the biological sciences and new theories of scientific explanation. Except for a few highly selective citations of Ernst Mayr and Thomas Kuhn, Nisbet does not relate in any depth to such recent currents of thought.

In the setting of Maitland's time it was right for the revered legal historian to warn that "by and by anthropology will have the choice between being history or being nothing." Today, in my view, Maitland's challenge turns on history itself, as indeed it seems at one point to do even to Nisbet. Now it is history's turn to confront an uncomfortable variant of Maitland's choice, the choice between being nothing at all or being a discipline with ever deepening understanding of its presuppositions and contents and ever stronger links with relevant perspectives of adjacent disciplines—chiefly sociology and anthropology.

Our own century had to draw near and striking new advances had to be made in mathematics and logic before Zeno's paradoxes could be freshly countered. I trust that we shall not have to wait quite so long to chart our way through Nisbet's paradoxes. In any case, his challenge will be a continuing reminder that we dare not remain content with our current resources—semantic, empirical, philosophic—if we wish to make progress in the perplexing field of social change. But now, at the very moment when we are caught in the rolling surf of no fewer than a half-dozen world-wide revolutions, few sociologists are likely to be persuaded, even by so sensitive and learned a colleague as Nisbet, that we shall understand our motley histories and truly appreciate social change only if we pay proper respect to Fixity.

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A Special Kind of Habitat

Ecological Notes on Wall Vegetation. S. SEGAL. Junk, The Hague, 1969. 326 pp., illus., + appendices. Paper, $16.65.

Modern ecologists may not realize it, but they owe a large debt of gratitude to the stonemasons of classical and medieval civilizations for providing them a unique long-term experimental and recording device. This is generally known as the *wall.*

Europe is laced with walls of all ages. They can be dated, their composition analyzed, their life cycle established according to the variables of height, exposure to prevailing winds, and proximity to roads, forests, and cities, and many of them support vegetation. Segal has taken a good look at walls and examined their floras from every imaginable point of view.

Fundamentally, Segal has produced a phytosociological analysis of wall floras in the more oceanic parts of Europe, where they are best developed. The entire spectrum of plant life, from the flowering plants down through the cryptogams, comes under analysis, and, as might be expected, a great deal of space is devoted to terminology of associations, tables of species, and other minutiae discouraging to a general reader. However, a vast amount of interesting information lies intercalated even in the more technical chapters, making the book more fascinating with every page.

Wall ecology is a field with a meager literature, most of it produced by workers in the Netherlands. A logical companion volume to Segal's would be that of his countryman J. J. Barkman, on *Phytosociology and Ecology of Cryptogamic Epiphytes* (1958). Both of these books are landmarks in their fields, and it is instructive to note that these painstaking studies have been accomplished in the most unlikely place imaginable, a country in which urbanization and agricultural development have long since eliminated most of the natural habitats for plants. Even walls, as Segal points out, are rapidly disappearing through the restoration and renovation of the cities and the use of modern materials more resistant to the ravages of time.

To be eligible for inclusion in his study, walls had to fulfill certain requirements: to be "built of stones or bricks, jointed with not too hard a type of mortar, of fairly considerable age, and situated in an environment in which no prolonged period of drought prevails." With this restriction, the studies perforce were limited to the parts of western Europe which have rather oceanic climates. Nevertheless, this still included a large area, and one in which a great number of ancient walls are preserved. The life expectancy of walls in the region is about 600 years, in which time walls usually become so eroded that they become a part of the "natural" environment.

Given the variables of height, composition, and age, the availability of geographic-climatic gradients makes walls sensitive instruments of natural selection. In each region, walls have permitted colonization of slightly or markedly different vegetation associations, depending on the species available, their differential tolerances for the substrate, and their competitive or successional relations with each other. A perusal of the various "spectra" analyzed—taxonomic, ploidy, life form, growth form, sociability, floral colors, dissemination types, formational and distributional—shows what a rich data bank the wall can be. One might also like to know to what extent, if any, new races have developed on the wall habitat in the time available, but this problem evidently is not yet ready for study.

Walls are often the only remaining habitats for plants belonging to floras which, in the course of urbanization and industrialization, have disappeared from the surrounding area. Wall floras thus may provide a sensitive means of determining relative air pollution of segments of urban areas, in situations where corticolous epiphytes are no longer available for this purpose.

The author's lively imagination provides some especially interesting bits of information. He found, for example, that there was a striking difference between the wall vegetation of Roman Catholic churches and Protestant churches of the same ages. "The damage by moisture and deterioration of the masonry is worse in churches of Protestant parishes. This is indubitably associated with the lesser frequency of the services and the period of heating. The walls cool off more rapidly and take up water vapour from the congregations more easily." Thus, Roman Catholic churches rarely support good mural vegetation, whereas Protestant ones are usually rich in vegetation.

Although the study was developed in depth only with reference to standing walls, a brief comparison was made with road- and sidewalk-crack vegetation and other wall-like situations. Summaries of the work are given in English, French, German, and Dutch, followed by an extensive bibliography.

This research is an object lesson to any who feel that botanical research must be pursued in the few remaining wild areas of the world.

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