

part of the officers, and much attention. The emulation among the men serves to obtain their utmost efforts, and the regularity of working hours enables all to have time, avoid hurry, or confusion. The crews every morning were inspected before going to work, and in the evening after their return.

It affords me great pleasure to acknowledge the spirit and manner in which both officers and men conducted the work; at the same time carrying on all the duties appertaining to the repairs and outfit of the brigs, &c.

Those engaged in the survey were: Captain Hudson; Lieutenants Walker, Perry, Maury, North, and De Haven; acting Masters Baldwin, Sinclair, and Knox; Passed Midshipmen Harrison and Reynolds, and Midshipman Blair; Drs. Palmer and Holmes; Pursers Waldron and Speiden; and Clerks Howison and Stuart.

The survey of the Columbia to the highest point navigable, one hundred and twenty-five miles from its mouth, with its various branches and inlets, together with the Willamette and Cowlitz, occupied from the 16th of August till the 10th October, a period of fifty-five days.

The following are the sailing directions given by me to Commodore Dallas, in 1843:

SIR: Although I cannot offer you the full sailing directions for the bar and entrance of the Columbia river, I send you the following abstract of my *notes*, from which they will be drawn up.

The entrance to the Columbia river may be considered at all times dangerous, owing to the heavy breakers, cross tides, their velocity, and the influence of an under current on a vessel drawing much water, besides the distance of any thing like sailing marks for the channel, which not unfrequently become more or less indistinct when the state of the weather will permit of entrance; and from a want of due attention to them, a vessel may be swept ashore without receiving any notice whatever from the compasses. Compass-bearings are, in short, of but little, if any use, in entering the river.

It is safest to enter on the ebb-tide, with the usual northwest wind, which sets in about ten or eleven o'clock, a. m., during the summer months. The entrance should never be attempted with a flood-tide and northwest wind, unless the Clatsop channel is followed, and the sea is smooth.

After making Cape Disappointment, which is easily distinguishable by the dark hummocks and tall pines, trimmed up, with the exception of their tops, you may lead in for it on a northeast bearing, if to the southward; if to the northward, you may run in until you have that bearing on. A hummock, or saddle-hill, to the northward, on with the outer part of the cape-land, will give you notice that you are on the bar, in $4\frac{1}{2}$ or 5 fathoms water: in ordinary weather, the outer line of the north spit is readily perceived by the rollers breaking; the inner line is always perceptible: when Young's Point is open with dead trees on Point Adams, you will be to northward of the end of the north spit, and may run down along it until those two points are on range; then haul in for Point Ellice, or the green patch on Chinook hill; if intending to take the channel by the cape or old channel, watch the opening of *Leading-in cliff*, with the inner point of the cape, and, as it comes on, haul up directly for it, (the cape,)