dealt with and the cytological and physiological complexities involved in the process of digestion are discussed in detail. After reading through this chapter the reader is brought to the realization of the fact that the whole process of digestion in *Drosera* is not, contrary to what one learns from the usual accounts, a simple one. Prof. Lloyd points out the many-sided interest of this problem, and emphasises the need for further work in this promising field.

By far the most wonderful of the carnivorous plants is *Utricularia* belonging to the family Lentibulariaceæ. In this family we find examples of the simplest traps (*Pinguicula*), the most complex of the pitfall type (*Genlisea*), and the incomparable trap of *Utricularia* itself. Prof. Lloyd compares the trap of *Utricularia* to a mouse-trap, not the ordinary simple dead-fall one, but an elaborate, automatic, self-setting mouse-trap which catches as fast as the victims come, and which is provided also with a disposal plant so that nothing is left at last but hair and bones, the trap working in any position and even under water. This analogy may be rather far-fetched, but as Prof. Lloyd remarks, it at least serves to indicate that the *Utricularia* trap is a pretty complex bit of mechanism.

While ordinary accounts of the carnivorous plants do not include the fungi which prey on animalcules, a chapter in the present book is devoted to the zoophagus fungi. It is interesting to read how uncanny these fungi are and what diabolical methods they employ in capturing their victims.

The origin and evolution of the carnivorous plants are some of the interesting questions that arise in the minds of interested readers, but unfortunately little can be said in answer to them, and as Prof. Lloyd says, how these specialised organs of capture in these plants could have evolved defies our present knowledge.

All students of botany interested in this subject will be sure to have nothing but praise for the book, and gratitude to the author for making his extensive and intimate knowledge of these plants available to a very large circle of readers. Throughout the book the language is simple and lucid, and the style thoroughly enjoyable. The book is profusely illustrated with numerous photographic reproductions and excellent line drawings, many of them prepared by Prof. Lloyd himself. The usefulness of the book is further enhanced by the incorporation under different chapters of all the original and up-to-date literature in this field.

The get-up of the book leaves nothing to be desired, and the price is quite modest. Considering the present difficulties due to war, the publishers deserve our warmest congratulations for bringing out this volume, the ninth in the new series of plant science books under the editorship of Dr. Frans Verdoorn. This book is an outstanding contribution to botanical science by Prof. Lloyd and ought to find an important place in every botanical and general science library. S. B. KAUSIK.

Indian Village Health. By J. N. Norman-Walker. (Oxford University Press, Madras), 1943. Pp. 90. Price Rs. 2-8-0.

In this small book, the author has made an attempt to deal with most of the important health problems affecting Indian village life. General principles in the handling of the common Communicable Diseases have been dealt with. Local experience seems to have unduly influenced some of the observations of the author and several of the detailed recommendations under Malaria, Small-pox, Water and Milk have been superseded by more up-to-date practices.

The absence of stress on the importance of grain movements as a major source of spread of plague and the necessity for early diagnosis of cases of Tuberculosis are serious omissions. The use of copper-sulphate for destroying harmful organisms in water is limited to the prevention of objectionable algæl growths only.

The brief notes given under Appendix is helpful for the field worker in Public Health. The few model plans included at the end of the book, are useful in designing construction of public utility. B. ANANTHASWAMY RAO.

An Introduction to Historical Plant Geogrphy. By E. V. Wulff. (Waltham, Mass.: The Chronica Botanica Co.; Calcutta: Macmillan & Co., Ltd.), 1943. Pp. 223. Price $4.75.

The book gives a fascinating account of the History of Plant Geography. As is usual with the Chronica Botanica publication series, the book is written by an acknowledged authority and includes most of the works of the author himself. The entire work is divided into eleven chapters and embraces all aspects of plant geography. It will be noticed that every advance in the field of Botany has some bearing or the other on the study of plant geography.

It is not possible within this short space even to review the wealth of facts presented in the book. But a very brief account of the subjects treated therein might not be out of place. But one must certainly go through the accounts given in the book to get a proper perspective of the importance of the study of plant geography.

The region of distribution of any taxonomic unit which is termed an area, might be natural, or artificial by intentional or accidental introduction by man. The topography which is affected by physico-geographical conditions is often made difficult to be comprehended on account of inherent peculiarities of the plants themselves. Some are stenothermic (growing within certain restricted temperatures), others require mycorrhiza for their growth or even a particular type of insect visitors. The latter forms are usually termed stenotopic.

