

8-27-1965

Plant Communities: Native Vegetation of Nebraska

J. E. Weaver

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Weaver, J. E., "Plant Communities: Native Vegetation of Nebraska" (1965). *Agronomy & Horticulture -- Faculty Publications*. 439.
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complete and muddled as well. The clinician who is well informed with respect to the treatment of cancer will find the information contained here of little value, and the novice may be misled by the lack of balance and perspective. The publication of a monograph on cyclophosphamide with only passing reference to the effectiveness of related compounds does not do credit to those who organized the conference or to the company that supported it. Sir Ronald Bodley-Scott's closing statement seemed particularly relevant. "I will end with an unsolicited testimonial. One of our patients with chronic lymphatic leukemia did very well on cyclophosphamide. He was so pleased with the effects of this drug, he told us, that whenever his wife felt off-color, he gave her a tablet and it made her feel much better."

The book contains a complete bibliography, and the index refers to the text as well as to papers in the bibliography which are relevant to the topic.

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Behavior Studies

Imprinting and Early Learning. W. Sluckin. Aldine, Chicago, 1965. x + 147 pp. Illus. \$5.

In general, review articles (or books) fall into one of two categories: they may summarize the literature pertinent to a particular field with the object of presenting to the reader a reasonably complete picture of what has been done, and why, and by whom. Alternatively, a review may be highly selective, the author's intent being to consider only those articles that meet his own criteria for rigor and relevance. In the latter instance, the onus rests on the author to explicate and to justify those criteria. Apparently, reviews of the latter type win few friends. In any case, they are rarely written.

Sluckin's book clearly falls into the first category, and, given the limitations of such a treatment, he has done a first-class job. P. Gray's checklist of avian imprinting papers, [*Psychol. Rec.* 13, 445 (1963)], provides a fair measure of the thoroughness of Sluckin's coverage; and thorough it is. This is not to suggest that Sluckin has done no

more than prepare another checklist; the theoretical significance of each reference has been explored, and incompatibility in results dispassionately discussed. Indeed, the book's one feature that disappoints me is just this absence of a modicum of passion and fervor. Some of the many experiments Sluckin discusses do not measure up to his own professional standards: inadequate sample sizes, the absence of appropriate controls, improper statistical treatment—these shortcomings characterize some of the studies on imprinting he has cited. The field of behavior would not be ill served by an explicit recognition of the fact that some papers should be accorded more respect and treated more seriously than others; and that, in fact, a few should be ignored altogether.

My bias should be made clear: I would like to have a more critical assessment of the imprinting literature. It is thus hardly fair to criticize Sluckin for having followed what I personally judge to be only a second-best course. But I must emphasize that he has marked his trail well. The organization of the chapters of his book is both clear and reasonable; the discussions are pithy; the extrapolations and speculations insightful and intriguing; even his use of English is pleasing to eye and ear. In short, no one interested in imprinting, whether he is of the laity or has a professional commitment to behavior studies, will find this book a poor investment.

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Plant Communities

Native Vegetation of Nebraska. J. E. Weaver. University of Nebraska Press, Lincoln, 1965. vi + 185 pp. Illus. \$4.75.

Thanks to our rapid increase in population and the largely indiscriminate spread of urban, industrial, and transport facilities, the time is not far distant when land-use capabilities must receive much more attention than they have enjoyed. Natural, that is presettlement, vegetation, integrating as it did the manifold factors of environment, is unexcelled as a guide to potential land use.

This slender volume presents the varied pattern of "native" plant com-

munities in a great state that extends eastward from the foothills of the Rockies, across semiarid to subhumid grasslands, and into the western margin of the deciduous forest region. For 50 years J. E. Weaver and his students in the Botany Department of the University of Nebraska have investigated the increasingly rare remnants of original vegetation, both above and below the ground line. They have also extended these studies to cultivated crops and range land.

The evident intent is to make more widely available material that has appeared in numerous technical publications, particularly two books—*North American Prairie and Grasslands of the Great Plains*. To this end many fine photographs, both of individual plants and representative communities, are included, as well as drawings taken from the author's distinguished studies of root systems.

Another device is the exclusive use of vernacular names for plant species. This will present no difficulty to those who have at hand the books just listed, or to students of range management, accustomed as they are to such terms as "needle-and-thread grass," "purple three-awn," and "muhly grass" (for members of the genus *Muhlenbergia*). In the absence of a glossary it may trouble botanists from other regions, while its utility in schools will rest largely with the teacher.

The key illustration in the book is based on Condra's map of the topography of Nebraska, showing a surprising number of regions and subregions in a state that many think of as monotonously uniform. Preceding this map is one of mean annual rainfall, ranging from 33 inches in the southeast to 15 inches in the extreme west. Evaporation is not shown, although its inverse relation to rainfall is mentioned.

