

metal being found in certain islands north of Spain was sufficient to secure for them the distinctive title of *Insula Cassiterides*, or Tin Islands.

G. F. RODWELL

### The Greenwich Date

UNDER this heading, in your number for Nov. 28, a letter signed "James Pearson" ends thus:—"The query then is—in what part of the globe and in what meridian does October 20 end and October 21 begin?" As well ask where a circle ends and where it begins. See an article at the end of Bayle's Dictionary, entitled, in the second Rotterdam edition, 1702, "Dissertation sur le jour," vol. iii. p. 3118; in the London edition, 1741, "Dissertation concerning the Space of Time called Day," vol. x. p. 365. The difficulty, as Bayle shows, is in the nature of things. Let an equatorial railroad go round the world in twenty-four hours, with a station at every 45th meridian. At noon of October 20, Mr. West takes "a return ticket" westward; Mr. East takes one eastward. Both reckon by solar time. At every station Mr. West finds it noon, and on his return home reckons noon October 20; but the station-master reckons noon October 21. Mr. East at 45° sees the sun set at 6 o'clock. At 90° he finds midnight; at 135° the sun rises at 6 o'clock on October 21; at 180° it is noon. Here the two passengers pass each other, Mr. West reckoning it to be noon of October 20, Mr. East noon of October 21. At 135° W., Mr. East sees the sun set; at 90° he finds midnight; at 45° the sun rises at 6 o'clock on October 22. On his return home Mr. East reckons it to be noon of October 22. Here then are three different reckonings, and practically the keeping of Sunday, Christmas Day, &c., on different days in different countries exists at this instant and must exist for ever. Practically also those who sail eastward round the world get one more dinner than those who stay at home. Those who sail westward round the world get one dinner less than those who stay at home, and two dinners less than those who sail eastward, when both voyages are completed.

GEORGE GREENWOOD

Brookwood Park, Alesford, Nov. 30

MR. PEARSON'S query, in NATURE of November 28, does not admit of any exact or scientific answer, for there is no natural line of demarcation or change, and the settlement is entirely a matter of usage or convenience. It is not very many years since the dates at Manila and Macao were different; and till the cession of the Alaska Territory to the Americans, the date there was different from that in the British Territory adjoining. The rule now generally held is, that places in E. long. date as if they were arrived at by the Cape of Good Hope, and places in W. long. as if they were reached *via* Cape Horn—a rule that the width of the Pacific renders practically convenient. Afloat, the rule is for a ship making a passage to change her date on crossing the meridian of 180°, or as soon after as the captain may find convenient; repeating or omitting a day, according to the direction in which she is going; but a ship merely cruising across the meridian, with the intention of returning, does not generally change her date, so that ships having different dates may and do occasionally meet—a very marked instance of which occurred during the Russian war, when our squadron from the Pacific joined the China squadron on the coast of Kamschatka.

And thus, according to established usage, October 21 at Adelaide, and October 21 at the hypothetical place in 9h. 35m. W. long., are different days; in the two places October 21 has a different meaning.

J. K. LAUGHTON

Royal Naval College, Dec. 1

THE Rev. J. Pearson is correct in the method of finding the corresponding Greenwich date, although its numerical performance is incorrectly performed in his letter.

It is absolutely necessary for practical purposes to draw the line somewhere, and it is drawn in England and her colonies as well as in America and Russia, at the meridian 180° E. of Greenwich. The limit, therefore, of the longitude to be added to or subtracted from the Greenwich date will not exceed twelve hours.

It is usual for sailors, when crossing this meridian, to skip a day, or to reckon the same day over again, according as the meridian has been reached from the eastward or westward.

An instance of this apparent anomaly is furnished in the Appendix to the "Nautical Almanac" for 1874. The time of the phenomenon of the transit of Venus over the sun's disc takes place generally about December 8, 16h. Greenwich astronomical time. Its recorded local astronomical time for the middle of the transit at Auckland, New Zealand (long. 174° 42' E.), is December 9, 3h. 40m.; but for Woahoo (long. 158° W.) the time of the first contact of Venus with the sun's limb takes place at December 8, 3h. 47m.

EDWARD ROBERTS

Blackheath Road, Greenwich, Dec. 2

### Comets' Tails

CAN any of your readers refer me to a work by a recognised authority in astronomy in which I can find the method by which the direction of a comet's tail, as regards that of the heliocentric radius-vector of the head, has been calculated from observation? Or, more briefly, have we any proof whatever that there is other than an occasional chance coincidence of these two directions?

G. H.

### REMARKS ON THE ZOOLOGY OF THE FAROE ISLANDS

AS I have already announced in this paper, I started with the Danish expedition in September from Copenhagen, and arrived after a very fortunate voyage of four days in Torshavn, the little capital of Faroe in the isle of Strömö. There I intended to remain while our steamer, with the geologists and engineers, went to the southern island (Suderö), where the miocene coal deposits are to be seen some hundred feet above the level of the sea in the basaltic rocks near the village of Qualbö. As to their researches about the extension of the coal-fields in Suderö, directed by Prof. Johnstrup, and as to the possibility of taking the coals over to Copenhagen at a reasonable price, I cannot say anything now, as the report must first be made to the Minister of the Interior, who will perhaps afterwards publish the results. Some words, however, about my own zoological researches in Torshavn will, I think, have some interest for the readers of NATURE.

I remarked in my preceding paper that no wild mammals were known to occur in the islands, except some species of the genus *Mus*. This is, as I now know, not quite correct; for some thirty or forty years ago the northern hare (*Lepus alpinus*) was introduced into the islands, and it seems to have met with very favourable conditions of life, as it is now spread in considerable numbers over Strömö, and has also been brought to Oesterö. The hare finds ample food in the grasses covering the ground; the large rocks spread everywhere protect him, and no mammals or birds of prey endanger his life, with the exception of *Corvus corax*, or the little *Falco aesalon*, which sometimes might take the younger ones. The occurrence of the *Falco islandicus* is too rare to do any serious damage to the hares. Besides these, they have also endeavoured to introduce the "rippers" (*Tetrao lagopus*) so common in Iceland and Norway, but those set free have perished without breeding. These birds require food and protection from trees, which, as it is known, do not occur in these islands.

The rats found in the northern islands of Faroe (although they have not yet come to all the islands) belong to the species *Mus decumanus*, which here, as nearly everywhere in Europe, has nearly destroyed the smaller black rat (*Mus rathus*), still, however, to be found in some houses of Suderö. In the "fields" still another species of rat is said to occur, not heretofore seen by naturalists. Mr. Randrop of Torshavn, who has taken great trouble in order to secure a specimen of the animal, the footsteps of which he has seen, thinks it is the *Lemmus norvegicus*, but he could never get it. Among the large aquatic mammals the "Grindehval" (*Delphinus globiceps*) is known to be of great importance here, as nearly every year large flocks of it are taken, which they drive to the