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### INSECT COLLECTING IN GUATEMALA 65 YEARS AFTER CHAMPION

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A great deal of the material upon which the insect sections of the *Biologia Centrali-Americana* are based came from Guatemala. Some of this material was collected by Salvin and Godman themselves or later sent to them by native collectors, but most of it was collected by the expert collector, G. C. Champion.

Champion spent four years in Central America and two of these years, from March 16, 1879, to April 7, 1881, were devoted exclusively to Guatemala. Since Champion's day no other extensive systematic collecting was undertaken in Guatemala until the summer of 1947, when the present authors were sent there by Mr. Frank Johnson under the sponsorship of the Department of Insects and Spiders of the American Museum of Natural History.

The purpose of the trip was to collect in and revisit, in so far as time and present day conditions permitted, the same localities or areas visited by Champion.

Changed conditions made exact duplication of localities impossible. In the first place, duplication was not always desirable because some of the places visited by Champion had been so drastically altered that they were no longer suitable collecting grounds and some names had disappeared altogether. Secondly, it was not always possible since the modes of traveling differed. All Champion's travels were on horseback or on foot and thus he could, and did, strike camp at any favorable spot. In the

FEB 28 1949

three months at our disposal we could not follow such a method, but, although the modern means of communication we employed did not allow the greater leisure and elasticity of Champion's method, they enabled us to cover an even larger amount of territory. We were able to visit, in addition to the same areas and most of the main localities in which Champion collected, two additional areas, one in the wet Cuchumatanes Mountains, and the other in the dry south east.

Champion's itinerary appeared first in the *Entomological News* of February, 1907, and later, with additional notes, in the introductory volume (1915, pp. 46-54) of the *Biologia*. Because of the great changes that have taken place in the land cover since those notes were written, a brief account of all the localities visited by us is given below, with comparisons between past and present conditions at localities common to both of our itineraries.

In order to present a comprehensive picture and to avoid repetition, the specific account is preceded by the following general notes on the physiography, climate, and vegetation of the regions visited.

#### PHYSIOGRAPHY

Guatemala has for its size (50,000 square miles, or about the area of the state of New York) what is perhaps the most complicated physiography to be found anywhere in the world, and as a result it presents a number of strongly contrasting climatic conditions.

Geologically, the country can be divided into six main regions: 1. the Pacific littoral, 2. the volcanic coastal mountains, 3. the Highlands, 4. the limestone mountains of the interior, 5. the desert or semi arid interior valleys, 6. the Caribbean lowlands and the high plain of the Petén. Some of these regions can be further subdivided: the volcanic mountains into the outer chain of the recent volcanoes, and the inner and older range which forms the Continental Divide; the limestone mountains into the great mass of the Cuchumatanes proper, and the smaller and lower mountains of the Alta Vera Paz. Generalized descriptions of these regions have been given by Popenoe (1926) and Griscom (1932) and a detailed, excellently treated and illustrated cross

section of south west Guatemala, from the shores of the Pacific to the foot of the Cuchumatanes, has been given by McBryde (1947). The most important features of these regions may be summarized as follows:

On the Pacific, a plain, varying in width from 30 to 50 miles, extends, flat at first, then gradually sloping inland, to the foot of a nearly straight range of majestic volcanoes. These volcanoes are exceedingly steep and rise with the most striking abruptness from the plain below; the trend of this range runs north west-south east. Inland from this range, and separated from it by a great trough, runs a parallel range of older volcanic mountains which form the Continental Divide. At the northern end the two ranges come together at the great cone of Tajumulco; south of Guatemala City they get gradually lower and more barren as they approach the border of El Salvador. The trough between the two ranges is irregular and is cut by great cross ridges which separate basins which may contain nearly flat plains or lakes, such as Atitlán and Amatitlán.

Inland from the Continental Divide, the plateau of the Highlands (or *Altos*) stretches to the Cuchumatanes. Though spoken of as a "plateau," this region is only a plateau of the most irregular sort. Everywhere the land is dissected by immensely deep and abrupt gorges (the *barrancas*), slopes and ridges abound, and the whole area is extremely broken up.

To the north this region dips into the drainage troughs of the Cuilco and Negro Rivers on the other side of which rises abruptly the enormous mass of the Cuchumatanes. These mountains, unlike the coastal ranges, have a west to east trend, the easterly trend becoming more marked as the mountains continue eastward into the Vera Paz. The Cuchumatanes have a maximum altitude of about 11,000 feet and the mountains in the Alta Vera Paz of about 6,000. Another range of importance is a long range rising a little to the south of the Cuchumatanes. This range, which also runs from west to east, changes its name several times as it proceeds eastwards. On the middle course of the Motagua River, above Zacapa, parts of the range, here called Sierra de las Minas, rise above 7,500 feet.

