To accommodate this shipping, Canada began, in 1913, the construction of the Fourth Welland Canal as a Ship Canal. Construction was suspended early in 1916 because of a shortage of material and manpower but was resumed in 1919 and the canal was formally opened on Aug. 6, 1932. The canal crosses the Niagara Peninsula in an almost straight north-south line, with Port Weller at the Lake Ontario end and Port Colborne at the Lake Erie end. It is more than 27 miles long and has eight locks constructed to give 30 ft. of water over their sills; all concrete structures were constructed for this depth. The canal itself, however, was finished to a depth of 25 ft. but the remaining depth may be readily dredged without hindering navigation whenever deepening becomes advisable.

Sault Ste. Marie Canal.—The Canadian lock at Sault Ste. Marie was constructed to overcome a mean difference in level of 19 ft. from the foot of the falls to Lake Superior. The first canal was constructed by the Northwest Fur Company in 1797 but was destroyed by the United States Army in 1814. No new lock was constructed until 1853-55, when one was built on the United States side of the river. This has since been superseded by four modern locks, constructed at intervals between the years 1870 and 1943. The existing Canadian canal was constructed between 1887 and 1895 and consists of a single lock, 900 ft. by 60 ft., with a minimum depth of water on sills of 18 ft. 3 inches.

Subsection 4.—Aids to Navigation

Included under aids to navigation 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. 836. As a further aid to safe navigation, there are chains of radio signal and direction-finding stations which are described under radiotelegraphy at pp. 883-884. Lists of aids to navigation, with the exception of very minor ones, are published by the Department of Transport.

16.—Marine Danger Signals maintained in Canada, Years Ended Mar. 31, 1947-53

NOTE.—In addition to the aids to navigation listed, approximately 9,006 unlighted buoys, balises, dolphins and beacons are maintained. A table showing marine danger signals maintained during the years ended Mar. 31, 1929-40, is given in the 1941 Year Book, p. 581. Figures for 1942 will be found in the 1948-49 edition, p. 716, and for 1943-46 in the 1950 edition, p. 766.

Type of Signal	1947	1948	1949	1950	1951	1952	1953
	No.	No.	No.	No.	No.	No.	No.
Lights	2,320	2,469	2,491	2,778	2,841	2,861	2,901
Lightships	8	8	8	8	8	8	7
Light-keepers	1,122	1,120	1,094	1,416	1,353	1,131	1,154
Fog whistles	8	9	11	18	22	23	24
Sirens	2	2	2	3	3	3	3
Diaphones	169	169	176	207	212	213	216
Fog bells	39	37	38	43	44	46	46
Hand fog horns	135	137	137	134	133	127	124
Hand fog bells	9	10	10	10	10	12	12
Lighted and combination lighted whistling and bell buoys	541	552	585	618	655	681	719
Whistling buoys	40	39	39	38	38	37	37
Bell buoys	118	112	113	109	110	113	112
Fog guns and bombs	12	12	11	11	10	9	8
Fog alarm stations only	10	10	11	15	15	15	15