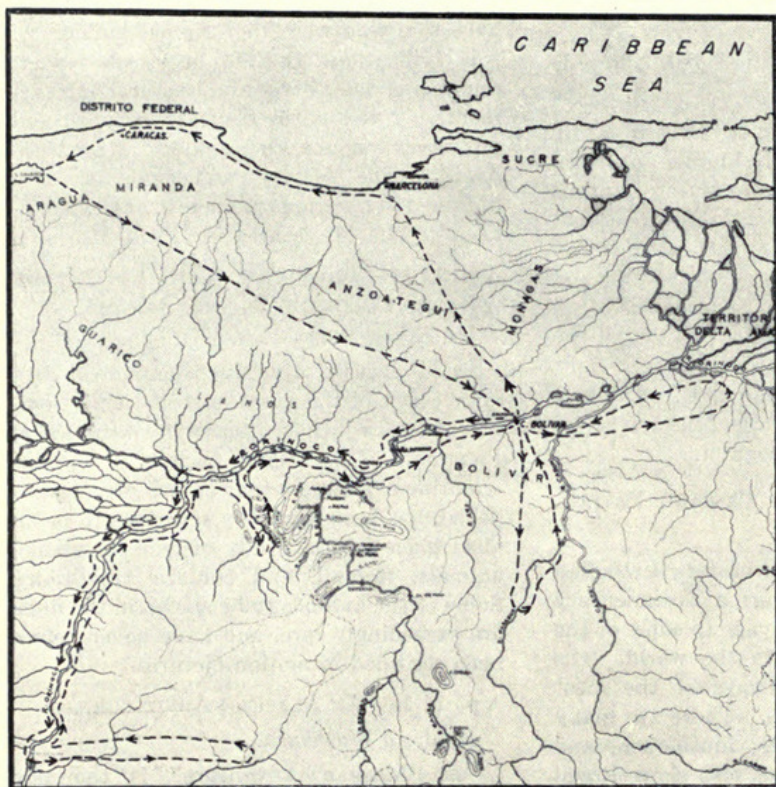


## PAGES FROM THE FIELD NOTES OF A BOTANICAL EXPLORER IN THE VENEZUELAN GUIANA

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CURATOR OF ECONOMIC BOTANY

(Editor's Note:—Curator Williams recently returned from Venezuela where, for more than two years, he was engaged in a botanical survey with Dr. Henry Pittier, the government botanist. Field Museum shared in the resulting collections. Mr. Williams' field notes picture vividly experiences typical of those that befall scientists on expeditions.)

February 28, 1940—We leave Caracas, capital and metropolis, passing the Silla (Saddle) peak that rises 9,000 feet, over a winding road to Los Teques (named after an extinct tribe of warlike Indians). Down



Peregrinations of a Botanist in Venezuela

Curator Williams' route on collecting and exploratory journey is indicated by dotted line. Traveling by airplane, boat, motor truck, muleback, and on foot, he started from Caracas in upper left hand corner of map, came southeast to Ciudad Bolívar, followed southerly loop on map, then easterly and westerly, and finally returned northward to Caracas via Barcelona. The looping and zig-zagging was strategical, necessitated by various seasonal and topographical considerations.

a long steep hill we plunge to the valley of Aragua or "garden of Venezuela," livid with green fields of sugar cane.

February 29—Aboard plane leaving Boca del Río, on Lake Valencia. We pass over the high, bare cliffs of San Juan de los Morros, at the entrance to the Llanos, extensive plains flat as a table. The vegetation is stunted ashy-gray, burned by long drought. The climate is malarial; habitations few and far between; population sparse. A winding silvery thread below—my first view of the Orinoco River. Red roofs on the horizon—we are approaching Ciudad Bolívar, commercial center of the Orinoco basin. We have come five hundred miles in two hours.

March 6—After several days' trek overland into the interior of the Venezuelan Guiana, camp is erected—four posts with

curata palm leaves for thatch, in an open savanna. Our associates are the amicable members of the Venezuelan Frontier Commission surveying the Brazilian border.

#### FIRE IN THE FOREST

March 9—It is as dry as a desert—not since 1926, say the local people, has there been such a drought. The distant forest to the north has been burning for days. Fanned by a northeast wind the conflagration is drawing nearer. A pall of blue gray haze and smoke hangs constantly along the edge of the forest; visibility is reduced to about

a mile. A note from Ciudad Bolívar reveals that we have been extremely lucky—the establishment in which our equipment had been stored burned down the night after our departure.

