

ECOLOGICAL BASIS OF LAND USE AND MANAGEMENT*

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LAND use and management involve a wide range of human adjustments to environment. This range extends from purely physical problems on into those of social relationship. The only scientific rubric embracing such a wide field is that of ecology. This is not to assume for ecology any greater authority than other sciences possess, but merely the right to try to develop a symbolism and method suitable to its approach.

The ecologist conceives of the living community as a highly integrated expression of solar energy. The measure of ecological or biological potential is in the degree to which such energy is stored and utilized before its final loss through entropic change. The degree of organization of the soil is a concomitant aspect of biological potential. Efficient natural communities and mature soil, therefore, afford norms for judging human culture patterns as they affect the landscape.

Modern science has been applied chiefly to elaboration of finished goods from raw materials. It needs also to be applied to the conservation of energy and materials, and to distribution. No sound programme of land use and management is possible except on this basis. For reasons other than abstract political theory, I believe that such adjustments can best be made within flexible regional communities, with considerable local initiative. The emphasis in such com-

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munities must inevitably be less on profit and more on design.

The basis of adjustment lies in ecological diagnosis. Through a study of physiographic processes, climatic pattern, soil development, biological stabilization, and the water cycle it can readily be determined whether the biological potential of a given landscape is being lost or maintained under the impact of a particular human culture form. Technical remedial measures are frequently obvious; the necessary social changes more obscure and difficult.

The present trend of land use must be reversed to give a maximum of natural communities and a minimum of ploughland, the latter more carefully chosen and handled than at present. Intermediate areas, such as pasture, must be adjusted to actual need. Such a programme will eventually increase real wealth and the population capacity of the land. An important and immediate need is to lessen the pressure for cash income from land.

Studies are needed of mixed cropping plans which will simulate natural communities, and of methods of tillage and humus return which are less violent than those now in use and which more closely simulate Nature. A much wider strategic and incidental use of permanent vegetative cover in drainage ways, fence-rows, etc., is already discernible, and is justified ecologically. In the cultural realm much may be learned from the occasional human communities which have developed and maintained a sound working relationship with the landscape.

CHANGES IN THE BRITISH PHARMACOPŒIA

THE first of the war-time emergency supplements to the British Pharmacopœia, which was outlined in NATURE of June 8 (p. 889), became official on June 15. It is not improbable that a second addendum will be published later containing monographs on certain synthetic drugs of the type known as new remedies, for the supply of which Great Britain has hitherto depended upon foreign sources which are not now available. There is also a need for a third addendum to supply formulæ for sweetening preparations for use in place of sugar compounds; indeed, it seems desirable that standards should be laid down for such preparations as soon as it is convenient to do so, in view of the announcement by the Ministry of Food that no new permits to manufacturers to obtain sugar supplies can now be considered.

The addendum dealing with synthetic drugs would rechristen the products selected for inclusion; pharmacopœial names will take the place of the

original proprietary names; thus "Doryl" will become "Carbachol"; "Fouadin" will be renamed "Stibophen" and "Coramine" will be officially called "Nikethamide". The selection for inclusion in the addendum will be made only from such drugs as are now being produced, or will shortly be produced, by British manufacturers.

The problem of substitutes for sugar compounds is less easy than would appear at first sight; it is not merely a question of sweetness; it is also desirable that so far as is feasible the substitute should be of the same density as the sugar preparation and should possess, in certain cases, preservative properties. In many instances no doubt saccharin or glycerin would serve the desired purpose so far as the sweetening factor is concerned, and it is interesting to note that saccharin is now manufactured on a large commercial scale in Great Britain and that up to the present medicinal glycerin has been obtainable at the same prices as were quoted before the War began; the