The west to east course of all these interior mountains determines the trend of the interior valleys, the major ones of which are those of the Río Negro, Salamá and Rabinal, and that of the Motagua River.

To the south of the Motagua, beyond Zacapa, is a region of more or less arid hills and valleys which stretches to the frontiers of Honduras and El Salvador. On the northern side of the Sierra de las Minas are the valleys of the Baja Vera Paz, and on the northern side of the Alta Vera Paz mountains is the high plain of the Petén. These last are drained on the east by the Cahabón and on the south by the Polochic, both of which empty into a vast swamp and from there into Lake Izabal and the Caribbean.

#### CLIMATE AND VEGETATION

Two seasons prevail over most of Guatemala, a dry and a wet season, the dry lasting generally from early November through April. In addition there is also a more or less marked secondary dry season of variable duration. This secondary dry season, called the "*Veranillo de San Juan*" or "*canícula*," occurs in mid summer in about half of the country and, where well marked, has an effect on the vegetation. The temperature varies according to the altitude, but at any given level seasonal ranges are slight, and although during the North American winter the average monthly temperature drops somewhat in parts of Guatemala, the drop, except at the highest elevations where frost occasionally occurs, has little effect on the flora and fauna. Climate and seasonal changes, then, are very largely a matter of rainfall and as the distribution of rain in Guatemala is essentially determined by relief and exposure, the climate is very diversified and the changes are apt to be as abrupt as the physiography. (For detailed discussions of climate and weather in Guatemala, see Sapper, 1932, and McBryde, 1942a and 1942b.)

On the Pacific plain and slope, the wet and dry seasons are well marked. The wet season extends from April into November, the rainiest months being June and September, with a drop in between during July and August, the "*Veranillo de San Juan*" mentioned above. The precipitation increases with the altitude,

ranging, according to McBryde (1942a), from about 150 centimeters along the shore, to 200 at 300 feet, 300 at 600 feet, until a zone of heavy precipitation is reached at about 2500 feet. In this zone, which extends up to about 4,600 feet, the annual aver-

