

### Subsection 2.—Aids to Navigation

Included under this heading are the lighthouses and the whole system of marine danger signals on the east and west coasts of Canada, on Hudson Bay and Strait, the St. Lawrence River and Gulf, the inland rivers and lakes, and at the entrances to harbours—a very extensive system designed to provide safe navigation in all Canadian waters. In addition, a pilotage service is maintained in waters where navigation is difficult; this service is described under marine services at p. 776. As a further aid to safe navigation, there are chains of radio signal and direction-finding stations which are described under radiotelegraphy at pp. 813-815. Lists of aids to navigation, excepting very minor ones, are published by the Department of Transport.

#### 5.—Marine Danger Signals Maintained in Canada, Years Ended Mar. 31, 1943-49

NOTE.—In addition to the aids to navigation listed, approximately 9,006 unlighted buoys, balises, dolphins and beacons are maintained. The figures are supplied by the Department of Transport and do not include installations being taken over in Newfoundland. A table showing marine danger signals maintained during the years ended Mar. 31, 1929-40 is given at p. 581 of the 1941 Year Book. Figures for 1942 will be found at p. 716 of the 1948-49 edition.

Type of Signal	1943	1944	1945	1946	1947	1948	1949
	No.	No.	No.	No.	No.	No.	No.
Lights.....	2,050	2,082	2,095	2,107	2,320	2,469	2,491
Lightships.....	7	7	7	6	8	8	8
Light-keepers.....	1,135	1,129	1,132	1,132	1,122	1,102	1,094
Fog whistles.....	12	12	13	13	8	9	11
Sirens.....	4	4	3	3	2	2	2
Diaphones.....	167	167	168	170	169	169	176
Fog bells.....	47	48	49	49	39	37	38
Hand fog horns.....	153	153	151	149	135	137	137
Hand fog bells.....	4	4	4	4	9	10	10
Gas, and combination gas, whistling and bell buoys.....	463	469	479	435	541	552	585
Whistling buoys.....	44	42	42	41	40	39	39
Bell buoys.....	123	119	122	122	118	112	113
Submarine bells.....	2	2	2	1	—	—	—
Fog guns and bombs.....	14	14	14	13	12	12	11
Fog alarm stations only.....	13	13	13	13	10	10	11

A great deal has been done to improve navigable waters by dredging in channels and harbours, by the removal of obstructions, and by the building of remedial works to maintain or control water levels. Probably the largest task of this nature has been the St. Lawrence River Ship Channel. An extensive floating plant is in service to maintain and improve the deep-water channel from Montreal to the sea for ocean-going shipping. Incidental to these developments of navigable waters are works to guard shorelines and prevent erosion, and for the control of roads and bridges that cross navigable channels. In order to prolong the season of navigation in important waters that freeze over in winter, ice-breaking operations are carried on at both the beginning and end of winter. This is particularly the case in connection with sea-going shipping from Montreal: these operations are primarily intended to prevent flood conditions during the spring ice break-up.