What is true of Iceland is also true of Norway, in the most northern parts of which we find many names compounded with the Norse word for barley, proving, as the best authorities agree, that barley then grew where it grows no longer. In Scotland many places show signs of the plough, and of having been sown with cereals where arable farming is now unpractised. It is notorious that not only in Scotland, but even in England as far south as Lancashire, large districts that were once covered with forests are now entirely bare of trees, and not only so, but trees cannot be made to grow there. "The Romans planted vineyards and made wine in parts of England where the hop will now hardly grow."

In Northern Russia beyond the Dwina there is a vast area, formerly known as Biarmia, studded with the graves and other remains of a very prosperous people, whose wealth and civilisation are much descanted about by the Saga writers. Othere, the navigator, whose story was translated by Alfred, tells us that it was on arriving in their country after the dreary voyage round the North Cape, that he first again met with tilled fields and an agricultural race. This area is now deserted except by a few hunters and fishermen; the ancient inhabitants have moved westward and southward into Finland, &c. I have described the migration in a paper to be printed by the Anthropological Institute. The best authenticated case of this desolation is the increased severity of the climate, which makes agriculture almost unendurable there. The Norse traders used to frequent Cholmogorod, the port of Biarmia, in great numbers, both for traffic and for fishing. This navigation continued until the early part of the thirteenth century, when we are told it was gradually put an end to by the increased difficulties with the ice in the White Sea, which becomes practically choked with ice; and when the English found their way to Archangel in the sixteenth century, so forgotten was this old trade, that the journey was treated as one of discovery.

Farther east facts are less accessible. The following quotations from von Wrangel's voyage illustrates my position:—

"In 1810 Hedenstrom went across the tundra direct to Utsjansk. He says, 'On the tundra equally remote from the present line of trees among the steep sandy banks of the lakes and rivers, are found large birch trees complete with bark, branches, and roots. At first sight they appear well preserved, but on digging them up they are found to be in a thorough state of decay. On being lighted they glow, but never burst into flame. The inhabitants use them for fuel. They call them Adamoushtshina (i.e. of Adam's time). The first living birch trees are not now found nearer than 3° to the south, and then only as shrubs.' . . . 'Another cliff, 30 or 35 feet high, beyond the Malaya Kurspataschnaja river, consists of ice, clay, and black earth. On drawing out some interspersed roots we found them to be birch, and as fresh as if only just severed from the trees. The nearest woods are 100 versts off.' These facts show how far to the south the limit of trees has been pushed quite in recent times in Siberia, that is, how much more severe the Siberian climate has become—a fact, perhaps, connected with the persistent south-westerly drifting of Ugrian tribes from this area which has taken place during the historic period. The flora of our own bogs must disclose evidences of some kind on this subject. I should be thankful to any of your correspondents for facts which illustrate the question drawn from this or any other source.

Will you allow me to correct two printer's errors in my last letter. Africa has been inserted instead of Arica, and Mine Journal instead of Same Journal, i.e., Journal of the Geological Society. Both errors due to my execrable writing.

HENRY H. HOWORTH

A New Mode of taking Casts

It has been suggested to me that an account of "A New Mode of taking Casts," reported in NATURE, May 2, 1872, might convey the impression that I claimed any share in the invention. Modelling wax has been employed for this purpose in France by the late M. Edouard Lartet, and I have to thank Prof. Busk, F.R.S., for having first brought the use of the material before my notice. My sole object was to formulate the process according to my own experience of its utility, that it might be employed by others for the multiplication of type specimens, without any idea of claiming its invention.

W. BOYD DAWKINS

Norman Road, Rusholme, Manchester, May 3

The Denudation of the Mendips

In the address of the President of the Geological Society of London reported in NATURE No. 129, page 490, it is stated that "Denudation has removed from the crest of the Mendips a mass of strata possibly equal to two miles or more in height, and from that of the Ardennes as much as three or four miles."

Could you find space to inform me by what reasoning or on what data geologists arrive at such a conclusion, and whether it is considered that the level of the surrounding district was raised in a corresponding degree, or that the Mendips were isolated mountains, somewhat like the Peak of Teneriffe, rising abruptly from the plains below?

INQUIRER

P.S.—Perhaps by inserting this letter and reply you may convey information to others as well as myself.

Segmentation of Annulosa

MR. RAY LANKESTER, in his letter on "The Segmentation of Annulosa" in NATURE of the 4th ult., appears to maintain that there is no fundamental difference between the segmentation of annelids and that of chitons. He says of the latter, "Why should there not be segmented molluscs?" I can no more answer this than I could answer the question why there should not be hexapod vertebrates. There is nothing impossible or absurd in the idea of the segmentation of chitons being essentially similar to that of annelids; the question is whether it is really so. He says, "The larva of a chiton is (in appearance) identical with that of an annelid, and its segmentation makes its appearance in the same way." This is an important argument, but not conclusive. If, as I believe, Mr. Spencer's theory of the origin of the annulosa is true, the segmentations of the two are fundamentally distinct phenomena, and it might appear that their development should be unlike. According to that theory, the segments of the ancestor of the annulosa had their origin by budding backwards from the head; while the segmentation of the chitons has from the first been "superinduced" like that of the spinal column of vertebrates. But it is admitted that the annulosa do not in their actual development show decided traces of this origin. I think, however, this last fact may be explained by a principle which Mr. Spencer lays down somewhere, with great probability, as a general law (though of course it is a law of tendency only, and may be subject to exceptions), namely, that there is a general tendency to the substitution of direct development for indirect. Thus, the segments of annulosa may have been originally formed one after the other by budding backwards, and yet may now be formed simultaneously, or nearly so, by the segmentation of a vermiform larva.

The opinion that the two cases are distinct is, I think, very strongly confirmed by the fact that annelids still propagate by budding off young annelids from their tails, while no mollusc whatever is known to do so.

JOSEPH JOHN MURPHY

Brittany Dolmens and Tumuli

IN NATURE for May 2 Captain Oliver advocates the theory that dolmens are merely the skeletons of original chambered tumuli. This, I think, scarcely agrees with the fact to be observed in the principal dolmens and tumuli of Finistère. In most cases in that department the dolmens occupy situations in every respect similar to those in which the tumuli are found, so that meteorological, and, indeed, every other but human agencies, must have affected both in the same manner and degree. Notwithstanding this, the dolmens are invariably bare, and the kists are as constantly covered—there are no signs of even incipient degradation and denudation in the latter, and none of former covering in the first. It would be unwarrantable to suppose that had the dolmens been uncovered by human beings, no vestiges of the mounds would remain, or that, this perfect and unaccountable removal of material being allowed, the skeleton, i.e., the part containing the most useful stones, should be left unscathed.

There is, however, a more important point of difference between dolmens and the barrow kists; namely, that in the chambered tumuli there is almost always present a floor-stone—a part of the structure which I have never seen at the base of any of the dolmens of the region in question. And there can, in their case, be no chance of removal, as the floor-stone would necessarily be the last to remain in its place. The dolmens, again, as a rule, were evidently erected with no attempt at nice adjustment of the sides or top, whereas tokens of some care and trouble are to be found in the way in which most of the entombed kists are built.