Quebec .- The low water datum to which the soundings on the Admiralty chart are reduced, has been recorded by a bench mark which still exists; and the low water datum itself is thus defined by a note on the chart of Quebec harbour :---"The soundings are reduced to the mean level of Low Water ordinary Spring tides; or 28 feet below a Bench Mark cut in the stonework on the East side of the principal gateway to the Marine and Fisheries department." The tide gauge for Quebec was erected in October, 1893, at the masonry dry dock on the Lévis side; and instrumental levels have been carried over from this Admiralty bench mark to the dock by Mr. R. Steckel, of the Department of Public Works. The levels were carried across the river from the Quebec to the Lévis side at Cap Rouge; and a bench mark was cut on the dry dock itself on the face of the masonry of the second altar step, on the west side, near the inner end. This bench mark is numbered LXXIV. in Mr. Steckel's series. The elevations of the two bench marks, referred to his datum, are as follows:—Admiralty bench mark = 27.039; bench mark No. LXXIV. = 21.617. The elevation of the bench mark at the dock, above the Admiralty low water datum, is therefore 22:58 feet; and this affords a direct means at the dry dock itself of reducing the tide levels to the Admiralty datum. The actual height of the water level during the rise and fall of the tide is obtained from the steel tape of the sight gauge, which is attached to a tide float; and the true level of the gnomon, or zero-point of this gauge is determined with reference to the bench mark. The comparison of the sight gauge readings with those of the recording instrument, enables the datum line to be ruled in on the sheets on which the continuous tide curves are traced.

There are two scales of feet cut on the masonry of the dry dock, one outside and the other inside of the dock gate, which are intended to show the heights above the masonry sill of the dock. When tested by accurate levels, these prove, unfortunately, to be incorrect in the heights they show; and on the average both scales are low; that is to say, the level of the zeros from which the scales count, are from half an inch to three-quarters of an inch below the level of the dock sill itself.

The levels of the various marks above referred to, are given in the following list, in which they are all reduced to the original Admiralty low water datum; and the results of the analysis of the tidal record as regards level, are included also.

QUEBECTIDAL LEVELS AND DATUM PLANES.	Above or below Admiralt Datum.
	Feet.
Bench Mark at the Marine and Fisheries building in Quebec, which records the Admiralty datum	28.00
Gnomon of the sight gauge at the Dry Dock at Lévis	29.53
Coping of the Dry Dock; average level taken near the dock gate	24.78
Bench Mark No. LXXIV, on the masonry of the Dry Dock, as above described	22.58
Mean Sea Level, from the analysis of the continuous record during the two years from November, 1893, to January, 1896. Result for the year 1894 = 84677; for the year 1895 = 8529; mean value, above Admiralty datum	8.60
Admiralty Datum, or low water at ordinary spring tides. Used as the plane of reference for the tidal observations ; and from it also the heights of the tide in the tide tables for Quebec are measured.	0.00
Harmonic Tide Plane, or low water mark at a distance below Mean Sea Level, given by the sum of the harmonic constants $M_{2}+S_{2}-K_{-}+O$ Mean value of the sum of the seconstants for 1894 and 1895 = 8.65; resulting level of tide plane below Admirally datum	0.02
Sill of Dry Dock at Lévis—The zeros of the scales of feet cut on the masonry inside and outside of the dock gate do not quite correspond with the level of the sill itself. Average level of the zeros of the two scales, and of the dock sill, below Admiralty	
datum	7 75

12

7.

he

vie

Be

88

10

ref

les

It

usi

in

the

hei

of

Lo

801

10.

Noi

Zer

soui gau 90 3 8.00