N, lon 60 8 W, white catoptric light, revolves three flashes at intervals of half a minute, then a cessation of light during 1 1/2 minute, visible 18 miles, 123 feet high, white octagonal wooden building, height 98 feet. Lighted 1873.

SABLE ISLAND, 1 1/2 mile from east end, lat 43 58 30 N, lon 59 46 W, fixed white dioptric light, 2nd order, visible 18 miles, 128 feet high, octagonal building, white and brown alternately, height 86 feet. Lighted 1873.

CANSO HARBOR, on Hart or Cutler Island, lat 45 21 N, lon 60 58 30 W, fixed red catoptric light, visible 12 miles, 42 feet high, white square wooden building height 28 feet. Lighted 1872.

GUYSBORO' HARBOR, W side of entrance, near Peart Point, Chedabucto Bay, lat 45 22 50 N, lon 61 29 10 W, fixed white catoptric light, visible 8 miles, 30 feet high, white square wooden building, height 20 feet. Lighted 1864.

SAND POINT, or Eddy Point, S entrance, lat 45 31 30 N, lon 61 14 40 W, two fixed white catoptric lights, horizontal, 24 feet apart, visible 8 miles, each 25 feet high, white square wooden building, with a black diamond. Lighted 1851. Lights in windows at each end of building.

POINT TUPPER, Ship Harbor or Port Hawkesbury, lat 45 36 40 N, lon 61 22 W, fixed red catoptric light, visible 7 miles, 44 feet high, white square building, height 24 feet. Lighted 1870. In consequence of the intervention of the land on the south side, can only be seen 3 miles in that direction.

CREIGHTON'S HEAD, on the north extremity, lat 45 30 40 N, longitude 61 6 W, white catoptric light, revolving every 40 seconds, visible 10 miles, 29 feet high, square white wooden building, height 20 feet. Lighted 1874. For guiding vessels into Little or West Arichat. Three buoys placed to mark the dangers of the harbor.

JERSEYMAN ISLAND, Arichat Harbor, lat 45 30 20 N, lon 61 3 W, fixed red catoptric light, visible 11 miles, 39 feet high, white square wooden building, height 28 feet. Lighted 1872. This light is for the purpose of guiding vessels through Crid Passage, in and out of Arichat Harbor. There is also a Range Beacon on the S E Point of Jerseyman Island, that marks Hautfond Shoal off the entrance to Arichat Harbor. When the beacon and spire of the Roman Catholic Chapel in Arichat are in range, it leads over the west part of the shoal in 10 feet of water. Vessels bound into Arichat, C B, should pass to the west of the shoal, or bring the beacon in range of the cupola on the Convent, which stands 130 yards east of the R. C. Church, which will lead in clear of the shoal. Only those well acquainted should pass to the eastward of the shoal, or bring the beacon to bear to the N of N E. An Iron Can Bnoy, painted red, has been placed about one cable's length S W of the shoal in six fathoms of water. The buoy will be placed on or about the 1st May in each year, and taken up about the 10th December.

ARICHAT, Marache Point, south entrance to Madame Island, lat. 45 29 N, lon 61 1 50 W, fixed white catoptric light, visible 8 miles; 34 feet high, square white wooden building, height 25 feet. Lighted 1851.

PETITDEGRAT, on Big Arrow Rock, south-east of Madame Island, lat 44 29 25 N, lon 60 57 50 W, fixed red catoptric light, visible 10 miles, 38 feet high, white square tower, with dwelling attached, height 31 feet. Lighted 1877.

GREEN ISLAND, summit of Island, lat 45 28 50 N, lon 60 53 40 W, red and white catoptric light, revolving alternately every 45 seconds, visible 14 miles, 70

MACDONALD & CO., Manufacturers of Ships' Deck Pumps.—See adv. inside cover.

MACDONALD & CO., Coppersmiths.—See adv. inside cover.

MACDONALD & CO., Manufacturers of Brass Binnacle Guards.—See adv. inside cover.

- feet high, white square wooden building, height 31 feet. Lighted 1865.
 Light, centre of keeper's dwelling. Visible around horizon.
- CAPE LA RONDE, west side of entrance to St. Peter's Bay, lat 45 34 45 N, lon 60 53 W, fixed white catoptric light, visible 14 miles, 92 feet high, white square wooden building, with dwelling attached, height 28 feet. Lighted 1874. For guiding vessels into St. Peter's Bay.
- QUETIQUE ISLAND, on south point, lat 45 36 40 N, lon 60 57 15 W, fixed red catoptric light, visible 9 miles, 78 feet high, white square wooden building, with dwelling attached, height 28 feet. Lighted 1874. For guiding vessels through Lennox Passage.
- GUION ISLAND, about 230 yards from west end of Island, lat 45 46 10 N, lon 60 6 20 W, red revolving light, catoptric, attains its greatest brilliancy every 30 seconds, visible 12 miles, 74 feet high, tower white, square, with dwelling attached, height 54 feet. Lighted 1877.
- LOUISBURG, north side of entrance to harbor, 120 yards inshore of point, lat 45 54 30 N, lon 59 57 15 W, fixed white catoptric light, visible 16 miles, 85 feet high, building white, with a black vertical stripe on dwelling, height 35 feet. Lighted 1842.
- MAINADIEU, on south side of west point of Scatterie Island, lat 46 0 30 N lon 59 47 30 W, fixed red catoptric light, 90 feet high, white square wooden building, height 40 feet. Lighted 1871.
- SCATTERIE, north-east point of Trap Rock, lat 46 2 15 N, lon 59 40 15 W, white catoptric revolving light, visible a minute, eclipsed half a minute, visible 15 miles, 90 feet high, white octagonal building, height 70 feet. Lighted 1839. The light should never be brought to bear to eastward of N N E, or to southward of S S W, nor approach nearer than 1½ miles. A boat is here to render assistance.
- FLINT ISLAND, on island, lat 46 11 N, lon 59 46 50 W, white catoptric light revolving every 15 seconds, visible 12 miles, 65 feet high, white octagonal building, height 43 feet. Lighted 1856. Visible around horizon.
- LINGAN HEAD, north side of entrance to Bridgeport Harbor, lat 46 14 10 N, lon 62 2 40 W, fixed red catoptric light, visible 10 miles, 50 feet high, white square wooden building, height 20 feet. Lighted 1874. For guiding vessels into Bridgeport Harbor.
- LOW POINT, Flat Point, east side of Spanish Bay, lat 46 16 30 N, lon 60 7 30 W, fixed white catoptric light, visible 14 miles, 70 feet high, building octagonal, red and white vertical stripes, height 51 feet. Lighted 1832.
- SYDNEY BAR, on west end of South Bar, lat 46 12 40 N, lon 60 12 40 W, fixed red catoptric light, visible 10 miles, 30 feet high, white square wooden building, height 20 feet. Lighted 1872.
- POINT ACONI, on high cape, north side of entrance to Little Bras d'Or, lat 46 20 30 N, lon 60 17 10 W, fixed red catoptric light, visible 11 miles, 91 feet high, square white wooden building, height 20 feet. Lighted 1874. For guiding vessels into Little Bras d'Or.
- BLACK ROCK POINT, S side of entrance to Big Bras d'Or, lat 46 18 30 N, lon 60 23 30 W, fixed white catoptric light, 45 feet high, white square building height 23 feet. Lighted 1868.
- CAPE GEORGE, S side of Bras d'Or Lake, W side of entrance to St. Peter's Inlet, lat 45 44 28 N lon, 60 48 20 W, fixed white catoptric light, visible 12 miles, 50 feet high, white square wooden building, height 20 feet. Lighted 1875. To guide vessels through St. Peter's Inlet.
- GRAND NARROWS, on Uniacke Point, N side of channel, Barra Straits, lat 45 58 N lon 60 48 W, fixed white catoptric light, visible 10 miles, 29 feet high, white square wooden building, height 20 feet. Lighted 1874. For guiding vessels through Barra Straits, and navigating the Little and Great Bras d'Or Lakes.
- KIDSTON ISLAND, on N E Point, at entrance to Baddeck Harbor, N side of Bras d'Or Lake, lat 46 5 58 N, lon 60 44 20 W, fixed red catoptric light, visible 7 miles, 31 feet high, square wooden building, white, lighted 1875.

MACDONALD & CO., Makers of Patent Roller Bushings.—See ins. cover.

- McKENZIE'S POINT, N Bevis, lat 46 7 15 miles, 95 feet high, ing vessels through
- BIRD ISLAND, Ciboux W, red catoptric li white octagonal bu
- ST. ANN'S HARBOR, o white catoptric lig feet. Lighted 187 night.
- INGONISH, on Island, I order, visible 20 n Lighted 1871.
- CAPE NORTH, on Mo 60 23 30 W, red a 15 miles, 74 fee Lighted 1875. C
- CHETICAMP, near S e light, revolving ev wooden building.
- ST PAUL'S ISLAND, o W, fixed white li white octagonal b N by E ½ E and
- ST PAUL'S ISLAND, dioptric light, 3r high, white octa when bearing fro Island, S W of, lishment, sounds storms.
- MARGAREE, summit W, fixed white building. Light the light may be
- PORT HOOD, S E si catoptric light, Square white bu
- IRON CAN BUOYS I bor, C. B., Port Judique Shoal. other three are 1st of May in e
- NORTH CANSO, nort 61 29 10 W, fix square wooden anchorage unde
- POMQUET ISLAND, lon 61 44 30 W white building.
- CAPE ST GEORGE, catoptric light, white square b
- PICTOU ISLAND, catoptric light, 1853.
- PICTOU HARBOR, fixed catoptric

MACDONALD

ed Iron Clinch Rings.

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NAUTICAL ALMANAC.

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s Bay, lat 45 34 45 N, lon
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height 28 feet. Lighted
on 60 57 15 W, fixed red
square wooden building,
1874. For guiding vessels
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light, visible 16 miles,
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Island, lat 46 0 30 N lon
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70 feet. Lighted 1839.
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nd horizon.
or, lat 46 14 10 N, lon
50 feet high, white
For guiding vessels
30 N, lon 60 7 30 W,
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1832.
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Great Bras d'Or
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ic light, visible 7
1875.

—See ins. cover.

WICKFORD & BLACK, Importers Nets, Lines, Twines, 51 Upper Water St.

McKENZIE'S POINT, N side of Bras d'Or Lake, about 2 miles S W of Port Bevis, lat 46 7 15 N, lon 60 39 W, fixed white catoptric light, visible 11 miles, 95 feet high, square white wooden tower. Lighted 1874. For guiding vessels through Bras d'Or Lake.

BIRD ISLAND, Ciboux Island, 1-3 mile from N end, lat 46 23 10 N, lon 60 22 30 W, red catoptric light, revolving every minute, visible 14 miles, 77 feet high, white octagonal building, height 33 feet. Lighted 1863.

ST. ANN'S HARBOR, on N point of Beach, lat 46 17 30 N, lon 60 32 15 W, fixed white catoptric light, visible 8 miles, 24 feet high, white building, height 30 feet. Lighted 1871. The light exhibited to find entrance through on a dark night.

INGONISH, on Island, lat 48 41 20 N, lon 60 20 W, fixed white light, dioptric, 5th order, visible 20 miles, 237 feet high, white square building, height 40 feet. Lighted 1871.

CAPE NORTH, on Money Point, 1 mile S E from Cape North, lat 47 2 10 N, lon 60 23 30 W, red and white catoptric light, revolving every 45 seconds, visible 15 miles, 74 feet high, square white wooden building, height 26 feet. Lighted 1875. Coast light; makes a complete revolution every 1½ minute.

CHETICAMP, near S end of Island, lat 46 36 30 N, lon 61 3 10 W, white catoptric light, revolving every 45 seconds, visible 20 miles, 149 feet high, white square wooden building, height 24 feet. Lighted 1872.

ST PAUL'S ISLAND, on Rock off N E point of Island, lat 47 13 50 N, lon 60 8 20 W, fixed white light, dioptric, third order, visible 20 miles, 140 feet high, white octagonal building, height 40 feet. Lighted 1839. Obscured between N by E ½ E and E N E.

ST PAUL'S ISLAND, S W point of Island, lat 47 11 20 N, lon 60 9 40 W, white dioptric light, 3rd order, revolving every minute, visible 20 miles, 140 feet high, white octagonal building, 40 feet high. Lighted 1831. Obscured when bearing from S S E to W ½ N. A fog whistle on the south side of the Island, S W of Atlantic Cove, about half a mile from the Humane Establishment, sounds once for 5 seconds in each minute during thick weather and storms.

MARGAREE, summit or middle of Sea Wolf Island, lat 46 21 30 N, lon 61 15 30 W, fixed white catoptric light, visible 21 miles, 298 feet high, square white building. Lighted 1854. To vessels in dangerous proximity to the Island the light may become obscured by the abrupt cliffs on the sides of the Island.

PORT HOOD, S E side of entrance to Harbor, lat 46 N, lon 61 31 40 W, fixed catoptric light, red N, white S, visible 10 miles, 55 feet high. Lighted 1854. Square white building.

IRON CAN BUOYS have been placed at the following Shoals:—Port Hood Harbor, C. B., Portsmouth Point, Spithead, Smith Spit, Dean Shoal, also one at Judique Shoal. Judique Shoal and Dean Shoal Buoys are painted red, the other three are painted black. These Buoys will be placed on or about the 1st of May in each year, and taken up about the 10th November.

NORTH CANSO, north entrance, west side, 120 yards inshore, lat 45 41 40 N, lon 61 29 10 W, fixed white catoptric light, visible 18 miles, 110 feet high, white square wooden building, height 35 feet. Lighted 1842. There is good anchorage under the light when the wind is off shore. Lantern on dwelling.

POMQUET ISLAND, north-east end of Island in St George's Bay, lat 45 39 40 N, lon 61 44 30 W, fixed red catoptric light, visible 9 miles, 50 feet high, square white building, height 23 ft. Lighted 1868. Obscured on easterly bearings.

CAPE ST GEORGE, north side of Caps, lat 45 52 30 N, lon 61 54 40 W, white catoptric light, revolving every half minute, visible 25 miles, 350 feet high, white square building, height 29 feet. Lighted 1861.

PICTOU ISLAND, south-east point, lat 45 49 10 N, lon 62 30 30 W, fixed white catoptric light, visible 12 miles, 52 feet high, square white building. Lighted 1853.

PICTOU HARBOR, south point of entrance, lat 45 41 30 N, lon 62 39 30 W, 2 fixed catoptric lights, vertical, 25 feet apart, upper white, lower red, visible

MACDONALD & CO., Importers of Steam Pumps, etc.—See adv. inside cover.

MACDONALD & CO., Manufacturers of Hand and Power Pumps.

MACDONALD & CO., Importers of Ships' Well Pumps.—See adv. inside cover.

11 miles, lantern 65 feet high, building octagonal, striped red and white vertically, height 55 feet. Lighted 1834. Lighted when navigation is open. A small red light is seen below lantern. By keeping light W S W vessels clear the east reefs off Picton Island.