If only the climatic gradient were involved, the picture would be one of a relatively simple movement from deciduous forest in the east, through tall grass prairie, a transition zone of mixed mid and short grasses, to short grass plains in the west. But relief, exposure or slope aspects, and soil conditions complicate the situation. Tongues of deciduous forest run westward along flood plains. Sandy soils, unless disturbed, permit outliers of more humid vegetation west of their normal limits. The foothill elevations of the northwest encourage the growth of Rocky Mountain conifers.

In addition to lakes and swamps, distinctions have been made between lowland and upland communities and transitions between. Nongrassy herbs (forbs) such as legumes and composites are important constituents, as well as a source of great interest and beauty in the native grasslands. All of this involves considerable detail in the presentation.

I am reluctant to offer suggestions in the face of this admirable effort to condense the studies of a lifetime. There are, however, two sources of economy in discussing complex and extensive areas of vegetation. One is the idea of succession to which Nebraskans have made a major contribution. The other is that of the con-

tinuum, developed by Curtis in his classical Wisconsin work. The importance of both of these theoretical constructs will be inferred by the professional reader. It would be interesting to see whether they might not have been of great help to the laity for whom the book is intended.

For various reasons, many useful books get lost in the shuffle. Raymond J. Pool's *Marching With the Grasses* (University of Nebraska Press, 1948) is perhaps not as well known as it should be. In it readers will find much of general interest regarding this indispensable group of plants.

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History of Experimental Psychology

Source Book in the History of Psychology. Richard J. Herrnstein and Edwin G. Boring, Eds. Harvard University Press, Cambridge, Mass., 1965. xvi + 636 pp. Illus. \$12.50.

This is without any question the best, and perhaps the only really good, selection of primary material relevant to the history of experimental psychology. Psychology's historical documents are in very large proportion in languages other than English, and many of them have not been translated. Herrnstein and Boring have made their selection on the basis of importance rather than of availability in translation. The book consequently contains a good many new translations, and the principal translators, Mollie D. Boring and Don Cantor, should share with the editors the credit for an important job very well done.

Boring is the undisputed dean of psychological historians. Herrnstein is a younger Harvard colleague with an interest in what Boring has called "behavioristics." Together they have made an impressive selection.

There are 116 items, clustered under nine topical headings, all annotated and appropriately indexed, and every one of them of significance for the history of experimental psychology. A reviewer could easily carp about items that have been omitted. (Perhaps a second edition will include a few of these.)

I am delighted, almost to the

point of exuberance, by the appearance in fresh translation of important items that have been buried in the archives. Examples are Köhler's discussion of isomorphism in the *Physische Gestalten*, which has previously never been translated, and Broca's report on the speech center, which most of us have cited but have never read. There are also important but infrequently consulted American items, such as Watson's original Manifesto (1913) and W. S. Small's classic study of the rat (1901), both of which have led a good many of us down blind alleys. (But shame on the Harvard professors for having represented Wellesley's Mary Calkins by one of her less exciting contributions! Miss Calkins deserves better of the historian.) William James is quoted liberally, as he should be, and William McDougall (also a Harvard professor) somewhat grudgingly; and James Ward (but not G. F. Stout) regains his proper place in history. Add to these some gems from Sechenov, the Müllers (G. E. as well as Johannes), La Mettrie, Ernst Mach, and a host of others and you have a book which will delight the scholar and remind the student that all good ideas were not born yesterday.

Boring has paid a proper tribute to E. B. Titchener, which probably does not please Herrnstein but which pleases me immensely.

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Radiation Effects

Actions chimiques et biologiques des Radiations. M. Haissinsky, Ed. Masson, Paris, 1965. 250 pp. Illus. F. 86.

This volume, the eighth of a series, contains three articles dealing with topics in the molecular physics of radiation effects. I think it useful to comment on them in an order reverse to their appearance in the book.

The longest of the three, and the one that deals most directly with chemical and biological effects of radiation, is an excellent review by S. Wexler, "Primary physical and chemical effects associated with emission of radiation in nuclear processes." For each of the practically important classes of nuclear transitions, Wexler first assembles a theoretical picture of the ensuing atomic and molecular rearrangements, then provides a summary of the relevant experiments. There is a great deal of information about specific organic and inorganic materials, but no explicit reference to biological material.

In the review article, "Attachement électronique en phase gazeuse," by Florence Fiquet-Fayard, *attachment* means the transition in which a free electron becomes bound. This field has been very active in recent years, for attachment is an important process in the physics of the upper atmosphere, a field of great importance to missile and space technology. A great deal of experimental information is assembled here, with fitting interpretive comment for finding one's way about in it. When a worker in radiation effects comes to think about the final disposition of free, or nearly free, electrons, as he will at some point in considering nearly any system, he may well find suggestive, and indeed normative, information in Fiquet-Fayard's review.

Finally, there is a short article (28 pp.) by Koichi Funabashi and John L. Magee. Though entitled "Dissociation processes in electronically excited molecules," it is really an essay in the theory of the interplay of migration of electronic excitation and molecular vibration in molecular aggregates. I am afraid that I find the treatment here unconvincing, and perhaps one detail will serve to illustrate my reservations: Early in the paper (p. 9) there is a basic error—the authors assume that matrix elements for vibrational