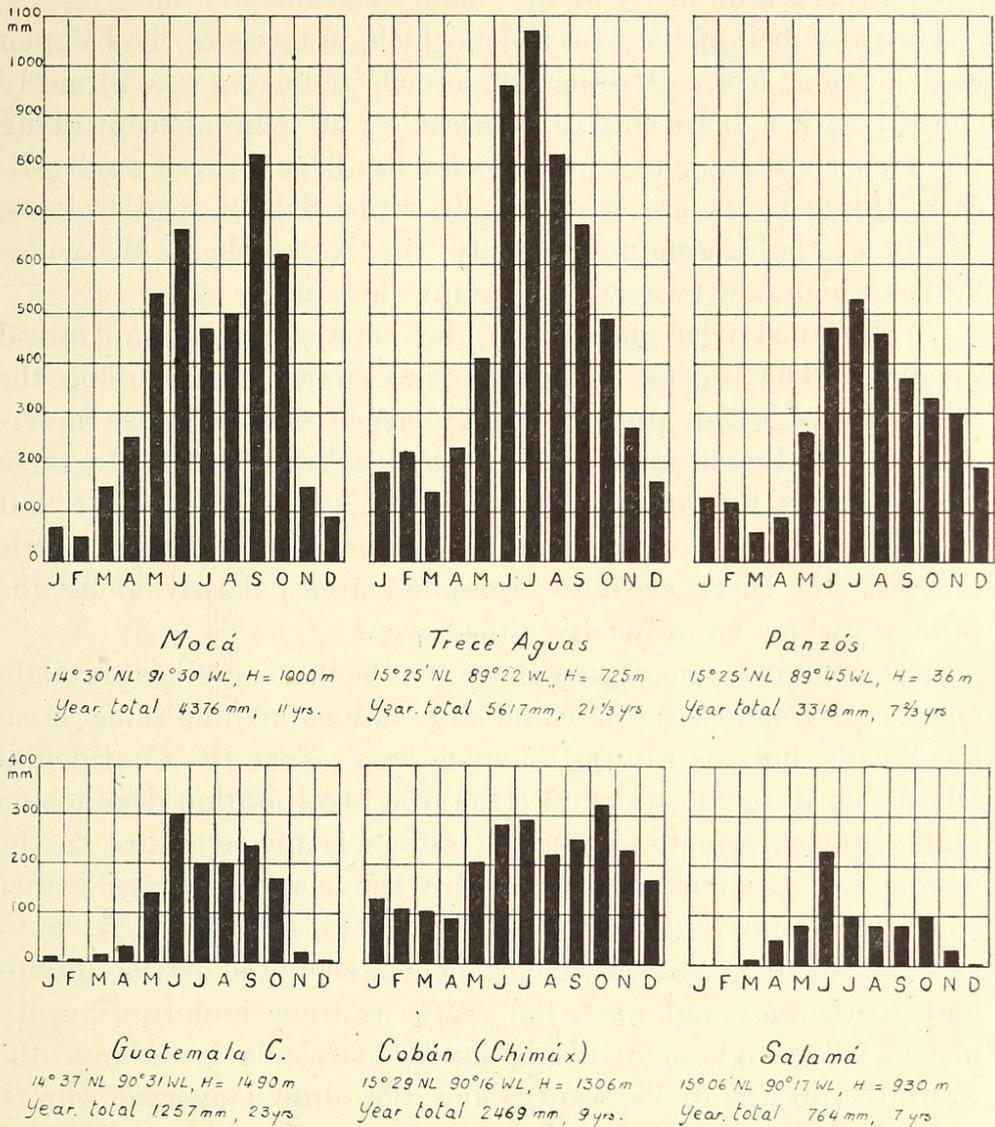


Figure 1. Selected graphs of rainfall in Guatemala; from Sapper (1932) except for Mocá, which is from original data.

age is about 400 centimeters, going up to 550, or 220 inches, in some localities. The graph of Mocá (3,000 feet) with an annual average of 437 centimeters, or 172 inches, is typical of this zone. (See figure 1). Above this heavy rain belt there is, depending

on the local mountain condition, a sharp decrease or no further increase in precipitation. Above and below the heavy rain belt, the double maximum (June and September) is not so pronounced. Only a little rain falls from November to March and during this season many of the smaller streams dry up.

The rainy belt of the west slope, which, in terms of the Köppen classification, has a "tropical monsoon" climate, was formerly clothed with a luxuriant rain forest. But today, except along the deeper stream courses, the forest has been cleared or drastically thinned. It has been largely replanted by smaller trees, mostly of the Leguminosæ family, to give shade to the coffee bushes which now everywhere occupy this zone.

On the much drier plain below, the climate is that of a tropical savanna. The vegetation is open and sparse except along the river courses, which are bordered by large trees and dense undergrowth. McBryde applies the term "gallery forest" to these wooded strips, but too often the "forest" has been reduced to but a screen. The plain is largely occupied by extensive cattle ranches, but there are also occasional areas, mostly along the railroad, which go in for diversified crops.

In the mountainous region above the Pacific, as well as throughout the Highlands, the wet and dry seasons are the same as on the Pacific, but the rainfall is much less. Near the Continental Divide, as McBryde states (1942a), the precipitation depends on highly variable factors, chief of which is the exposure to the winds. At Guatemala City, where the mountains are rather open, the annual precipitation (figure 1) averages 125 centimeters, but at Quezaltenango, which is sheltered by mountains both to the east and west, the yearly average is only 67 centimeters. Throughout the Highlands, particularly inland, the rainfall appears to be scanty, and the annual average varies, according to McBryde, from about 70 centimeters to 150. On the Pacific lowlands the temperature is always high, but on the highlands it varies from temperate to decidedly cool.

Except at the higher altitudes where grassy stretches and scattered forests of cypress occur, the whole of this region was probably once covered by an open pine and oak forest. But today, although a few remnants of this forest still persist in the

poorer or most inaccessible places, it is fair to say that every acre that could possibly be cultivated has been deforested long ago, and, as Griscom remarks (1932), at least nine tenths of the region under 8,000 feet is now under cultivation or has been cleared.

When the great escarpment of the Cuchumatanes is climbed, one enters into a high and rolling region of a totally different aspect. No weather data was available but as the marine air moves in freely from both coasts the rainfall may be fairly constant throughout the year. Perhaps the precipitation is not regular or great, but the fact that these mountains are so much in the clouds makes this region always cool and very damp. Fog swirls through the branches of great and lofty trees loaded with epiphytes, and mists slowly drift above alpine meadows alive with many flowers. Settlements are few and the region is the least disturbed we saw in Guatemala. We penetrated only a little way beyond Nebaj, or as far as the road went, but we were told that the interior was still covered with many stretches of what must be a nearly primeval forest.