PICTON, in tower of new Custom House, lat 45 40 50 N, lon 62 42 10 W, fixed white catoptric light, visible 8 miles, 60 feet high. Lighted 1878. In range with lights at entrance to harbor leads through the channel up to the bar.

CARIBOU ISLAND, north-east part of Island, lat 45 46 N, lon 62 42 20 W, white catoptric light, revolving every minute, visible 10 miles, 35 feet high, white square building, height 26 feet. Lighted 1868.

AMET ISLAND, centre of Island, Northumberland Straits, lat 45 50 15 N, lon 63 10 10 W, fixed white catoptric light, visible 10 miles, 44 feet high, white square wooden building, height 26 feet. Lighted 1868. Visible round horizon.

MULLEN POINT, north side of entrance to Wallace Harbor, Cumberland County, lat 45 49 45 N, lon 63 25 15 W, fixed white catoptric light, visible 11 miles, 39 feet high, white square wooden building, height 25 feet. Lighted 1873. For guiding vessels in and out of harbor. Cask buoys are placed to mark the dangers on entering the harbor, black to be left on port and red on starboard when entering.

PUGWASH, in harbor, lat 45 52 30 N, lon 63 40 20 W, fixed catoptric light, red seaward, white towards harbor, visible 8 miles, 48 feet high, white square building, height 44 feet. Lighted 1871. Black buoys to be left on port hand, and red on starboard when entering the harbor.

NEW BRUNSWICK.—Bay of Fundy.

Hillsboro' Wharf, Petitcodiac River, lat 45 55 15 N, lon 64 37 45 W, fixed white catoptric light, visible 5 miles, 14 feet high, structure open frame, height 22 feet. Lighted 1875. To guide vessels going up the river and to the coal and plaster wharves.

Grindstone, W part of Island, lat 45 43 13 N, lon 64 37 25 W, fixed white catoptric light, visible 12 miles, 60 feet high, octagonal white tower. Lighted 1854. Visible from N E by E, round by N to E by S, or 315°. Cape Enrage light house, S W by W 1/2 W, about 10 miles. In thick weather a trumpet sounds 4 blasts in every minute.

Cape Enrage, pitch of Cape, lat 45 35 34 N, lon 64 46 55 W, fixed white dioptric light, 4th order, visible 15 miles, 120 feet high, square white building, height 23 feet. Lighted 1840. Visible between the bearings of N W round by S to N E. A steam fog whistle, 150 feet N E from the light house, sounds during thick weather 4 seconds in each minute. Will probably be heard from 3 to 10 miles.

Quaco, small rock off head, lat 45 19 20 N, lon 65 31 55 W, white catoptric light, revolving every 20 seconds, visible 15 miles, 58 feet high, octagonal building, horizontally striped red and white, height 46 feet. Lighted 1835. A fog bell in a framed tower on the light house block strikes every 12 seconds during thick and foggy weather and snow storms. Under favorable circumstances it should be heard two or three miles, and in stormy weather, or against the wind, about a mile.

Cape Spencer, pitch of Cape, lat 45 12 30 N, lon 65 54 W, red and white catoptric light, alternating every 45 seconds, visible 20 miles, 207 ft. high, white square building, with tower, height 35 ft. Lighted 1873. Visible between the bearings from E S E round by S to W N W, Partridge Island light bearing by compass N W by W 1/2 W northerly, distant 6 1/2 miles.

Partridge Island, St John Harbor, lat 45 14 20 N, lon 66 3 20 W, fixed white catoptric light, visible 20 miles, 119 ft. high, building red and white in vertical stripes, height 40 ft. Lighted 1791. In foggy weather a steam whistle sounds for 10 seconds every minute. A bell buoy near E side of Partridge Island Reef.

Negro Point, on end of lat 45 14 25 N, lon high, structure Lighted 1878.

St John Harbor, lat 4 order, visible 16 height 15 feet.

Musquash, E side of light, red to seaw tower white, squa

Leprean, on Point, lat vertical, 27 feet octagonal buildi

Lighted 1831. by N. Fog whi seconds' duration

Drew's Head, on W s 66 44 W, fixed v square wooden b

between eastern Pea Point, E side of

fixed green catop wood, dwelling a round by S to N

Bliss Island, W end 45 1 15 N, lon 66 white square wo

Midjic Bluff, Passa W, fixed white c square, wood, he

E N E from lig yards to clear it

Spruce Point, St Cro white catoptric

1876. The coun tance 2 miles.

A vessel after le the Spruce Poi

Mark Point, St Cro fixed white cato Lighted 1876.

Campobello Island, white catoptric with red cross,

enter Head Ha main channel, quoddy.

Port St Andrews, catoptric light, 22 ft. Lighted by S.

On sand reef a tric light, visi

framed pier, h bay, and to ve

West Quoddy. sion of the ree South West Wolf

W, white cato

[1880]

1880]

NAUTICAL ALMANAC.

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- Negro Point, on end of Government Breakwater, W entrance to Port of St John, lat 45 14 25 N, lon 66 4 W, fixed red catoptric light, visible 8 miles, 36 feet high, structure white, with lantern red. Open frame, height 35 feet. Lighted 1878.
- St John Harbor, lat 45 15 10 N, lon 66 3 40 W, fixed white dioptric light, 4th order, visible 16 miles, 35 feet high, building vertical red and white stripes, height 15 feet. Lighted 1828.
- Musquash, E side of entrance, lat 45 8 35 N, lon 66 14 30 W, fixed catoptric light, red to seaward, white towards harbor, visible 10 miles, 112 feet high, tower white, square, wood, dwelling attached, height 40 feet. Lighted 1879.
- Lepreau, on Point, lat 45 3 40 N, lon 66 27 39 W, 2 fixed white catoptric lights, vertical, 27 feet apart, visible 15 miles, upper light 81, lower 53 feet high, octagonal building, striped horizontally red and white, height 31 feet. Lighted 1831. Visible between the bearings of W N W around by S to E by N. Fog whistle during fogs and snow storms gives two blasts of 5 seconds' duration, with an interval of 5 seconds.
- Drew's Head, on W side of Beaver Harbor, Charlotte County, lat 45 3 45 N, lon 66 44 W, fixed white catoptric light, visible 10 miles, 45 feet high, white square wooden building, height 36 feet. Lighted 1875. Seen at all points between eastern and western heads of harbor.
- Pea Point, E side of entrance to l'Etang Harbor, lat 45 2 20 N, lon 66 48 40 W, fixed green catoptric light, visible 10 miles, 51 feet high, tower white, square, wood, dwelling attached, height 31 feet. Lighted 1878. Visible from E round by S to N.
- Bliss Island, W end of Island, S side of western entrance to Bliss Harbor, lat 45 1 15 N, lon 66 51 W, fixed red catoptric light, visible 12 miles, 45 ft high, white square wooden building, height 30 ft. Lighted 1871.
- Midjic Bluff, Passamaquoddy Bay, Charlotte County, lat 45 6 53 N, lon 66 54 30 W, fixed white catoptric light, visible 15 miles, 130 feet high, building white, square, wood, height 29 feet, lantern brown. Lighted 1876. A bar extends E N E from light house, and vessels require to keep off a distance of 260 yards to clear it at low water.
- Spruce Point, St Croix River, Charlotte County, lat 45 10 N, lon 67 11 W, fixed white catoptric light, 32 ft high, white square building, height 28 ft. Lighted 1876. The course from Spruce Point to ballast ground is E by S $\frac{1}{2}$ S, distance 2 miles. From Spruce Point to Mark Point W N W, distance 2 miles. A vessel after leaving Doucet Island, to clear the reef, should steer N until the Spruce Point light bears N W by W, and thence take a W N W course.
- Mark Point, St Croix River, Charlotte County, lat 45 10 10 N, lon 67 12 30 W, fixed white catoptric light, 32 ft high, square white building, height 28 feet. Lighted 1876.
- Campobello Island, N point of Head Harbor, lat 44 57 40 N, lon 66 54 10 W, fixed white catoptric light, visible 15 miles, 64 feet high, white octagonal tower with red cross, height 34 feet. Lighted 1829. This light enables vessels to enter Head Harbor at all times. It is also a guide to vessels entering the main channel, to West Isles, Moose Island, and the inner Bay of Passamaquoddy.
- Port St Andrews, N point of entrance, lat 45 4 10 N, lon 67 2 50 W, fixed white catoptric light, 42 ft high, visible 10 miles, white octagonal building, height 22 ft. Lighted 1833. Visible between the bearings of N W by N, and S E by S.
- On sand reef at E entrance, lat 45 3 45 N, lon 67 0 50 W, fixed white catoptric light, visible 10 miles, 40 feet high, structure white, square, wood, on a framed pier, height 10 feet. Lighted 1875. To guide to all ports in inner bay, and to vessels going up the River St Croix from Letite Passage or West Quoddy. There is only a depth of 4 feet of water on the N W extension of the reef towards main land.
- South West Wolf Island, on S E point of the Island, lat 44 56 30 N, lon 66 44 10 W, white catoptric light, revolving every 14 minute, visible 17 to 20 miles,

MACDONALD & CO., Manufacturers of Copper Work for Steamers.—See adv. inside cover.

MACDONALD & CO., Hot Water and Steam Engineers.—See ins. cover.

See ins. cover.

MACDONALD & CO., Manufacturers and Fitters of Steam Heating Apparatus.—See adv. inside cover.

111 ft high, building white, square, wood, height 35 ft. Lighted 1871. Lantern on dwelling; visible from all points of approach.

Swallow Tail, N E part of Grand Manan, lat 44 45 52 N, lon 64 44 W, fixed white catoptric light, visible 17 miles, 148 feet high, white octagonal wooden building, height 50 ft. Lighted 1860. Visible between the bearings of S W round by S to N W. A steam fog whistle on extreme N W head of Grand Manan, 80 feet above high water, sounds in thick weather, fogs and snow storms, 3 blasts of 4 seconds' duration in each minute, with an interval of 16 seconds between each blast. A spindle beacon, painted red, placed in 1876 on Old Proprietor Ledge, on the S E of Grand Manan Island, in lat 44 33 10 N, lon 66 40 W, has a cage elevated 31 ft above high water mark, and in clear weather should be seen from a distance from 8 or 10 miles.

Gannet Rock, on rock, lat 44 0 38 N, lon 66 47 W, intermittent white light, dioptric, 4th order, visible 12 miles, 66 ft high, octagonal tower, height 41 ft, vertical black and white stripes. Lighted 1831. A gun is fired to answer signals during fogs and snow storms. Dangerous rocks extend 4 miles eastward of the light house. Light 45 seconds, eclipse 5 1/2 seconds, flash 4 1/2 seconds, eclipse 5 1/2 seconds in every 60 seconds.

Machias Seal Island, 2 structures, 1st near middle of Island, lat 44 30 7 N, lon 67 6 13 W, fixed white light, dioptric, 2nd order, visible 15 miles, 54 feet high, white tower, height 36 feet. Lighted 1832. In range will lead 4 1/2 miles S of Murr Ledges. 2nd, 64 yards S E from 1st, fixed white dioptric light, 3rd order, visible 14 miles, 66 feet high, white octagonal wooden building, height 53 feet. Lighted 1832, rebuilt 1878. A fog whistle sounds in thick weather, fogs and snow storms, 5 seconds in each half minute.

Gulf of St. Lawrence.

Dalhousie, south side of entrance to harbor, lat 48 3 45 N, lon 66 20 50 W, fixed white catoptric light, visible 13 miles, 49 feet high, building white, square, wood, height 33 feet. Lighted 1870. Seen from all points of approach.

Heron Island, Chaleur Bay, lat 48 N, lon 66 8 W, fixed white catoptric light, visible 15 miles, 66 feet high, building white, square, wood, height 20 feet. Lighted 1875. Visible from all points seaward.

Bathurst, on Carron's Point, lat 47 39 10 N, lon 65 36 40 W, fixed catoptric lights, one white, visible 10 miles, building white. Lighted 1871. One red, visible 14 miles, 43 feet high, tower red and white striped, square, wood. Lighted 1871, re-built 1878. These beacon lights, when in range, guide vessels into the harbor.

Caraquet, on Island, Bay of Chaleur, lat 47 49 40 N, lon 65 54 W, fixed white catoptric light, visible 14 miles, 52 feet high, white square tower on dwelling, height 48 feet. Lighted 1870.

Goose Lake, W side of Miscou Island, lat 47 55 43 N, lon 64 35 40 W, white catoptric light, revolving every minute, visible 10 miles, 40 ft high, building white, square, wood, height 28 ft. Lighted 1875. Complete revolution every two minutes.

Shippegan, on Island in harbor, lat 47 43 N, lon 64 38 W, fixed white catoptric light, visible 11 miles, 32 ft high, white square wooden building, height 20 ft. Lighted 1872.

Miscou Island, Birch Point, lat 48 1 N, lon 64 29 25 W, fixed red catoptric light, visible 12 miles, 79 ft high, building white, octagonal, wood, height 74 ft. Lighted 1856. A steam fog whistle, placed in the year 1874, and situated 107 yards east from light house, sounds in thick weather, fogs and snow storms blasts of five seconds' duration with an interval of 25 seconds between each.

Pokemouche, lat 47 40 5 N, lon 64 45 5 W, fixed green catoptric light, visible 8 miles, 35 ft high, tower white, square, wood, with dwelling attached, height 37 ft. Lighted 1876.

North Tracadie, one on N side of gully, the other outside of bar, lat 47 33 14 N,

MACDONALD & CO., Plumbers.—See adv. inside cover.

lon 64 51 35 W
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South Tracadie, N
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MACDONALD & CO.

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NAUTICAL ALMANAC.

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lighted 1871. Lan-

64 44 W, fixed octagonal wooden bearings of S W head of Grand fogs and snow an interval of 16 l, placed in 1876 d, in lat 44 33 10 er mark, and in iles.

ent white light, ower, height 41 s fired to answer end 4 miles east- econds, flash 4 1/2

t 44 30 7 N, lon 5 miles, 54 feet ge will lead 4 1/2 d white dioptric agonal wooden r whistle sounds lf minute.

20 50 W, fixed g white, square, of approach.

catoptric light, height 20 feet.

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W, fixed white ver on dwelling,

35 40 W, white t high, building elete revolution

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catoptric light, d, height 74 ft. 74, and situated fogs and snow econds between

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lat 47 33 14 N,

e cover.

