

vessels bound to Sydney, should make their land fall to the northward of the harbour. There is no difficulty in tracing the connexion of this stream with that which we found setting to the southwest, as before noted, near the Feejee Group, which being thrown towards the coast of New South Wales by the South Polar Stream, that meets its course obliquely, it also receives an accession of strength from the waters that flow to the southwest on the west side of New Guinea: ample proof of the existence of such a current is to be found in the difficulty of passing to the eastward of the Barrier Reefs. This stream is analogous to our Gulf Stream, although much less remarkable, and is at times found to extend to the south of Van Diemen's Land, the distance to which it prevails depending on the strength of the polar current which opposes it. Thus, the French frigate *Venus* met this stream to the south and east of Van Diemen's Land, in the month of January, 1839, and was thirty-six hours in passing through it. It more frequently turns into Bass's Straits, after which it is lost in the sea to the west of Van Diemen's Land, or mingles with the Polar Current.

We experienced the effects of this stream as well after we left Sydney as before our arrival there, but our course speedily led us beyond its influence. The current which afterwards affected us on our way south, set to the northward and eastward, and was found at its greatest strength near Macquarie's Island, where its set amounted to thirty miles in twenty-four hours. As we approached the Antarctic Continent we gradually ceased to feel its effects, until upon the icy barrier little or no current could be perceived along its whole extent. Our means of observation partially failed us here, as has been mentioned in the Narrative. It would appear, however, from a comparison of the position of the icy barrier as seen by us, with that laid down by Captain Ross, after the lapse of a year, that there may be a slight drift to the northwest, towards which direction the barrier appears to have shifted in the interval.

On the return of the *Vincennes* to the north, the northeasterly current was again experienced, and particularly between the latitudes of  $50^{\circ}$  and  $60^{\circ}$  S. The Porpoise, whose track was to the eastward of that of the *Vincennes*, found its direction more to the eastward than we did. As we entered lower latitudes, we found it veering more and more, until finally it became due north.

Pursuing its course in the last-named direction, it strikes the southern point of New Zealand, and forms currents on each side of that country, which, however, are not constant. That branch which flows on the western side appears to be the strongest, and is felt as far to the north