To the east of the Cuchumatanes proper, in the region of the Alta Vera Paz, the weather data is rather extensive and was collected and discussed by Sapper (1932). This area, of which Cobán is the center, is very wet and there are no really dry months. At Cobán (see figure 1) the yearly average (246 centimeters) is considerably less than in the monsoon belt of the Pacific Slope, but a fine rain falls almost daily throughout the year. With the exception of the drier southern part, facing the Baja Vera Paz, the whole of this region was once covered by the luxuriant forests which still existed in Champion's time. But today, due to the great spread of the coffee plantation, combined with lumbering and other destructive practices, the forests have largely disappeared. The eastern slopes of the mountains of the Alta Vera Paz face the Caribbean lowlands and receive some of the highest precipitation anywhere in Guatemala. There the wet season is very marked, but lacks the double maximum of the Pacific Slope region. The rainiest months are June, July, and August, with September not far behind. In this region, contrast the graphs (figure 1) of Trece Aguas and Panzós; both localities

are very close to each other, but Panzós is nearly at sea level and Trece Aguas is 2,000 feet higher.

The interior valleys are the driest regions of Guatemala, the mountains or highlands which hem them to the north and south intercepting the moisture of the marine winds from both the Atlantic and Pacific. As most of these valleys are rather low they are also very hot. The lowest, driest, and hottest is along the middle course of the Motagua in the region of Zacapa. This area, which, according to Griscom (1932), receives less than six inches, or about 20 centimeters of rain a year, is a true desert with a vegetation similar to that of the deserts of southern Arizona. The valleys of Rabinal and Salamá, though arid enough, are less dry, the annual precipitation at Salamá (figure 1) averaging 76.5 centimeters a year. Parts of these valleys are cultivated, but there are large stretches of xerophytic thorny scrub. A typical plant is the tree cactus, segments of which are used for the construction of fences.

We have no data for the region to the south east of Zacapa, but in the region of Chiquimula, which is as far as we went, streams were dry and the hills barren of vegetation or sparsely covered with scrub. The climate is hot and during our stay in late July at the height of the "little dry season" or *Veranillo*, no rain fell and we were told that none had fallen during the three weeks prior to our arrival.

The lowlands of the Caribbean, except at Panzós, and the great plain of the Petén were not part of our trip. The vegetation in these places is that of the humid tropical zone and the climate has the usual division into a dry and wet season, with very abundant rainfall during the latter (523 centimeters a year at Livingston).

#### LOCALITIES VISITED

Localities printed in italics were visited by Champion between 1879 and 1881 though in some instances he was not in the actual place but nearby and all material in quotes is from Champion's notes (1915). The numbers in parentheses following each locality indicate the order of our itinerary and correspond with the locality on the map in figure 2. After the numbers follows the name of the department in which the locality occurs.

