

detecting the presence of cold submarine streams previous experience had satisfied me. I felt, however, convinced that the Feejee currents arose from them as a cause, and my views were corroborated by the fact that the Peacock on her voyage from Sydney to Tongataboo had been affected by northerly currents.

I have mentioned cases in which the Polynesian Islands were occasionally affected by the remarkable phenomenon of a sudden rush of waters. I am inclined to ascribe this phenomenon to the action of a polar current encountering obstructions at the several groups, for I know of no other cause so likely to produce such results; and it will have been seen that the sides of the islands that were most affected, were those that would have been exposed to the full violence of a stream setting from a higher to a low latitude, while the action on the opposite side was either much diminished or wholly insensible.

After leaving the Feejee Group, we did not experience any current until we reached the latitude of 8° S., and there only in separate impulses. We then experienced currents for three or four days, whose united effects amounted to no more than twenty or thirty miles, in a direction about south by west. In passing the Phoenix Group we experienced a variable current; and little seems to exist there at the season when we passed it; but in the following January, when the Peacock was at this group, a current was found setting to the westward, which was lost on passing a degree or two to the south. In this voyage of the Peacock, a space in the ocean was traversed remarkable for its elevated temperature, which was as high as 89° . The waters of this space, therefore, do not enter into the general circulation. This position will be seen upon the map, marked in deep red, and may be compared with the similar *nuclei* in the North Atlantic and near the Cape de Verdes.

On our route to the northward we crossed a stream setting to the westward, which extends as far west as the Kingsmill Group, between the latitudes of 2° S. and 3° N., after leaving which we encountered another, setting with equal velocity to the east, between the latitudes of 4° and 9° N. This last tropical counter-current was traced by us between the same parallels, nearly across the Pacific, from the longitude of 170° E., to the longitude of 138° W. We had no opportunity of ascertaining ourselves whether it exists to the westward of the Mulgrave Islands, but Horsburgh and several other authorities mention the prevalence of an easterly current as far to the west as the Sea of Celebes, and particularly in the latitude of 4° N. After passing the parallel of 10° N., we began to feel the effects of the current that is ascribed to the influence of the trade-winds, and this continued without