a subcutaneous chamber connected with their single blow-hole which may help to prevent water reaching their lungs. Scoresby[4] says, "When respiring at the surface, they [narwhals] frequently lie motionless for several minutes with their backs and heads just appearing above the surface." Where there is no ice, they probably behave in the usual way.

Blue whales are occasionally seen amongst the ice; they seem to avoid narrow situations and, when breathing, are usually on the move. Scoresby says, It [the Blue whale] seldom lies quietly on the surface of the water, but usually has a velocity of from four to five miles an hour."

In the Greenland Sea, outside the ice, I have only seen Bottlenose whales breathing while motionless. This occurred alongside and in lee of the ship where the sea was very smooth. The weather was fine at the time. They formed an interesting sight, and their breathing made a peculiar noise.

R. W. GRAY.

Exmouth.
Feb. 26.

[1] "The Spouting and Movements of Whales", Annual Report of Smithsonian Institution, 1903.
[2] "Journal of a Voyage", p. 287.
[3] "Voyage of the *Lady Franklin* and *Sophia*", **2**, 324; 1850–51.
[4] "Arctic Regions", **1**, 494.

## Active and Inactive Forms of the Hormone Promoting Comb Growth

FUNK[1] has shown that the hormone promoting comb growth can only be extracted from the urine of men in the presence of large quantities of acid (see also Kabak[2]). By means of acid extraction, I demonstrated the presence of about 40 capon units per litre in hundreds of batches of normal urine, but I could not detect even 20 units per litre by injecting the fresh concentrated urine itself.

I concluded that the hormone must be present in the urine in an inactive form, and therefore tried to isolate it in this state. This has been accomplished by extracting fresh urine of men at its original *p*H (5·3) by means of butanol. When testing this extract (after having taken it up in oil), the reaction of the capons was negative to doses which would have corresponded to 15 and 12 units per litre respectively. From this it was supposed that the butanol extract contained the inactive form of the hormone for which I was seeking. 240 c.c. of this extract, corresponding to 15 litres of urine, were boiled for 8 hours after the addition of 29 gm. of trichloracetic acid. The butanol was then washed with 10 per cent caustic soda and with distilled water, after which it was transferred into oily solution and tested in capons. The product gave positive reactions in quantities equivalent to 27 and 40 capon units per litre.

It is thus evident that the hormone promoting comb growth is present in the urine of men in an inactive form, in which it can be extracted by means of butanol. The inactive form can be turned into the active one by boiling the extract with trichloracetic acid.

A. A. ADLER.

Organon Laboratories,
Oss, Holland.
April 23.

[1] Funk C., B. Harrow and A. Lejwa, *Proc. Soc. Exper. Biol. Med.*, **26**, 569; 1929.
[2] Kabak, J. M., *Endokrinol.*, **9**, 84, 250; 1931.

## A Provitamin A other than Carotene?

A TURBOT concentrate estimated by spectrographic and colorimetric tests to contain 60 per cent vitamin A (the vitamin A of Carr and Jewell[1] taken to be 100 per cent) was irradiated in spectroscopic alcohol in the complete absence of air with light of wavelength 300–390 mμ. Solutions containing 0·0011 per cent vitamin A were found to be only slightly affected by exposures up to three hours' duration whilst solutions containing 0·00011 per cent were remarkably sensitive. Solutions of this latter concentration were irradiated in lots of 60 ml. for different periods and kept stirred during irradiation by a magnetic stirrer. After irradiation of one lot it was evaporated *in vacuo* at 50° and brought to such a concentration as was equivalent spectroscopically at 328 mμ to a solution containing 0·0011 per cent vitamin A. Its absorption curve in the ultra-violet and its blue value were then determined.

Irradiation up to three minutes caused a decrease in *E* and blue units, so that the concentrate, which had a percentage vitamin A of 60, now shows a percentage of 30. Further irradiation caused a progressive increase in the spectroscopic and blue values, reaching a maximum after twenty-one minutes' irradiation when, for the concentrate, a percentage vitamin A of 140 was given by the spectroscopic value, 130 by the blue value. Further irradiation caused rapid destruction of the vitamin.

The non-irradiated concentrate in the blue value test showed a band at 565 mμ; after three minutes' irradiation the band had changed to 575 mμ; after twenty-one minutes, 575 mμ. Thus the chromogen responsible for the 565 mμ band is the precursor of the 575 mμ chromogen, which is either a purer vitamin A than that of Carr and Jewell or a sterol with very much higher spectroscopic and colorimetric values.

A report of these experiments has been sent to the *Biochemical Journal*.

EUGENE BOYLE.

Killean,
Cloughogue,
Newry.
April 23.

[1] NATURE, **131**, 92, Jan. 21, 1933.

## China and the Maya Calendars

WITH reference to the note on the above subject in NATURE of January 13, p. 68, the resemblances in the calendar systems seem to be exaggerated by Dr. Kiang. The Chinese day-count follows the numbers 10 and 12 (L.C.M. = 60). The Maya follows the numbers 13, 20 and 365 for the 'calendar round' of 52 vague years and the further factors 18 and 20 for the long count. Apart from the mere principle of a continuous day-count with more than one concurrent numerator, the agreement is slight.

A more striking 'coincidence' is the use of the 5 epagomenal days and the taboo during them, which agrees with Egyptian practice and so lends support to Prof. Elliot Smith's diffusion theory.

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Whangpoo Conservancy Board,
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March 7.