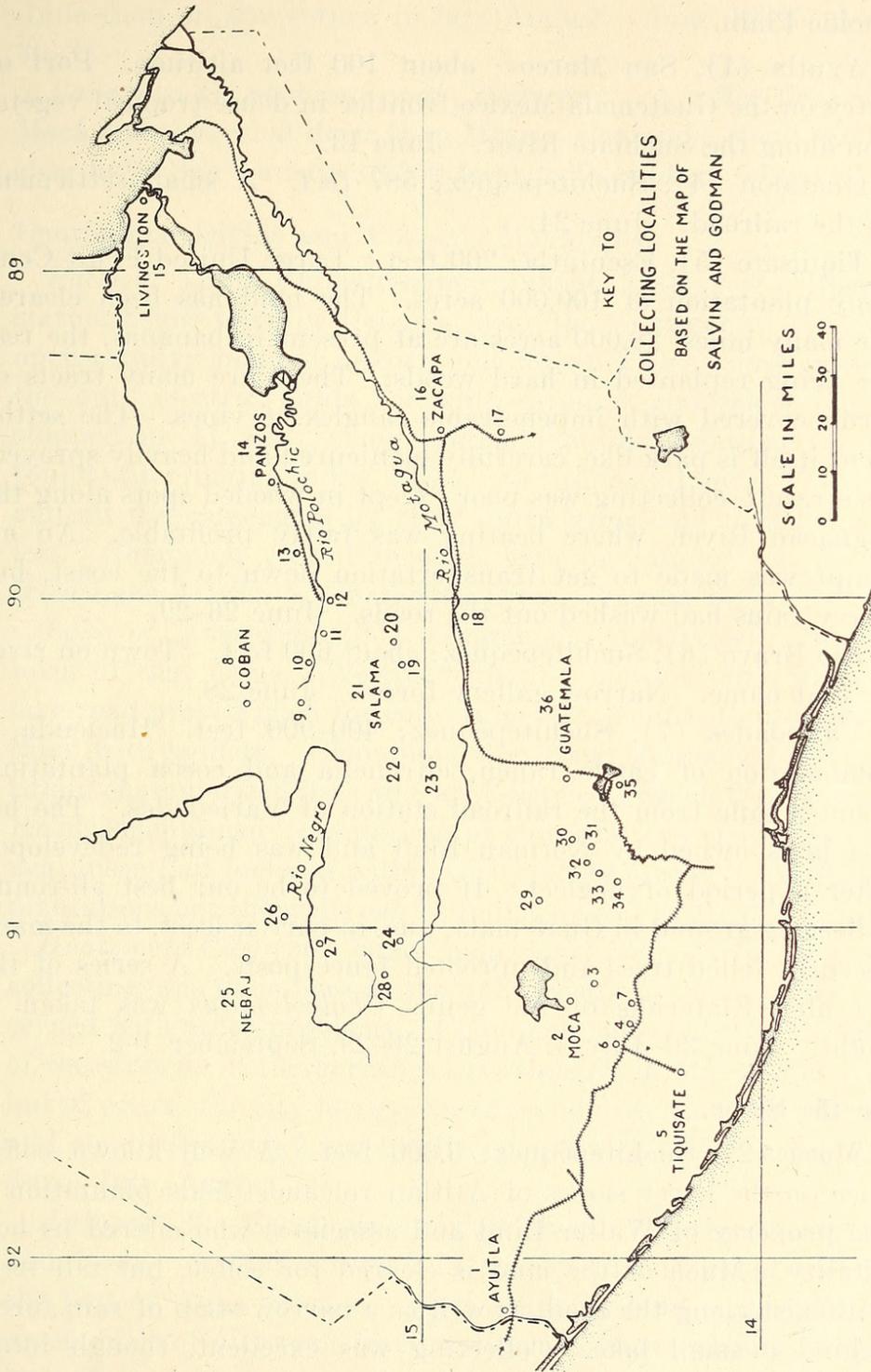


Figure 2. Key to the collecting localities of P. and C. Vaurie in Guatemala.

## Pacific Plain.

Ayutla (1), San Marcos; about 100 feet altitude. Port of entry on the Guatemala-Mexico frontier in dense tropical vegetation along the Suchiate River. June 13.

Guatalón (4), Suchitepéquez; 587 feet. A small settlement on the railroad. June 24.

Tiquisate (5), Escuintla; 200 feet. Large United Fruit Company plantation of 100,000 acres. The land has been cleared for many miles, 28,000 acres are at present in bananas, the rest are being replanted in hard woods. There are many tracts of scrub covered with impenetrable tangles of vines. The settlement itself is park like, carefully manicured and heavily sprayed. As a result, collecting was poor except in wooded spots along the Siguaacan River, where beating was fairly profitable. An attempt was made to get transportation down to the coast, but heavy rains had washed out the roads. June 26-29.

Río Bravo (6), Suchitepéquez; about 600 feet. Town on river by that name. Narrow gallery forest. June 28.

Variedades (7), Suchitepéquez; 400-900 feet. Hacienda, a combination of cattle ranch, citronella and cocoa plantation, about a mile from the railroad station of Variedades. The hacienda is owned by Norman Lind and was being redeveloped after a period of neglect. It proved to be our best all-round collecting ground in Guatemala, due, in part at least, to the many recently felled trees and uprooted fence posts. A series of the big blue Elateridæ of the genus *Chalcolepidus* was taken in flight. June 30-July 3, August 26-29, September 1-2.

## Pacific Slope.

Mocá (2), Suchitepéquez; 3,000 feet. A well known coffee finca on the lower slopes of Atitlán volcano. This plantation is the property of Walter Lind and associates who offered us hospitality. Much of the land is cleared for coffee, but tall trees still exist along the road, as well as a narrow strip of rain forest behind a small lake. Collecting was excellent, though interrupted each afternoon by heavy rain. More Cerambycidæ (mostly subfamily Laminæ) were taken here than anywhere else but at Variedades. Night collecting was far more profitable in

June than on our return in late August. June 19-25, August 30-31.

*Panamá* (3), Suchitepéquez; 2,400 feet. A coffee finca below Mocá and somewhat drier than Mocá. Champion spent ten days close by at San Agustín (2,250 feet) in December. June 23.

