

passages in the Sagas would also be welcomed by readers unfamiliar with this literature.

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I DID not refer to the two chapters mentioned as I had discussed that evidence twice previously (*Geog. Jour.*, vol. 43, 1914) and in a later paper in the *Edinburgh Review*. I read the two chapters with interest as they show the indefiniteness of the evidence carefully collected by Dr. Brooks, except as regards the local minor variations which are inevitable. Its inconsistency as indications of any world-wide or even widespread considerable climatic variation is shown by Mr. Meyer's case. He claims from the east Kent watermills that "a period of heavy rainfall was drawing to a close in the latter part of the thirteenth century." Dr. Brooks's table 22 (p. 345) gives a census of floods and droughts in Britain; the maximum of floods, No. 9, was in 1051-1100; and instead of droughts in 1251-1300 being at a minimum, they were at a maximum. The figures for the seven half-centuries are as follows:

	Storms and Floods.	Droughts.
1001-1050 . . .	2	3
1051-1100 . . .	9	1
1101-1150 . . .	5	10
1151-1200 . . .	1	3
1201-1250 . . .	8	7
1251-1300 . . .	8	13
1301-1350 . . .	3	7

The thirteenth century had more recorded droughts, according to this table, than any century before the seventeenth. Mr. Meyer refers also to Asia; and according to Dr. Brooks's table 27 (p. 364) for China, the thirteenth century was less rainy than either its predecessor or successor. The figures for raininess are: tenth century, 36; eleventh, 37; twelfth, 49; thirteenth, 36; fourteenth, 49.

I have not the Sagas to refer to, as I write from the country, but my remark regarding them was made after consultation with an authority on East Greenland who knows the Sagas well. I warmly welcome Dr. Brooks's advocacy of the dependence of glaciations and climatic variations on geographical changes: and in accordance with that argument would expect that so great a change as the absence of ice from the Arctic Ocean and from the East Greenland Sea would have been attended by more marked changes in British weather than those recorded by Dr. Brooks.

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#### Fluctuations in Affective Reactions to the Odour of Caraway Oil.

DURING a period of two months I have arranged thirty odours in order of preference on forty occasions. Unfortunately, circumstances did not permit of this serial arrangement at regular intervals. As was to be expected, the position in the series of the very pleasant and the very unpleasant odours showed considerably less (if any) variation than the position of the relatively neutral odours. Fluctuations in the affective reactions to caraway oil claimed attention, as the median place in the series was found to be

higher (fourteenth) after lunch than that before (sixteenth). A similar post-prandial preference, though not so pronounced, was noticed in the case of dill oil, which likewise contains carvone. Musk appeared to be experienced as relatively less pleasant after the meal. In the case of camphor, rosemary oil, menthol, sassafras oil, fennel oil, and a few other odours, no consistent fluctuations of this nature were observed.

A further phenomenon of some interest proved to be that a rise in the preference for caraway oil appeared to be correlated with a fall in the preference for the odour of camphor and rosemary oil. A similar negative correlation of affective reactions, though relatively low, appeared in the case of dill oil and camphor. The accompanying diagram (Fig. 1), showing fluctuations in the median position of caraway oil and camphor on different dates, also indicates an interesting possibility of a periodic fluctuation in affective reactions to odours. Such fluctuations have been previously observed by me in the case of a few female subjects during menstruation, while a certain

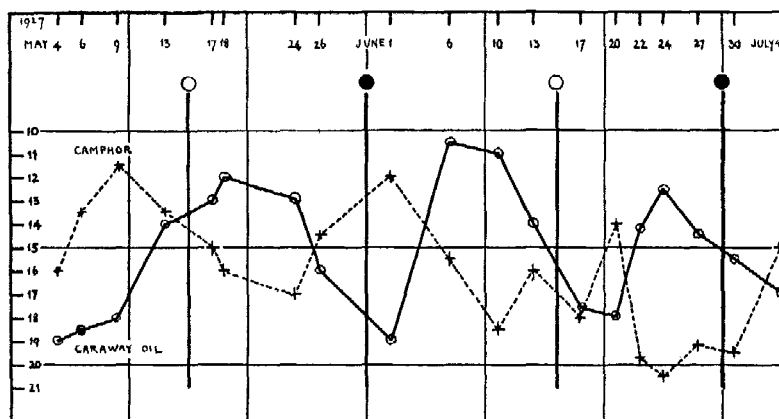


FIG. 1.—Fluctuations in relative preference to odour of caraway oil and of camphor. Numbers on axis of ordinates refer to median position in a series of thirty odours arranged in order of preference. White circles indicate date of full moon, black circles date of new moon.

correlation between menstruation and lunar periods has been demonstrated by Arrhenius (*Skand. Arch. f. Physiol.*, 1898), as quoted by H. M. Fox (*Proc. Roy. Soc.*, B, vol. 95, 1923). A ten-day periodicity in Obelia has been recorded by R. Elmhirst (*NATURE*, Sept. 5, 1925).

In view of abundant information on the anatomical and physiological relations between the organs of smell and sex in man, facilities are required for further experimentation on a large scale, taking into consideration the various factors involved, physical, chemical, physiological, and psychological. It may be mentioned that, notwithstanding common belief, fluctuations in the degree of pleasantness or otherwise of odours, are by no means always concomitant with affective reactions due to recall of associations.

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#### Hot-wire Microphone and Audio-resonant Selection.

UNDER the heading "News and Views" on page 235 of *NATURE* for Aug. 13, reference is made to my recent paper to the Radio Society of Great Britain on the "Hot-wire Microphone and Audio-resonant Selection." The writer of the note is, I fear, too optimistic with regard to the possible applications of my paper. The invention relates to the selection and