

---

Review

Author(s): A. G. Tansley

Review by: A. G. Tansley

Source: *Journal of Ecology*, Vol. 8, No. 2 (Jun., 1920), pp. 159-161

Published by: British Ecological Society

Stable URL: <http://www.jstor.org/stable/2255539>

Accessed: 26-06-2016 14:46 UTC

---

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at  
<http://about.jstor.org/terms>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).



*British Ecological Society*, *Wiley* are collaborating with JSTOR to digitize, preserve and extend access to  
*Journal of Ecology*

MADAGASCAR (R. S. ADAMSON).

**M. Denis.** "Recherches anatomiques sur quelques plantes littorales de Madagascar." *Rev. Gén. de Bot.* **31**, 1919, pp. 33, 113, 130.

The plants examined are all members of the *Ipomoea pescaprae* association of the E. coast of Madagascar. The soil is a dry permeable coral sand. The plants are mostly decumbent or creeping and generally rooting at the nodes. All produce very numerous roots. The leaves generally small and more or less thick and fleshy.

Fifteen species were examined: *Cassytha filiformis*, *Tribulus cistoides*, *Ionidium buxifolium*, *Canavalia obtusifolia*, *Dolichos axillaris*, *Vigna lutea*, *Desmodium triflorum*, *Vinca* sp., *Ipomoea pescaprae*, *Ip.* sp., *Ruellia monanthos*, *Hydrophylax madagascariensis*, *Scaevola koenigii*, *Sc. Plumieri*, *Microrhynchus bellidifolius*. Examination was made of leaf, petiole, stem and root.

As regards leaf structure *Scaevola Plumieri* alone shows a markedly thickened epidermis.

The leaves were either bilateral or isolateral, in the latter case with a central water tissue. All show water tissue: this was central in the isolateral leaves of *Ipomoea pescaprae*, *Scaevola Plumieri* and *Hydrophylax*; in the upper epidermis in *Dolichos*, *Ionidium*, *Ruellia* and *Canavalia*, and in the hypodermis in *Scaevola koenigii*. With the exception of *Scaevola Plumieri* which shows features of the plants of salt deserts, the plants show halophytic characters in the almost complete absence of epidermal protectives, either thickening of the wall or hairs and the more or less markedly developed succulence in the water tissue.

## TWO VEGETATION MAPS OF THE UNITED STATES.

**Forrest Shreve.** A map of the Vegetation of the United States. 1: 9,600,000.

*The Geographical Review*, **3**, 1917, pp. 119–125 (Plate III). American Geographical Soc., New York.

**J. W. Harshberger.** Vegetation of North America. 1: 6,170,000. Rand, McNally & Co., Chicago & New York. [1920?]

Dr Forrest Shreve's map depicts 18 types of vegetation. He uses a restricted and rather depressing scale of colours, and the tints are not well contrasted—some indeed are very difficult to distinguish. Parallels of latitude and meridians of longitude would have been a useful addition. Professor Harshberger's is a large wall map (about 5 ft. × 3 ft. 6 in.) boldly coloured with well contrasted tints showing 29 different types of vegetation. The whole of North and Central America as well as the West Indies are included—a very welcome feature. The chief rivers are boldly drawn, but the state and national boundaries might well have been added, since it is impossible to avoid thinking in terms of these.

These two maps illustrate the great difficulty of producing a trustworthy representation of the great types of vegetation of an extended region of the earth's surface, even when it is so comparatively well known as North America. In the first place of course no two plant geographers are in exact agreement as to the types which should be depicted on a small scale general map, and this disagreement is very obvious in the two maps before us. Thus Dr Shreve recognises a northern "mesophytic" evergreen forest occupying the basin of the St Lawrence, and the Great Lakes and parts of the Appalachian Mountains, and represented in the west of the United States by the forests of the Sierra Nevada, of some of the Pacific coastal ranges, and of the Rocky Mountains, on which it extends right down to the south of Arizona and New Mexico. More or less corresponding with this Professor Harshberger distinguishes a northern (north-eastern) coniferous forest, a coniferous forest of the northern Rocky Mountains, another of the southern Rocky Mountains, another of

the Sierra Nevada, and another of the Pacific coast ranges. Dr Shreve shows a great deal less forest south and east of Great Salt Lake than does Prof. Harshberger. The great climatic grassland region is divided into prairie and steppe by Prof. Harshberger, but is left undivided by Dr Shreve. On the other hand Dr Shreve distinguishes four types of desert and two of semi-desert, while Prof. Harshberger has only three types of desert and one of semi-desert, and these cut across the boundaries of Dr Shreve's types in a puzzling way.

These discrepancies are partly to be explained by the fact that Dr Shreve bases his divisions almost solely on the great vegetational features, whereas Professor Harshberger uses floristics and geography as well as habitat and vegetation as he finds convenient. Dr Shreve's is certainly the simpler and clearer scheme, though it may be doubted whether his breaking up of the microphyll desert into California and Great Basin, and of the succulent desert into Texas and Arizona is strictly justified on the principles he lays down. His transition regions are certainly helpful.