#### Continental Divide and Volcanic Mountains.

*Patzicía* (29), Chimaltenango; about 5,000 feet. Roadside station below town of Patzicía, near the Continental Divide, in open country planted in corn and wheat. This house possessed the only electric lights for miles around and when our bus stopped at 11 a.m., many moths, including Saturnidæ, were found still clinging to the walls, both inside and out. The driver and all the passengers let their lunch grow cold to help us collect. Champion passed through here in January on his way from Lake Atitlán to Guatemala City. August 14.

*Lake of Amatitlán* (35), Guatemala; 4,000 feet. Near the town of that name. Weedy fields and moist ditches along the lake road proved good for collecting. In August the foliage was thick with spiders. Champion, who spent January 13 at Amatitlán, characterized it as an "arid district" which it is no longer. He also mentioned "plantations of *Opuntia* for rearing the cochineal insect, all inclosed within dusty adobe walls." Neither the plantations nor the walls can be found today. July 6, August 24.

*Guatemala City* (36), Guatemala, 4,852 feet. No concentrated collecting was done here as the quick visits to the city were concerned with other problems. Champion collected "on the banks of the streams in the barrancas (ravines)" in March and April, but of course the city has grown tremendously since he was there and conditions today are hardly comparable. Various dates in June, July, August.

*Antigua* (30), Sacatepéquez; 5,047 feet. Old Guatemalan city and former capital, situated in the broad cultivated valley at the foot of Agua volcano. Most available land is in coffee, the seven miles of dirt road from Antigua to Dueñas being bordered by coffee plantations, enclosed by barbed wire fences or high adobe walls. Collecting was done in the ruins of ancient convents, in adjacent cornfields, in the entrances to coffee groves,

and on a hill of pine woods to one side of the valley. There was a noticeable scarcity of Lepidoptera in all this area. Much time was wasted getting out of the interminable walled streets in search of collecting areas. Champion made no remarks about Antigua other than that he was there June 24 and 25. Our dates—August 15–17.

*Ciudad Vieja* (31), Sacatepéquez; 4,917 feet. Town three miles from Antigua. Collecting was poor. "Coffee-plantations and cultivated ground, unsuitable for collecting-purposes." August 17.

*Dueñas* (32), Sacatepéquez; 4,680 feet. Town about eight miles from Antigua along the same road as that to Ciudad Vieja. Collecting was fair along a muddy stream, but here also the land is intensively cultivated. Champion spent most of July in this region, making various excursions up the slope of the volcano of Fuego. The Lake of Dueñas has dried up and the "Opuntia plantations adjacent to the Lake" are now represented by a few scattered plants along the highway. August 18.

*Capetillo* (33), Sacatepéquez; 4,800 feet. A coffee and sugar plantation in the valley between the lower slopes of the volcanoes of Acatenango and Agua, not far from Antigua. This was one of Champion's principal localities where he stayed for about a month in the end of April and in May, 1879. At that time it was owned by Juan J. Rodriguez, the Guatemalan naturalist, who, for about thirty years, supplied Salvin and Godman with specimens from his region. His son, Federico Rodriguez Benito, who was our host at Capetillo, told us that his father said before he died, in 1916, that if he had to build up his collection again he could never hope to duplicate it because of changing conditions due to the intensive cultivation of the land. It is still, however, a fine collecting spot. August 20–22.

*Réunion* (34), Sacatepéquez; 4,000 feet. Coffee plantation on southwestern slope of volcano of Fuego, facing the Pacific plain. Spring water seeping across the road attracted many Lepidoptera and general collecting was good for the short time we spent here. Champion found Zapote, somewhat lower on the slope, "good for insects" and he spent most of May and June in that locality. In his time there was "some very fine forest passed through at

San Cayetano, between Zapote and Capetillo, along the descending coast-road." This forest is now reduced to a mere strip along the road, partly because of cultivation, partly because of a destructive eruption of the volcano of Fuego a few years ago. August 22.

#### Highland Plateau.

*Chichicastenango* (24), Quiché; 6,032 feet. Important Indian town in the typical cool highland of the Quiché. Cultivation here has been very intensive, maize fields alternating with small open stands of oak and pine, with grass on the rougher slopes. Some insects not seen before on the trip were taken here, though collecting on the whole was disappointing, due, perhaps, to the density of the population and long cultivation. The nights were exceedingly cool, with few insects. Champion was here (it was then called Santo Tomás) July 30 on his way from Joyabaz to Quiché. August 6-7.

Santa Cruz del Quiché (28), Quiché; 6,555 feet. Large active town in the highlands, 11 miles north of Chichicastenango. There is intensive cultivation here as in Chichicastenango but the countryside is more open. The one night we spent here was very cool, and few insects were taken. August 13.

