that from forty to sixty north latitude, high water takes place at one time.

In about 55° south latitude is the only zone of ocean which could follow any thing like the law that would go­vern its undulations if the globe were wholly covered with water. In other zones (taking about ten degrees in lati­tude as the breadth of a zone), it is high water, generally speaking, at one side of an ocean near the time it is low on the other. In oceans about 90° wide, this happens very nearly ; but as the width diminishes, so do the times of high water at each side approach ; and as the width increases beyond 90°, as in the case of zones of the Pacific, the times of high water still approach, in consequence of the tendency to high water simultaneously at opposite sides of the globe.

Along the east side of the Atlantic, from the Canary Isles to Scotland, it is high water within an hour of four o’clock on the salient points of the coast ; and if the opposite coast were straight, like that of Chili, and uninfluenced by derivative tides or by currents, we might expect that it would be high water there at about 7h∙, allowing that the tide-wave moved as it is found to do generally. But it is high water at about 1h. from 30° to 40°, the times increas­ing northward from 40° N. to the Bay of Fundy, and also increasing southward from 50° N. to that bay, where the tides probably rise higher than in any other part of the world. This sequence of times, each ending in about 43° N., the adjacent gulf-stream, and the excessive; accumula­tion of water, show that we cannot there expect to find data for tidal rules. In that quarter it is evidently a mark­ed exception, caused by the conflux of at least two primary tides, two derivatives, and a powerful current, aided by the peculiar configuration of the land. On the west coasts of Ireland and Scotland, the hour of high water is from 5h∙ to 6h·; on the coast of Labrador, it is from 10h∙ to 11h∙ in the same parallels. The meridian distances are from three to four hours ; but as we approach the parallel of 60° N., the Northern Ocean and Davis Straits open, which probably af­fect the tide between Ireland and Labrador.

The Indian Ocean appears to have high water on all sides at once, though not in the central parts at the same time. Thus, it is high water at the north-west extremity of Australia, on the coast of Java, on that of Sumatra, at Ceylon, at the Laccadiva Islands, at the Seychelles, on the coast of Madagascar, and at Amsterdam Island, at 12h.; but at the Chagos Islands and Mauritius it is high water at about 9h∙, and at the Keeling Isles about 1 1h∙. It is to be observed, that the various tide-hours above men­tioned arc meant to be in Greenwich time.

High water taking place within an hour of the same time all along the east coast of Africa, shows that the rise of the sea or tide-wave there moves westward or east­ward, and the times of high water at the islands are further confirmations ; for the wave is at Chagos and at the Mau­ritius three or four hours before it is high water on the African coast. The Keeling time shows that there the water rises longer, in consequence of that part of the ocean being affected by the advancing swell of the Pacific.

Such is the substance of a few of the ingenious statements which Captain Fitzroy has advanced in favour of his theory ; for we have not room for one fourth of them, and they do not readily admit of abridgement. He seems however to proceed upon the supposition that the moon could keep detached oceans of any dimensions in a state of perpetual oscillation ; whereas it is easy to conceive oceans of exceedingly different dimensions, and yet not so much as one of which the moon could make oscillate to an extent deserving the name of a tide, or in fact produce in it any motion which would both continue till, and have the proper direction at, the next transit; because the times of oscillation, which naturally belonged to these oceans, might neither be equal to the intervals between the lunar transits, nor yet have any other ratio or relation to them which would tend to con­tinue the movement. Some of Captain Fitzroy’s reasoning, it is true, seems to imply that without any previous oscilla­tion in the water, a single transit of the moon could produce a sufficient tide ; and should it be able to effect this, which is very improbable, the above objection would rather be ap­plicable to that theory as explained by Mr Whewell. The circumstance however of the tide-hour varying but little along a great extent of coast, instead of arguing much in favour of the new scheme, is quite in conformity with the principles upon which Mr Whewell has laid down his cotidal lines. But whatever may be the merits of Captain Fitzroy’s theory, we have some doubts if it has much novelty to re­commend it; something very similar having been proposed, and rather more systematically, by Dr Young, considerably above thirty years ago (Natural Philosophy, vol. ii. p. 343); and he has also comprehended it in an improved form in the theoretical part of the present article, more particularly in the fourth section. (e. e. e.)

TIDESWELL, a market-town of the hundred of High Peak, in the county of Derby, 160 miles from London. It is in a lofty situation, and takes its name from a well near it, which, like the sea, ebbs and flows at intervals, rapidly in wet, but slowly in dry seasons. It is an ill-built place, with a large old church, and has a market on Wednesday. The inhabitants amounted in 1821 to 1543, and in 1831 to 1553.

TIDORE, one of the Molucca Isles, in the Eastern Seas, about twenty-one miles in circumference, situated on the west coast of Gilolo, three leagues south of Ternate, from which it is separated by a safe channel, with good anchorage near the town. It is mountainous towards the centre; the mountains are high, and generally covered with clouds ; and the lower country is well watered by streams which flow from the elevated ground. It is populous, and formerly contained twenty-five mosques. The Mahommedan faith generally prevails. The island was first visited by the Spa­niards under Magellan. Here they formed a settlement in 1521, and in 1527 they were driven out by the Portuguese. In 1607 the Dutch arrived in those seas, and soon after ex­pelled the Portuguese ; from which time till its capture by the English, it remained in their hands. The sultan was

at one period a very considerable potentate, but was entirely under the power of the Dutch, who elevated or deposed sultans according to their pleasure. The island carries on a considerable trade with New Guinea, Gilolo, the north­ern islands, and the Chinese. In 1579 Drake arrived at Tidore. Long. 127. 25. E. Lat. 0. 45. N.

TIGA, a small island in the Eastern Seas, near the north­west coast of the island of Borneo. Long. 112. 14. E. Lat. 6. 25. N.

TIGRIS. This large and celebrated river, which flows along the boundaries of the Turkish and Persian empires, has its rise in the mountains of Armenia, about fifty miles to the north-west of the valley of Diarbekir, and fifteen to the east of the source of the Euphrates. It derives its ancient Persian name of Tir or Teer, the arrow, from the swiftness of its stream, its average rate being about seven knots an hour. Not being within the range of the periodi­cal rains, its waters begin to rise in April, with the melting of the winter snows in the mountains; its second rise takes place in the beginning of November, with the setting in of the winter rains. The spring inundation is however the greatest, and it is then only that a complete inundation covers the land, and that by the conflux of the waters of