Regarding areas and their distribution, a detailed account of the present status of the "age and area" hypothesis is given. It is well known that the centre of an area for a parti-

cular genus, is the place where there are the maximum number of its species. Regarding the endemics, based on the floristic studies of Ceylon and New Zealand, Dr. Willis concludes that the endemic species which occupy the smallest areas in those islands are young, and that the area of the species is proportional to age. As Dr. Wulff has pointed out, this does not explain the cases of endemics which have acquired their monotypic character as a result of the dying out of most of their species. Endemism might be the result of taxonomic isolation, in which case it might be young, as compared with the endemics which manifest phylogenetic antiquity. Various terminologies to differentiate the two types, including the use of the terms, neoendemics and palæoendemics, are given.

A discussive account of various species and their possible origin due to edaphic factors is given. The importance of plant rusts and plant lice in gleaning out the facts about past distribution of plants is finely illustrated. This indirect method of study is useful where evidences from fossil records are lacking.

In the chapter on artificial factors in the geographical distribution of plants, the role of man in distributing and changing vegetation is pointed out. Considering the vastness of the flora, man's part is insignificant in changing the character of an area.

Referring to natural factors concerning geographical distribution of plants, such as wind, importance of competition among plants to inhabit new areas, or between the new comers and those already present is stressed. The necessity of understanding the past history of the globe to explain discontinuous distribution is explicitly stated. In this connection a comprehensive account of Wegener's theory of Continental drift as supported by phyto-geographical studies is given. Diel's criticism of Wegener's hypothesis is shown to be not in keeping with facts. In the last chapter concepts of floral elements such as geographical, ecological and historical elements are elegantly described. The book is a very valuable addition to the Chronica Botanica series and must have a wide circulation it deserves.

M. J. THIRUMALACHAR.

SCIENCE NOTES AND NEWS

On the Production of Carbarsone.—Mr. A. K. Bose, of the Indian Research Institute, Ltd., Calcutta, writes:—Carbarsone, the carbamido derivative of arsenilic acid, is one of the most innocuous of the organic arsenicals. Its amœbicidal action is directly connected with its arsenic content. Theoretically it contains 28·8 per cent. arsenic; but as the drug is being marketed in tablets and gelatin capsules containing 0·25 gm., it is of special importance to see that its content of arsenic as demanded by the above amount of the drug, is strictly maintained. The arsenic content of "Carbarsone" usually available in the market is sometimes found to be lower than the standard (28·1 to 28·8 per cent.).

The compound has now been prepared in this laboratory and has been found to be upto standards and specifications as mentioned in the *New and Non-official Remedies*, 1939. The product melts at 172° with decomposition and the arsenic content as determined by the U.S.P. XI method has been found to be 28·7 per cent. in average, indicating thereby, that a technique of producing carbarsone with arsenic content just within the limit as specified in the N.N.R. has been developed in the country.

Post-War Agricultural Policy in India: Planning for Self-Sufficiency in Manurial Requirements.—Dr. C. N. Acharya writes:—

One of the bitterest lessons taught this country by the present war is the great weakness in the national economy in having to depend on imports from foreign countries in order to meet the normal food requirements of the country. A searching analysis of the failure of the country in recent decades to meet the food requirements of its increasing population, shows this failure to be due ultimately to the low fertility level and crop-yielding power of Indian soils. In any post-war agricultural policy, a systematic planning for improving the fertility status of Indian soils should occupy the most prominent attention. Such planning would envisage primarily the production and application of greater quantities of fertilizers and manures to the land than are done at present.

In considering various methods of tackling the manurial problem, weightage should be given to a policy which would stand the stress of prolonged war conditions. Dependence on imports of fertilizers for maintaining food production in the country is no sounder policy in war time than dependence on imports of food materials themselves. So far as India is concerned, her local resources of mineral phosphates are limited and in the matter of nitrogenous fertilizers, her internal production is also low at present. Even supposing that the production of nitrogenous fertilizers by fixation from the air could be increased greatly after the war, it is well known that most of this production would be diverted for the manufacture of explosives in war-time.

In the light of the above considerations, it would be seen that the soundest policy to be adopted in our post-war agricultural reconstruction in India would be to concentrate on increasing the quantity and quality of organic manures that could be produced within the country itself.