ATLAS OF MEDICINAL PLANTS OF AMERICA

BAHAMAS TO YUCATAN

JULIA F. MORTON

Atlas of
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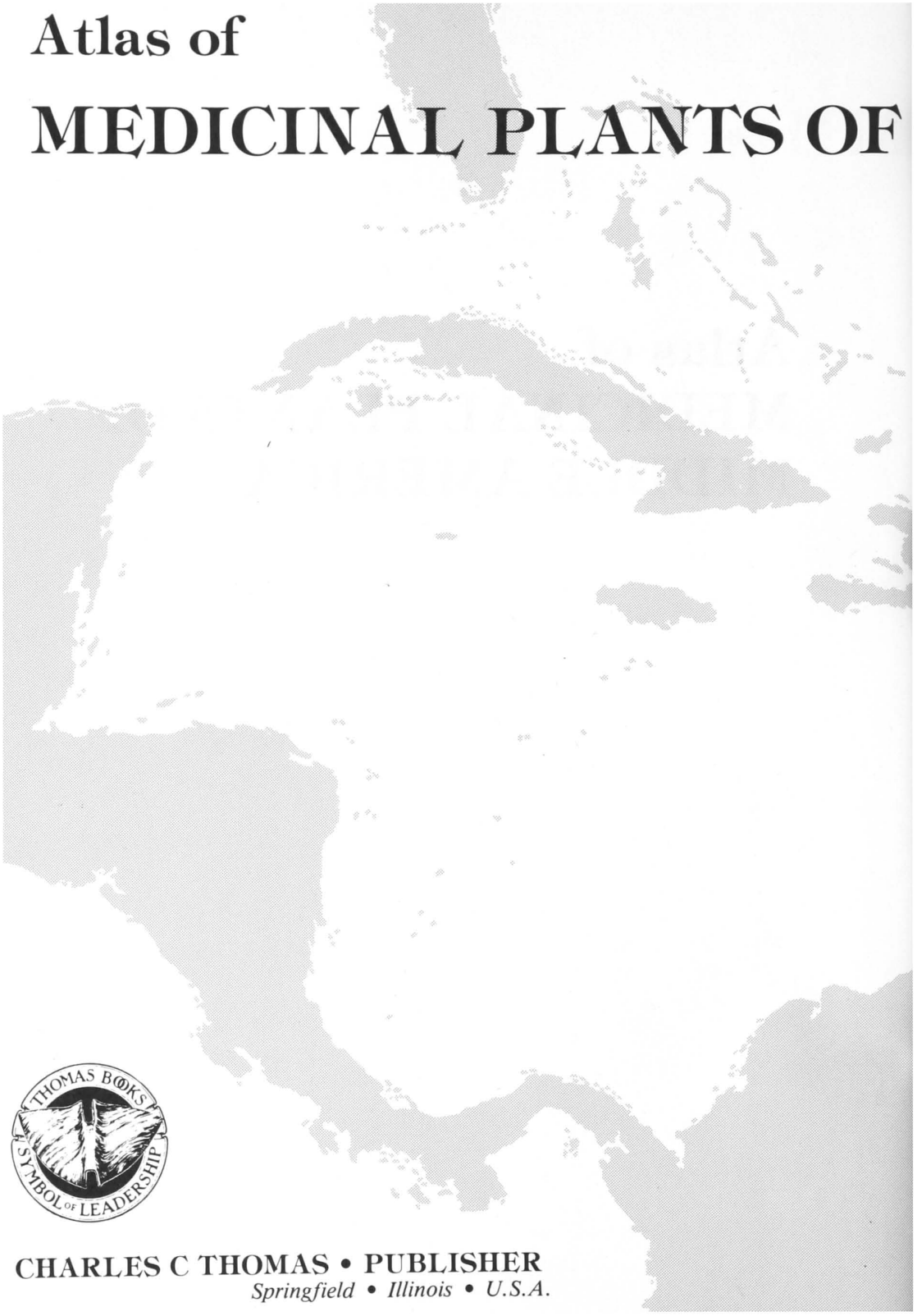

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MIDDLE AMERICA

Bahamas to Yucatan

By

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A tribute to my brothers,
George Nelson McHugh and
Martin Stephen McHugh,
my models of fortitude

WEST INDIAN WEED SONG.

Taylor's Version.