- lon 64 51 35 W, 2 fixed white catoptric lights, visible 12 miles, 39 and 30 ft high, structures each 20 ft high, one white, square, wood, lighted 1872; the other open frame, lighted 1875. Coast and harbor range lights.
- South Tracadie, N side of gully, lat 47 30 N, lon 64 52 10 W, 2 fixed catoptric lights, visible 8 miles, back light red, 26 ft high, 166 yards north from front one, front light white, 20 ft high, front building an open framed white tower, 19 ft high, back building, height 26 ft, an enclosed square tower, painted red. Lighted 1877. Vessels crossing the bar from sea should steer N, keeping the lights in range. Width of bar, 2 cable lengths.
- Tabusintac, Crab Island, lat 47 18 54 N, lon 64 59 30 W, 2 fixed catoptric lights, front red, back white, visible 7 miles, 30 ft high, building white, square, wood, height 20 feet. Lighted 1873. Coast and harbor range lights.
- Neguac, lat 47 17 47 N, lon 65 3 20 W, 2 fixed white catoptric lights, visible 11 miles, 35 ft high, white square wooden building, height 20 ft. Lighted 1873. Coast and harbor range lights, situated N E side of gully.
- Portage Island, on S point of Island, lat 47 9 50 N, lon 65 2 40 W, fixed white catoptric light, visible 12 miles, 46 ft high, building white, wood, height 42 ft. Lighted 1869.
- Oak Point, Miramichi Bay, lat 47 7 40 N, lon 65 15 10 W, 2 fixed white catoptric lights, half a mile apart, visible 10 miles, 40 and 60 ft high, white wooden towers. Lighted 1869. Beacons.
- Sheldrake Island, Miramichi Bay, lat 47 6 50 N, lon 65 18 W, 2 white fixed catoptric lights, quarter of a mile apart, visible 9 miles, 48 ft high. Lighted 1873. Beacons.
- Grant's Beach, Miramichi Bay, lat 47 5 30 N, lon 65 28 10 W, 2 fixed white catoptric lights, bearing S W and N E from each other, visible 10 miles, 120 and 140 ft high. Lighted 1869. Beacons.
- Middle Island, Miramichi Bay, lat 47 0 3 N, lon 65 19 9 W, fixed white catoptric light, 45 ft high. Lighted 1874. Beacon.
- Fox Island, N W point of Island, lat 47 8 10 N, lon 65 2 30 W, and E end of Island, lat 47 6 50 N, lon 65 0 10 W, 2 fixed white catoptric lights, 1/4 mile apart, visible 10 miles, 50 and 30 ft high. Beacons to guide vessels through the Swashway Channel. Latter lighted 1872.
- Miramichi Bay Lightship, Horseshoe Bar, between Fox and Portage Islands, lat 47 8 N, lon 65 3 W, fixed red catoptric light, visible 8 miles, 35 ft high. Lighted 1873. A schooner rigged ship.
- Preston Beach, Miramichi Bay, lat 47 4 50 N, lon 65 54 40 W, 2 fixed white catoptric lights, visible 10 miles, 55 and 66 ft high. Lighted 1869. Beacons.
- Escuminac, on Point, lat 47 4 32 N, lon 64 47 30 W, fixed white dioptric light, 3rd order, visible 14 miles, 70 ft high, white wooden building, height 58 ft. Lighted 1841. A steam fog whistle, situated 100 yards W of the light house, sounds in thick weather, fogs and snow storms, 10 seconds in each minute, with an interval of 50 seconds between each blast. It should be heard from 3 to 11 miles, according to the state of the weather.
- Richibucto Head, on headland, lat 46 39 40 N, lon 64 42 30 W, fixed white dioptric light, 4th order, visible 14 miles, 70 ft high, white square building, height 50 ft. Lighted 1864.
- Cassie's Point, on Point, lat 46 19 15 N, lon 64 30 20 W, white catoptric light, revolving every half minute, visible 14 miles, 40 ft high, white square wooden building, height 27 ft. Lighted 1872.
- Shediac Island, lat 46 15 20 N, lon 64 31 50 W, 2 fixed white catoptric lights, visible 10 miles, 48 and 56 feet high. Lighted 1869. Beacons.
- Shediac Harbor, Duchene Wharf, lat 46 14 20 N, lon 64 31 W, fixed white catoptric light, visible 6 miles, 15 ft high, on a pole. Lighted 1860. Not under Marine Department.

MACDONALD & CO., Manufacturers of Composition Rudder Braces.—See inside cover.

MACDONALD & CO., Manufacturers of Manrope Stanchions.—Ins. cover.

Jourimain, on Cape, lat 46 10 N, lon 63 48 30 W, flash white catoptric light, 10 seconds, visible 14 miles, 72 ft high, white octagonal tower, height 45 ft. Lighted 1870, changed 1878. Visible from S E round by N to W.

PRINCE EDWARD ISLAND.

North Point, on point, lat 47 3 46 N, lon 63 59 10 W, white catoptric light, revolving every minute, visible 14 miles, 80 feet high white octagonal building, height 60 feet. Lighted 1866, changed 1875.

West Point, on sand beach, lat 46 37 30 N, lon 64 23 10 W, catoptric red and white revolving light, one red and three white flashes in 1 1/4 minute; greatest brilliancy every 22 1/2 seconds, visible 13 miles, 66 feet high, square wooden building, broad red and white horizontal bands, height 67 ft. Lighted 1876.

Summerside, Railway wharf, Bedeque Bay, lat 46 23 25 N, lon 63 47 30 W, fixed white catoptric light, visible 10 miles, 33 feet high, square tower on roof of railway freight shed, height 30 feet. Lighted 1856, rebuilt 1877.

Indian Point, east side Bedeque Bay, pier light, in course of erection, on the edge of the shoal off this point.

Sea Cow Head, or Salutation Head, lat 46 19 10 N, lon 63 48 20 W, fixed white catoptric light, visible 15 miles, 88 feet high, white octagonal building, height 60 feet. Lighted 1863.

Crapaud, lat 46 13 N, lon 64 8 W, fixed white catoptric light, visible 3 miles, 30 feet high, post. In course of erection.

Blockhouse Point, at W side of entrance to Charlottetown Harbor, lat 46 11 36 N, lon 63 7 28 W, catoptric fixed lights, 2 in one tower, 21 feet apart, vertically, white, visible 12 miles, 56 feet high, red 35 feet, visible 3 miles, building white, square, wood, with dwelling and signal mast attached, height 42 feet. Lighted 1851, rebuilt 1876. The lower light is a streak from a window of the tower, showing only towards the bell buoy. Vessels entering, on coming into this streak, should steer for the light until they make the bell buoy. They should then steer N by E 1/2 E for 2 1/2 miles, when the port buoy will be made. They should then steer for the entrance to the harbor N 1/2 E.

Point Prim, S E extremity of Hillsborough Bay, 100 yards from the point, lat 46 3 10 N, lon 63 2 W, fixed white catoptric light, visible 12 miles, 68 feet high, building white, circular, brick, height 55 feet. Lighted 1846. Bell buoy on east side of Channel, black buoy on W side, 2 1/2 N by E 1/2 E from bell buoy harborward.

Wood Island, off south point, lat 45 57 22 N, lon 62 44 30 W, fixed white light, dioptric, 4th order, visible 15 miles, 80 feet high, tower white, square, wood, with dwelling attached, height 40 feet. Lighted 1876.

Little Sands, about a mile east of Little Sands Village, lat 45 57 53 N, lon 62 39 W, fixed red catoptric light, visible 5 miles, 50 feet high, in a gable window of a house, height 20 feet. Lighted 1877. For guidance of fishing boats.

Murray Harbor, 2 lights, one on edge of sand bar, south side of harbor, the other on mainland, about a mile W by S from front light, lat 46 1 28 N, lon 62 28 25 W, 2 fixed white catoptric lights, one mile apart, visible 5 miles, height 30 feet. Lighted 1869. In one, these range lights show the channel to the outer buoy. New towers are in course of construction.

Panmure Head, S E extremity of Cardigan Bay, lat 46 8 55 N, lon 62 27 40 W, fixed white catoptric light, visible 16 miles, 96 feet high, white octagonal wooden building, height 50 feet. Lighted 1853. This light should be kept open off Terras Point, to clear reef off Cape Bear.

Georgetown, St. Andrew's Point, lat 46 9 57 N, lon 62 31 23 W, fixed catoptric light, red, seaward, visible 10 miles, 36 feet high, building white, square, wood, height 20 feet. Lighted 1868.

MACDONALD & CO., Manufacturers of Engineers' Brass Goods.—See adv. inside cover.

MACDONALD & CO., Makers of Tumbler Racks, etc.—See inside cover.

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PICKFORD & BLACK, Importers of Refined Iron Clinch Rings.

1880]

NAUTICAL ALMANAC.

53

East Point, 200 yards inshore from south part of point, lat 46 27 9 N, lon 61 58 15 W, white catoptric light, revolving every three minutes, visible 17 miles, 130 feet high, building white, octagonal, wood, height 60 feet. Lighted 1867, changed 1878.

St. Peter's, 2 lights, one on outer end of breakwater, lat 46 26 30 N, lon 62 44 30 W, fixed white light, visible 6 miles, 34 feet high, white square wooden tower, height 35 feet. Lighted 1865. The other light on Sand Beach, St. Peters, 126 yards S W by S from front light, also fixed white, and visible 6 miles, 32 feet high, white square open frame, height 33 feet. Buildings erected 1879. Range lights to lead into harbor.

Tracadie, on beach, west side of channel, 233 yards N E by N, from back light lat 46 25 20 N, lon 63 2 30 W, 2 fixed red catoptric lights, visible 10 and 9 miles, height 30 and 19 feet, open square frame work, lanterns white, 32 and 21 feet high. Lighted 1876. In one, lead through channel over the bar.

South or Little Rustico, south-east end of Robinson's Sound, about 3 miles S E of Grand Rustico, lat 46 26 25 N, lon 63 13 38 W, 2 fixed white catoptric lights, visible 6 miles, 26 and 17 feet high, on masts, height 22 and 14 feet. Lighted 1875. In one, lead through the channel at entrance to harbor.

North or Grand Rustico, west side of entrance to harbor, lat 46 27 28 N, lon 63 17 W, 2 fixed catoptric lights in one tower, 16 feet apart vertically, upper white, lower red, visible 10 and 3 miles, 40 and 24 feet high, white square tower, with dwelling attached, height 35 feet. Lighted 1876. The lower light is a streak shown from a window, 16 feet below the main light, and can be seen only when vessels are in range with the channel.

New London, W side of entrance to Grenville harbor, lat 46 31 10 N, lon 63 28 45 W, 2 fixed catoptric lights in one tower, 16 feet apart vertically, upper red, lower white, visible 10 and 3 miles, height 40 and 24 feet, tower white, square, wood, with dwelling attached, 35 feet high. Lighted 1876. The lower light is a streak shown from a window, 16 feet below the main light, and can be seen only when vessels are in range with the channel. It is intended to replace the streak light by a range light.

Fish Island, entrance to Malpeque or Richmond Bay, on inside of Island, lat 46 34 44 N, lon 63 42 29 W, 2 fixed white catoptric lights, 400 yards apart, E by S and W by N, visible 12 and 6 miles, and 50 and 18 feet high, towers, higher, white, square wood, with dwelling attached, 46 ft high, lighted 1856, rebuilt 1876; lower, open frame work, lantern white, height 22 ft. Lighted 1876. The main light is a sea light. The smaller one, in range with it, shows the channel over the bar.

Little Channel, or Conway Inlet, N side, lat 46 40 N, lon 63 52 40 W, 2 fixed white catoptric lights, 66 yards apart, one visible 10 miles, 26 feet high, white square building, height 30 ft; the other visible 8 miles, 16 ft high, building open frame work, lantern white, 20 ft high. Lighted 1872; buildings erected 1876. In one, lead through channel at entrance to harbor.

Cascumpec, S W part of Sandy Island, lat 46 48 22 N, lon 64 2 15 W, 2 fixed catoptric lights, 218 yards apart, E by S and W by N, main white, visible 12 miles, 45 feet high, tower white, square wood, with dwelling attached, height 41 ft; lighted 1856, rebuilt 1876; range light red, visible 6 miles, 18 ft high, open frame work, lantern white, 22 ft high, lighted 1876. The main light is a sea light. The smaller one, in range with it, shows the channel over the bar.

Big Tignish, lat 46 57 27 N, lon 63 59 20 W, 2 fixed white catoptric lights, 345 yards apart, E and W, visible 6 miles, front light on outer end of breakwater, on N side of entrance to harbor, 17 ft high, back light on shore, at S side of entrance, 26 ft high, lanterns on masts, height, front 17 and back 27 ft. Lighted 1877. In one, lead through channel at entrance to harbor.

MACDONALD & CO., Manufacturers of Plumbers' Brass Goods.—See adv. inside cover.

MACDONALD & CO., Importers of Engineers' Rubber Goods.—See cover.

NEWFOUNDLAND.

- Cape Norman, Straits of Belle Isle, lat 51 38 N, lon 55 58 40 W, white catoptric light, revolving every two minutes, visible 20 miles, 138 ft high, white hexagonal tower, height 40 feet. Lighted 1871. Visible from all points of approach seaward.
- Point Rich, Straits of Bell Isle, lat 50 41 50 N, lon 57 27 40 W, flash white catoptric light, every 15 seconds, visible 18 miles, 130 feet high, white hexagonal tower, height 40 ft. Lighted 1871. Visible from all points of approach seaward.
- Cape Ray, on W side of cape, lat 47 37 N, lon 59 18 W, flash white catoptric light, every 10 seconds, visible 20 miles, white hexagonal tower, 41 ft high. Lighted 1871. At a long distance flashes not observed. A fog whistle is blown in thick and foggy weather and during snow storms, 10 seconds in each minute, leaving an interval of 50 seconds between each blast. Heard from 3 to 10 miles, according to the state of the atmosphere and wind.

[Arranged from Wood's Newfoundland Almanac.]

Height of light from the level of the sea.

- Long Point, Twillingate, lat 49 41 N, lon 54 49 W, revolving white light, every 30 seconds, visible 27 miles, 335 feet high, tower red, keeper's dwelling detached, white with red roof. Lighted 1876.
- Can Island, Seldom-come-by, lat 49 35 5 N, lon 54 10 35 W, fixed white light, dioptric 8th order, 85 feet high, visible 12 miles, tower and dwelling of wood and attached. Lighted 1874. This light illuminates an arc of the horizon of 270°.
- Offer Wadham Island, lat 49 16 N, lon 53 45 W, fixed white light, 100 feet high, visible 15 miles, circular brick tower, dwelling white and detached. Lighted 1858.
- Puffin Island, Greenspond, lat 49 3 37 N, lon 53 32 27 W, fixed red dioptric light, 4th order, 85 feet high, visible 12 miles, lighthouse granite with dwelling attached. Lighted 1872. The light is visible from N by E through S to W by N by compass.
- Cape Bonavista, lat 48 41 50 N, lon 53 5 20 W, revolving light, alternately white and red every 90 seconds, 150 feet high, visible 18 miles. Lighted 1843. By keeping this light open with Cape L'Argent, it will carry you clear the Flower Rocks.
- Green Island at the entrance of Catalina Harbor, Trinity Bay, lat 48 30 16 N, lon 53 2 40 W, fixed white light, 92 feet above high water, visible from E N E seaward to S W 15 miles. Lighted 1857. Vessels bound northward by keeping this light open with the North Head of Catalina until Bonavista light opens with Cape Le Jean, will give the Flower Rocks an ample berth—or when coming from northward and bound for Catalina, by giving the N Head a moderate berth, will clear the Brandies Rocks by steering for Green Island light.
- Fort Point, Trinity, lat 48 21 55 N, lon 53 20 51 W, fixed white dioptric light, 8th order, visible 11 miles, upon a wooden tower painted white, 75 feet high; this light illuminates an arc of the horizon of 320°. Lighted 1873. In entering the harbor the light must be kept on the port hand.
- Baccalieu Island, northern end, lat 48 8 51 N, lon 52 47 50 W, white revolving light, showing a flash every 20 seconds, height 443 feet above high water, visible 30 miles, brick tower, dwelling white with red roof, detached from the tower. Lighted 1858. When the southern end of the island bears N N E, the light will not be visible when nearer the island than 8 miles.

