Analysis of the extracts was confined to a separation of the unsaponifiable residue and fatty acids and the determination of their iodine values. The unsaponifiable residue, calculated as a percentage of the petrol ether extract, was found to increase with depth of immersion as follows :

	Unsaponifiable Residue.		Iodine Value of Unsaponifiable Residue.
	Percentage of Extract.	Percentage of Weed.	
P. libera . .	7·6	0·61	124
P. canaliculata .	10·8	0·53	117
F. vesiculosus .	16·9	0·44	136
L. digitata . .	25·9	0·078	125

It will be seen, however, that the iodine value, as determined by the pyridine bromine method, shows no regularity. The percentages of fatty acids, calculated on the petrol ether extract, together with the iodine values of the acids, are given in the following table :

	Percentage of Fatty Acid.	Iodine Value.
P. libera . . .	72·5	107
P. canaliculata . .	69·9	124
F. vesiculosus . .	71·6	108
L. digitata . .	49·9	110

It should be noted that the fatty acids when isolated tend to reduce their iodine value on exposure to air, and although evaporations were carried out *in vacuo*, a certain amount of exposure was inevitable, and consequently the values given above may be somewhat low. A further separation of the fatty acids into solid and liquid acids was carried out in the case of two sea-weeds representing the extremes of habitat, and the results, calculated as percentages of the total fatty acids, are as follows :

	Solid Acids.	Liquid Acids.
P. libera . . .	11·5	78·7
L. digitata . .	17·7	72·2

It appears from the foregoing that, while the general character of the fats is about the same, there is a distinct difference in the proportion of unsaponifiable residue and in the absolute amounts of fat in these sea-weeds.

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March 29.

[1] Haas and Hill, *Biochem. J.*, **23**, 1000 ; 1929.
[2] Haas and Hill, *Biochem. J.*, **25**, 1472 ; 1931.

Light as a Factor in Sexual Periodicity

I OBSERVE with interest the letters of Dr. M. A. H. Tincker and Mr. J. T. Cunningham.[1] In regard to the former, I should like to point out that some observations on the periodicity of plankton diatoms have been made. Only in lakes with a relatively high percentage of dissolved salts do diatoms attain great maxima, and vast maxima have only been found to occur in a few British lakes. Many plankton diatoms occur in the greatest quantity in spring, that is, are reproducing at the fastest rate, but some attain their maxima in summer and autumn. A remarkable fact is that some forms have a double maximum, one in spring and one in autumn. In Lake Windermere the following are known to exhibit this phenomenon : *Asterionella gracillima, Rhizosolenia morsa*, and others. The maxima in the spring may be explained by light influencing reproduction, whereas other maxima may be due to differences in temperature and percentage of dissolved salts. Although a difficult task, observation of diatom and plankton maxima in the ocean might lead to interesting results.

Diatoms, of course, must be under the influence of the sun's light and heat to be able to continue their nutritive functions, and so maintain life within the cell. Sunlight is, therefore, a necessity for nutrition, but this is not the case where reproduction is concerned ; for it is a notable fact that cell-division (the usual method of reproduction) generally occurs at night. From this it appears that diatom reproduction is probably influenced by the lunar factor, mentioned in Mr. Cunningham's letter. If this is so, it would be of great interest to place a culture of diatoms at the optimum temperature in polarised light. Observations of the effect on their cycle of reproduction, and on their prolificacy under these conditions, should prove a very useful piece of research work.

GRAHAM PHILIP.
128 Westbourne Avenue,
Hull, April 9.

[1] NATURE, **129**, 543, April 9, 1932.

Climate and Parent Material in Soil Formation in South-West England

STUDIES of the profiles of soils in central Somerset have shown that typical podsols are developed on sands, whilst on the Lower Lias limestones and clays adjoining, the profiles are typical of the 'brown earths' described by Ramann.[1] The podsols are developed on recent deposits—Burtle Beds—and show very clear demarcation into bleached layer and layer of accumulation. The formation from these recent deposits gives us a maximum time for the formation of these podsols.

Whether podsols would ever develop on the clays and limestones of the Lower Lias it is difficult to say, because of the disappearance of all the old forest ; but they are not found on the present woodland, which may represent the remains of the indigenous forest.

These observations suggest that the climate is such that podsols would develop with suitable parent material ; but on the limestones and clays of the Lower Lias, the parent material is a dominant factor in the soil-forming processes on these deposits in south-west England, the climatic factor being recessive.

A. JAMES LOW.
South-Eastern Agricultural College,
Wye, Kent, March 23.

[1] "The Evolution and Classification of Soils", Ramann.

Protection of Herbarium Specimens

THE letter from Messrs. F. K. Jackson and R. L. M. Ghose[1] on the protection of herbarium specimens makes a valuable suggestion. Perhaps I may be permitted to refer readers and others interested in the subject to a paper on the "Preservation of Herbarium Specimens and Insects on Celluloid", by Mr. John Ritchie, of the Perth Museum, published in the *Museums Journal* for May 1930. If Mr. Ritchie's method of mounting on a transparent sheet of celluloid were combined with the cellophane covering employed by your correspondents, the plant would not only be protected, but would also be visible from both sides.

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London, S.W.19.

[1] NATURE, **129**, 402, March 12, 1932.