1. One day I meet a old woman selling, and I wanted something to eat
   I thought I could put a little bit in she way, but I take back when I did meet.
   I thought she had bananas, orange or pear, nothing that I need,
   I asked the old woman what she was selling, she said she was selling weed.
2. She had she coat tie up over she waist, and was stepping along with grace,
   She had a pair of old clogs on her feet, and was waddling down the street,
   Just then she start to name the different weed, and I was really more than glad,
   I can't remember all she call, but these were a few she had.
3. She had the Manpeabber, Womanpeabber, Tan-tan, Fall-back and Lemon-grass,
   Minnie-root, Gully-Root, Granny-back-bone, Bitter-tally, Lime-leaf and Caroon,
   Coolie-bitters, Cariella-bush, Flat-earth and de Iron-weed, Sweet-bloom, Foul-tongue and the Wild-daizzie
   Sweet-sage and even to you.
4. She had de Cat-mint, de Pepper-mint, Soldier-rod, Pastee-lena and de Cow-foot bush,
   Milk-weed, Fit-weed, Bird-vine, de Bishop-cap-bush and de Rock-balsam,
   Surinam bitters, de Wild-green-tree, Three-fingers and the Wurum-bush,
   A worm-grass, Z-grass, Man-grass, Carron-crow, Snake-bitters and also Tezzan.
5. She had de Cassava-mama, Okra-babba, Jacob-ladder, mixed with Finegona,
   Job-tea, Peter-parslee, John-Belly-parslee and the White Clary,
   Bill-bush, Wild-cane, Duck-weed, Aniseed, War-bitters and Wild-grey-root,
   She even had down to a certain bush Barbados call Puss-in-Boots.
6. When I hear the names she call, I went down, can't even talk,
   She start to call from Camp Street corner, never stop till she reach Orange walk,
   The woman had me so surprise, I didn't know what to do
   Till a girl come along, one cuff in me eyes, and I didn't know who was who.
7. Sweet-broom, Sweet-sage and the Lemon-grass, I hear them good making tea,
   When I hear Dutch-grass, and the Wild-daisy am good to cool the body.
   Yes the Woman-tongue was even listed, calling out all the time,
   She only had a little Congo-eye, but the other one now left blind.
8. She had Tansa-bitters, Pumgranate-bark, Congo-cane, de Pear-leaf, de young Bizzie-bizzie,
   Young Grape-vine, Back-pain, Stinging-nettle, Do-ra-me bush and de Broad-leaf thyme,
   De Mimosa-leaf with the Evergreen-seed, Bitter-fence, bitter just like gall,
   Doctor Doodles squashy bitters, and the Anamus grass, Snake-bitters and dat didn't even all.
9. She had de Bitter-gumma, Potta-demma, Congo-lalla and the Creva-cot broom,
   Stavilla, Wild-samatoo, Sour-sop leaf, and the Half-of-it weed,
   Cool-de-body, Sweet-mint, Porter-bush, White Clary and de Xmas bush;
   Cat-tongue, and even the Monkey-ladder, and this the rest you may need.
10. She had de Pap-bush, Elder-bush, de Black-pepper bush, French-to-you and de Cure-for-all,
    Sapodilla, Tamarind-leaf, Money-bush, and de Soldier-parsley,
    Pumpkin-blossom, with the Double-do-me, and Congo-pumps in galore,
    Physic-nut, and even the Lily-root root is the list of her every day soup.

Reproduced by permission from *The Bush Teas of Barbados* by Iris Bayley (Journal of the Barbados Museum and Historical Society, Vol. XVI, No. 3, May 1949).

Foreword

Mankind has been on the earth for five million years in Ethiopia and northwestern Kenya, but it was not until we had the record of Neolithic hunters and gatherers of about 10,000 BC that we knew they collected plants for medicinal purposes. It was undoubtedly by trial and error that they found certain were beneficial for their health. Usually it was the women who knew about such medicinal plants.

In modern times, the women in Mexico are known as *curanderas* due to their great knowledge of plant properties and methods of preparation. For example, Maria Jesus di Ayala of Tepoztlán, near Cuernavaca, was a *curandera* famous for curing tuberculosis in its early stages. Patients came to see her from many miles away. Maria would listen to each chest to determine the breathing pattern. If the lung disease was too advanced, she would send the patient away, telling him to consult a Spanish-speaking doctor. Otherwise, she wrapped the patient in a blanket and placed him in a brick chamber covered with heated stones to make him perspire. The patient remained in this chamber about ten minutes, after which Maria's sons pulled him out. This was a critical period, as the patient could easily develop pneumonia at this point. The blanket was changed and the patient was carried into a room in an adobe hut. Each hour he was given a concoction of herbal (*Nah. Tsontzonton*) tea, which caused him to sweat more; each hour the blanket was changed. After four days of this treatment, the patient was usually better, experienced little coughing and could walk home. Folk medicine was practiced in this manner in this small village whose inhabitants spoke Nahuatl upon Cortez's arrival in Mexico.

Looking back, we know that ancient man lived a short life, rarely more than fifty years. The incidence of infant mortality was high, possibly higher than anywhere in the world today. I know that Bedouin mothers in Arabia today expect four out of six children born to them to die before their first birthday. On the other hand, the people of Abkhazia in the Caucasus, the Hunza of North Pakistan and the Indians of Vilcabamba, Peru, include many centenarians of both sexes, and a few individuals more than 120 years old are reported living in Anatolia. When I was in Sukhumi on the Black Sea, I saw photographs of old men and women whose ages ranged from 110 to 137. The Director of the local museum where the photographs were exhibited became furious when I questioned him, saying, "If you want to see a man ninety-nine years old, I will take you down the street to meet him. His father also lives there!"

The questions and problems that may arise when the human lifespan is lengthened must be dealt with by future societies. In the meantime, the large United States drug companies have agents scouting the world for plants to improve medical remedies, and researchers are experimenting with native plants from all corners of the world in their laboratories.

I recall one amusing incident regarding this search. Some years ago, Dr. William H. Sturtevant of the Smithsonian Institution was asked by Secretary Dillon Ripley to collect medicinal plant specimens from the Seminole Indians in the Florida Everglades. Dr. Sturtevant located the son of a Seminole witch doctor, who, for a small sum, agreed to supply him with medicinal herbs, which he would bring to the Miami Airport each month for shipment to a pharmaceutical laboratory. For twelve months the herbs were shipped, but the laboratory could detect no medicinal benefits from any of the plants. Finally, Dr. Sturtevant traveled to Florida again to talk to the witch doctor's son in the Big Cypress Swamp. He told Dr. Sturtevant that he had tried faithfully to do his job. When Dr. Sturtevant asked him what happened if he could not find a particular plant required for the recipe of a decoction, his reply was, "It doesn't matter. I breathe on the decoction and chant a prayer and it works all right." This explained why the laboratory's tests were unfruitful!

In my own case, in 1934, I collected useful plants and drugs of Iran and Iraq and gathered data, which were published with the help of Dr. David Hooper of the Wellcome Historical Medical Museum in London. The specimens were collected at the request of my Chief Curator of Anthropology at Field Museum of Natural History, Dr. Berthold Laufer, who at that time was writing a book entitled *Irano-Sinica* to complement his earlier great work, *Sino-Iranica.* When I reached Moscow on my way home, I learned that Dr. Laufer was deceased. As a result, it was necessary to find someone else who could identify the plants I had collected. The Director at Kew Gardens told me that Dr. Hooper was the only man for the job. Dr. Hooper agreed to study them, and in due time, I received his manuscript, which incorporated my medical notes with his determinations on each plant. Our joint publication was called *Useful Plants and Drugs of Iran and Iraq* and was published in 1937 by the Field Museum of Natural History, Botanical Series, Vol. 9, No. 3, pp. 71-241.