MACDONALD & CO., Manufacturers of Brass Sliding Door Rollers.—See adv. inside cover.

Brass Hinges, Hasps and Locks at MACDONALD & CO.'S—See ins. cover.

- Carbonear Island order, 195 feet the whole height
- Harbor Grace Island flashes follow 30 seconds, visible
- Harbor Grace Island white light, entrance of the fair or light or building, on which
- Cape St. Francis order, 123 feet
- Cape St. Francis Siren Trump seconds and painted white square block
- Fort Amherst, a fixed white Cape Spear at this fort harbor.
- St. John's, 2 re Narrows. The upper angle of the during the another on keeping these
- Cape Spear, lat visible 26 miles
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- Ferryland Head, 200 feet high detached from
- Cape Race, lat ward from miles, tower Beacon, white
- Cape Race Stea S of the light with interval ing to the w
- Cape Pine, lat 26 miles, iron
- Cape St Mary's, order, produced feet high, visible Lighted 186

Brass Ventilato

[1880

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See ins. cover.

1880]

NAUTICAL ALMANAC.

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- Carbonear Island, lat 47 44 24 N, lon 53 9 22 W, fixed white dioptric light, 8th order, 195 feet high, visible 16 miles, tower and dwelling in one building; the whole horizon is illuminated. Lighted 1878.
- Harbor Grace Island, lat 47 42 45 N, lon 53 8 15 W, revolving light, 2 white flashes followed by one red flash, each attains its greatest brilliancy every 30 seconds, visible 25 miles
- Harbor Grace Beach Beacon and Light, lat 47 41 28 N, lon 53 12 35 W, fixed white light, 40 feet high, in a white tower on the point of beach at the entrance of Harbor Grace, visible 11 miles. Lighted 1850. Entering with a fair or leading wind bring it to bear W or W by S, and by keeping the light or building a little on the starboard bow, it will bring you clear of the bar, on which at low water there are not more than 8 feet of water.
- Cape St. Francis, lat 47 48 30 N, lon 52 46 50 W, fixed red dioptric light, 5th order, 123 feet high, visible 12 miles. Lighted 1876.
- Cape St. Francis Fog Alarm. During thick weather and snow storms a powerful Siren Trumpet will be sounded 5 seconds and silent 5 seconds—sounded 5 seconds and silent 45 seconds in each minute. The buildings are of wood, painted white—the roofs flat, lantern on higher roof elevated above it on a square block; the lower building is the fog alarm house. Lighted 1877.
- Fort Amherst, at the entrance of St. John's, lat 47 35 54 N, lon 52 40 18 W, fixed white light, 114 feet high, visible 16 miles. Lighted 1850. When Cape Spear is enveloped in fog a heavy piece of ordnance is also discharged at this fort every hour during daylight, to assist vessels in making the harbor.
- St. John's, 2 red lights intended as leading marks for vessels entering the Narrows. The lower light is on a mast on the roof of the Custom House. The upper light (400 yards in the rear) in a small tower, near the N E angle of the Congregational Church, and 180 feet high. As leading marks during the day there is a disc on the mast head on the Custom House, and another on the apex of the tower roof—the discs are painted white. By keeping these lights or discs in line the largest vessels will clear all dangers.
- Cape Spear, lat 47 31 11 N, lon 52 36 59 W, white light, revolving every minute, visible 26 miles, 264 feet high. Lighted 1835.
- Cape Spear Alarm. A Trumpet, sounding by the escape of compressed air, was placed in 1878 at this station, in a wooden building on the Bill of the Cape, nearly 600 yards N N E from the light house. It will be sounded for 7 seconds of each minute during thick weather or snow storms. The range of sound will probably be from 1½ to 10 miles, according to the direction and intensity of the wind or other atmospheric disturbance.
- Ferryland Head, lat 47 0 58 N, lon 52 51 7 W, fixed white light, of the 3rd order, 200 feet high, visible 16 miles, red brick tower, dwelling white with red roof, detached from the tower. Lighted 1871.
- Cape Race, lat 46 39 30 N, lon 53 4 30 W, revolving white light, visible to seaward from N E by E round by the S E and S W, 180 feet high, visible 19 miles, tower striped red and white vertically. It stands close to the old Beacon, which has been cut down. Lighted 1856.
- Cape Race Steam Fog Alarm, a powerful steam whistle, placed about 250 feet S of the light house, sounded during thick weather or snow storms 10 seconds, with intervals of 50 seconds in each minute, heard from 10 to 30 miles, according to the wind and weather.
- Cape Pine, lat 46 37 4 N, lon 53 31 48 W, fixed white light, 314 feet high, visible 26 miles, iron tower. Lighted 1851.
- Cape St Mary's, lat 46 49 30 N, lon 51 11 34 W, revolving catoptric light, 1st order, producing alternately every minute a brilliant red and white light, 300 feet high, visible 26 miles, brick tower, white dwelling on each side, roofs red. Lighted 1860.

Residences and Public Buildings Fitted with Hot Water Heating Apparatus, by MACDONALD & CO.—See inside cover.

Brass Ventilators made by MACDONALD & CO.—See adv. inside cover.

Residences and Public Buildings Fitted with Steam Heating Apparatus, by MACDONALD & CO.—See adv. inside cover.

Dodding Head, Great Burin Island, lat 47 0 27 N, lon 55 8 47 W, revolving catoptric light, 2nd order, producing a brilliant white light every minute, 430 feet high, visible 29 miles. Lighted 1858.

Brunet Island, Mercier's Head, Fortune Bay, lat 55 59 30 N, lon 47 16 W, flashing white light, greatest brilliancy every 10 seconds, 408 feet high, visible 35 miles in every direction from N round E and S to W N W.

Garnish, Fortune Bay, lat 47 14 N, lon 55 24 W, a beacon tower of wood carrying an octagon and lantern, in which a red light is exhibited.

Belloram, Fortune Bay, lat 47 29 N, lon 55 27 15 W, fixed white light, 35 feet high, visible 7 miles, white wooden tower. Lighted 1873. In entering the harbor the light must be kept on the port hand.

Rocky Point, Harbor Breton, Fortune Bay, 47 27 30 N, lon 55 47 45 W, a square wooden tower, carrying an octagon and lantern, in which a fixed white light will be exhibited. The apparatus is dioptric, of the 8th order, a single argand burner, with a red light to mark the Harbor Rock.

Beacon, Ireland's Eye, entrance of La Poile Bay, a square white building, with three black bands, has been erected on this Island; it is 75 feet high and supported on four chains.

Boar Island, Burges, lat 47 36 12 N, lon 57 35 13 W, fixed red dioptric light, 6th order, 240 feet high, visible 17 miles, tower wood, on dwelling. Lighted 1874.

Rose Blanche Point, lat 47 35 48 N, lon 58 41 30 W, fixed white dioptric light, 4th order, 95 feet high, visible 13 miles, granite light house, upon the eastern head, dwelling and tower attached. Lighted 1873. The light illuminates the horizon from E by S through S to W by compass. Shag Island Black Rock bears W from the light, and distant about a mile. Rose Blanche shoals W S W half a mtle, and Petites Black Rock E by S 3 miles.

Gallantry Head, Island of St Peter's, lat 46 45 30 N, lon 58 27 W, flash light, one red after two white flashes, with intervals of 20 seconds, about 204 feet high, visible 18 miles. The light is hidden at the northward by the high land of St Peter's.

South entrance of St Peter's. The entrance of the harbor of St Peter's, called South Channel, is marked by 2 small fixed lights—one white, illuminating $\frac{1}{2}$ of the horizon, and placed on the Battery; the other red, on the plain at the N of the town—white light 11 metres high, visible 6 miles, red 19 metres high, visible 3 miles. The line connecting these two lights indicate the middle channel. As soon as the red light is seen on the left of Cape Eagle, vessels coming from Columbiar in beating into the N E entrance will have nothing to fear from the shoals of Cape Rouge.

Island of Dogs, called Pointe a Leconte. A light is exhibited on the S W point of this Island, at the place called Point a Leconte, 437 feet high, visible 7 miles; the extent of the light is circumscribed in a sector of 163°, presenting two cones of light, one white, of 40°, will light the passage of the S E, so as to permit vessels which maintain position within this cone to avoid at the right the shoal Bataille, and to the left the rock of Cape Noir and the rock Bertrand. The second cone is red, of 123°; it should be avoided by vessels entering by the S E passage, and will enable them, when they have quitted the white cone, to come to anchor in the roadstead or in the Barachois, in following the line of the white light from Pointe aux Canons, and of the red light from the interior of the city.

Point Verde, Great Placentia, lat 47 14 11 N lon 54 19 W, a fixed white light will be exhibited nightly, from sunset to sunrise, 98 feet above the level of the sea, and should be visible in clear weather 11 miles. The tower and dwelling are of wood and attached, the vertical parts of the building are painted white, the roof of the dwelling is flat. Lighted 1879. The illuminating apparatus is dioptric of the 5th order, with a single argand burner. The whole water horizon is illuminated.

Iron Pipe, all sizes, at MACDONALD & CO.'S.—See adv. inside cover.

LIGHTS

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LIGHTS IN THE WEST INDIA ISLANDS AND ADJACENT COASTS.

[Corrected to the 31st Dec., 1877.—Arranged from the Admiralty List.]

ABBREVIATIONS AND EXPLANATIONS.

LIGHTS.

- Fixed, or Steady.
- Flashing. Showing flashes at short intervals, or groups of flashes at regular intervals.
- Revolving. Light gradually increasing to full effect, then decreasing to eclipse. [At short distances and in clear weather a faint continuous light may be observed.]
- Fixed and Flashing. Fixed light, with addition of white or coloured flashes preceded and followed by a short eclipse.
- Intermittent or Occulting. A light suddenly and totally eclipsed. When light between eclipses visible less than 30 seconds, term *occulting* applied. When light visible longer than half minute, term *intermittent* applied.
- Alternating. Red and White light alternately at equal intervals, without any intervening eclipse.

ABBREVIATIONS.

Da, Danish; Du, Dutch; E., English; Fr, French; Pan, Panama; N. G., Neuva Grenada; Spa, Spanish; V., Venezuela.

The bearings are magnetic and are given from seaward. The given distances from which the lights are visible are calculated from a height of fifteen feet above the sea, the elevation of the lights being in nearly all cases taken as above high water. The Geographical positions of the Lights must be considered as approximate.

WEST INDIA ISLANDS, ETC.

- Barbadoes I. (E.)** Ragged Point (300 yards within), east extreme of the Island, lat 13° 9' 55" N.; lon. 59° 25' 35" W., white dioptric light, 2nd order, revolving every 2 minutes, 213 feet to centre of lantern, visible in clear weather at 21 miles. Round white coral stone house, 97 feet from base to vane. Lighted, 1875. On account of the prevailing strong current running westward on to the Cobblers, a cluster of dangerous reefs, 2½ miles to the south-east of Ragged Point, mariners are cautioned in closing the land to keep well to the north-eastward of the light.
- South Point**, 200 yards from the shore, lat. 13° 2' 55" N., lon. 59° 31' 20" W., catoptric red light, 3rd order, revolving every minute, visible at 18 miles, house alternate red and white bands, centre of lantern 145 feet high, building 90 feet from base to vane. Does not show until it bears to the westward of S. W. by W., and should be kept well open in order to clear the Cobbler Reefs. Lighted 1852.
- Carlisle Bay, Needham Point**, lat. 13° 4' 55" N., lon. 59° 36' 20" W., fixed dioptric light, centre of lantern 30 feet high. Red north of east, and white south of east. Indifferent light. Reported to show white in all directions. Lighted 1850.
- Tobago I. (E.)** Scarborough, Bacolet or Red Point, lat 11° 10' N., lon. 60° 44' W., fixed white dioptric light, visible 12 miles, pentagon tower, white. Visible between the bearings of E. N. E. and S. W. by W. Lighted 1842. When the mail steamer is expected two red leading lights are shown from two white beacons 83 yards apart, at the west end of the Lower Town of Scarborough.

MACDONALD & CO., Manufacturers of Composition Butt Bolts—See inside cover.

Brass Hinges, Hasps and Locks at MACDONALD & CO.'S—See inside cover.

MACDONALD & CO., Manufacturers of Plumbers' Brass Goods.—See adv. inside cover.

- Trinidad I.* (E.) Icacos Point, the S. W. extremity, fixed white light, visible 5 miles, white mast, centre of lantern 39 feet high.
- Port Espana, on jetty, lat. 10 38 40 N., lon. 61 31 W., fixed white dioptric light, 4th order, visible 10 miles. Hexagonal tower, centre of lantern 50 feet high, building 43 ft. from base to vane. Visible between the bearings of N. E. by N. and S. E. Lighted 1841.
- Grenada, Fort George, lat. 12 N., lon. 61 45 W., fixed white light, visible 3 to 4 miles, on flag staff. Lighted 1877. For mail steamer when expected.
- St. Vincent I. (E.) Fort Charlotte, lat. 13 9 10 N., lon. 61 14 15 W., fixed white light, visible 6 miles, centre of lantern 640 ft. high. For mail steamer when expected. Lighted 1858.
- St. Lucia I.* (E.) Tapion Battery, south side of entrance to Castries Harbor, lat. 14 1 30 N., lon. 61 0 50 W., fixed red light, visible 3 miles, centre of lantern 80 ft. high. For mail steamer when expected. Lighted 1843.
- Vielle Ville Shoal, fixed red light, red perch. For mail steamer when expected. Lighted 1868.
- Cocoa Nut Shoal, fixed green light, red perch. For mail steamer when expected. Lighted 1868.
- Martinique I.* (Fr.) Pointe des Negres, in the fort, lat. 14 36 N., lon. 61 9 30 W., fixed white light, visible 11 miles red mast, centre of lantern 62 feet high, height of mast, 15 feet. Lighted 1855.
- S. W. part of Fort St. Louis, fixed red light, visible 3 miles, centre of lantern 131 feet high. The buoy at the southern extremity of St. Louis bank exhibits a white light, and the buoy at the south-east extremity a red light, at the arrival or departure of the mails, or when required.
- St. Marthe Point, St. Pierre, lat. 14 44 5 N., lon. 61 10 45 W., fixed white light, visible 5 miles. Lighted 1860.
- Westward of former, fixed lights, visible 5 miles. Red to the northward, blue to the westward, and green to the southward. The white and blue lights in line lead to the anchorage. Lighted 1860.
- Edge of the bank St. Pierre Bay, fixed white light, visible two miles, lighted on the day the mail is expected, and for 3 nights after if not arrived. Lighted 1860.
- Caravelle Peninsula, Caracoli Mount, $\frac{1}{2}$ mile inland, lat. 14 46 20, lon. 60 52 50, fixed white dioptric light, 1st order, visible 24 miles, white tower, centre of lantern 410 feet high. Lighted 1862.
- Dominica I. (E.) Roseau Bay, extremity of Mole, lat. 15 17 30 N., lon. 61 23 35 W., fixed red light on a flag staff. When mail steamer is expected. Lighted 1867.
- Gaudaloupe I.* (Fr.) Petite Terre, 202 yards from eastern part, lat. 16 10 30 N., lon. 61 5 5 W., fixed white dioptric light, 3rd order, visible 15 miles, centre of lantern 108 feet high, building 75 feet from base to vane.
- Gozier Islet, lat. 16 11 55 N., lon. 61 29 5 W., fixed white light, visible 7 miles.
- Manroux Islet, lat. 6 13 15 N., lon. 61 31 30 W., fixed white light in lantern.
- Pointe a Pitre. White light. When the mail is expected a red light is exhibited at the outer buoy, a white light at the buoy marking the reef at Cassan Island, and from a beacon on the shoal opposite Fouillole, and green lights at the buoys on the starboard side of the channel, and at the mooring buoy.
- Porte le Moule, lat. 16 20 N., lon. 61 20 5 W., fixed white light, visible 7 miles. Lighted 1858.
- Basse Terre on Mole, lat. 16 0 15 N., lon. 61 44 50 W., 2 fixed red lights, visible 9 miles. Lighted 1865.
- Antigua I.* (E.) English Harbor, Fort Berkeley, 16 59 50 N., lon. 61 45 35 W., three triangular fixed lights on a staff, 5 yards apart, visible 8 miles, centre of lantern 62 feet high, building 42 feet from base to vane. Temporary, for mail steamer when expected. The upper light red, lower white. Lighted 1843.