In this connexion it may be noted that the mapping and interpretation of the transition between eastern deciduous forest and northern (or north-eastern) conifer forest seems to baffle American phytogeographers a good deal. Thus in Graves's "Natural Forest Regions of North America" (U.S. Dept. of Agric., 1910) the "northern forest" is shown including all but the southern extremities of Lakes Michigan and Erie and sending a tongue southwards along the Appalachians into northern Georgia. The explanation says that the "northern portion" is dominated by conifers, the "south-eastern" (which would include the Appalachian tongue) by beech, maple, etc. Harshberger nearly follows this boundary but labels the whole forest as "northern coniferous with white pine prominent." Shreve, on the other hand, shows the "north-eastern" mesophytic evergreen forest in a detached area on the northern Appalachians, with smaller detached patches only on the southern Appalachians. The northern Appalachian area is separated on Shreve's map from the main northern mass of coniferous forest by a great area of deciduous forest reaching beyond the Canadian boundary from Lake Huron to the St Lawrence. Finally Nichols ("Vegetation of Northern Cape Breton Island," *Trans. Conn. Acad.*, 1918) gives a sketch map (p. 258) in which he shows a transition region, bounded on the north by the northern limit of *Acer saccharum*, and on the south by the southern limit of *Abies balsamea*, between the coniferous and deciduous forest regions. The southern limit of this transition region corresponds approximately with that of the northern forest of Graves and Harshberger. Prof. Nichols however regards the transition region as "merely the northward extension of the deciduous forest formation" on the ground of "the almost universal supremacy, in situations edaphically favourable to their development, of the climax trees of the deciduous forest formation over those of the north-eastern evergreen coniferous forest formation" (pp. 259-261). Dr Shreve also maps a transition region, but this is shown in a number of distinct patches and does not correspond at all with that of Prof. Nichols. It is impossible to get a clear idea of the facts from these various presentations.

It may be suggested that the Ecological Society of America would do well to appoint a committee charged with the duty of drawing up and publishing an authoritative map on clearly defined principles and accompanied by explanations like those given by Dr Shreve. Such a map should have an excellent sale. The best thing would be to have two maps, one like Dr Shreve's, a purely vegetational map, representing the distribution of the great plant communities on objective lines, without regard to floristic affinities, the other bringing out the great natural floristic elements and their centres of distribution. The two would supplement and illustrate one another in an interesting and instructive way, and would be most useful in impressing on students these two geographical aspects of vegetation. There is no great region of the earth comparable with North America in combining so many

features favourable to such a treatment. Even in the east it is still possible to reconstruct the original vegetation with a relatively high degree of accuracy. At the same time the vegetation of the subcontinent is sufficiently known, even in its remoter parts; and the whole presents a wonderful reflex of climatic factors. Canada and Mexico, if not Central America and the West Indies, should be included.

A. G. TANSLEY.

## GEOGRAPHY OF VEGETATION

**Marcel Hardy.** *The Geography of Plants.* Pp. xii and 327. 115 figs. in the text. Clarendon Press, Oxford, 1920. Price 7s. 6d. net.

This is the "more advanced book" promised in the late Prof. Herbertson's preface to the author's useful little *Introduction to Plant Geography*, published in 1913. It is a very condensed systematic geographical account of the vegetation (not of the plants) of the whole surface of the earth, and the information reaches a high standard of accuracy. It presents indeed the most complete descriptive account existing, in a brief space, of the vegetation of the world. The book loses a great deal of its value, however, owing to the entire absence of citations of the sources of information, and the almost entire absence of scientific names. An effort has been made by the compiler of the index to remedy this last defect, but not always with success, the guesses as to the species the author means by dwarf oak, white oak, and Spanish broom in the Mediterranean region being clearly wrong. *Acer pseudo-platanus* appears in the index for "sycamore" in the Sudanese savanna! The book is illustrated by maps of climatic factors—mainly the seasonal distribution of rainfall—and of the vegetation of the great continents. Considering the striking discrepancies between the existing maps of vegetation by the best authorities these are fairly satisfactory, but there is a misleading definiteness about the boundaries of the vegetation types in regions of which little is really known. There are also a number of reproductions of photographic illustrations of vegetation, collected from very various sources, and considering their diverse origin these again are, as a whole, not unsatisfactory. The great drawback of the book is that it cannot be used with any very great confidence as a work of reference because of the absence of precise names of plants and authorities for the information, while as a work for students it is too condensed and the treatment has not sufficient light and shade.

A. G. T.

**J. W. Bews.** "Plant Succession and Plant Distribution in South Africa." *Annals of Botany*, 34, pp. 287–297, 1920.

The author accepts the general principle of Willis's "age and area" rule, but shows that "in a country like South Africa, with its great variations in climatic conditions, the action of the age and area rule must be profoundly modified." He also shows that the most widely distributed species occur in early stages of the great successions, the hydrosere and the xerosere (including "ruderals"), as well as of subseres (e.g. *Rubus* and *Polygala* after fires). On the other hand some pioneer species (e.g. *Crassula* on rocks) are not particularly widespread. These may be regarded as young species on the age and area hypothesis, not having reached their climatic limits; but it must also be remembered that stable mature communities act as barriers to the distribution of strict pioneers. It is pertinent to enquire whether the different means of migration at the disposal of different species may not largely explain the differences of distribution among pioneers. The author also shows that the later stages of succession, such as Natal forest, grassveld, Cape macchia, contain a high proportion of endemic forms.