In addition, I collected useful plants in Dhahran and Riyadh, Saudi Arabia and in Dubei on the Pirates Coast, now called the Arab Emirates, as well as in an area near Karachi. My main collection, however, was from Tepoztlán, Mexico, published in 1953 as *Notes On Medical Plants Used in Tepoztlán, Morelos, Mexico*, in America Indigena, Vol. 13, No. 4, pp. 291-300.

Dr. Julia Morton has collected medicinal plants widely in Middle America, from northern Venezuela, through the West Indies and the Bahamas, and in Central America and the Yucatan Peninsula, recording their uses by both botanical and vernacular names. She has assembled data in a practical tabular form on the properties and effects, including toxicity, of each specimen, numbering more than 1000.

Dr. Morton has studied her vast collection of plant literature in the Morton Collectanea at the University of Miami and has published many books and articles. This huge atlas will long stand as a tribute to her industry and researches.

Introduction

Over the past fifteen years, my field investigations* have required the exploration of folk-medicine practices in several Caribbean islands, northern South America, Central America, southern Mexico and coastal South Carolina. In most areas, it is plain that current uses of plants are an amalgamation of African, European and American Indian customs, embellished by experimentation with and adoption of novel local materials. In the French West Indies, there are obvious influences from Southeast Asia (formerly French Indochina) [note *Eupatorium ayapana* and *Centella asiatica*]. And ties with India are most evident in Trinidad.

In the course of field work across northern Venezuela and in Panama, Costa Rica, Guatemala and Yucatan, I found a great diversity of fresh and dried plant materials displayed and sold by vendors in the public markets and along the curbs of adjacent streets, as well as in special shops—*hierbaterias*.

The folk remedies employed throughout this entire area, whether purchased or found readily at hand, fall roughly into three classes: (1) certain well-known European medicinal herbs (such as rosemary, borage and marjoram) introduced by the early Spaniards and still commonly cultivated; (2) indigenous wild and cultivated plants, the uses of which have been largely learned from the Indians, some being collected locally, others brought down from the Andes; and (3) ornamental or other plants of relatively recent introduction, for which "curative" uses have apparently been invented without any historical bases.

Dr. Erwin Dieseldorff, writing on the medicinal plants of Alta Verapaz, Guatemala, said that "the Indians experiment with plants they don't know, sometimes with bad results for their patients and themselves."[124] Steggerda, taking a critical view in Yucatan, stated, "The art of healing among the Maya is a precarious procedure at best, for the Indians know little or nothing of modern medical practice and their own brand of medicine is a mixture of folklore, superstition and herbal concoctions . . . [They] recommend treatments which they have learned from practice, from other herb doctors, or from their own patients."[501]

A fourth category of remedies includes some commonly available fruit, vegetable and other natural products used for self-medication by middle and upper classes who shun the native "herb" markets.

Dieseldorff said that "Most of the medicinal plants [of Alta Verapaz] have been discovered by the people and adopted by the medical profession after testing in hospitals."[124] Old-time physicians and pharmacists sometimes had to seek out local substitutes for temporarily unobtainable pharmaceuticals—for example, dogwood (*Cornus florida*) in the southern United States[328]; nicker nut (*Caesalpinia bonduc*) in Mexico and the Caribbean[301]; or "anything bitter" in place of quinine; the wild

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Krameria ixina in Curaçao in place of imported rhatany (*K. triandra*) as an astringent.[221]

Most of my South and Central American surveys took place in the fall and winter. It is reasonable to assume that, at the same stalls, visited at a different season, one would encounter some additional plants, especially those that are not abundant at any time and may sell quickly. It is the prevailing custom, however, to display and sell fresh plant material (which the people love for its fragrance, beauty and lushness), and any surplus is allowed to dry and is kept as reserve. Thus, there exists, behind, around and above each stall, a constantly growing "warehouse" of plants of past seasons, and when I search through these accumulations I usually find just a repetition of current stock. There is little deliberate drying of folk-remedy plants, except where the native markets have been modernized by municipalities and one sees signs of sophistication such as the sale of dried and fragmented dual-purpose flavoring-and-medicinal herbs in plastic bags. I may have missed some species but, at least, I can say that of the 108 species collected in my survey from Caracas to Maracaibo, 35 are plants not reported by Pittier, Schnee, Albornoz, Chiossone, Ernst, nor, to my knowledge, any other authors as folk remedies of Venezuela.[324]

Generally, the buying and selling of folk-remedy plants still flourishes despite transplantation of some markets into great concrete conglomerate-market structures, except in certain tourist centers, where I believe there may be official efforts to suppress the trade. In the central markets of Mérida, Yucatan, for example, there are no great displays. Women flower vendors have a limited number of fresh herbs tucked in between their buckets of blooms as a sideline, and these are plants used for female medical problems. Scattered inconspicuously here and there between fruits and vegetables on the widespread maze of counters, one finds little groups of just two or three specialties. Only one man has a separate medicinal plant display—mainly tobacco leaves with a few other items—and just on weekends. In Cozumel, medicinal plants were not in evidence in the market at all, though plentifully visible in home gardens and on roadsides. I was reminded of Aruba, where the government discourages folkways, hoping to present a modern face to the visitor.

On North Caicos, one local plant expert told me that he used to practice bush medicine, but now it's illegal to do so "and we just treat ourselves." This is the state of affairs also in the Bahamas. A young woman on North Caicos told me how she became plant-wise. When she was a girl and her mother had to go out to work, she was left in charge of her younger brothers and sisters. To teach her how to care for them, the mother would bring a plant into the house and show her how to use it. The next time it was needed, the girl was sent out to get it, and later she depended on the same plant remedies in raising her own numerous children.