Iron Pipe, all sizes, at MACDONALD & CO.'S.—See adv. inside cover.

- Sandy Island visible 13 miles building 53 feet high, W. clears the Hurst and In Mariagalante I. visible 7 miles
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- St. Christopher I. fixed red light to vane, cent
- St. Martin Island visible 8 miles
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1880]

NAUTICAL ALMANAC.

59

.... Sandy Island, lat. 17 6 50 N., lon. 61 54 30 W., fixed white catoptric light, visible 13 miles, black wooden structure, centre of lantern 56 feet high, building 53 feet from base to vane. The light kept on the bearing of S. S. W. clears the Diamond Bank, and when kept bearing N. by E. clears the Hurst and Irish banks and the shoals to the southward. Lighted 1875.

Mariagalante I. Grand Bourg, lat. 15 34 N., lon. 61 17 W., fixed white light, visible 7 miles, centre of lantern 45 feet high. Lighted 1867.

Montserrat I. (E.) On beach at Plymouth, lat. 16 42 10 N., lon. 62 13 W. A white light from a lantern is shown when mail schooner is expected.

St. Christopher I. (E.) On beach at Basse Terre, lat. 17 18 N., lon. 62 42 50 W., fixed red light, visible 4 miles, light house wooden frame, 33 feet from base to vane, centre of lantern 37 feet high. Lighted 1846.

St. Martin Island, Old Fort of Amsterdam, Grande Bay, fixed white light, visible 8 miles, centre of lantern, 150 feet high. Lighted 1875.

Sombrero I. (E.) On the S. E. side of the Island, one-third its length, from South Point, lat. 18 35 35 N., lon. 63 27 50 W., white light, revolving every minute, dioptric, 2nd order, visible 20 miles, red open iron frame work, centre of lantern 150 feet high, structure 132 feet from base to vane. Lighted 1868.

Virgin Islands (Da.) St. Thomas, east side of entrance, Mohlenfel's Point, lat. 18 19 20 N., lon. 64 53 10 W., white fixed light, visible 12 miles, dioptric, 5th order, light house white, centre of lantern 118 feet high. Lighted 1844.

Santa Cruz or St. Croix Island, (Da.) Frederickstadt Fort, lat. 17 42 40 N., lon. 64 52 40 W., fixed white light, visible 4 miles. Lighted 1857.

.... Christianstadt Fort, lat. 17 43 25 N., lon. 64 41 30 W., fixed white light. Lighted 1857.

Puerto Rico Island, (S.) Morro Point, Port San Juan, lat. 18 28 40 N., lon. 66 6 40 W., white fixed and flash light, a flash of 5 seconds every minute, visible 18 miles, centre of lantern 171 feet high, tower white octagonal, iron. Lighted 1876.

.... Mayaguez Bay, Pier Head. Fixed red light. Harbor light.

Santo Domingo I. San Jose fort, lat. 18 28 5 N., lon. 69 52 30 W., fixed white light, visible 9 miles, cupola white, centre of lantern 113 feet high, building 100 feet from base to vane. Lighted 1853. None of the lights at the Island of Santo Domingo are to be depended upon.

Jamaica I. (E.) Morant Point, lat. 17 55 5 N., lon. 76 11 40 W., white light, revolving every minute, visible 15 miles, white iron tower, 96 feet from base to vane, centre of lantern 115 feet high. Visible when bearing from about N. N. E. $\frac{1}{2}$ E. round by west to S. E. by S. Lighted 1842.

.... Plum Point, 66 yards northward of point, lat. 17 55 45 N., lon. 76 47 20 W., fixed light, visible 12 miles, light house white, centre of lantern 68 feet high. Red when seen between the bearings of N. W. by W. $\frac{1}{2}$ W., and N. $\frac{1}{2}$ E. White from N. $\frac{1}{2}$ E. round by E. to S. E. Lighted 1854.

.... Fort Augusta, lat. 17 58 N., lon. 76 52 20 W., single lamp suspended from the Beacon, centre of lantern 40 feet high. White and red light. The white light visible to the south and west, and the red to the eastward.

CUBA AND BAHAMA ISLANDS.—Cuba with its Islands.

Santiago de Cuba, (Spa.) 100 yards east of the Morro Castle, lat. 19 57 40 N., lon. 75 54 20 W., white dioptric light, 4th order, revolving every two minutes, visible 15 miles, light house white, iron, 20 feet from base to vane, centre of lantern 226 feet high. Lighted 1861.

Cape Cruz, on Cape, lat. 19 50 N., lon. 77 44 30 W., white light, fixed and flash every 3 minutes, dioptric, 2nd order, visible 16 miles, stone light house, centre of lantern 114 feet high, keeper's dwelling yellow. Lighted 1871.

Port Xagua, or Cienfuegos, Colorado, east point of entrance, lat. 22 1 N., lon. 80 30 W., white light, fixed and flash, dioptric 3rd order, visible 14 miles, light house Villa Nueva, thereon, 45 feet from base to vane, centre of lantern 81 feet high. Lighted 1851.

Lead Scupper Pipes, all sizes, at MACDONALD & CO'S—see ins. cover.

Vessels Fitted with Plumbing Fixtures, by MACDONALD & CO. See adv. inside cover.

- Cochinos Bay, north part of Cay Piedras, lat. 21 58 N., lon. 81 3 W., fixed white light, dioptric 4th order, visible 7 miles, light house brown, 26 feet from base to vane, centre of lantern 30 feet high. Over keeper's dwelling. Lighted 1863.
- Batabano, lat. 22 41 25 N., lon. 82 18 20 W., fixed white light, visible 3 miles, lantern on mast 31 feet high. Lighted 1854.
- Ile of Pines, lat. 21 26 N., lon. 83 6 W., revolving light, dioptric 2nd order, visible 16 miles. Proposed.
- San Antonio, (Spa.) on Cape, lat. 21 52 50 N., lon. 84 58 W., white light, revolving every 1 minute, dioptric 2nd order, visible 20 miles, light house Roncalli thereon, height 107 feet from base to vane, centre of lantern 117 feet high. Lighted 1863.
- Jutias, on Cay, lat. 22 43 20 N., lon. 84 6 30 W., fixed and flash light, dioptric 2nd order. Proposed.
- Gobernadora, on Point, lat. 23 N., lon. 83 13 10 W., revolving light, dioptric 2nd order, visible 15 miles, centre of lantern 110 feet high. Proposed.
- Havana, Morro Castle, east side of entrance, lat. 23 9 30 N., lon. 82 22 10 W., white light, fixed and flash, every 1/2 minute, dioptric 1st order, visible 21 miles, light house O'Donnell thereon, stone color, height 79 feet from base to vane, centre of lantern 141 feet high. The light is extinguished for 10 minutes after midnight to clean and trim the lamps. Lighted 1845.
- Guanos, on Point, lat. 23 9 N., lon. 81 42 W., revolving light every minute, dioptric 3rd order, centre of lantern 93 feet high. Proposed.
- Cardenas Bay, Piedras Cay, lat. 23 14 20 N., lon. 81 7 15 W., white light, fixed and flash, dioptric, 4th order, red flash every 1/2 minute, visible 15 miles, tower on house, white, 67 feet, centre of lantern 74 feet high. Lighted 1857.
- Cay Diana, lat. 23 10 N., lon. 81 7 W., fixed white light, visible 7 miles, iron column, centre of lantern 43 feet high. Lighted 1862.
- Cruz del Padre Cay, on Reef, 1/2 of a mile N. E. of Cay, lat. 25 17 10 N., lon. 80 54 10 W., fixed white light, dioptric, 4th order, visible 10 miles, light house conical, white, 46 feet from base to vane, centre of lantern 49 feet high. Lighted 1862. Not to be depended on.
- Bahia de Cadiz, N. E. part of Cay, lat. 23 12 30 N., lon. 80 29 20 W., white light, fixed and flash every minute, dioptric, 1st order, visible 24 miles, house iron, white, 159 feet from base to vane, centre of lantern 175 feet high. Lighted 1862.
- Port Sagua La Grande, N. W. point of Hicacal Cay, lat. 23 4 N., lon. 80 4 W., fixed white light, dioptric, visible 8 miles, mast on dwelling, centre of lantern 55 feet high. The keeper's dwelling has red doors and windows, and eastward of it there are a few huts. Lighted 1872.
- Paredon Grande Cay, north part of Cay, lat. 22 29 8 N., lon. 78 9 50 W., white light, fixed and flash every minute, dioptric, 1st order, visible 16 miles, house iron, white, with a brown base, height 127 feet from base to vane, centre of lantern 159 feet high. Lighted 1859.
- Nuevitas Harbor, Barlovento Point, lat. 21 37 30 N., lon. 77 5 20 W., fixed white light, dioptric, 6th order, visible 9 miles, on white mast from centre of building, height 44 feet, centre of lantern 49 feet high. Keeper's dwelling is quadrangular, yellow. Lighted 1864.
- Maternillos Point, lat. 21 40 N., lon. 77 9 W., white light, revolving every minute, dioptric, 1st order, visible 23 miles, house white, Colon thereon, height 170 feet, centre of lantern 178 feet high, duration of eclipse 16 seconds. Lighted 1850.
- Lucrecia, on point, lat. 21 4 40 N., lon. 75 87 55 W., red light, revolving every minute, dioptric, 2nd order, visible 15 miles, house stone, white, centre of lantern 112 feet high. Lighted 1868.
- Baracoa, 150 yards E. S. E. of Barlovento point, lat. 20 21 40 N., lon. 74 30 20 W., fixed white light, dioptric, visible 12 miles, iron column, height 29 feet, centre of lantern 48 feet high. On keeper's dwelling. Lighted 1870.
- Cape Maysi, east point of Cuba, lat. 20 15 10 N., lon. 74 10 20 W., fixed white

MACDONALD & CO., Manufacturers Copper and Zinc Baths.

- light, dioptric
centre of lantern
621 annual
- Lobos Cay, (E.) of
dioptric; 1st
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lantern white
Lighted 1860
Cay Sal Bank, N.
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- Gun Cay, near So
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Lighted 1836.
- Great Isaac, on th
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MACDONALD & CO.

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light, dioptric, 2nd order, visible 17 miles, tower circular, base octagonal,
centre of lantern 128 feet high. Lighted 1862.

Bahama Islands.

Lobos Cay, (E.) on Cay, lat. 22 29 30 N., lon. 77 25 5 W., fixed white light,
dioptric, 1st order, visible 16 miles, house circular iron, broad black, 7 in
number, and white 6 in number bands, height 150 feet from base to vane,
lantern white, centre 146 feet high, base surrounded by keeper's dwelling.
Lighted 1860.

Cay Sal Bank, N. Elbow, Double-headed Shot Cays, lat. 23 56 10 N., lon. 60 28
W., fixed white light, dioptric, 2nd order, renewed 1866, visible 8 miles,
stone conical tower, white and red upper part, height 58 feet, centre of
lantern 96 feet high, visible round horizon, except when it bears S. W.
½ W., being intercepted by Water Cay when three leagues distant. Lighted
1839.

Gun Cay, near South Point, lat. 25 34 30 N., lon. 79 18 50 W., red light, revol-
ving every minute and a half, catoptric, 2nd order, visible 12 miles, conical
tower, upper part red, lower white, height 70 feet from base to vane, lantern
white, centre 80 feet high. Not seen between the bearings of S. by W. ½
W., and S. ½ E., being intercepted by the Bemini Isles when 8 miles distant.
Lighted 1836.

Great Isaac, on the Island, lat. 26 2 15 N., lon. 79 6 15 W., white light, revolving
every ½ minute, catoptric, 1st order, visible 16 miles, house iron with broad
red bands, 8 in number, and white, 7 in number, horizontal bands, height 145
feet, lantern white, centre 158 feet high. Shows a fixed light for a distance
of 6 miles between the flashes. Lighted 1859.

Great Stirrup Cay, (E.) 600 yards from east end of Cay, lat. 25 49 40 N., lon. 77
53 55 W., fixed white light, dioptric, 3rd order, visible 12 miles, house circular,
5 bands, red and white alternately, height 45 feet, centre of lantern 81 feet
high. Visible from seaward from about N. W. by W., round westward and
southward to about N. E. Lighted 1863.

Nassau Harbor, west point, Hog Island, lat. 25 5 40 N., lon. 77 22 20 W., fixed
white light, catoptric, 1st order, visible 10 miles, conical stone tower, white,
height 58 feet from base to vane, centre of lantern 68 feet high. It is stated
that this light is seen at a greater distance than that given. Visible from
seaward when bearing from S. W. round to S. E. A red light is exhibited
at Hog Island, from a flagstaff on the point near the light house, whenever
the state of the bar at the entrance of Nassau Harbor is impassable or
dangerous. Lighted 1816.

Athol Island, cupola of Quarantine officer's dwelling, lat. 25 5 N., lon. 77 17 20
W., fixed white light. The light illuminates an arc of 45 degrees between
the bearings of N. N. W. ½ W. and W. by N. ½ N. Lighted 1875.

