

**Online Supplement to the Navigator's Newsletter, Issue 94, Winter 2006**

**Editor's Notes on Samuel Bawlf's Letter**

This last point in the printed summary to Samuel Bawlf's letter is the one most closely aligned with the activities of the Foundation—historical analysis beyond actual navigation practice is outside of our scope. So it seems we might summarize the question to ourselves along these lines. According to the author, before Drake's voyage the longitude of the West Coast was thought to be about 190° W, whereas shortly after Drake's voyage it was mapped as 140° west, presumably as a result of his findings. The true value is 124° W, so this was a big improvement.

The transits laid out at Nehalem spanned an angular range of 095 T to 145 T, as can be seen in Fig xx of the Bawlf Letter, which in turn was reproduced from the Engineer's report. Drake was presumably near this site for a period of 5 weeks during June or July of 1579. So the question is first, are there any good lunar opportunities that would meet these criteria at that time (i.e. the moon and a body in line with its motion, both within the bearing range listed, low on the horizon, at about the same altitude, and if one was a star it had to be after sunset) and second, could an observation be made with sufficient accuracy and analysis that would lead to an improvement of the longitude by 50°, given the tools and methods they had to work with.

Drake would not, of course, have to analyze his measurements on the spot. He could do as Lewis and Clark did (we are learning about this in the Bruce Stark series), they took the measurements underway and brought back the records to be analyzed by others at home. One would even be free to presume some relative measurement rather than rely on specific almanac data (known to be imprecise at the time), as the author proposed with the Gravesend site, though there is no need to rely on that particular site at all, any hypothetical sighting at the then obtainable precision would do. In other words, is the scheme navigationally plausible making whatever assumptions necessary.

Or could the improved longitude have come about simply because Drake did a better job of traditional navigation of the day, which relied heavily on dead reckoning—a skill that can vary dramatically among navigators.

For those who would like to look into the lunar sight possibilities, please check the list of online almanacs given in Issue 93. The one in France may be the best for some planets, as it allows access to the Horizons computations for years earlier than 1600. A first step might be determining the time of sunset and twilights at Nehalem in June and July of 1579. Latitude = 45° 43.0' N, Lon = 123° 54.0' W. Besides planets, the star *Aldebaran* might make a good candidate, or perhaps the sun.

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