

AVERY BOTANICAL EXPEDITION RETURNS FROM GUATEMALA

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The botanical expedition to Guatemala in 1938-39, sponsored by Mr. Sewell Avery and conducted by the writer, had for its purpose the collection of data and specimens of plants to be used in preparation of a descriptive flora of that country. Six months, from November 19 to May 13, were spent in the field, and more than 15,000 numbers of plants, represented by perhaps twice as many herbarium specimens, were collected, so that the work may be regarded as highly successful. All except two of the country's twenty-two departments were visited.

It must not be inferred that the country was thoroughly explored, despite the many well-built highways that make almost every settled region of Guatemala easily accessible by automobile. The area of the republic is about 42,000 square miles, approximately that of the state of Kentucky, but the similarity in area is misleading. The mountainous nature of the country makes its exploration several times as difficult as that of one of our central states of equal extent.

Because of the large and varied area to be covered and the brief time available, intensive collecting was possible in only a few localities, and many large regions were merely viewed from a distance, in hurried passage along the roads. It was thus possible to gain a good idea of the general appearance and composition of the vegetation of the greater part of the country, but a full knowledge of all the species of plants composing the vegetation will require many more months or years of field work.

MANY VOLCANOES

Much collecting has been done previously in Guatemala by other botanists, and seventeen years ago the writer spent a short time there. The plants of a few limited regions were already rather well known. Some of these localities were revisited during the past winter, and excursions were made to many places where no collecting had been done previously.

The geography and climate of Guatemala are extremely varied. The western and southern parts of the republic contain many volcanoes, some of them more or less active, and other mountains, the highest peaks rising to 14,000 feet. The northern region is formed of non-volcanic rocks, chiefly limestone, and supports a conspicuously different flora. Some areas are arid, with varied displays of giant cacti and typically desert plants. Others, especially near the Atlantic coast, have a heavy rainfall and support a luxuriant rain forest. The central and western regions have generally six months of rain and six months of rainless weather. Temperature varies from the sometimes oppressive heat of the coasts to the almost equally excessive cold of the

Altos or uplands. At many places above 7,500 feet frost is common, ice often is formed, and scant snow falls occasionally.

Guatemala lies well inside the tropics, but neither climate nor flora is wholly tropical. Indeed a great part of the vegetation of central and western Guatemala is clearly temperate or, at very high elevations, alpine. The commonest trees over most of the country are oaks and pines. Near Cobán the sweet gum or liquidambar abounds, with box-elder, willows, alders, poison sumac, red cedar, magnolia, and yellow jessamine. In the highest regions are magnificent forests of cypress (*Cupressus*) and fir.

FLOWERS IN PROFUSION

For three months the writer made headquarters in the picturesque and beautiful city of Antigua, twenty-five miles from Guatemala City. Excursions were made to many localities of the high central region, to the dry Oriente bordering Salvador, and to the Pacific coast. Collections were made on forested slopes of the three great central volcanoes, Agua, Fuego, and Acateño, and also on the low but destructive volcano of Pacaya. In late November, at the end of the rainy season, this central upland affords a lavish display of brilliant flowers—pink and white tree dahlias, begonias, sunflowers, salvias, and dozens of others in every color. By late April the great displays of blossoms have passed, although it is possible to find quantities of flowers at every season. Orchids are none too plentiful in the highlands, or at least not conspicuous. Many of the trees are loaded with bromeliads or "air plants" showier than most orchids.

For a month the writer had headquarters in the Occidente, in Quezaltenango, at almost 8,000 feet. At this elevation in March the landscape is strangely reminiscent of that of Illinois at the same season—the same fields of corn stalks and wheat stubble, rough-coated cattle, heavily clothed people, and low houses from which gray smoke rises. In late March the mountains are beautifully green with the unfolding leaves of alders and oaks.

LITTLE EXPLORED REGION

From Quezaltenango excursions were made to the summit of the Sierra de los Cuchumatanes, above Huehuetenango, the white sand mountains of San Marcos, the summit of the Volcano of Santa María, Ayutla on the border of Chiapas, and the Pacific port of Champerico. Visits were made to the *bocacosta* lying at middle elevations between the uplands and the Pacific. Here, at 2,000 to 5,000 feet, where there is plenty of rain throughout the year, is found probably the most luxuriant and diversified vegetation of Guatemala. Moreover, it has been little explored by botanists, and the brief trips made there were tantalizing because it was clear that only a small number of the amazingly diversified plants could be collected. High upon the slopes of the

Volcano of Zunil, at 8,000 to 9,000 feet, the tropical rain forest is exceedingly rich in species. The northern slopes of Santa María, on the other hand, proved disappointing because of their relative dryness.

RESIDENTS CONTRIBUTE AID

As on the writer's previous visits to Central America (this was the fifth), work was aided materially by local botanists and by other persons who took a sympathetic interest in the exploration. Many officials of the Guatemalan government gave the most courteous assistance and advice. Don Mariano Pacheco, Director-General of Agriculture, was particularly generous in his help and interest. His private garden of Guatemalan and exotic plants would delight any visitor wishing to see the high lights of Central American ornamental plants. Professor Ulises Rojas, Director of the Jardín Botánico, was a delightful companion on collecting trips in the Occidente, generous with his rich fund of knowledge of the Guatemalan flora. To Mr. and Mrs. B. B. Lewis, of Guatemala City, Mr. and Mrs. L. Lind Petersen, of Finca Zapote, and Mr. George B. Austin, of the United Fruit Company at Puerto Barrios, the writer is deeply indebted for hospitality and assistance in his work. Mr. Petersen presented to Field Museum a fine plank of the Pacific coast mahogany, to complete the Museum's mahogany exhibit. Special acknowledgment must be made to Dr. J. R. Johnston, Director of the Escuela Nacional de Agricultura, Chimaltenango, who accompanied the writer on many excursions, and contributed very largely, with his intimate knowledge of Guatemalan geography and vegetation, to the success of the expedition.

Lighting of Jades Improved

The recent introduction of the latest illuminating technique throughout the Hall of Chinese Jades (Hall 30) has greatly improved the exhibition of these ancient specimens of lapidary art. The former yellow lights distorted certain colors, especially that of the subtle blue jades which is particularly beautiful. That problem has now been solved, and many details of decorative carving are likewise better revealed. This is a valuable improvement in the cases showing small carvings of the Shang and Chou periods which extended roughly from 1400 to 250 B.C. During this earliest stage ornamentation of the surface of jade with line design was at its peak of perfection. With the new lights this decoration is now more clearly visible.—C.M.W.

Fluorescence of Petroleum

The brilliant fluorescence shown by petroleum and many of its products is illustrated by a specimen of crude oil and two of its products recently placed in the fluorescence exhibit in the Department of Geology (corridor between Halls 34 and 35).



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