In most Latin American cities, there is a gap between the scientific community and the native vendor. The University staff and other professional people do not frequent the markets and, though some have an interest in medicinal plants, they have not made themselves familiar with their local resources. For my part, I enjoy a comfortable relationship with the vendors and find them all kind, informative and patient, the only problem being the lively trade, the steady stream of customers who interrupt but who often contribute bits of information as well.

The vendors are always eager to add to their own store of knowledge. An herb

lady in the Central Market of San José, Costa Rica, during a lull, showed me a little booklet—*Medicina Herbaria: 34 Yerbas Caseras, Extractos de Medicinas Natural* —by Professor Blas Gracia Alcover. There was no publisher's imprint. She pointed out the names and descriptions of various plants and claimed that the booklet was very good, but I saw that the SALVIA was *Salvia officinalis* and not the local SALVIA (*Pluchea odorata*); the booklet included flax (*Linum usitatissimum*) and other European plants, so it is a foreign product and misleading when the Spanish names of certain European species are the same as those applied to unrelated local plants.

Medicinal Plant Uses

My collection and identification of specimens from the wild, from home gardens and, most of all, from native markets, and gathering information on their uses, has revealed certain common concepts and patterns of usage in all areas. Primary, of course, is the universal employment of astringents (mainly tannin-rich plant parts) for the control of diarrhea, dysentery, hemorrhages, sore throat and hemorrhoids, for application to ulcers, tumors and skin diseases, and to prevent abortion—the relation between cause and effect being quite clear.

There is standard use of aromatics (basil, melissa, sweet marjoram and various spices) as digestives and carminatives; of grasses and cucurbit seeds as diuretics; of urinary irritants as aphrodisiacs; and the highly irritant, purgative and sudorific as treatment for venereal disease. There is obvious logic in the employment of certain plants or plant products in measured dose to achieve the degree of action desired: stimulation of menstruation, promotion of labor or expulsion of fetus.

But there is still a holdover from the "Doctrine of Signatures" evident in the certainty that deep red decoctions will enrich the blood. This belief is attached in the Bahamas and Caicos Islands to the infusion of the wood of *Caesalpinia reticulata*, to the combined infusion of the barks of *Bourreria ovata*, *Swietenia mahagoni* and *Bursera simaruba*, and to the decoction of the roots of *Leucaena leucocephala*, all a rich red in color. I have noted that plants with yellow flowers (such as *Cochlospermum vitifolium*) are conspicuous among remedies for jaundice. Decoctions of the yellow flowers or deep yellow flesh of the squash and pumpkin are also recommended against this malady. In Guatemala, *Clidemia setosa* is believed to overcome sterility in women because of the testicle-like pair of sacs at the base of the leaf blade.[490]

In Cuba, the infusion of *Peperomia pellucida* is believed to be good for the heart because the plant has heart-shaped leaves. In San Felipe, Venezuela, the decoction of *Achyrocline satureoides* is said to overcome impotency, and this is doubtless a superstition based on the "everlasting" character of the dry flowers.

Gines et al. point out that the Indians of the Perija region of Venezuela use plants of the open plains as remedies for sunstroke on the premise that plants that can tolerate full sun must have the ability to relieve those who suffer from excessive exposure. It seems to me from a perusal of their book that the most common remedies for these Indian fishermen are treatments for sunstroke and seasickness, but the authors' collaborator, Dr. Luis Carbonell, noted that the most frequent illnesses of the Chaké were digestive and respiratory. Diarrhea, and also dysentery, he attributed to the lack of hygiene in the preparation and consumption of food, the utensils

being unclean, and fruits, often overripe, being picked up from the ground and eaten without washing. In many cases, these Indians merely bathe with a plant decoction to relieve ailments[174]; I found this Indian practice reflected in the ways of the people of Coro, Venezuela, the vendors often informing me that a plant is used for bathing and drinking (bañar y tomar) or for bathing only.[327] The Indians of the Perija region bathe with plant decoctions for superstitious reasons also, especially to improve their marksmanship or promote good luck in hunting.[174] To the Maya, certain numbers are considered important, 9 especially. "Many concoctions call for 9 leaves of a plant, or 9 drops of a medicine. . ."[501] The reader will note that in certain cases in Curaçao, plant remedies are taken for 9 days in succession, though 7 occurs in some recipes.

When I first introduced the topic of domestic plant usage in a conference with the physicians of Curaçao, they were quite amazed and said, "Oh, you mean when they are sick?" This query expresses a limited view of folkways, for I dare say that the consumption of bush teas may be greater in the wishful enhancement of, or thwarting of, natural functions than in the actual treatment of illness. Therefore, the terms "folk medicine" and "folk remedies" are inadequate to convey what is really going on. Inasmuch as cohabitation and procreation are prime preoccupations in the underdeveloped societies, there is habitual use of aphrodisiacs, emmenagogues, bush teas throughout pregnancy, and others to "clean out" and restore vitality thereafter. These are not considered medicines and may be completely missed by epidemiologists and other surveyors.

Medicinal plants are often carried from island to island or elsewhere. On one visit to the Curaçao market, I was surprised to find *Vernonia menthaefolia* being sold under its Cuban name, ROMPEZARAGUEY. This is not a Curaçao plant. It was probably being grown by a Cuban who brought it to Curaçao, just as it, and various other Caribbean plants, have been introduced into southern Florida and are grown there by West Indian residents for domestic use. (Throughout the United States today, Latin residents are ingesting decoctions of plants brought in by themselves, their friends or relatives.) In Aruba, I learned from a hotel maid that she had worked fifteen years in Curaçao, where *Lippia alba* (OREGANO) is very popular. She brought a plant to Aruba for her aunt's garden. Friends have grown plants from cuttings of this one. It is also grown by the Colombian wife of an Aruban. She taught the family to drink the decoction as a stomachic.