Abaco, about 4 cables northward of Hole in Wall, lat. 25 51 30 N., lon. 77 11 9
W., white light, revolving every minute, catoptric, 1st order, visible 16 miles,
conical stone tower, white lower part, and red upper part, height 85 feet
from base to vane, lantern white, centre 160 feet high. Lighted 1836.
Visible from seaward when bearing from S. W. round to E. S. E.

Little Guano or Elbow Cay, ½ of a mile inland, lat. 26 31 10 N., lon. 76 58
W., fixed white light, dioptric, 1st order, visible 15 miles, house circular,
with red and white bands, height 77 feet from base to vane, lantern white,
centre 123 feet high. Lighted 1863.

Crooked I. Passage, Bird Rock, lat. 22 50 40 N., lon. 74 22 30 W., white light,
catoptric, 2nd order, revolving every 1 ½ minute, 120 feet high, visible 17
miles, building conical, stone, faced with blue bricks, 112 feet from base to
vane. Vessels approaching Bird Rock light are cautioned to attend to its
bearing, as the encircling reef on the north side of Crooked Island terminates
in a direction N. by W. ½ W., and nearly one mile distant from the light
tower. The currents northward of Crooked Island are variable. Lighted
1876.

MACDONALD & CO. Manufacturers of Composition Church Rings. See ad inside cover.

Residences and Public Buildings Fitted with Plumbing Fixtures, by MACDONALD & CO. See adv. inside cover.

.... Castle Island, 270 yards within S. W. part, lat. 22 6 N., lon. 74 20 40 W., fixed white light, dioptric, 2nd order, visible 17 miles, house conical, 3 bands of red brick, height 114 feet from base to vane, centre of lantern 123 feet high. Illuminates 330°. Lighted 1868.
 Inagua, Great I., 2 miles to the N. W. of S. W. point, lat. 20 56 N., lon. 73 40 45 W., white light, revolving every minute, dioptric, 2nd order, visible 17 miles, conical building, with 2 white and red bands, height 114 feet from base to vane, centre of lantern 120 feet high. Lighted 1870.
 Turk's Island, 400 yards S. W. 1/2 W. from north extremity of Island, lat. 21 31 N., lon. 71 7 40 W., white light, flash every half minute, catoptric, visible 15 miles, building white, iron, circular, height 60 feet from base to vane, centre of lantern 108 feet high. Lighted 1845.

GUAYANA COAST.

Cayenne, (Fr.) summit of Hospital on Royale islet, Salut islets, lat. 5 17 N., lon. 52 35 51 W., fixed white light, catoptric, visible 15 miles, centre of lantern 200 feet high. Lighted 1864.
 *Enfant Perdu*, a rock 6 miles northward of Cayenne, lat. 5 2 40 N., lon. 52 15 54 W., fixed white light, catoptric, visible 4 miles, house iron, quadrangular, centre of lantern 61 feet high. Lighted 1864. Visible between N. W. 1/2 N. and E. by N. 1/2 N., and between S. W. 1/2 S. and E. by S. 1/2 S.
 *Céperou Fort*, lat. 4 56 30 N., lon. 52 14 37 W., fixed white light, catoptric, visible 10 miles, centre of lantern 130 feet high, building 40 feet from base to vane. The white and green lights in one S. E. by S. leads over *Aimable Rock*, which is avoided by keeping to westward of this line. Lighted 1862.
 *End of Jetty*, fixed red light, catoptric, centre of lantern 39 feet high. Lighted 1862.
 *N. W. Angle of Infantry Barracks*, lat. 4 56 10 N., lon. 52 18 37 W., fixed green light, visible 8 miles, centre of lantern 69 feet high. Lighted 1850.
Maroni River, west side of entrance, (D.) lat. 5 43 N., lon. 54 W., fixed white light, dioptric, 4th order, visible 12 miles, centre of lantern 75 feet high, building 70 feet from base to vane. Lighted 1871.
 *East side of entrance*, (Fr.) lat. 5 42 30 N., lon. 53 58 W., fixed white light, dioptric, 4th order, visible 12 miles, building white, centre of lantern 75 feet high. Lighted 1871.
Surinam, (Du.) Light vessel in 14 feet, 3 1/2 miles N. W. of *Brams Point*, lat. 6 1 N., lon. 55 16 10 W., fixed red light, dioptric, 6th order, visible 10 miles, red ball at the mast head, centre of lantern 30 feet high. *Surinam* is painted on the vessel's side. Lighted 1858.
Berbice, (E.) Light vessel moored in 22 feet, N. E. by N., 9 miles from *St. Andrew Point*, lat. 6 29 10 N., lon. 57 23 45 W., fixed white light, visible 10 miles, vessel red, roofed over, centre of lantern 30 feet high, *Berbice* on each side, and carries a white flag with a red ball in the centre. A sloop pilot boat cruises outside the Bar, and carries a white flag with *Pilot* inscribed thereon. Lighted 1850.
Demerara, (E.) Light vessel in 19 feet, with *Georgetown* light house bearing S. S. W. 1/2 W., distant 10 miles, lat. 6 57 15 N., lon. 58 4 45 W., fixed white light, visible 10 miles, vessel red, with one mast about 60 feet high, and a blue flag by day, centre of lantern 30 feet high. *Guiana* on her sides. Pilots for *Demerara* and *Essequibo Rivers* are on board. Lighted 1844.
 *Georgetown*, east side of entrance, lat. 6 49 20 N., lon. 58 11 30 W., white dioptric light, 4th order, revolving every minute, visible 16 miles, octagonal tower, red and white vertical, centre of lantern 103 feet high, house 100 feet from base to vane. Lighted 1829.

TIERRA FIRME COAST.

Orinoco River, entrance, light vessel, near *Barima Point*, at entrance of river,

MACDONALD & CO., Manufacturers of Copper and Lead Tanks.

fixed white
 1875. Pilots
Trinidad, (E.) I
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 *Port Espano*
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MACDONALD & CO.

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37 W., fixed
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Pilots for

W., white
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of river,

Tanks.

- fixed white light, visible 9 miles, centre of lantern 55 feet high. Lighted 1875. Pilots for the river are stationed on board the vessel.
- Trinidad*, (E.) Icacos Point, the S. W. extremity, fixed white light, visible 5 miles, white mast, centre of lantern 39 feet high.
- *Port Espano*, on jetty, lat. 10 38 40 N., lon. 61 31 W., fixed white light, dioptric, 4th order, visible 10 miles, hexagonal tower, 43 feet from base to vane, centre of lantern 50 feet high. Visible between the bearings of N. E. by N. and S. E. Lighted 1841.
- Tobago*, (E.) Scarborough or Bacolet Point, lat. 11 10 N., lon. 60 44 W., fixed white light, visible 12 miles. Pentagon tower, red and white, height 57 feet from base to vane, centre of lantern 115 feet high. Lighted 1842. Visible between the bearings of E. N. E. and S. W. by W. by the south.
- Cumana*, tower on Custom House, lat. 10 28 N., lon. 64 12 W., fixed white light, visible 5 miles. To be exhibited in 1877.
- Puerto Cabello*, Brava Point, lat. 10 30 N., lon. 68 W., revolving red and white alternately every 40 seconds, visible 14 miles, building quadrangular, centre of lantern 79 feet high. Lighted 1864.
- Caballos*, Port, white light, visible 3 miles. Lighted 1876.
- Los Roques*, on the north-east hill, (150 feet high) of *El Roque*, lat. 11 28 15 N., lon. 66 38 30 W., white light, revolving every minute, dioptric, 3rd order, visible 15 miles, centre of lantern 203 feet high. Lighted 1875. Reported to be irregular in its action from defect in revolving apparatus.
- Buen Ayre*, (Du.) *Lacre*, south point of the Island, lat. 12 2 10 N., lon. 68 22 20 W., fixed white light, catoptric, 2nd order, visible 12 miles. Building white, with vertical red stripes, 75 feet from base to vane, centre of lantern 85 feet high. Lantern destroyed by storm September, 1877. Temporary light exhibited.
- Little Curacao*, (Du.) east side of Island, lat. 11 58 N., lon. 68 44 W., fixed white light, catoptric, 2nd order, centre of lantern 40 feet high. Lighted 1850. To be altered to a revolving light.
- Great Curacao Island*, (Du.) *St. Ann Harbor*, *Rif Fort*, lat. 12 6 10 N., lon. 68 55 10 W., fixed white light. Lighted 1850.
- Cumarebo Bay*, lat. 11 30 N., lon. 69 25 W., fixed white light, visible 6 miles, centre of lantern 49 feet high. This a private light, and its exhibition uncertain. *Manzanilla Point* bears N. E. by E. $\frac{1}{2}$ E., 5 miles from it. Lighted 1874.
- Savanilla*, *Cubino Beach*, lat. 10 0 15 N., lon. 74 57 40 W., white light, revolving every 2 minutes, 5th order, visible 16 miles, centre of lantern 98 feet high. The light is not visible when bearing southward of S. E. $\frac{1}{2}$ S. Lighted 1872.
- Marycabo*, *Zapar Island*, lat. 10 58 N., lon. 71 40 W., fixed light, visible 6 miles, stone tower, centre of lantern 30 feet high. (Building)
- Santa Marta*, summit of the *Morro*, lat. 11 15 30 N., lon. 74 15 40 W., fixed white light, visible 24 miles, centre of lantern 328 feet high.
- Limon or Navy Bay*, (Pan) N. W. part of *Manzanillo Island*, *Colon*, or *Aspinwall*, lat. 9 22 50 N., lon. 79 53 W., fixed white light, dioptric, 5th order, visible ten miles, wood, open white building, height 60 feet from base to vane, centre of lantern 60 feet high. Lighted 1852.
- Truxillo Bay*, *Cape Honduras*, lat. 16 1 N., lon. 86 3 15 W., fixed white light, centre of lantern 30 feet high. Lighted 1870. *Truxillo light house* having been destroyed by a hurricane, 1875, a temporary light, visible only 4 miles, is now exhibited.
- Coxen Road*, *Roatan Island*, lat. 16 18 N., lon. 86 35 W., white light, visible 14 miles, centre of lantern 85 feet high. Lighted 1875.
- Halfmoon Cay*, (E.) S. E. Point, lat. 17 12 15 N., lon. 87 32 30 W., fixed white light, catoptric, 2nd order, visible 18 miles, iron tower, white, about 100 feet from base to vane, centre of lantern 88 feet high, visible round horizon. Lighted 1821.
- Bokel Cay*, on *Cay*, lat. 17 8 50 N., lon. 87 56 20 W., 2 fixed lights, horizontal, dioptric, white and red, visible 6 miles, flagstaff, with a yard on which the

MACDONALD & CO., Manufacturers of Engineers' Brass Goods.—See adv. inside cover.

lights are displayed, 75 feet high, centre of lantern 53 feet high. Lighted 1868.

Belize, (E.) English Cay, south side of channel, lat. 17 19 30 N., lon. 88 3 50 W. 2 white fixed lights, dioptric, 6th order, visible 3 miles. Lighted 1846.

.... Custom House flagstaff, fixed white light, dioptric, 6th order. Lighted 1863.

Turneff Cays, (E.) Manger Cay, 1 1/2 mile within north end reef, lat. 17 37 15 N., lon. 87 45 45 W., 3 fixed white lights, dioptric, 4th order, in a triangle, visible 13 miles, tower skeleton iron, upper third black, remainder white, height 57 feet from base to vane, upper light 53 feet, lower two 49 feet. The bank extends 1 1/2 mile to the north-east of the light house. The lights can be seen above the trees from all points of the compass, but the light house is seen from seaward only from N. E. to S. W. by W. Lighted 1846; new 1868.

MEXICO.

Progreso, Mast on the Custom House, lat. 21 18 N., lon. 89 33 W., fixed white light, visible 6 miles, square white building.

Sisal, on Castle, lat. 21 10 N., lon. 90 3 W., fixed white light, visible 10 miles, centre of lantern 60 feet high, building 56 feet from base to vane. Lighted 1852.

Campeche, lat. 19 50 N., lon. 90 33 W., fixed white light, visible 14 miles, centre of lantern 95 feet high. Lighted 1864.

Terminos de Laguna, Xicalango Island, Indian Village, lat. 18 7 50 N., lon. 91 54 50 W., white light, revolving every half minute, dioptric, 2nd order, visible 14 miles, circular white lantern, red and white upper part, 100 feet high. Lighted 1856.

Goatzacoalcos River, old look-out tower, west side of entrance, half a mile from beach, lat. 18 12 N., lon. 94 17 W., fixed white light, visible 12 miles. Lighted 1860; improved 1869.

Vera Cruz, San Juan du Ulloa Fort, west part, lat. 19 12 N., lon. 96 8 30 W., white light, revolving every 45 seconds, visible 15 miles, building white, 60 feet from base to vane, centre of lantern 81 feet high.

.... *Convent of San Francisco*, lat. 19 11 30 N., lon. 96 8 50 W., white light, fixed and flash every minute, dioptric, 4th order, visible 15 miles, building blue with white stripes at upper part, centre of lantern 102 feet high. Lighted 1872.

Tampico, N point of entrance, lat. 22 16 45 N., lon. 97 47 W., fixed white light, visible 15 miles. Lighted 1865. This light is said to be visible only 7 or 8 miles.

TEXAS.

Brazos Santiago, Isabel Point, lat. 26 4 50 N, lon. 97 11 W, white light, fixed and flash every minute, dioptric 3rd order, visible 15 miles, building white, 57 ft from base to centre of lantern, black lantern, centre 82 ft above mean sea level. Lighted 1852.

.... South side of entrance, lat. 26 6 N, lon. 97 12 W, fixed white light, dioptric, 5th order, visible 11 miles, building square, white, 35 ft from base to centre of lantern, black lantern, centre 40 ft above mean sea level. Lighted 1852.

Aransas Pass, Low Island, inside of Aransas Pass, lat. 27 51 50 N, lon. 97 3 W, fixed white light, dioptric, 4th order, visible 13 miles, building octagonal, brown, 55 ft from base to centre of lantern, centre of lantern 60 ft above mean sea level. The light, when bearing N W 1/2 W, will be visible between the two points of the pass. Strangers should not enter without a pilot. Lighted 1855.

Matagorda Bay.

Swash, opposite Alligator Head, lat. 28 26 30 N, lon. 96 22 30 W, fixed white light, dioptric, 5th order, visible 6 miles, house black, screw piles white, centre of lantern 38 ft above mean sea level. A horn sounded every five minutes during fogs. Lighted 1858.

Brass Ventilators made by MACDONALD & CO.—See adv. inside cover.

Half-moon Reef, light, dioptric, 55 ft above mean sea level, horn every five minutes.

Matagorda, E end, 96 25 5 W, white light, 3rd order, visible 13 miles, 91 ft above mean sea level. Lighted 1852.

.... *West Shoal*, light, dioptric, 37 ft above mean sea level. Lighted 1872.

.... *East Shoal*, light, dioptric, 37 ft above mean sea level. Lighted 1872.