March 12, 2 A.M.—Cries of "Fire, fire!" awake us from sound sleep—an Indian is warning us of approaching danger. Not more than 200 yards away an unbroken curtain of fire is sweeping across the prairie, advancing steadily toward our hut. Until dawn we battle against it lustily with cutlasses and tree branches.

March 14—The entire forest seems to be ablaze; at night high flames, like giant torches, lap the crowns of trees 100

feet tall. A strong wind carries the fire toward our hut, in the savanna, threatening our precious collections and equipment; but valiant helpers save the hut and not a single thing is lost. For miles around the formerly green plains have been transformed into a charred carpet. Cattle wander afar in search of pasture—hundreds die from lack of water. Scores of small plantations are destroyed.

March 27 to April 9—The burning savanna is now miles behind us; we have arrived at El Palmar, close to the Orinoco delta, in the land of the Guaraúno Indians. The forest is dense, and still largely unexplored. Great variety of natural products here stirs the thought of anyone interested in economic botany. Chicle, ingredient of chewing gum; balata, a latex (similar to gutta percha) used for covering transmission cables; fragrant tonka-beans, used in perfumes and to

impart aroma to tobacco; *cuspa* bark, principal constituent of Angostura bitters; various desirable timbers, and extensive stands of the Moriche palm, which yields a tough fiber used in hammocks. There are many mineral products too—southward are gold mines known to early Spanish explorers who sought the mythical El Dorado. To the north are vast unexploited iron deposits. Even rich sources of diamonds have been found. Yet despite such wealth the people are impoverished and seem extremely lacking in initiative.

April 11 to 20—Ascending the Orinoco to its upper reaches, we follow the route taken by Humboldt and Bonpland 140 years ago. The little steamer *Angostura* makes frequent stops daily to trade and load firewood. The water is turbid with sand. Majestic trees line the banks in an almost endless wall, their trunks and limbs concealed by garlands of vines—in their crotches nestle scarlet or purple orchids—some of the high crowns are covered with blue, yellow or white flowers. Crocodiles rest motionless on sandbanks, and long lines of egrets fly from rock to rock. Each day towards noon a breeze springs up and makes life bearable under the tropic sun. On the eighth day we reach Puerto Paez, at the mouth of the Meta, flowing from Colombia. Our base is established at Puerto Ayacucho.

#### ANTHROPOLOGY ON THE SIDE

May 5 to 12—A forty-mile trip overland brings us to the mouth of the Sanariapo, above treacherous rapids. Two days in an open canoe handled by five Indians, and we reach the island of El Ratón (The Rat). To the south an unbroken forest extends to the Brazilian frontier, once exploited for rubber, and still a rich source of palm fiber (*piassaba* or *chiquechique*) used for making brushes. But this territory is still largely unexplored, and inhabited only by the Maquiritare, Guajibos, Guajaribo, Piaroa, and Yaruro Indians. The Maquiritares travel during the dry months from their settlement in the upper Caura to the Ventuari and Brazilian frontier, bartering canoes, and even *dogs!* for guns, ammunition and, above all, salt. The Guajibos live in forests of the Vichada and Tomo rivers, have tattoo-like bluish or pinkish discolorations, generally around the nose. The nomadic Piaroas, of the upper Parguaza and Ventuari regions, are short and stocky—they frequently clear patches of forest to grow manioc, source of their starchy food. They excel in making palm wood blowpipes, and in the preparation of *curare*, the plant poison applied to the tips of spears, arrows, and darts for hunting. The formula, a closely guarded secret, is known only to the older men—the basic raw material is the bark of a woody vine of the strychnine family. To be effective the poison must come in direct contact with the blood stream. Its fatal

effect on small birds occurs within two or three minutes. To counteract its toxic qualities ordinary salt must be applied to the wound, and also be taken by ingestion.

Other plants likewise are used for their narcotic or stimulating properties. The Piaroas collect the bean-like fruits of the "yopo" tree (*Piptadenia peregrina*), grind the ripe seeds to a fine powder, and inhale it. Legend tells of a feast at which the men became intoxicated on yopo seeds and committed the unforgivable crime of killing their chieftain. Upon recovering their senses they "avenged" his death by throwing themselves over a high cliff, now known as the Rock of the Piaroas (*La Laja de los Piaroas*). Bones are still found around the base of the cliff, but their connection with this event has never been proved.

May 30—Flying from Puerto Ayacucho toward the Brazilian frontier; below us the forest spreads everywhere—an awe-inspiring sight, unknown even to the wandering Indians! In the many miles covered in two and one-half hours of high-speed flying we have seen not a single habitation. We ascend to 8,000 feet over a densely-wooded mountain range. Broad flat savannas come into view; now the plane glides to a stop. We are greeted by a Maquiritare Indian, his three female companions, and a boy. Camp is pitched on the bank of the Ventuari. The water is limpid, the atmosphere cool. No mosquitoes disturb our rest, and the only noise is the occasional terrifying roar of a jaguar or the harsh voices of *araguatos* (howling monkeys), which make the air seem to vibrate.