Rarely a plant has come into use by mistake, because of its vernacular name. In Bonaire, *Desmanthus virgatus* is erroneously believed to be the same as the WATAPANA SHIMARON (*Acacia glauca*) of Curaçao, and it is therefore used in the same ways. In Curaçao and Coro, the decoction of *Krameria ixina* (CADIA DEL PERRO) is commonly consumed in the belief that it is the same as the CADILLO DEL PERRO much prized in Maracaibo as beneficial to the liver. They tell the same story about restoring a dog's liver by soaking it in the decoction after it had been buried for several days, but the plant of Maracaibo is actually the wholly dissimilar, innocuous *Urena sinuata*.

Literature on Medicinal Plants of Middle America

I have sought out and acquired over the years numerous articles, booklets and books on medicinal plants of the geographical area to be covered. For the sake of

other investigators, it is necessary to point out strengths and weaknesses of some of this literature and samples of fallibility. Among the best examples of valid reports of first-hand investigations are Wong's "Some Folk Medicinal Plants from Trinidad"[557] and Steggerda's "Some Ethnological Data Concerning One Hundred Yucatan Plants."[501] They are concise but careful to tell us the part of the plant used, how it is prepared and the ailments to which it is applied. Steggerda also mentions nonmedicinal uses as well. In contrast, Oakes and Morris, who reported on a largely first-hand inventory of 59 plants sold by "weedwomen" in the Virgin Islands, tabulate their uses but without specifying the parts used and give no hint of preparation.[370]

Often a reporter is inaccurate as to the part of the plant employed. It is a common error to use the word "leaves," though it should be known that the general practice is to employ the whole aboveground herb, or leafy stems or branch tips, not just the leaves, unless these are large leaves of trees. Nonbotanists have the most difficulty in identifying plants and plant parts. The anthropologists Halberstein and Saunders give a first-hand account of the "Traditional Medical Practices and Medicinal Plant Usage on a Bahamian Island," [90] but their *Guaiacum officinale* should be *Guaiacum sanctum*; their *Acalypha godseffiana heterophylla* should be *Acalypha wilkesiana*. Their "leaves" of *Ambrosia hispida* should be stems and leaves. They say the fruit of *Melicocca bijuga* is eaten to alleviate abnormal blood pressure and other circulatory problems. Actually, it is the leaf decoction that is taken to relieve these troubles. In their discussion of the prickly pear (*Opuntia stricta*), they say "boiled leaves taken for alimentary disturbance." The leaves of prickly pears are mere deciduous bracts. What is meant is the "joint" (flattened branch); and it is also the joint, not the fruit, that is sliced and applied on arthritic and rheumatic places. In addition, it is the joint, not the "crushed plant" that is used as shampoo.

Frequently, in reporting uses, the word "infusion" is employed indiscriminately, regardless of the fact that most plants or plant parts are boiled and the product is a decoction. An infusion results when the plant material is merely steeped, not boiled, and the local people are usually careful to stipulate an infusion when a decoction would be too strong. As they say in South Carolina in reference to steeping plant material, "you draw it." Gines et al. provide an example of unconsciously inaccurate reporting under *Heliocarpus americanus* where they state (in Spanish), "The Indians boil its bark and leaves, thus preparing an infusion which is drunk against constipation."[174]

The language of folk medicine is often poorly understood by field workers. The word "stomach" often refers to the intestines—as it does in the common expression "stomachache." The complaint that the "stomach is running off" means that one has diarrhea. To "check the stomach up" means to stop diarrhea. It intrigued me to find these expressions shared by the South Carolina Low Country and the Bahamas and Turks and Caicos Islands, the result of interchange of plantation ownership and slaves in times past.[334]

Perhaps most people realize that "bad blood" refers to syphilis and a "blood purifier" is taken in hope of treating this malady. Less familiar are phrases such as "cold in the body," which must be interpreted as leucorrhea. The expression is based on the vaginal discharge as suggesting the discharge from the nose or through the mouth when one has a cold in the head or chest. By "heat" is meant urinary

burning. "Bearing down" denotes the presence of hemorrhoids, not muscular stress during labor. A "weak back" indicates incontinence of urine. "Strain," or "man's strain," or "strain in the loins" (or, as one inexperienced researcher reported, strain "in the lines" or "weakness across the lines" [Cfr. Eldrige,[139] *Coccoloba diversifolia*, *Colubrina arborescens* and *Malpighia polytricha*]) refers to gonorrhea, not hernias from lifting. A potion taken to "build up energy" or enhance "man's nature" is an aphrodisiac. Some field workers, unaware of the true meaning, take the word "energy" literally, as do Halberstein and Saunders in relating that the berries and leaves of *Eugenia axillaris* "are eaten to build up energy and physical stamina; known to be a source of quick energy."[190] [The berries are eaten as food; the leaves are probably not eaten but used to make a decoction.]

Fallibility of the literature is also evident in the extent to which writers have been prone to "pad" their publications by copying from their predecessors without establishing applicability in the regions that their writings purport to cover. There are various instances of this in Nuñez Melendez' *Plantas Medicinales de Costa Rica y su Folclore*.[367] His paragraph on medicinal uses of the peanut (*Arachis hypogaea*) is just a slightly rephrased and shortened version of the *"Applicaciones"* in Roig y Mesa's *"Plantas Medicinales, Aromáticas o Venenosas de Cuba"* which are attributed to Grosourdy's *"El Médico Botánico Criollo"* [1864] by volume, page and item number. When presenting the uses of *Tamarindus indica*, Nuñez Melendez' mention of the decoction of the bark as employed against asthma and amenorrhea and that of the leaves as used against worms and gastrointestinal disorders is easily recognizable as a "lift" from Roig y Mesa without recognition of the fact that the latter is quoting from Standley's *Trees and Shrubs of Mexico* (Vol. 23, Pt. 2, p. 412) in regard to these uses in Madagascar. In other instances, Nuñez Melendez has used verbatim extracts from Manfred's *7,000 Recetas Botánicas*, published in Argentina in 1947,[29] without citing the source, and these uses cannot therefore be taken seriously as uses prevailing currently in Costa Rica. In truth, the publication in question appears to be largely compiled from the literature. In my first morning in the public markets of San Jose, I purchased bundles of plant material of twelve species, conspicuously displayed, which are not included in the book. Several more omissions were acquired in subsequent market explorations. In Nuñez Melendez' other publication, *Plantas Medicinales de Puerto Rico*,[368] one can point to the same kind of copying without citing the source, and this casts doubt on the applicability of the material to Puerto Rico. As just one example, the therapeutic uses of *Myrospermum frutescens* are drawn from Roig y Mesa[417] (p. 358), who has drawn them, admittedly, from Grosourdy.

