Old-time whalers, like Scoresby, experienced in the capture of whales by means of rowing boats and hand harpoons or simple gun harpoons, were of the opinion that Greenland whales and certain other whales, when harpooned and trying to escape, do descend to much greater depths and this, except for a temporary exhaustion, without being any the worse.

As may be gathered from what Scoresby says, the whalers were of this opinion for a number of very good reasons :

(1) The amount of whale-line which had to be coiled into the whale-boats, in different localities, depended on the depth of the water.

(2) In deep water, when a whale 'sounded', or tried to reach the bottom, the amount of whale-line it 'took' or drew out was limited and was obviously in proportion to its size and diving powers.

(3) When the whale was 'sounding' and drawing out the line, the 'fast boat' behaved as if it was going right down : it remained in about the same place.

(4) After an interval, the whale reappeared near where it went down, and was easily harpooned a second time by one of the other boats. Even a whale that had exhausted all the line in the 'fast boat' and was 'loose' or free to escape, came up near where it went down.

(5) In deep water, unless I am mistaken, a whale cannot be captured by means of floats or 'drogues'.

A whale was certainly in an exhausted condition when it first came up after a long and deep dive, but if given time and not quickly attacked a second time, it soon recovered and broke loose, to be caught perhaps at some later date with the old harpoon still buried in its blubber. At the Greenland Sea and Davis Strait fisheries, many whales were lost through negligence on the part of the nearest assisting boat quickly to 'strike' a whale a second time.

In reply to the practical part of Dr. Ommanney's letter, I would say that a long submergence is not necessary to permit a whale even when embarrassed by the harpoon and the whale-line to descend to and return from a depth of a mile. In the case of whales that did not try to escape by 'sounding', the line taken out was not limited or definite in amount. Among ice it was always much more. In 1895 in the Greenland Sea, the *Polar Star* of Dundee lost a whale with 3,000 fathoms of line—all attached to a 'first harpoon'.

R. W. GRAY.

8 Hartley Road,
Exmouth.
March 24.

THERE is, I think, no reason why whales should suffer from the troubles which affect divers and caisson workers[1]. There is not enough air in the whale's lungs to produce bubbles of nitrogen in the blood, even if this were mostly absorbed on going down to deep water, and the whale then came to the surface. To produce bubbles on decompression, the whale would have to come up, fill its lungs and then go down until the nitrogen in the lungs was absorbed and repeat this operation, so charging itself with dissolved nitrogen. It is most unlikely to do any such thing.

It has been suggested that the lungs fill with water in the depths, and are emptied of water when the whale spouts. But I have come across observations which showed that the spouting took place in a very few seconds, and therefore emptied only the entry of the breathing passages. It is most unlikely that the whale would have to spend time on the surface emptying its lungs of water. How far the air in the lungs can be compressed depends on the anatomical arrangements, and it is this which must control the depth to which the whale goes.

LEONARD HILL.

Nicholls Wood,
Chalfont St. Peter,
Bucks.

[1] NATURE, **135**, 429, March 16, 1934.

Diet of Seals

IN a letter in NATURE of March 23 (p. 473), Mr. R. W. Gray says that there seems to be very little scientific evidence beyond that given by Mr. G. A. Steven on this subject, and he objects to the validity of a generalisation on a basis of a study of only three specimens.

In the past five years, I have examined four seals caught in the River Tay and have found the stomachs and intestines to contain the remains of fish. These included immense numbers of flatfish, sprats and some salmon smolts. In addition, there were great numbers of small crustacea, but most of them were forms well known as gill parasites of fish.

Incidentally, tolerance and preservation of seals on the southern coasts of England may have had not a little to do with the disappearance of salmon from rivers in that area.

FRANK GREENSHIELDS.

Natural History Department,
University College,
Dundee.
March 25.

Nova Herculis, 1934

THE light curve of this nova continues to be abnormal : after oscillating between 2^m and 5^m during the months January to March, the star has faded rapidly during the first half of April to 10^m on April 14. At the same time, the spectrum has altered, the chief new lines being due to [Fe II], represented by emission maxima displaced to the violet. The two maxima previously present in H, [O I] and Fe II can now be seen only in the hydrogen bands. These have faded along with the continuous spectrum, and on April 15 much the strongest line in the spectrum was [O I] 6300 ; the spectrum now consists predominantly of the forbidden lines of [Fe II], [N II] and [O I], resembling in many respects that of η Carinæ.

F. J. M. STRATTON.
E. G. WILLIAMS.

Solar Physics Observatory,
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April 16.

Word-Association Tests of Trance Personalities

THIS method of investigation[1] has recently been continued and extended with the following results :

1. In a special experiment by Besterman and Gatty, the latter, acting as subject, was tested alternately in two 'poses' or 'orientations of mind' based on different aspects of his own life. No attempt was made to give different reactions to particular preselected words ; but, in spite of this, *significant differences* were found between the two states, as regards both reaction time and reproduction test.

It follows that such differences are not, as I had