

ary systems than at present supposed". The recent observations support Banerji's conclusion.

The detection of planetary systems in binary stars also lends support to the Cepheid theory of the origin of binary stars recently advanced by me⁴. Owing to radiation of energy and consequent increase of angular velocity, a Cepheid was supposed to break up into a double-star system. There is a chance of planets being formed from the filament connecting the two stars.

H. K. SEN.

Dept. of Mathematics,
University of Allahabad.

¹ See NATURE, 152, 66 (1943).

² Lyttleton, R. A., *Mon. Not. Roy. Astro. Soc.*, 98, 536 (1938).

³ Banerji, A. C., *Proc. Nat. Inst. Sci. Ind.*, 8, 173 (1949).

⁴ Sen, H. K., *Science and Culture*, 7, 582 (1941-42).

Propagation of Potatoes

DR. L. G. G. WARNE¹ is to be thanked for pointing out Loudon's writings on this subject. The works of J. C. Loudon (not Louden) indeed contain references to emergency methods of potato propagation which recent authors in several countries had thought to be new, even if these authors recognized approximations to some of these methods among the practices of their more economical forefathers. Thus already in the first edition of "An Encyclopedia of Gardening", the date on the title page of which is given as 1822, there appear in one form or another all the notes and quotations given by Dr. Warne¹ from the 1871 edition, while again in the first edition of "An Encyclopedia of Agriculture" (1825) Loudon mentions among means of propagation having strenuous support in some quarters "on the ground of experience . . . small cuttings, sprouts, shoots, or even only the eyes or buds".

Three points call for further comment:

(1) Following a later edition of "An Encyclopedia of Gardening", Dr. Warne writes, "the sprouts generally found on store potatoes in spring may, when carefully planted in loose well-prepared soil, be made to yield a crop"—whereas the corresponding remarks in Loudon's first edition read, "the sprouts which are generally found on store-potatoes in spring, and picked off and thrown away as useless, *will*, when carefully planted in loose well-prepared soil, *yield a crop*; and this crop will be fit for use a little sooner than one produced from cuttings or sections of the same tubers" (the italics are mine). In this connexion it may be added that my own tests with detached sprouts² have been successful again this year.

(2) Dr. Warne further quotes from Loudon, "In making the sets or sections reject the extremes or watery end of the tuber" (extreme is in the singular in both the 1822 and 1850 editions of "An Encyclopedia of Gardening"). This is the antithesis of the basis of the widely publicized Russian method which expressly advocates use of the rose or 'top' end as being the most active part of a large tuber. However, after the removal of this end and, with it, of the dominant sprouts which are also the most active in the production of growth-retarding substance³, sturdy productive shoots may be obtained also from the 'heel' (proximal) end of the tuber as well as from the lateral eyes.

(3) Scientific literature, however old, can scarcely be dismissed as 'dead' unless it is wholly superseded or proved to be ill-founded. Nowadays, with the rapid strides and great expansion of the plant sciences,

it has become practically impossible for even the most active exponent to 'keep up' in more than an ever-narrowing field of specialization; yet many workers have, of necessity or because they feel it to be their duty, from time to time to go outside their own immediate field. All the more easy, then, to miss pertinent references and repeat the work of others unnecessarily.

NICHOLAS POLUNIN.

New College,
Oxford.

¹ NATURE, 152, 450 (1943).

² *Gard. Chron.*, Ser. 3, 113, 36 (1943); NATURE, 151, 587 (1943).

³ *Amer. J. Bot.*, 29, 558 (1942).

International Languages

RECENT references to international languages in NATURE bring home the necessity of a more thorough inquiry into their possibilities, and into the causes that have so far precluded their wide use. There can now be no doubt that artificial international languages have been constructed that can be learnt in a very small fraction of the time required by any natural language. In spite of this, their anticipated use in international communication has not become general.

A common reason given for their adoption is that they can serve as a tool for international organizations. It is here that the barrier to their use is apparent, since for the last generation international organization generally has been under a cloud.

If after the War we put aside the national rivalry of the last interbellum, its place will need to be taken by international organizations of a robuster nature than hitherto, including both organs of government and cultural international societies. These, if they are based on continuous popular activity, will need a language for their use. (It is less certain that specialized international vocations, such as trade in defined channels, will create a demand for an international language, and the same probably applies to occasional conferences and to the study of foreign countries in detail.) Which international language is to be used must depend on the users. The language for a European or American-European federation might well consist of roots from European languages. A union centred on the English-speaking peoples might well use one based on English. It is conceivable that several might be in use simultaneously in the parliaments of different federations or by different cultural organizations. In view of the ease with which they are learnt, even this would be a gain on the present position, while it would also provide an experimental basis for future work on international languages.

But if one international language is to receive enduring and universal recognition, we require a stable international political and cultural balance, and to know something of the relative importance of the different national cultures therein. How far is this about to be realized? At present we can make some estimate of the future importance of some of the protagonists of this War. Only to a less extent can we foretell the importance of the countries of Asia, South America and Africa. Is it possible to make a reasonably good forecast, to get it accepted, and so to decide the type of international language likely to secure lasting adoption?

E. T. HARRIS.

"Hazelwood", Ivy Road,
Bolton, Lancs.