Duke personally collected specimens and information on which his *Darien Ethnobotanical Dictionary* [34] is based, but he has embellished his material freely with uncredited excerpts from the literature, especially Irvine's *Woody Plants of Ghana*.[223] Easily recognizable examples are to be found under *Mimosa pigra, Symphonia globulifera* and *Pentaclethra macrophylla*. In the latter case, he has erroneously shown the African species. The Central American species is *Pentaclethra macroloba*. In using Duke's publication, one must remember that, unless the author specifically states that the plant is used by the local people (Indians, Negroes or other ethnic groups), the uses may have been drawn from extraneous literature.

Roig y Mesa's work is comprehensive and highly respected, and all the plants included occur in Cuba, though many have no known medicinal use there. It is disappointing to find that species to which a page or two or even more may be devoted are not used in Cuba and the only information on use is drawn solely from Grosourdy (and is therefore quite obsolete) or from Drury's *Useful Plants of India*, Pittier's *Plantas Usuales de Venezuela*, Standley's *Trees and Shrubs of Mexico* or other literature. However, this author meticulously cites his sources and, accordingly, is not misleading. I have recently been told that this book has been reprinted in East Germany, and Cuban residents in Miami are eager to acquire it.

Plant Identifications

More than half of the species included herein are those that I have personally collected and studied, and most of these are represented by specimens maintained in the Buswell Herbarium of the University of Miami, with the exception of those that are very common fruit, ornamental or other plants abounding in southern Florida. Nearly all of the plants collected during field work have been identified by me, and any errors are mine alone. I turned to Dr. Robert Read, Curator of the Herbarium, Smithsonian Institution, for identification of *Pachyptera hymenaea*, and to Robert G. Stolze, Custodian, Pteridophyte Herbarium of the Field Museum of Natural History, for his best opinion as to the identity of the tree fern petiole which he suggests came from *Dicksonia gigantea*; also to Dr. Tobias Lasser of the Instituto Botánico, Caracas, for identification of the pieces of stem of *Aristolochia maxima*. Later I found this species growing in the wild near El Cinco, Venezuela, and gathered specimens of the vine with foliage.

John J. Fay, Curator of Botany of the Field Museum, examined my *Matricaria* specimen and assured me that it is *M. courrantiana* as treated in the *Flora of Guatemala*. He confirmed my tentative identifications of *Vernonia scabra* and *Helenium amarum*, the latter never before reported from Venezuela. He examined the *Taraxacum* plants as sold by Guatemalan vendors as two different herbs, DIENTE DE PERRO and AMARGON, and explained that, though the vendors make a distinction, the two are merely variations of the one species, *Taraxacum officinale*.

Scope of This Atlas

In order to create a comprehensive guide to medicinal plants known or reasonably assumed to be in current use in Middle America, I have added species from pertinent sources shown in the Bibliography. Technically, all of Mexico is embraced in the geographical definition of Middle America, but I have not attempted to include all the species covered by Martinez in *Las Plantas Medicinales de Mexico*,[10] which was originally based largely on the writings of Hernandez (1570-1575), has gone through several editions and is still available. There is no way of knowing which plants have gone out of use without making an actual survey, and I cautiously discontinued mine with Yucatan to avoid amassing more information than I could handle or could be published in a convenient form. Of course, a great many of the plants utilized elsewhere are also employed in Mexico, and I have drawn upon Martinez and Standley for Mexican applications of these species.

I had no intention of covering all the plants dealt with by Garcia Barriga in his three-volume *"Flora Medicinal de Colombia,"*[66] since my range takes in only

northern Colombia as part of that coastal and adjacent inland strip of South America which has more in common with the offshore islands than with the rest of the continent. I did not add species from Roig y Mesa, blending in his remarks only as to Cuban uses of species already derived from my own observations or the reasonably recent field reports of others. Had it been feasible, I would have preferred to make a present-day inventory of medicinal plants in Cuba.

Perhaps I have been too fastidious. With the World Health Organization's appeal to developing countries to encourage folk medicine in order to offset the shortage of physicians, one may assume that virtually all plants that have been advocated in the past will be brought back into circulation, whether or not they have been screened for effectiveness or capacity for producing harmful consequences. Enthusiasm for recommended "cures" is easily aroused, but precautionary advice is not so easily communicated.

I should emphasize here that this book is not meant to be a catalog of plant materials recommended for use, and it is not intended to promote their use. It is offered as an identification guide for those who wish to investigate the currently accepted or potential usefulness of the species described, or the hazards that may be attendant upon their utilization.

Omitted are various spices, such as cloves, nutmeg, cinnamon, camphor and caraway, which are purchased in *boticas* and employed as carminatives, etc., but which are not obtained from local plants.

Plant Arrangement in this Atlas

I have grouped the plants by families, and these are arranged in the natural order favored by Marie Neal in her excellent work, *In Gardens of Hawaii* (Special Pub. 50, Bernice P. Bishop Museum, Honolulu 1965). I find this convenient because her book includes most of the families represented in this Atlas. There are only minor differences between the system she followed and that employed by Adams in *Flowering Plants of Jamaica.* Though some laymen object to family arrangement, they should realize that it brings together the plants most likely to have similar properties and physiological effects and thus is informative and helpful for everyone.

