BOOKS

Ebb and flood, beautifully visualized;

by Philip Morrison

TIDELOG 1989 (four editions: Northern California, Southern California, the Massachusetts Coast and Puget Sound). Graphics and original compilation by Mark Alan Born, tide data from the National Ocean Service, National Oceanic and Atmospheric Administration, astronomical data from the U.S. Naval Observatory. Pacific Publishers, Box 480, Bolinas, Calif. 94294 (each locality, spiralbound, $9.95).

The rhythm of the tides is a kind of celestial music, but it is not performed by the orbital dancers themselves; rather, it is the response of flowing water. The tide-raising forces have all the elegance of the heavens, but the tide heights they induce are homelier, given to overshooting and delay, shaped by the intricate channels and basins of the coast, even modulated a little by the variations of barometer and wind. Knowing that pattern is an everyday essential to those who go down even a little way to the sea.

Tide tables are familiar. In them the numerical analysis of long-observed rhythm driven by known forces in orbit has proudly projected the future depths of water—with small errors from unexpected weather—in the harbors and seaways of all populous coasts. Long, dense lists of heights and times, day by day, place by place, the tables are indispensable for sailors but hardly attractive. That is almost entirely a consequence of the technologies of reproduction: a sample of numbers is easy to print, but curves are much more expensive. Utility has won out for a long time, although the graphical style is in fact more suited to interpolation and to the forecast of tidal current flow.

Of course, tide-height lists form pleasantly changing sinuous curves through time; these always lay unseen but implicit in the terse tables. It is no great trick nowadays to draw fine curves by computer. Mark Alan Born has nicely compiled the authoritative tide forecasts for each hour and day of the year at a given port and displayed the heights in eye-catching continuous curves a day at a time, a week of days on every spread, leaving a few lines blank for your notes. These figures also display the clock times of sunrise and sunset, moonrise and moonset; the moon's arc and phases, and the rough positions and brightness of "the four navigational planets," along with notes on such sky events as eclipses and meteor showers. Tidal-current speeds are marked on the figures.

A sense of intricate order appears as the tides swell and recede throughout the year. The moon will be in eclipse on Washington's Birthday and again on August 16; watch out for very low water on both days, although not the lowest ebbs of the year. The rhythms even lose the regularity of twice-daily ebb and flood at certain times.

Visually richer than the unembellished lines of an ordinary graph, the undulations here have all been filled in with a striking wavelike texture in black and white, excerpted from one of M. C. Escher's cosmic woodcuts. What is essential for the coastal navigator is here, now augmented so that the rest of us can appraise the tidal rhythm in the context of the determining heavens. Each little book—choose your time zone—is an unusual, instructive and useful calendar for landlubbers who watch the sky. Soon enough the big official tide tables too will become tide graphs; here, as in wristwatches, geometry is victor over digits.