#### Cuchumatanes Mountains.

Nebaj (25), Quiché; 6,240 feet. Indian town in deep beautiful valley high in the Cuchumatanes, about fifty miles northwest of Quiché. This isolated valley is abundantly watered and produces the finest maize and apples in the country. The lower slopes are mostly cleared, but the higher ones are forested. Until a few years ago, Nebaj was one of the most inaccessible regions of Guatemala, but now a road has been put through. The hinterland directly to the north has scarcely been touched and it seems that a more extended stay in this remote area would be well repaid. Collecting was most productive. August 8-10.

Cunén (26), Quiché; 6,143 feet. Indian village in a small valley in a fold of the southern slope of the Cuchumatanes. Cunén was drier, warmer and less varied than Nebaj, but still very good for collecting. Complete lack of food and lodging unfortunately cut our stay too short. August 11.

### Mountains of Alta Vera Paz.

*Cobán* (8), Alta Vera Paz; 4,241 feet. One of the three largest cities of Guatemala. Champion was here the end of December and again in March and found the "forest nearly all cleared to plant coffee, maize, etc." This is still even more true today, but there are considerable stretches of open pine woods which proved good for collecting. We found lodgings in the city disadvantageous because of the length of time needed to get out to collecting areas, but we were unable to secure accommodations in the coffee fincas in the vicinity. July 7-9, 31.

*Tactic* (9), Alta Vera Paz; 4,300 feet. Town in mountainous region 21 miles south of Cobán. Champion passed through in December and in March. "Forest all cleared to near the inaccessible mountain-tops . . . to plant maize." The surrounding hills are now almost completely denuded. No collecting was done by us. July 10.

### Wet Polochic River Valley, to the Caribbean Lowlands.

*Tamahú* (10), Alta Vera Paz; 3,412 feet. Indian village east of Tactic, near the source of the Polochic River. The valley is very narrow at this point and the slopes are intensively cultivated for maize. Tamahú was visited by Champion for five days in December and even then it was "mostly cultivated ground." Night collecting was very poor. July 10-11.

*Tucurú* (11), Alta Vera Paz; 1,625 feet. Village nine miles east of Tamahú. Collecting was disappointing, especially at night. Champion came through in November, March, and June. "Mostly cultivated ground." July 11-13.

Pancajché (12), Alta Vera Paz; 275 feet. Station on the lower Polochic, head of the Vera Paz railroad to Panzós. The valley is wider here and more level. Three hours of collecting were very good. The whole of this lower valley is intensely hot, wet, and unhealthy, with the incidence of malaria said to be 100 per cent. July 14.

*La Tinta* (13), Alta Vera Paz; about 200 feet. Railroad stop along the lower Polochic River. Champion mentioned the "tropical vegetation" here and he found Chacój, also called La Hamaca, nearby "a very good entomological locality." Chacój

is no longer to be found on the map and "La Hamaca," which was a rope bridge over the river, has long since disappeared. July 14.

*Panzós* (14), Alta Vera Paz; 113 feet. Terminal of railway from Pancajché, on Polochic River and at the head of navigation, 45 miles above Lake Izabal. There is a screened guest house about a mile from the small village. This whole area is a vast swamp and the water, due to the overflow of the river during this rainy season, came up to the railroad tracks. Collecting was fairly good. Mosquitoes (including *Anopheles*) were far too abundant, especially so when stirred up by beating. Champion, who spent almost two weeks at Panzós at the end of May, at the beginning of the rains, found them "so bad here, even by day, that it was almost impossible to do more than a few hours collecting at a time." July 14-17.

Livingston (15), Izabal; sea level. Port on the Atlantic at the mouth of the Río Dulce, in the Caribbean lowlands. The locality itself was unsuitable for collecting but on the way down from Panzós in a small launch, we saw mountain slopes, below Lake Izabal, still clothed by inaccessible virgin rain forest. July 18.

#### Dry Interior Valleys.

Zacapa (16), Zacapa; 603 feet. Important railroad station in the middle Motagua River Valley, with branch line to El Salvador. The town of Zacapa is two miles distant. The vegetation is xerophytic except for screens of trees along the river. Much of the area is fenced in with cactus or barbed wire fences. Collecting was only fair. The first Cicadas of the trip were heard here. July 19-20.

El Rancho (18), El Progreso; 900 feet. Small settlement in the middle Motagua River Valley, 33 miles by rail west of Zacapa. It is an important road junction for Baja and Alta Vera Paz with daily bus service. The landscape was bare and seemed even drier than Zacapa. A few insects were taken while waiting for the bus. July 24.