Within each family, the genera appear in alphabetical order and the species are alphabetically arranged under each genus, for quick finding and comparison by layman and professional alike.

Vernacular Names

Often a colloquial name is the only clue a stranger has to start with, and I have, therefore, felt it an important service to assemble all possible "common" names recorded throughout Middle America. Unfortunately, these are legion. Approximately 16,500 are listed in the Vernacular Name Index, despite the fact that I have deliberately refrained from including the names applied to these plants in India, the Philippines, Africa and other foreign countries where the plants are also utilized. I have omitted, too, names artificially concocted by botanists; for example, APETALOUS BURR BUSH (for *Triumfetta lappula*) and WHITE CORYMBOSE MORNING-GLORY (for *Turbina corymbosa*), which would never be adopted in common parlance.

The serious reader will find translation of foreign names quite interesting, for these often are expressive of natural features or applicability. Incidentally, where the word "soldier" is part of a vernacular name, it usually implies a "remedy" for venereal disease. I regret that space does not permit provision of translations and also that practical considerations prohibit the specifying of the region in which each name is applied. So many names are employed in more than one geographical area that any such effort would be hopelessly complex and cumbersome.

It must be kept in mind that vernacular names, while essential as a starting point, are not infallible guides. Even locally, different vendors may use different names for the same plant, or the same name may be applied to two or more species. The only safe course is to see or collect a specimen of each plant. The easiest way to do this wholesale is to buy bundles of the plants, photograph them and select the best material for pressing and later study. If the material is dry, one must soak it, restore it as fully as possible and press it. In this way, one can prepare quite acceptable herbarium specimens, and the heaps and piles in native markets need not remain inscrutable mysteries.

Plant Descriptions

It would be impossible to credit all the sources consulted in compiling the descriptions of these medicinal plants, for worldwide literature has contributed details. Basically, however, I have leaned heavily on the invaluable floras of Guatemala, Costa Rica, Honduras, Panama, Belize and Mexico published by the Field Museum of Natural History, the Smithsonian Institution and the Missouri Botanical Garden; Adams' *Flowering Plants of Jamaica*; and older floras of the Bahamas, Cuba, Haiti, the Dominican Republic, Trinidad, Surinam, etc. Some botanists may be critical of my efforts at simplification and usual avoidance of terms that seem excessively technical to the average reader. I have taken the liberty of generally substituting leafstem for "petiole," midrib for "rachis" of pinnately compound leaves, stalk for "peduncle" and hairy for "hirsute," and I hope to be forgiven for this in view of the motivation.

All measurements I have striven to present uniformly in the metric system, but it is easy to err with the least lapse in concentration, and notification of mistakes will be appreciated.

Origin and Distribution

This information, like the above, has been gleaned from many sources, though figures on elevations I owe almost entirely to the floras of the Field Museum, as listed in the Bibliography.

Medicinal Uses

In all cases, the source of information is identified by a number referring to the source in the Bibliography, whether it be one of my own papers or my field notes, or writings of other authors or investigators. Occasionally, multiple sources are cited. It has not always been possible to judge whether the material is authentic or merely copied from other writers, and it must be left to the reader to consult the source and form his own conclusions. I have deliberately refrained from "padding" by adding

uses from the literature of other regions not within our geographical range, except for Bermuda and nearby South American countries (Peru, Bolivia, Brazil, Argentina, etc.), from which practices may readily migrate to Middle America. The usages of the Old World may be mentioned to explain or fortify Caribbean or Latin American information in a few cases where the latter is sketchy, or they may be referred to in a general statement at the end of the section. Often a plant is used in combination with one or more other plants. To save space, I have not repeated these combinations under each of the plants involved. The reader will be guided to them by consulting the page numbers shown for each species in the Scientific Name Index.

The handling of related species not important enough to discuss fully presented a problem. I decided to mention these briefly following the medicinal uses of the relatives to which they are most closely linked, or at the end of the treatment of the last species of the genus. They are, consequently, not in alphabetical order.

Properties and Effects, Including Toxicity

Here I present whatever information has been readily available, for what value it may be to the average reader. This section should not be interpreted as representing the grist from an exhaustive scanning of chemical and pharmaceutical journals or texts. I have largely abstained from the custom of filling the space with chemical knowledge of related species, which may be relevant or may be misleading. Statements as to unwholesomeness, irritant characteristics or toxicity have been gleaned from a multitude of sources. It was not easy to separate insecticidal and insect-repelling activity from "Other Uses," which belong in the last section, but I have construed these aspects as having sufficient affinity with toxicity to be included here. I am not at all sure that a highly aromatic plant such as basil is actually "toxic" to insects even though it allegedly repels them.

Food and Other Uses

While this section might not be considered essential, I feel that it is important in signifying that a plant that has various domestic uses is presumably more common or more readily available to the populace and therefore more apt to be utilized as a folk remedy in place of other plants that may be equally desirable or preferred but are less accessible. In other words, it may help to "rate" the species according to their relative significance and merit for study. It certainly does attest the degree of human exposure to whatever undesirable factors may be present. Apart from these considerations, it surely stimulates reader interest, despite necessary brevity.

Classified List of Medicinal Plants According to Principal Uses

I must admit here a major effort to abbreviate. Insignificant or vague applications, such as the wrapping of leaves around the head to relieve headache (which perhaps any cool bandage might do), or the taking of plant preparations as stomachics, digestives, appetizers, tonics or general stimulants, depuratives or emollients, are not represented in this list. Emmenagogues, labor-inducing decoctions and abortifacients are grouped, inasmuch as the same plant may be used for each purpose, depending on the strength of dose, and to list in separate classifications would occasion much repetition. Diarrhea and dysentery are combined; also colds, influenza,

pneumonia, bronchitis, asthma and similar complaints. Tumors and cancers are put together as a class, since there is no way of discerning whether the growths referred to as being treated by plant materials are malignant or benign. Sedatives and soporifics are joined. The intent is merely to reduce multifarious uses to the fewest possible main classifications.