Galveston Light, fixed white light, mean sea level.

Galveston far, water. They are foggy weather.

Bolivar Point, N side, fixed white light, black, horizontal, house 110 feet high.

Galveston Bay, Half, 29 24 2 N, lon. 95 50 W, white and red, stroke every 20 seconds.

.... *Red Fish Bar*, 94 51 42 W, fixed white and red, level. Fog bell 1854.

.... *Clopper's Bar*, light, dioptric, 4th order, 35 ft above mean sea level. 1854.

Sabine Pass, Brant, 93 50 19 W, white light, 3rd order, visible 13 miles, above mean sea level, bar bring the light.

S W Reef, in 3 ft water, 91 29 13 W, fixed screw piles, black, ft from base to centre of lantern, will give blasts. Lighted 1859.

Ship Shoal, in 10 ft water, 91 4 W, white flash light, 13 miles, iron screw tower 125 ft from water.

Timbalier, in 7 ft water, fixed white light with red and white bands, centre of lantern 38 ft above mean sea level. Lighted 1858.

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PICKFORD & BLACK, Importers of Refined Iron Clinch Rings.

1880]

NAUTICAL ALMANAC.

65

- Half-moon Reef, south extremity of reef, lat 28 33 N, lon 96 15 30 W, fixed red light, dioptric, 6th order, visible 11 miles, building white, centre of lantern 55 ft above mean sea level, house 40 ft from base to centre of lantern. Fog horn every five minutes, as above. Lighted 1858.
- Matagorda*, E end of Matagorda Island, entrance to the Bay, lat 28 20 20 N, lon 96 25 5 W, white light, fixed and flash, every minute and a half, dioptric, 3rd order, visible 15 miles, building black truncated cone, centre of lantern 91 ft above mean sea level, house 84 ft from base to centre of lantern. Lighted 1852.
- West Shoal, port side of entrance, lat 28 25 N, lon 96 21 10 W, fixed white light, dioptric, 4th order, visible 11 miles, building white, centre of lantern 37 ft above mean sea level, house 45 ft from base to centre of lantern. Lighted 1872. Fog bell sounded at intervals of 10 seconds.
- East Shoal, starboard side of entrance, lat 28 25 25 N, lon 96 22 W, fixed red light, dioptric, 4th order, visible 11 miles, building white, centre of lantern 37 ft above mean sea level, house 43 ft. from base to centre of lantern. Lighted 1872.
- Galveston Light Vessel, inside the Bar, to guide through the deepest water. fixed white light, visible 12 miles, straw color, centre of lantern 48 ft above mean sea level. *Galveston* on her sides. Strangers should not approach Galveston far from the eastward without a pilot into less than seven fathoms water. They may anchor in this depth with the light bearing N W. In foggy weather a bell and horn will be sounded alternately. Lighted 1849.
- Bolivar Point, N side of entrance to Galveston Bay, lat 29 22 3 N, lon 45 34 W, fixed white light, dioptric, 3rd order, visible 17 miles, building white and black, horizontal bands, centre of lantern 117 feet above mean sea level, house 110 feet from base to centre of lantern. Lighted 1852; rebuilt 1872.
- Galveston Bay*, Half-moon Shoal, between Pelican Island and Dollar Point, lat 29 24 2 N, lon 94 50 33 W, fixed white light, dioptric, 5th order, iron piles, white and red, centre of lantern 35 feet above mean sea level. Fog bell, one stroke every 20 seconds. Lighted 1854.
- Red Fish Bar. To mark channel across Red Fish Bar, lat 29 30 49 N, lon 94 51 42 W, fixed white light, dioptric, 4th order, visible 11 miles, building white and red, horizontal stripes, centre of lantern 35 ft above mean sea level. Fog bell two strokes in succession at intervals of 30 seconds. Lighted 1854.
- Clopper's Bar, to mark channel, lat 29 41 10 N, lon 94 56 30 W, fixed white light, dioptric, 4th order, visible 11 miles, building white, centre of lantern 35 ft above mean sea level. Fog bell, one stroke every 30 seconds. Lighted 1854.
- MISSISSIPPI AND LOUISIANA.**
- Sabine Pass, Brant Point, east side of entrance to River, lat 20 43 55 N, lon 93 50 19 W, white light, fixed and flash every minute and a half, dioptric, 3rd order, visible 15 miles, building white, octagonal, centre of lantern 85 ft. above mean sea level, house 75 ft from base to centre of lantern. To cross bar bring the light house N W by N, and steer N W. Lighted 1856.
- S W Reef, in 3 ft water, at entrance of Atchafalaya Bay, lat 29 23 30 N, lon 91 29 13 W, fixed white light, dioptric, 4th order, visible 12 miles, house screw piles, black, centre of lantern 46 ft above mean sea level, building 50 ft from base to centre of lantern. In thick or foggy weather a fog whistle will give blasts of 10 seconds' duration, at intervals of thirty seconds. Lighted 1859.
- Ship Shoal, in 10 ft water, 11 miles S S W of Raccoon Point, lat 28 55 1 N, lon 91 4 W, white flash light, every half minute, dioptric, 2nd order, visible 17 miles, iron screw piles, black, centre of lantern 115 ft above mean sea level, tower 125 ft from base to centre of lantern. Lighted 1859.
- Timbalier, in 7 ft water, near the east end of the Island, lat 29 1 N, lon 90 18 W, fixed white light with red flashes every minute, visible 16 miles, building black and white bands, centre of lantern 110 ft above mean sea level. Lighted 1874.

MACDONALD & CO., Manufacturers of Hand and Power Pumps.

MACDONALD & CO., Manufacturers of Patent Ships' Water Closets—See adv. inside cover.

MACDONALD & CO., Manufacturers of Engineers' Brass Goods.—See adv. inside cover.

- Barrataria Bay, W end of Grande Terre Island, lat 29 16 47 N, lon 89 54 33 W, fixed white light, dioptric, 4th order, visible 13 miles, house white, centre of lantern 60 ft above mean sea level, building 55 ft from base to centre of lantern. Lighted 1864.
- Mississippi River, South West Pass, on W side, near the entrance to the Pass, lat 28 58 53 N, lon 89 22 20 W, fixed white light, dioptric, 4th order, visible 14 miles, house white, centre of lantern 70 ft, from mean sea level, building 68 feet from base to centre of lantern. Steam fog whistle sounds 5 seconds at alternate intervals of 5 and 45 seconds. Lighted 1831.
- ... Head of Passes, Deer Island, at the junction of the N E and S W passes, lat 29 8 37 N, lon 89 14 8 W, fixed white light, dioptric, 5th order, visible 5 miles, building white. On keeper's dwelling. Lighted 1863.
- ... South Pass, on S W side of Gordon Island, near the entrance of South Pass, lat 29 1 N, lon 89 9 3 W, white flash light, every minute and a half, dioptric, 3rd order, visible 13 miles, slate-colored wood tower, centre of lantern 60 ft above mean sea level, house 54 ft from base to centre of lantern. On keeper's dwelling. This Pass cannot be used. Do not approach the light nearer than 4 miles. Lighted 1831.
- ... Pass à Loutre, Middle Ground Island, N side entrance, lat 29 1 32 N, lon 89 0 30 W, white light, fixed and flash every 45 seconds, dioptric, 3rd order, visible 14 miles, house circular, black, centre of lantern 77 ft above mean sea level, building 69 feet from base to centre of lantern. Steam fog whistle sounds 15 seconds at intervals of 45 seconds. The light house bears W 4 N, from the large Nun buoy outside the bar. Lighted 1855.
- Chandeleur Island, N end of the Island, lat 30 3 8 N, lon 88 51 38 W, fixed white light, dioptric, 4th order, visible 13 miles, building white, centre of lantern 58 ft above mean sea level, house 56 ft from base to centre of lantern. Good anchorage in four fathoms, with light bearing N E about 2 miles distant. A shoal extends three-quarters of a mile to N W of the light house. Lighted 1848.
- Lake Ponchartrain, Pas Manchac, between Lake Maurepas and Ponchartrain, S side, lat 30 17 15 N, lon 90 12 40 W, fixed white light, dioptric, 5th order, visible 13 miles, building white, centre of lantern 32 ft above mean sea level, house 30 ft from base to centre of lantern. Lighted 1837.
- ... Tchefuncti River, near Madisonville, lat 30 23 N, lon 90 6 W, fixed white light, dioptric, 5th order, visible 11 miles, house white, centre of lantern 48 ft above mean sea level, house 43 ft from base to centre of lantern. Lighted 1837.
- ... New Canal, entrance 5 miles N of New Orleans, lat 30 1 43 N, lon 90 5 50 W, fixed white light, dioptric, 5th order, visible 11 miles, house white, centre of lantern 33 ft above mean sea level, house 28 ft from base to centre of lantern. On keeper's dwelling. Lighted 1855.
- ... Bayou, St John, 5 miles N of New Orleans, lat 30 1 52 N, lon 90 4 W, fixed white light, dioptric, 6th order, visible 11 miles, building white, centre of lantern 39 ft above mean sea level, building 28 ft from base to centre of lantern. Cylindrical column on screw piles. Lighted 1811.
- ... Ponchartrain Port, near E end of railway, lat 30 1 47 N, lon 90 2 44 W, white light, fixed and flash every minute and a half, dioptric, 5th order, visible 11 miles, house white, centre of lantern 35 feet above mean sea level, house 29 ft from base to centre of lantern. Lighted 1832.
- ... West Rigolet, at the E entrance to Lake Ponchartrain, lat 30 10 34 N, lon 89 43 37 W, fixed white light, dioptric, 5th order, visible 10 miles, building white, centre of lantern 30 ft above mean sea level. On keeper's dwelling. Lighted 1855.
- Tower Dupre, at the entrance to Mississippi and Mexican Gulf Ship Canal, lat 29 58 N, lon 89 50 W, fixed white light, dioptric, 6th order, visible 11 miles, building white, centre of lantern 49 feet above mean sea level.
- St Joseph's Island, entrance to Lake Borgne, lat 30 11 9 N, lon 89 24 34 W, fixed white light, dioptric, 5th order, visible 11 miles, house white, centre of

- lantern 35 ft a lantern. Light Merrill Shell Bank, lat 89 14 28 W, piles, centre of weather. Light Pass Christian, on lon 89 14 2 W, white, centre of lantern to centre of lantern. Lighted 1831.
- Cat Island, Western dioptric, 4th order, above mean sea level. Lighted 1831.
- Biloxi, west of west white light, dioptric, lantern 62 feet above lantern. Lighted Ship Island, west end, 4th order, visible sea level, building East Pascagoula River white light, dioptric, lantern 35 ft above Round Island, S end, light, dioptric, 4th order, 51 ft above mean sea level. Hidden by wood shoal with less than Lighted 1833.
- Horn Island, E end, flash every minute black, centre 42 ft above mean sea level.
- Mobile Point, S W end, lat 30 13 45 N, lon 88 51 38 W, house black, from base to centre of lantern. Lighted 1855.
- Sand Island, middle of lon 90 11 20 N, lon 89 51 30 W, house black, house 140 ft from base to centre of lantern. Lighted 1832.
- Choctaw Point, entrance, visible 12 miles, centre of lantern 35 feet above mean sea level, battery 6 cables from base to centre of lantern. Lighted 1824.
- ... Bar Beacon, 150 yds, visible 4 miles, building white, house white, bar. Lighted 1855.
- Cape San Blas, near entrance, white flash light, house white, lantern 35 ft above mean sea level. Lighted 1831.

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PICKFORD & BLACK, Importers of Welsh Bolt Iron Spikes.

1880]

NAUTICAL ALMANAC.

67

lantern 35 ft above mean sea level, building 34 feet from base to centre of lantern. Lighted 1865.

Merrill Shell Bank, between Cat, St. Joseph's and Grand Islands, lat 30 14 18 N, lon 89 14 28 W, fixed white light, dioptric, 4th order, visible 12 miles, screw piles, centre of lantern 45 ft above mean sea level. A bell and horn in foggy weather. Lighted 1860.

Pass Christian, on the main land, $6\frac{1}{2}$ miles N W of Cat Island, lat 30 18 54 N, lon 89 14 2 W, fixed white light, dioptric, 5th order, visible 11 miles, house white, centre of lantern 42 ft above mean sea level, house 30 feet from base to centre of lantern. Lighted 1831.

Cat Island, Western Point, lat 30 13 57 N, lon 89 8 43 W, fixed white light, dioptric, 4th order, visible 11 miles, building white, centre of lantern 39 ft above mean sea level, building 34 ft from base to centre of lantern. Lighted 1831.

Biloxi, west of western entrance to bay, lat 30 23 45 N, lon 88 53 6 W, fixed white light, dioptric, 5th order, visible 13 miles, building white, centre of lantern 62 feet above mean sea level, building 48 ft from base to centre of lantern. Lighted 1848.

Ship Island, west end, lat 30 12 54 N, lon 88 56 58 W, fixed white light, dioptric, 4th order, visible 12 miles, building white, centre of lantern 55 ft above mean sea level, building 50 ft from base to centre of lantern. Lighted 1853.

East Pascagoula River, East Pascagoula, lat 30 21 3 N, lon 88 33 8 W, fixed white light, dioptric, 5th order, visible 10 miles, building white, centre of lantern 35 ft above mean sea level. Lighted 1854.

Round Island, S end, off Pascagoula, lat 30 17 30 N, lon 88 34 10 W, fixed white light, dioptric, 4th order, visible 12 miles, building white, centre of lantern 51 ft above mean sea level, house 45 feet from base to centre of lantern. Hidden by woods from N W by N $\frac{1}{2}$ N, by northward to N E by E $\frac{1}{2}$ E. A shoal with less than 6 ft water on it extends a mile south of the light house. Lighted 1833.

Horn Island, E end, lat 30 13 25 N, lon 88 29 56 W, fixed white light, with a red flash every minute, dioptric, 4th order, visible 12 miles, house white, lantern black, centre 42 feet above mean sea level. Lighted 1874.

ALABAMA.

Mobile Point, S W Bastion of Fort Morgan, east side of entrance to the Bay, lat 30 13 45 N, lon 88 1 27 W, fixed red light, dioptric, 4th order, visible 12 miles, house black, centre of lantern 50 ft above mean sea level, house 30 ft from base to centre of lantern. Lighted 1864.

Sand Island, middle of the low island about 3 miles S S W of Mobile Point, lat 30 11 20 N, lon 88 3 W, fixed white light, dioptric, 2nd order, visible 17 miles, house black, conical, centre of lantern 132 feet above mean sea level, house 140 ft from base to centre of lantern. Lighted 1838.

Choctaw Point, entrance of Mobile River, fixed white light, dioptric, 4th order, visible 12 miles, centre of lantern 46 feet above mean sea level, house 41 ft from base to centre of lantern, straw color. Screw piles on the ruins of a battery 6 cables east of Choctaw Point. Fog bell. Lighted 1872.

