visited by seeds which grew in the interior of Germany, and the western shores of the Atlantic by seeds that have been generated in the interior of America."* Fruits, moreover, indigenous to America and the West Indies, such as that of the *Mimosa scandens*, the cashew-nut, and others, have been known to be drifted across the Atlantic by the Gulf stream, on the western coasts of Europe, in such a state that they might have vegetated had the climate and soil been favourable. Among these the *Guilandina Bonduc*, a leguminous plant, is particularly mentioned, as having been raised from a seed found on the west coast of Ireland.†

Sir Hans Sloane states, that several kinds of beans cast ashore on the Orkney Isles, and Ireland, but none of which appear to have naturalized themselves, are derived from trees which grow in the West Indies, and many of them in Jamaica. He conjectures that they may have been conveyed by rivers into the sea, and then by the Gulf stream to greater distances, in the same manner as the sea-weed called *Lenticula marina*, or Sargasso, which grows on the rocks about Jamaica, is known to be "carried by the winds and current towards the coast of Florida, and thence into the North American ocean, where it lies very thick on the surface of the sea."‡

The absence of liquid matter in the composition of seeds renders them comparatively insensible to heat and cold, so that they may be carried without detriment through climates where the plants themselves would instantly perish. Such is their power of resisting the effects of heat, that Spallanzani mentions some seeds that germinated after having been boiled in water.§ Sir John Herschel informs me that he has sown at the Cape of Good Hope the seeds of the *Acacia lophanta* after they had remained for twelve hours in water of 140° Fahrenheit, and they germinated far more rapidly than unboiled seeds. He also states that an eminent botanist, Baron Ludwig, could not get the seeds of a species of cedar to grow at the Cape till they were thoroughly boiled.

When, therefore, a strong gale, after blowing violently off the land for a time, dies away, and the seeds alight upon the surface of the waters, or wherever the ocean, by eating away the sea-cliffs, throws down into its waves plants which would never otherwise reach the shores, the tides and currents become active instruments in assisting the dissemination of almost all classes of the vegetable kingdom. The pandanus and many other plants have been distributed in this way over the islands of the Pacific. I have before called attention (p. 596.) to the interesting fact that one-fifth of all the algæ found in the antarctic regions in 1841–3, by Dr. J. Hooker, were of species common to the British seas. He has suggested that cold currents which prevail from Cape Horn to the equator, and are there met by other cold waters, may by their direct influence, as well as by their

* *System of Physiological Botany*, vol. ii. p. 405.

† Brown, Append. to Tuckey, No. v. p. 481.

‡ Phil. Trans. 1696.

§ System of Physiological Botany vol. ii. p. 403.