

Botany in the Canal Zone

Botany

PAUL C. STANDLEY, in *Flora of the Panama Canal Zone* (Govt. Printing Office):

All the Canal Zone region lies within the so-called Lower Tropical life zone, of which there are two main divisions, the Humid and Arid, the former restricted in Central America to the Atlantic slope, the latter chiefly to the Pacific watershed. Our area in both its divisions is quite representative of these subdivisions as developed upon a larger scale farther north in Central America. Since all the Isthmus is low, nowhere exceeding an elevation of 1,000 feet we can not expect that diversity of vegetation which in other parts of Central America results from a much greater variation in altitude.

The flora of the Canal Zone has been more thoroughly explored than that of any other part of Central America, of some of whose countries, indeed—Honduras, British Honduras, and Nicaragua—we know almost nothing. It is therefore possible to form a somewhat comprehensive idea of the relative rank and of the relationships of the Isthmus flora.

About 2,000 phanerogams are recorded from the Isthmus, a number which, though surprisingly low, probably can not be quite equaled by an area of the same size in the United States. The flora of the Pacific slope of the Canal Zone compares favorably in variety with that of the Pacific coast of northern Central America; but that of the Atlan-

tic slope is, I feel sure, much less varied than the lowland flora of nearby Costa Rica, and probably the flora of other parts of the Atlantic watershed of Panama, such as Bocas del Toro and the San Blas coast. One would have every reason to expect on the Atlantic coast a much greater number of species than has been found thus far.

Furthermore, one is forced to regard the flora of the Canal Zone as uninteresting in comparison with that of other parts of Central America. There are, admittedly, numerous endemic species and some plants that do not range farther northward, but so there are in any part of Central America. The number of really interesting plants is much smaller than one will find in an equal area on the coast of Costa Rica or Guatemala, and it is astonishing that the vast amount of botanical exploration carried out in the Canal Zone since 1911 has resulted in the discovery of so few new species; an equal expenditure of effort in any other part of Central America would probably have disclosed a much greater number. This exploration has demonstrated the presence of many plants not reported by earlier collectors; nevertheless most of these are species widely distributed in Central America, the West Indies, or northern Southern America, whose occurrence here was to have been expected.

The limited number of species is explained partly by the low altitude and the restricted area, but the rep-

resentation here of both the Atlantic and Pacific floras should compensate in part for these limitations. The lack of diversity in the flora is due partly to the extensive changes wrought here by man, especially during the construction of the canal. That undertaking involved the destruction of much of the forest and of many of the swamps. Agricultural developments have been responsible for the disappearance of additional forest, with which have vanished some of the most favorable places for plants. The remaining amount of virgin forest near the canal is small and the flora correspondingly limited. Land formerly stripped of its forest is overgrown with weedy shrubs, small trees, and herbs, or with coarse grasses, among which nothing of special botanical interest may be expected.

In spite of all this, the zone has much to entertain the botanist, especially one unacquainted with tropical vegetation as it exists elsewhere. The stranger from the United States finds enough new and curious types to hold his close attention for weeks or months. Nowhere else in Central America will he see the grotesque cuipo (*Cavanillesia*) trees, nowhere else so easily accessible the beautiful savannas, and in few places such a luxuriant growth of those overgrown herbs, the Heliconias.

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Judging Revolutions

History

BARTLET BREBNER, in *Soviet Russia*

Revolutions in "close-up" are always about as incredible in their distortion of proper emphasis, and as distasteful generally, as the faces of moving-picture heroines seen in the same way. The only method by which to make them credible and to get enough setting to judge them is to push them back (in time) or, better, approach them from behind (again in time). The Russian revolution began in 1917 and is still going on. It takes courage, therefore, to venture on an explanation of it from so close as 1928, but a fairly reliable measuring-stick can be made from a glance at the centuries before 1917, and the two views combined may help to estimate the present Russia, even if they cannot completely interpret many questions which are still open to debate.

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Animal Domains

Zoology

FR. ALVERDES, in *Social Life in the Animal World* (Harcourt, Brace):

Many birds of prey lay claim to the same domain throughout the year, that is to say beyond the brooding period, and suffer no rival within their boundaries. Thus every pair of eagles of the species *Haliaetus vocifer* rules a district about three kilometers in diameter. This is also true of other eagles, falcons, secretary birds, etc.

We also find the principle of territorial rights developed among some mammals. Every horde of apes possesses, as a rule, a clearly defined domain whose extent varies in different species. If two hordes encounter one another fierce fighting may ensue. Each herd of kangaroos possesses its own grazing place; sometimes it pos-

sesses several, linked together by well-trodden paths. Herds of North American prong-horned antelopes each inhabit a definite tract of country within which they travel long distances. In oriental cities every alley has its own half-wild dogs which do not dare to leave its shelter, since any dog entering a strange alley is attacked and torn to pieces by the dogs domiciled there.

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The Mississippi River sweeps 528,000,000 tons of suspended matter into the sea every year.

A common bird of Porto Rico, the Antillean grebe, eats its own feathers.