Pensacola Harbor, W of Fort Barrancas, N side of Pensacola Bay, lat 30 20 47 N, lon 87 18 23 W, white flash light, every minute, dioptric, 1st order, visible 21 miles, house upper two-thirds black, lower third white, centre of lantern 210 ft above mean sea level, house 160 ft from base to centre of lantern. Lighted 1824.

Bar Beacon, 150 yards S S E $\frac{1}{2}$ E from main light house, fixed white light, visible 4 miles, building white. Beacon and main light in line leads over the bar. Lighted 1859.

Cape San Blas, near the south point of Cape, lat 29 39 46 N, lon 85 21 38 W, white flash light, every minute and a half, dioptric, 3rd order, visible 15 miles, house white, centre of lantern 96 ft above mean sea level, house 96 ft

MACDONALD & CO., Manufacturers of Lead Water Marks.

MACDONALD & CO., Importers of Ships' Well Pumps.—See adv. inside cover.

from base to centre of lantern. A dangerous shoal extends 5 or 6 miles southward of the Cape. Lighted 1847.

Cape St George, on the Cape, lat 29 35 15 N, lon 85 2 40 W, fixed white light, dioptric, 3rd order, visible 14 miles, house white, 70 ft from base to centre of lantern. Lighted 1847. Centre of lantern 77 ft above mean sea level.

Dog Island, east side of middle entrance to St George's Sound, lat 29 46 51 N, lon 84 38 37 W. Destroyed by hurricane.

St Mark Harbor, east side of entrance, lat 30 4 26 N, lon 84 10 38 W, fixed white light, dioptric, 4th order, visible 14 miles, house white, centre of lantern 83 ft above mean sea level, house 75 ft from base to centre of lantern. Lighted 1829.

Cedar Cays, Seahorse Cay, east end of mound, lat 29 5 49 N, lon 83 4 46 W, white light, fixed and flash every minute, dioptric, 4th order, visible 14 miles, house red, lantern white, centre of lantern 75 ft above mean sea level, house 43 ft from base to centre of lantern. On keeper's dwelling; a reef extends in a S W direction about 12 miles from Cay. Lighted 1854.

Egmont, Egmont Cay, entrance of Tampa Bay, lat 27 36 5 N, lon 82 46 29 W, fixed white light, dioptric, 4th order, visible 15 miles, house white, lantern black, centre of lantern 86 ft above mean sea level, house 81 ft from base to centre of lantern. Lighted 1848.

FLORIDA.

Dry Tortugas, Fort Jefferson, Garden Cay, lat 24 37 47 N, lon 82 52 53 W, fixed white light, dioptric, 4th order, visible 14 miles, house brown, lantern black, centre 70 ft above mean sea level, house 65 ft from base to centre of lantern. Lighted 1825.

.... *Loggerhead or S W Cay*, lat 24 38 5 N, lon 82 55 45 W, fixed white light, dioptric, 1st order, visible 19 miles, house, lower part white, upper part black, centre of lantern 152 ft above mean sea level, house 150 ft from base to centre of lantern. Lighted 1858. *Note.*—An iron beacon surmounted by a cylindrical cage, and painted black, stands on Rebecca shoal, and is visible about 7 miles.

Cay West, N W Passage, in 6 ft water, lat 24 37 4 N, lon 81 54 1 W, fixed white light, dioptric, 4th order, visible 12 miles, tower red, dwelling and lantern white, centre of lantern 40 ft above mean sea level. Visible between the bearings of S E by E to S W. Lighted 1854.

.... *S W point of Island*, lat 24 32 58 N, lon 81 48 7 W, fixed white light, dioptric, 3rd order, visible 14 miles, house white, centre of lantern 72 ft above mean sea level, house 60 ft from base to centre of lantern. Visible between the bearings of N N E $\frac{1}{2}$ E by W, to E by N $\frac{1}{2}$ N. Lighted 1847.

Sand Cay, on a small sand and shell islet about $7\frac{1}{2}$ miles S S W $\frac{1}{2}$ W from Cay West light house, fixed and flash white light every two minutes, dioptric, 1st order, visible 17 miles, house brown colour, lantern white, centre 110 ft above mean sea level. It shows for a space of *one minute* a clear steady light; in every alternate minute there is a brilliant *flash of ten seconds' duration*, preceded and followed by partial eclipses of *25 seconds' duration*. Lighted 1853.

Sombrero Shoal, off dry bank, near Sombrero Cay, lat 24 37 36 N, lon 81 6 43 W, fixed white light, dioptric, 1st order, visible 19 miles, open frame work, iron, on piles, brown, 144 feet from mean sea level to centre of lantern, tower 149 ft from base to centre of lantern. Lighted 1857.

Alligator Reef, in 5 feet water, near N E part of reef, lat 24 51 N, lon 80 37 10 W, flash light every 5 seconds, dioptric, 1st order, visible 18 miles, house white, lantern black, centre 145 feet above mean sea level. Lighted 1873. The light is a *flashing white and red light*, showing a flash every *five seconds*; in the following order, viz: *five white flashes*, then *one red flash*.

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white flash light every half minute, dioptric 1st order, visible 17 miles, iron piles, dark color, from base to centre of lantern 112 ft, centre of lantern 106 ft above mean sea level. The dwelling octagonal in shape. Lighted 1852.

Cape Florida, on South point of Cay Biscayne, lat 25 39 56 N, lon 80 9 24 W, fixed white light, dioptric 2nd order, visible 16 miles, house white, centre of lantern 100 feet above mean sea level, house 95 feet from base to centre of lantern. Visible between the bearings of S W and N W. There is a cluster of cocoa-nut trees about the keeper's dwelling. Lighted 1855.

Jupiter Inlet, between Jupiter Inlet and Gilbert's Bar, lat 26 55 26 N, lon 80 5 5 W, white light, fixed and flash every 1 1/2 minute, dioptric 1st order, visible 19 miles, house red, brick, lantern brown, centre 146 feet above mean sea level, house 94 ft from base to centre of lantern. The light is fixed, varied every 1 1/2 minute by a brilliant flash of 7 1/2 seconds' duration; the flash is preceded and followed by partial eclipses of about nineteen seconds' duration. Lighted 1860.

Cape Canaveral, north-east pitch of the Cape, lat 28 27 38 N, lon 80 31 36 W, white-flash light every minute, dioptric 1st order, visible 18 miles, house black and white horizontal bands, centre of lantern 139 feet above mean sea level, house 55 feet from base to centre of lantern. Lighted 1847.

**HARBOR REGULATIONS,
PORT OF HALIFAX, N. S.**

Condensed from the "Rules and Regulations for the Government of the Port of Halifax, in Nova Scotia, and of the Office of Harbor Master for the said Port."

It shall be the duty of the Harbor Master of the said port in person, or by Deputy duly authorized, to go on board of every ship or vessel of the burthen of fifty tons (registered tonnage) and upwards, which shall arrive within the Port of Halifax, within twelve hours after the arrival of such ship or vessel, to see that she is moored only in such a manner or position as shall be assigned to her by the following regulations. And it shall be lawful for such Harbor Master to ask, demand and receive, as a compensation for his services, (vessels belonging to or employed by Her Majesty and the Government of the Dominion of Canada, and ships engaged in trading between Ports and places in the Dominion or in the Fishing trade excepted,) according to the following scale, and under the restrictions mentioned in the Act 35 Vic. Cap. 42, entitled "An Act to provide for the appointment of a Harbor Master for the Port of Halifax."

SCALE OF FEES.

For every ship of 200 tons or under (registered tonnage).....	\$1.00
For every ship of more than 200 tons, but not more than 300 tons (registered tonnage).....	2.00
For every ship of more than 300 tons, but not more than 400 tons (registered tonnage).....	3.00
For every ship of more than 400 tons.....	4.00

MACDONALD & CO., Makers of Patent Roller Bushings.—See ins. cover.

MACDONALD & CO., Manufacturers of Patent Ships' Water Closets.—See adv. inside cover.

Residences and Public Buildings Fitted with Hot Water Heating Apparatus, by MACDONALD & CO.—See inside cover.

The Harbor Master is authorized to give directions in relation to any dispute that may arise between masters, owners or other persons engaged in hauling vessels in or out of docks or wharves; which directions must be complied with under a penalty of twenty dollars for each neglect or refusal to do so.

The situation of vessels must be changed whenever the Harbor Master or his Deputy may consider a change necessary for the safety of other vessels. Penalty for neglect twenty dollars.

It shall be the duty of the Harbor Master to see that a track be left open for the Ferry Steamers between the City and Dartmouth, and also a space of two hundred fathoms eastwardly from the line of wharves (commencing at Moren's wharf and ending at West's) to be reserved as a passage for the Royal Mail steamers.

No steamer entering or leaving Halifax Harbor (those of Her Majesty and the Government of the Dominion of Canada excepted) shall, while inside of George's Island, proceed at more than half her usual speed, under a penalty of forty dollars, to be paid by the owner, master or agent of the vessel violating this Law.

When a vessel arrives short of hands, the Harbor Master may employ additional men, if necessary, to remove it to its appointed station, at the expense of such vessel.

All ships or vessels, loading or discharging in the stream, coals, ballast, and such like materials, shall have a sufficient piece of canvas or tarpaulin so placed as to prevent any portion thereof from falling into the Harbor, under the penalty of twenty dollars for each and every offence, to be paid by the owner, master or person in charge of such ship or vessel.

Vessels main jib or spanker booms must not be rigged out so as to incommode other vessels.

No vessels shall be left without some person to take care of her, by night and by day, when anchored in the stream.

All vessels lying at anchor in the Harbor shall keep a clear and bright light burning, at least six feet from the uppermost deck from sunset until sunrise.

No vessels lying in the stream shall have any tow-line, hawser or other thing made fast to any wharf, or to shore, except for the purpose of hauling in or out.

No boat or vessel which may come into any of the slips, or to any pier or wharf in said City, laden or partly laden with hay or straw, shall have any fire on board the same, under the penalty of eight dollars, to be paid by the owner or Master or other person having charge of such boat or vessel.

No ballast, stone, gravel, earth or rubbish of any kind to be thrown overboard, except in places pointed out by the Harbor Master.

A penalty of forty dollars will be imposed on any parties detected in depositing gravel, stone, rubbish, &c., into any part of the Harbor or upon the beach.

MACDONALD & CO., Brass Founders.—See adv. inside cover.

No explosive pounds of the same without permission shall be stated in

Vessels arriving shall unload the same before coming aloft dollars and the forfeited from any vessel to place of deposit twenty dollars.

All shipments cleared at the custom and direction of the Harbor Master and the further penalty

Forfeited gun as the law directs Dominion.

The penalty of the law, and Harbour Master no penalty is here imposed upon those conforming to the

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Unless parties expected that such with regularity had much experience remarks:—

1. A Chronometer being very important and 9 o'clock in the morning to avoid circulation it must be kept turns of the key gently so as not

2. Chronometer possible to succeed shutting of doors

Brass Step Plates

No explosive material whatever, such as Nitro-Glycerine or compounds of the same or Petroleum, shall be landed in the City of Halifax without permission, but they may be landed in such quantities as shall be stated in writing by the Harbor Master.

Vessels arriving with gun-powder on board (exceeding 25 lbs.), shall unload the same within forty-eight hours after their arrival, and before coming alongside of any pier or wharf, under penalty of forty dollars and the forfeiture of such gun-powder. Gun-powder discharged from any vessel must be securely covered, and conveyed by water to place of deposit without the limits of the City, under the penalty of twenty dollars.

All shipments of gun-powder must be made after the vessel has cleared at the custom house and ready for sea, except with the sanction and direction of the Harbor Master, under forfeiture of the gun-powder and the further penalty of forty dollars.

Forfeited gun-powder to be disposed of by the Harbor Master, as the law directs, and accounted for to the Receiver-General of the Dominion.

The penalty for violation of, or not conforming to the provisions of the law, and for disobeying the lawful orders or directions of the Harbour Master or his Deputy, in respect to any provision for which no penalty is hereinbefore prescribed, shall be twenty dollars, to be imposed upon the owner or person in charge of the ship or vessel not conforming to the particular requirements.

ON THE MANAGEMENT OF CHRONOMETERS.

Unless particular care be taken of Chronometers, it is not to be expected that such delicate pieces of mechanism can continue to go with regularity; it may, therefore, be of service to those who have not had much experience in the use of time-keepers to attend to the following remarks:—

1. A Chronometer should be wound up at regular intervals, it being very improper to let one that is generally wound up between 8 and 9 o'clock in the morning run till noon. Great care should be taken to avoid circular motion; therefore, when winding up a Chronometer, it must be kept steady, and the key only turned. The number of turns of the key should be counted, and the last few may be wound gently so as not to butt too sharply.

2. Chronometers should be placed so as to be as little exposed as possible to sudden shocks, from the sea striking the ship, or from the shutting of doors, &c.; they ought not to be exposed to a current of

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air; and nothing *magnetic* should be allowed to remain near them. They should be placed as near the centre of motion as possible. A small table, secured to the deck (not to a bulkhead), with a stanchion on each side, to prevent people from rolling against it, will be found convenient; the table may have a well in it, capable of holding the requisite number of watches, with a sufficiency of dry sawdust or cotton around them to break the force of unavoidable concussions upon deck or elsewhere, or a box upon the table may be used instead of a well in it. Watches should always be kept in the same position that they are placed in when they first come on board. As soon as they are placed they should be compared.

3. It is very improper to make a practice of taking a Chronometer on deck when observing altitudes, merely to find the longitude; for, besides the risk of accidents, it is hardly possible to carry about a Chronometer without giving it too much circular motion. Any sudden change of temperature ought also to be avoided; it is therefore proper to take the times of observing the altitudes by a common watch, and find the difference between it and the Chronometer, immediately before or after the observation: then this difference being applied to the mean of the times of observation by the watch, will show the time by the Chronometer answering the mean altitude.

4. If a Chronometer be allowed to run down, it will not commence going again, after being wound up, until it gets one or two pretty quick quarter turns in a horizontal direction, its face being upwards. After being set going a Chronometer will sometimes keep the same *rate* it had before it was let down; this, however, is uncertain, and no dependence can be placed on it, until a fresh *rate* and *error* be obtained.

5. When a Chronometer is carried to or from the Ship, it should be fastened by means of the studs and screws, to prevent it from traversing on its gimbles. Great care should be taken by a person carrying a Chronometer, that it gets no sudden jerks, or quick circular motion. If the rate of a Chronometer can be properly ascertained, when it is on board, it ought not to be taken on shore for that purpose. Commander Richard Owen, in his "Essay on Chronometers," says that "It may be taken for an absolute maxim in general practice, that the rate of a Chronometer obtained on shore will not be the rate that it will keep when it is removed to the vessel."

6. Change of temperature generally produces the greatest alteration in the rate of a watch. In a paper by Mr. Fisher, published in the "Philosophical Transactions," for 1820, page 196, it is stated that "Chronometers generally go faster on board of a Ship than on shore." Mr. Fisher ascribes this to the magnetic effect of the iron in the Ship on the steel part of the balance of a Chronometer. This is a subject that deserves further attention from all intelligent Navigators.

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