

*Character of the Pacific Tide.*—The most important plane of reference which results from tidal observations is undoubtedly Mean Sea level. To understand the best method of obtaining its value, it is necessary to explain briefly the character of the Pacific tides, as at first sight they appear quite irregular. The Atlantic tide, with which we are the most familiar, follows the phases of the moon, and accordingly the alternation of spring and neap tides is its dominant feature. The tide of the Pacific, however, can best be described as a declination-tide. Its leading feature is a pronounced diurnal inequality which accords with the declination of the moon, and is subject to an annual variation with the change in the declination of the sun. Also, the unusually large solar effect, relatively to the lunar, not only accentuates this annual variation, but in some regions, especially northward, it becomes sufficient to enable the springs and neaps to be distinguished with little difficulty.

On the open coast of the Pacific, the tide curve is still fairly regular, though showing the diurnal inequality strongly. But in Fuca Strait and the region of the Strait of Georgia, which makes up half the coast line of British Columbia, and where all the more important harbours are situated, the appearance of the tide curve is anomalous. The high waters are nearly at the same level, and the range depends on the amount of fall to low water, which may be almost inappreciable or very pronounced. During the greater part of the day, there may thus be a long stand or only a slight fluctuation near the high-water level with a sharp and short drop to the lower low-water which occurs once in the day. This type only changes to a fairly symmetrical curve when the moon is on the equator near the time of the equinoxes.

The spring and neap tides of the Atlantic nomenclature are difficult to find, as they here form a minor feature which is obscured by the stronger characteristics of the tide. The "Establishment," which is so well marked in the Atlantic, is thus almost illusory unless it is strictly reduced to equinoxial and equatorial conditions in accordance with the definition used in France. In dealing with tide levels, it may still be convenient to speak of spring and neap tides, if they are understood to mean the two maxima and the two minima in range or in level which always occur in the period of the lunar month. But the two highest and the two lowest points on the tide curve for the month, may be as much as five days before or after the full or new moon, as they are so largely occasioned by the diurnal inequality.

The extreme tides of the year necessarily occur at the nearest point to the solstices at which the moon reaches its maximum declination.