Thus it is possible to use arcs and similar light sources giving high intensity in all regions of the spectrum for a large number of problems involving photoelectric photometry.

B. KURRELMEYER.
(National Research Fellow.)
Jefferson Physical Laboratory,
Harvard University,
March 27.

International Phenology.

THE list of thirty-one plants given in NATURE for March 20, p. 413, for which observations are requested, is singularly unfortunate for the British Isles, as fifteen are cultivated or alien; these, though four trees may be approved, are thus prejudiced for real scientific use.

It seems regrettable also that a list should be launched for scientific use that ignores botanical nomenclature and relegates a small letter to the specific or trivial name of those plants in which the former generic name is preserved; there are twelve such errors, besides two for insects.

F. A. BELLAMY
28 Polstead Road,
Oxford.

MR. F. A. BELLAMY'S letter directs attention to a point which might be considered a weakness in our selection of flowering plants for international phenology; but for this there was a reason which seemed prepotent.

Forty-six plants were first selected and their presence on the lists from the ten countries carefully compared. With very small exception these lists include a heavy proportion of cultivated plants. In one it was almost entirely so.

Of the eleven selected from the chief list in our own schedule (observed systematically for thirty-five years) there is only one, the horse chestnut. (By a printer's error its asterisk was transferred to the lilac.) Numbers 1 to 3 come in our supplementary list. Hence we felt compelled, in selecting the balance of seventeen, to consider our colleagues abroad by including ten further cultivated or alien kinds, making a total of fourteen out of the thirty-two.

The intentional omission of capital letters for all specific names, even where originally generic, was perhaps open to criticism. But is there not a growing tendency to adopt this simplification?

I am glad to have the opportunity of correcting an error in the reference to the "late" Prof. Vanderlinden in the letter in NATURE of March 20. Fortunately, Prof. Vanderlinden is still alive and active.

J. EDMUND CLARK,
Secy. Phenological Committee of the
Royal Meteorological Society.
41 Downscourt Road,
Purley, Surrey.

Transfer of Excited Energy from Ozone to Hydrogen and Nitrogen.

RESULTS have been obtained by Venkataramaiah (*Jour. Am. Chem. Soc.*, 45, 261, 1923) which show that hydrogen is activated by continuous burning of oxygen in hydrogen. He considers that the reaction activates the hydrogen. Probably electrons of high kinetic energy, capable of ionising the hydrogen, are emitted by the reacting molecules. In considering this theory further it seems probable that ozone might play a part in this reaction as ozone is formed in flames, and also decomposing ozone emits radiation of very short wave-length as shown by Stuchety (*Zeit. w. Photochem.*, 19, 161, 1920). The energy corresponding to the radiation emitted is greater than the energy of ozone decomposition.

It has been shown by Grubb (NATURE, 111, 671, 1923), and Venkataramaiah (NATURE, 112, 57, 1923), that active hydrogen produced by electrolysis will combine with molecular nitrogen with the formation of ammonia. If ozone emits energy enough upon decomposing to activate the hydrogen, then in the presence of nitrogen we might expect that the active hydrogen would combine with nitrogen to form ammonia.

To test this, the following investigation was carried out. A solution of sulphuric acid, sp. gr. 1·213 at 15°, was electrolysed using a current of 6·2 amperes. The drop of potential across the electrodes was 9 volts. A piece of platinum foil 5 sq. cm. in area served as a cathode. The anode was a platinum wire 0·5 mm. in diameter and 35 mm. in length. A stream of ammonia-free hydrogen and nitrogen at atmospheric pressure, mixed approximately in the ratio of three to one respectively, and at a velocity close to eight litres per hour, was led directly down over the anode at which the ozonised oxygen evolved at a very rapid rate. The escaping gas mixture passed through a tube two feet long and was washed with ammonia-free water in an extremely efficient absorption bulb. Runs of fifteen minutes' duration were made. Then upon Nesslerising the absorbing liquid a heavy precipitate was obtained. To obtain a quantitative estimate an aliquot part of the absorbing liquid was taken for Nesslerisation. If the velocity of the hydrogen-nitrogen mixture was increased, less ammonia was formed. A further study is being made of some of the factors involved.

A. C. GRUBB.
Department of Chemistry,
University of Saskatchewan,
Saskatoon, Sask., Canada.

Domestic Heating.

IT is curious that a lady of Dr. Marie Stopes's scientific eminence should not have taken more trouble to inform herself upon this subject before writing upon it in NATURE (March 6 and April 24). In the first place, the difference in tonnage of coal used in domestic fires (40 million) is not insignificant in relation to that used in industry (100 million), and in the second place (apart from Dr. Stopes's personal sensations) the radiant efficiencies of electric radiators, gas fires and coal fires are, according to Dr. Margaret Fishenden, in the ratio of 5 : 3 : 1. For my sitting-room I prefer to use coke, and in the bedroom gas fires or electric radiators, all of which are smokeless—a very desirable matter.

Low-temperature coke is not yet a commercial success though it may become so. Meantime, are we to continue to pour out literally many millions of tons of filthy soot into the atmosphere which cannot but affect the health of every town dweller because Dr. Stopes believes "a glowing coal fire gives out something subtle, yet intensely 'nourishing' to the system"?

J. B. COHEN.
1 North Grange Mount,
Headingley, Leeds,
April 24.