*San Jerónimo* (19), Baja Vera Paz; 3,150 feet. Village at the foot of the mountains on the east end of the plain of Salamá. It was hot and dry, but not so dry as the rest of the plain. This

was Champion's most important collecting locality and served as his headquarters for about a year, beginning in August. The sugar-cane and coffee plantations mentioned by him no longer exist. There are many cultivated fields around the village, separated by wide, grassy, tree-shaded avenues that may have been intended as future streets and which provided good collecting. A few kilometers away are pine woods up the slopes. July 24-28.

*Salamá* (21), Baja Vera Paz; 3,000 feet. Town, head of the department, at the center of the plain of Salamá. It was much drier than San Jerónimo, with many tree cacti and other xerophytic vegetation. The whole plain is cut up into fenced fields for cattle grazing or cultivation and there were few sites for good collecting. Beating the scrub and low bushes in the nearby hills, however, produced some series of Coleoptera. Champion found "some genera of Coleoptera characteristic of the drier portions of Mexico" in this region. July 29-30.

*Rabinal* (22), Baja Vera Paz; 3,000 feet. Town to the west of Salamá, but across the mountains in another valley. Although Champion, who passed by on July 27 on his way to the highland region, described Rabinal as a "dry region, with scrubby woods, cacti, agaves, yuccas, etc., as on the plain of Salamá," we found it less dry than Salamá and better watered. A field of composite flowers by a sluggish stream was an ideal spot for all insects. Night collecting was also good until heavy rain made it impossible. August 1-3.

*Sacapulas* (27), Quiché; 4,420 feet. Small town in isolated and comparatively deep valley on the banks of the Río Negro, south of Cunén and Nebaj and 32 miles north of Santa Cruz del Quiché. Here it is hot, arid, and barren, the vegetation and weather conditions strongly differentiated from the rest of the highland region and more resembling Zacapa and the Motagua Valley. Collecting was not very good, but Cimicidæ could have been collected in great quantities in the only lodgings available. August 12-13.

Three localities visited do not come under any of the previous headings. These are:

*Chiquimula* (17), Chiquimula; 1,250 feet. Town 18 miles by rail south of Zacapa, from which it is separated by a range of

relatively low mountains with badly deforested slopes. Chiquimula is slightly less arid than Zacapa and the Motagua Valley, but still it is dry. The small white blossoms of the "Chichicaste" shrub (a species of *Cnidoscolus*, the *Jatropha* of most authors), which grows abundantly in the region, attracted many insects. Collecting was very good in the dry arroyos. July 21-23.

*Los Ramones* (20), Baja Vera Paz; about 4,500 feet. Small wooded ravine at kilometer 143, route 17, on the road from Guatemala City to Salamá, in the mountains above San Jerónimo. Collecting was excellent in the short time spent here. Champion spent a day nearby, at Santa Bárbara, in September. July 25.

Cumbre Rabinal-El Chol (23), Baja Vera Paz; 6,000 feet. Mountain pass on the road from Rabinal to Guatemala City. During a twenty-minute halt, while the chains were being removed from the bus for the drier down grade, many insects not previously encountered on the trip were caught. These included Scarabaeidae (*Macrodactylus*), Rhyncophora (*Lixus*, *Rhodo-baenus*), and Chrysomelidae (*Leptinotarsa*). August 4.

Following are some of the common local names for insects which might be of use to future collectors:

<i>Animalitos</i> , insects in general	<i>Zampopo</i> , leaf cutting ant
<i>Mariposa</i> , large butterfly	<i>Niño dormido</i> , centipede
<i>Papalote</i> , small butterfly	<i>Broca</i> , wood-boring bee
<i>Tijereta</i> , earwig	<i>Chinches</i> , bugs in general
<i>Esperanza</i> , katydid	<i>Chinche de cama</i> , bedbug
<i>Saltón</i> , grasshopper	<i>Chinche de arboles</i> or <i>chinche</i>
<i>Chapulín</i> , locust	<i>del monte</i> , Pentatomids
<i>Chícara</i> , cicada	<i>Ronrón</i> , scarab
<i>Palito</i> , walking stick	<i>Pimpím</i> , click beetle
<i>Zancudo</i> , mosquito	<i>Cucujo</i> , click beetle
<i>Lorita</i> , Chrysomelid, especially Cassidinae	( <i>Pyrophorus</i> ) <i>Luciérnaga</i> , firefly
<i>Frijol</i> , Chrysomelid (black <i>Epilachna</i> )	<i>Alacrán</i> , scorpion <i>Araña de caballo</i> , Tarantula

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