

more than momentary interest. The book is dedicated to Herbert Clark Hoover in the hope that it may aid his fellow citizens to support him.

HARRY SNYDER

#### THE BOTANY AND PLANT PRODUCTS OF NORTHERN SOUTH AMERICA

A COOPERATIVE investigation of the flora of northern South America, which, when carried out in detail, should be of highly significant scientific and economic importance, has recently been organized by the New York Botanical Garden, the United States National Museum, and the Gray Herbarium of Harvard University. This investigation is planned to include the plants inhabiting the Guianas, Venezuela, Colombia, Ecuador, and the adjacent Caribbean islands, Trinidad, Tobago, Margarita, Bonaire, Curaçao and Aruba.

The immediate object is to secure and organize collections of size and excellence from as many different floral areas as may be found feasible; to assemble all knowledge obtainable relative to the distribution of the species, their habitats, and their uses; and thus to acquire in North America, materials for critical investigations leading to much needed monographs of important groups and to detailed catalogues of floras as yet very inadequately known.

The region contemplated has great diversity of climate, soil and altitude and a corresponding wealth of vegetation. Perhaps no area of greater botanical promise has thus far received less organized floral investigation. Nor have the scattered results obtained in the past ever been brought together into correlated or accessible form, being at present scattered in fragmentary publications, foreign journals and casual works of travel, with the result that information even in regard to many plants of considerable economic promise is excessively difficult to assemble and surprisingly scanty when obtained.

In this rich and varied flora of northern South America is sure to be found a wealth of plants capable of yielding commercial timbers, drugs, vegetable oils, tannin, gums, waxes and essences of technical value, dye-stuffs,

food-materials, fibers and countless substances such as rubber, highly significant in manufactures. Many of these products are reaching our markets in mixed or imperfect condition owing to inadequate knowledge of the precise plants from which they should be obtained. In other instances, although the species may be known, the range and availability is still too obscure to encourage enterprises of exploitation.

Recent events have shown how suddenly and unexpectedly America may be cut off from many European sources of manufacture and information. It is increasingly evident that all the American countries should gain the manufacturing and commercial independence which may be derived from a thorough scientific investigation of their natural resources. Among these the tropical American vegetation is one of the most significant and merits much more earnest investigation than it has thus far received.

It is confidently believed that the proposed studies will do much to extend the knowledge of South American products, and thus to increase trade and conduce to friendly relations with the countries concerned.

In the realm of pure science the results obtained will also have very important bearings on the studies of Central American vegetation already prosecuted by the National Museum and by the Gray Herbarium, and on those of the West Indian flora conducted by the New York Botanical Garden.

The scientists in charge of the botanical collections of the three cooperating institutions and other botanists and economists have long known the need for organized information relative to the vegetation of northern South America; these collections already contain specimens derived from various sources in the past, representing a considerable proportion of the plants inhabiting the region, and of their products, but much of this material has not been critically studied nor determined botanically. Old World museums and herbaria contain a more complete and better studied representation than American institutions possess. The extensive literature of the sub-

ject is, however, measurably complete in our libraries, but scattered under many hundred titles, mostly by European authors.

The investigation is primarily planned along the following lines:

1. The study, naming and cataloguing of specimens already in the three institutions. This work will incidentally much increase the reference strength of our herbaria and museums.

2. The increase of the three collections by specimens obtained through field expeditions sent to parts of the area as yet little known botanically, or in search of species of other areas as yet incompletely understood. Duplicate specimens beyond the three sets required will be distributed to other institutions in exchange. Friends of the institutions may furnish important aid by sending funds to any of them for the expenses of field expeditions.

3. The publication of advanced papers from time to time, dealing with portions of the investigation on which results have been reached, without awaiting the completion of the annotated catalogue.

The cooperative effort includes the following methods:

1. The subdivision of the work among staff members of the three institutions and among specialists of other institutions.

2. The loan of specimens from the collections of the three institutions to each other.

3. Visits of staff members of the three institutions to each other for the study of collections and for consultation.

4. Collections made by any of the institutions to be shared with the others.

5. Joint support of some of the field expeditions and division of the collections made.

Recent collections, the study of which has led up to the cooperative arrangement, include principally those made for the United States National Museum by H. Pittier in Venezuela in 1913; for the Gray Herbarium by J. A. Samuels in Dutch Guiana in 1916, and by H. A. Curran and M. Haman in Curaçao, Aruba, and northern Venezuela in 1917; and for the New York Botanical Garden by H. H. Rusby and F. W. Pennell in 1917 and 1918. The ar-

rangement was consummated through correspondence between Dr. B. L. Robinson, of the Gray Herbarium, and Mr. Frederick V. Coville and Dr. J. N. Rose, of the National Museum, with Dr. N. L. Britton, of the New York Botanical Garden, in the latter part of 1917 and early in 1918, and it has been approved by the governing bodies and officials of the three institutions.

Professor Oakes Ames, of the Bussey Institution of Harvard University, has offered co-operation which has been gratefully accepted.

The first field expedition organized is one to Ecuador, led by Dr. J. N. Rose, of the United States National Museum; in this, the co-operating institutions are very materially aided by the Bureau of Plant Industry of the United States Department of Agriculture, the bureau desiring first-hand information about important economic plants which can be obtained only by field observations of a trained botanist. Dr. Rose left Washington on July 22, for an absence of about four months, and it is anticipated that the results of this work will add greatly to our knowledge of the flora and plant products of Ecuador.

The very large collections made by Drs. Rusby and Pennell in Colombia for the New York Botanical Garden are being organized for critical study, and will be divided among the three institutions as soon as possible.

## SCIENTIFIC EVENTS

### THE INTER-ALLIED FOOD COMMISSION

THE arrival of experts representing the allies to consider the food problem was announced in a previous issue. According to the *Journal* of the American Medical Association the Inter-Allied Food Commission meeting in London has decided that the minimal food requirements of "the average man" (weighing 154 pounds) doing average work during eight hours a day represent an energy value of 3,300 calories daily. In case it should become impossible to supply this requisite amount of food, a reduction of 10 per cent. on the foregoing figure can be supported for some time without injury to health. The commission agreed to accept Lusk's figures as to the pro-