

The Mortality of Plaice.

THE letter of Dr. G. P. Bidder in NATURE for January 31, p. 155, on "Constant Differential Growth-ratios and their Significance," raises the very interesting question: Are plaice potentially immortal? In other words, does senile decay occur? This might be decided directly by cytological investigation of old fish; but there is another indirect aspect of the question which my own work on plaice suggests as worthy of being brought forward in this connexion; namely, the differential death-rate of the sexes. Dealing with large collections from two regions, the North Sea and western part of the English Channel respectively, I showed (International Investigations: Marine Biological Association, Report III. 1906-8 (1911)) that in each region males were more numerous than females up to the age at which the majority of males become mature for the first time; after which, or soon after which, females begin to preponderate, the number of males diminishing somewhat rapidly.

Commenting on this phenomenon I said: "The reason for the rapid decline in the relative number of males just after maturity might be somewhat obscure if only natural causes were at work. We know, however, that in the breeding season the catch of ripe males by trawlers greatly exceeds that of females on the spawning grounds; and it is possible, as Hefford suggests, that this factor may be the cause of the rapid decline in the proportionate numbers of this sex after maturity is reached." This artificial factor would, however, scarcely explain the whole result; nor would it account for the same phenomenon in the plaice of the Barents Sea, which was practically a virgin fishing-ground when Atkinson investigated it in 1907 and 1908 (Journal of the Marine Biological Association, vol. 8, Nos. 2 and 5). Then there are many cases of other species of fish and of other groups (cited by S. W. Geiser, *American Midland Naturalist*, vol. 8, No. 7, 1923) in which the same thing occurs, and where there is apparently no suspicion of the unequal incidence in the two sexes of extraneous factors tending to the longer survival of one sex. How then are we to account for the difference except by the lesser viability of males? This apparently implies natural death.

Dr. Bidder also makes the interesting statement that "the ratio of ovary-weight to body-weight has no relation to age, but only to body-weight; in this as in some other respects, the age of a plaice is not measured by years but by the quantity of food which it has succeeded in assimilating." Among the "other respects" with which I am familiar from personal investigation I may mention the advent of maturity, which is apparently determined by size and not by age. Thus the plaice of the Barents Sea (see Atkinson, *ibid.*) are the same average size at first-maturity as the plaice of the central North Sea, but the average age at first-maturity differs very considerably owing to the much slower growth-rate of the Barents Sea fish (up to 1908 at least), due ostensibly to overcrowding and limited food supply. The same general cause would also account for the fact that while the average size at first-maturity of the North Sea plaice soon after the War (during the latter years of which restrictions on fishing produced overcrowding) was the same as in pre-War years, the average age at first-maturity was considerably higher.

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February 11.

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Coal Resources of Alberta.

I SHOULD like to use the medium of your pages to ask that, when scientists and others sit in their offices or studies at home, to write about the resources of the outlying portions of the British Empire, they at least consult up-to-date and official reports on their subject. I hesitate even to suggest that they might restrain their pens either from modesty or from fear of ridicule when their information is only second-hand.

A case in point is a recent volume on "Fuel" in the "Resources of the Empire" series. The description of the coals of Alberta, which have been estimated to constitute more than 60 per cent. of the coal resources of the British Empire, is allowed only one and one-half pages out of the 63 pages in this section of the book. The compiler takes most of his statements from a report published in 1913, and now much out-of-date. But, to make matters worse, in a drastic condensation of the earlier report, he retains all or most of the mistakes and adds others. The result is laughable to any one who knows anything of the subject.

The Canadian Government at Ottawa has published many reports on the natural resources of the country, and the Scientific and Industrial Research Council of Alberta, during the past five years, has published ten reports on the resources of the province. These reports are readily available in England, and requests for information receive attention. There is therefore no excuse for the publication in England of out-of-date and incorrect statements.

EDGAR STANSFIELD,
Honorary Secretary,
Scientific and Industrial
Research Council of Alberta.

Edmonton, January 30.

Pliocene and Pleistocene.

AS you quote in NATURE of February 21, p. 278, from a note of mine printed in No. 6 of *Natural History* (American Museum of Natural History), will you allow me to state that the note quoted was not submitted to me in proof by the editor of *Natural History*. The part you quote embodies a serious misprint. The words "distinguished by the marine 'Pliocene'" should read "distinguished by the name 'Pliocene.'" As I am writing further on the application of the terms "Pliocene" and "Pleistocene" to various deposits in East Anglia, I should like to remove at once this unfortunate misrepresentation of my views.

E. RAY LANKESTER.

Mercury Helide.

IN a recent note (NATURE, December 13, 1924, p. 861), dealing with the formation of mercury helide, mention was made of a plan which was being perfected for a quantitative analysis of the compound. The analysis has now been completed, with the result that 210.79 parts by weight of mercury were found in combination with 4.18 parts by weight of helium. Hence 200.6 parts by weight of mercury combine with 3.98 parts by weight of helium. The simplest formula for the helide is therefore HgHe.

A detailed account of the work upon which this conclusion is based, will, I hope, be published shortly.

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February 13.