

Schemes A and B also explain the formation of nitrogen, which would come from ammonium nitrite. A possible source of nitrogen in a gas rich in ammonia is combustion in the gaseous phase, possibly accompanied by flame, owing to local rise of temperature on the catalyst, as in the well-known lecture experiment.

It does not at the moment seem possible to connect the formation of nitrohydroxylamic acid with simpler reactions than those given. Although possible schemes are easily drawn up (*e.g.*, one involving the rapid reaction of $N(OH)_3$ and NH_3 followed by rapid oxidation of the product) they do not, in fact, appear very probable.

J. R. PARTINGTON.

East London College,
University of London.

Seasonal Sunshine in Great Britain.

AN article on "Seasonal Sunshine in Great Britain" by Mr. Charles Harding appeared in *NATURE* of March 20. The results were based on the 35-years' mean, 1881-1915. Comparing south-east England with south-west England and south Wales, Mr. Harding says that "the average sunshine for the year in south-east England is 4.49 hours a day, and in south-west England and south Wales, including the so-called Cornish Riviera, it is 4.28 hours. In the winter, south-east England has an average daily sunshine of 1.92 hours, and in south-west England and south Wales the value is 1.91 hours a day; in spring the hours of sunshine for the two districts are respectively 5.50 and 5.36; in summer 6.88 and 6.41, and in autumn 3.46 and 3.31 hours."

An examination, however, of the Air Ministry figures, upon which these values are based, show that more sunshine is experienced in the south-west than in the south-east. The fact is hidden through the district being linked up with south Wales, which has different climatological characteristics. South-west England and south Wales have now been made separate districts by the Air Ministry for forecasting purposes, but the original larger areas are still retained for climatological investigation. The counties included in south-west England have an area of 6548 square miles, and those in south-east England 7224 square miles. As these districts are situated in approximately similar latitudes, there is but little difference between them for purposes of comparison of sunshine values. The addition of south Wales, however, with its additional 4762 square miles of country, brings the south-western district up to 11,310 square miles, and the lowering effect upon the sunshine values is apparent. The results for south-east and south-west England are as follows:

	S.E. England, Hours.	S.W. England, Hours.
Spring	5.50	5.66
Summer	6.88	6.75
Autumn	3.67	3.68
Winter	1.92	2.01
Year	4.49	4.53

The seasons are:—Spring: March, April, May; Summer: June, July, August; Autumn: September, October, November; Winter: December, January, February.

J. B. PHILLIPS.

The Observatory, Falmouth,
April 24.

THE criticism by Mr. Phillips, Superintendent of the Falmouth Observatory, is more a matter for the Meteorological Office than for me. In my article it is stated clearly that the sunshine records are taken from the "Book of Normals," published by the Meteorological Office. Exception is taken by Mr.

Phillips to the paragraph he quotes from the article, where it is stated that the values quoted are taken from a "Book of Normals" (M.O. 236, Section 2) giving seasonal normals for several districts; in this the Meteorological Office has combined south-west England and south Wales in one normal. I am not at all sure that I agree with Mr. Phillips in thinking that the Meteorological Office should have separated south-west England and south Wales. I agree practically in the results obtained if these two parts are separated, and I will accept Mr. Phillips' sunshine value 4.53 hours for the year for south-west England in which observations are taken for Newquay, Cullompton, Plymouth, and Falmouth. Taking all the stations as used by the Meteorological Office for the normal for south-east England, I obtain for the year 4.47 hours a day, in good agreement with 4.49 hours given by Mr. Phillips; this value is obtained from 9 stations. By omitting observations from Kew and Marlborough, and using the remaining 7 stations, the normal for south-east England is 4.62 hours, which is a greater duration than the normal for south-west England.

There is clearly keen competition for a premier record, and without doubt much can be done by the choice of a good position for the sunshine recorder. In my judgment, however the records are considered, certainly for a single station or two south-east England has a higher value of daily sunshine than any station in south-west England, which includes the so-called Cornish Riviera.

CHAS. HARDING.

The Original Home of the Banana.

I REGRET that in the notice of my recent discourse at the Royal Institution (*NATURE*, April 24, p. 597) it is stated that "the available evidence points to South America as the original home of the banana." Reference was made to the views that have been held by various authorities as to the original home of the edible banana, and it was pointed out that from all the evidence at present available the balance was in favour of Indo-Malaya as the probable home of the seedless forms now so widely cultivated.

These forms belong to the subgenus *Eumusa*, the species of which are all regarded as of Indo-Malayan origin.

There are ancient traditions that the banana existed in Central and South America before the arrival of the Spaniards, and edible bananas certainly existed in Sierra Leone in 1568, no doubt as introduced plants, as those alleged to exist in America may also have been.

Prof. Berry's recent discovery of fossil banana seeds in the Tertiary rocks of Colombia is of great interest, since they belong to a species of the subgenus *Physocaulis*, the species of which are nearly all African. This discovery proves, therefore, that the genus *Musa* was represented in South America in prehistoric times.

Whether, however, this fossil species, which is closely allied to *Musa Ensete*, from tropical Africa, is in any way related to the seedless bananas is very doubtful. Nor does it seem very likely that such a species as *M. Ensete* would give rise under cultivation to a form with edible fruits.

The seedless bananas have been so long in cultivation that it seems almost impossible to be certain of their place of origin, but the evidence I think on the whole inclines rather towards Asia than to America.

ARTHUR W. HILL.

Royal Botanic Gardens,
Kew, Surrey,
April 29.