June 4—We depart on the *Angostura* for Caicara. Most of the passengers are men returning from the forests, after several months of gathering tonka-beans, which they sell for \$1 to \$1.50 a pound.

June 7—Inland toward the Cuchivero River. We meet a large group of wandering Panare Indians in search of the oily fruits of the Coroba palm (*Jessenia polycarpa*), from the pulp of which they make *arepas*, resembling johnny-cake.

June 12 to 15—Accompanied by Carabão, the Panares' chieftain, we go on an extended trip to the upper Cuchivero in search of "barbasco caicareño," a plant poison used in macerated form to contaminate water and stupefy fish. It is now of economic value on account of its rotenone content, used as an ingredient of insecticides.

#### TEMPEST ON THE RIVER

June 28—We return to Caicara to embark the following day on the *Angostura*, and continue the journey back to Ciudad Bolívar. But the boat is ready to depart and there is insufficient time to crate and load the specimens.

June 30—We leave Caicara on a sister ship, the *Meta*, overtaking the *Angostura* during the night.

July 1—Gusts of strong wind churn the usually placid waters of the Orinoco into high waves, and a funnel-shaped mass appears on the horizon—sure signs of an approaching tempest, or *chubasco* as the natives call it. The sky turns red, low banks of black clouds begin to form, followed by fitful showers. Sandspouts spring up on the banks. The captain decides to seek refuge along the bank to ride out the storm.

July 2—The rounded hill of Ciudad Bolívar, with low blue-and-white buildings along the waterfront, comes into view.

July 3—We proceed to the village of Soledad, on the opposite bank, crossing the Orinoco at the narrowest point in its entire length, whence was derived Ciudad Bolívar's original name, Angostura. The rainy season has set in and it will take a week to traverse the rough road, 500 miles long, through the desolate Llanos. News reaches Ciudad Bolívar that the *Angostura* has been shipwrecked, a victim of the squall experienced three days ago.

July 5—Forced to wait for several hours beyond Pariaguan until a flooded stream

has receded; rain, falling in torrents, makes the road almost impassable.

July 8—Caracas once again, and now begins the task of classifying the large collections, the result of four months' labor in the field, and to select duplicate material for dispatch to Field Museum.

#### Michigan Educators Visit Museum

During February, Field Museum was host to three groups of members of the School Officers' Institute conducted by the School of Education at Northwestern University. There were approximately sixty men and women in each group. After luncheon meetings in the Museum Cafeteria, they were conducted on tours of the exhibits by members of the staff of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

The vegetable origin of coal is illustrated by a collection of fossil leaves found in coal, and the stump of a large tree found in a mine, now on exhibition in Hall 36 of the Department of Geology.

#### MARBLE LIONS FROM CHINA NOW ON EXHIBITION IN HALL 24

A pair of monumental carved stone lions of the eighteenth century, from China, presented to Field Museum recently by Mrs. Frederick S. Fish, of South Bend, Indiana, and New York, is now on exhibition. The sculptures stand as silent sentinels at the entrance to George T. and Frances Gaylord Smith Hall of Chinese Archaeology (Hall 24).

The lions are "conventionalized," in the technical sense of that word as employed in art terminology. This conventionalization may be attributed to the fact that, because the lion is not native to eastern Asia, it is to the Chinese more of an imaginary animal than a real one, it is explained by Mr. C. Martin Wilbur, Curator of Chinese Archaeology and Ethnology.

These lions came from Peking where they once guarded the entrance of a government building when that city was the capital of the Manchu Empire. When such mythical lions are placed in pairs before important edifices, the male sits at the right playing with a sphere supposed to be the sun, while the female, shown suckling her young from

her paw, is placed at the left. Mrs. Fish presented the sculptures to Field Museum in memory of her father, the late John M. Studebaker. In recognition of this notable gift, the Trustees of the Museum recently placed Mrs. Fish's name on the institution's list of Contributors, an honor which continues in perpetuity.



"Conventionalized" Lion Attracts Children

Chinese conception of "king of beasts" in carved stone arouses curiosity of George Chubb, Beverly Jameson, and Burton Sandberg, pupils of Harvard Public School. A pair of these lions, presented to the Museum by Mrs. Grace Studebaker Fish, now stands at the entrance to George T. and Frances Gaylord Smith Hall.



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