It is said that most readers ignore the Introduction and head straight for the main body of the text of any book. I hope that both reviewers and users of this volume will first read and appreciate the various explanations and disclaimers in this Introduction. Because of the extent of the work, I have no doubt that flaws and inconsistencies will be discovered by the sharp-eyed, but I trust, nevertheless, that this book will serve many as a convenient guide, reference and source of inspiration.

JULIA FRANCES MORTON

Acknowledgments

Many fondly remembered people have had a hand in the preparation of this Atlas by aiding in some way the field work on which it is primarily based. It is impossible to name them all, but I should like to start by expressing my gratitude for the kindness of Dr. Benno de Jong and Frater M. Arnoldo (A. N. Broeders), especially for early guidance in locating plants in the wild in Curaçao; and for the unfailing graciousness of Dr. Ingvar Kristensen, head of the Caribbean Marine Biological Institute and Director of the Stichting Nationale Parken Nederlandse Antillen; also for the ever-willing cooperation of Ena and Emile Dankmeijer, Maria and "Quiqui" Monte, "Boy" and Emmy Maal, Judy and Henry Riese, Venetta Elassaiss and Helen Glen.

I shall always feel indebted to Sonja Garmers, and to the late Alex Glen, who, right at the outset, introduced me to the native market in Willemstad and whose friendly interest in the vendors gave me a happy entrée to these plant experts and their wares and set the pattern for my market explorations elsewhere.

The late Ing. Ricardo Araque, of the Consejo de Bienestar Rural, Caracas, provided invaluable assistance, contacts and transportation. My Venezuelan studies were greatly aided also by Dr. Alfredo Belloso and Ing. Efren Mendoza Ravelo, of Maracaibo, and Dr. Diego Serpa, Dr. Hiram Reyes-Zumeta and Nora Faria, of the Universidad Centro Occidental, Barquisimeto.

Deep appreciation is due Dr. Novencido Escobar, Universidad de Panamá, Miguel Villegas Rodas, Presidente, Asociación de Amigos del Bosque, Guatemala, and Ing. Manuel Mier y Teran, Consejo Nacional de Ciencia y Tecnologia, Mérida, Yucatan, for great courtesies and guiding me to modest quarters where I could work most effectively. Martha Sipprell on North Caicos laid the groundwork that made it possible to collect and gather information on 90 folk-remedy plants in a remarkably short time.

I wish I could express in person once again my warm thanks to the many gentle and informative herb vendors who never minded my "loitering" as long as I wished and who, with much amusement, allowed me to sometimes wait on customers when there was a rush; and to the taxi drivers, my very special helpers whenever I couldn't reach my goals on foot. They are the people who know the markets, who enjoy prowling them, sharing their knowledge and learning some things they don't already know, and who patiently carry sacks and bundles as I accumulate more.

Beyond the field work, my indispensable information resource has been the botanical subject files of the Morton Collectanea, without which this book could not have been prepared in spare time over a 12-month period. And I am grateful to the staff of the Reference Department of the Otto G. Richter Library, University of Miami, for their services in acquiring hard-to-find literature.

I should add my admiration of the photo-processing skills provided by Mileo Photo Supply, Coral Gables, and Fleming's Photo Center, South Miami, who have not only produced excellent prints from black-and-white negatives but have laboriously converted into prints hundreds of color slides, some taken under highly adverse circumstances—in the rain, or at least under heavy overcast, and often in the wind with one foot holding down the plant specimen while I contorted my body to avoid photographing my foot and my shadow. Defects are the fault, not of the processing, but of the condition of the specimens and the photographer at the time.

Contents

Atlas of
MEDICINAL PLANTS OF MIDDLE AMERICA

EQUISETACEAE

Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Equisetum bogotense HBK. CANUTILLO CAVALLINHO COLA DE CABALLO COLA DE MULA HERVA CANUDO HIERBA DEL PLATERO HORSETAIL LIMPIA PLATA LIXA VEGETAL MOCO MOCO SCOURING RUSH TEMBLADERA YERBA DE PLATERO	A perennial bushy herb with deep taproot and slender, dark green, hollow, grooved, jointed stems, each joint covered by a cylindrical, toothed sheath (which is technically a fusion of the leaves reduced to scales). Spores are borne in conelike heads at the tips of fertile stems.	Grows wild in wet ditches and marshes of temperate and cooler uplands of Panama, Colombia and Venezuela and south to northern Brazil and Chile.	Heaps of the fresh plant are regularly displayed by herb vendors throughout its range, and supplies are brought down from the highlands for sale at lower elevations. The plant decoction is a popular diuretic and taken especially in cases of gonorrhea.[34] It is also regarded as an effective treatment for hemorrages, dysentery and diabetes. Richard Hauke identified the plant sold on Costa Rican herb markets as a hybrid between *E. bogotense* and *E. giganteum* (q.v.).[196]	*E. arvense* L., *E. hyemale* L. and *E. palustre* L. contain various alkaloids including 3 methoxypyridine, nicotine, palustrine, palustridine, equisetonine and equisetine[554] which is a nerve poison. *Equisetum* spp. have caused fatal poisoning in horses but are apparently grazed safely by sheep. **Food & Other Uses** Inasmuch as the epidermis contains much silica, the stems of this and other species have been used for scouring metal pans and utensils.
Equisetum giganteum L. (Fig. 1) CANUTILLO COLA DE CABALLO COLA DE CABALLO AGIGANTADA	A perennial plant with spreading roots and erect, green, hollow main stem to 4 cm thick and 9 m high, with 20 to 40 grooves; jointed, with a toothed sheath covering each	Flourishes in damp soil throughout the Andes from Chile and Argentina northward and in coastal ranges	Great armloads of the fresh plant are brought into the markets of Valencia, Barquisimeto and Maracaibo (Venezuela). The main stem is stripped of the clumps of small branches and discarded, while the small branches are sold	See under *E. bogotense*. It is hard to believe that the people of Latin America can imbibe so much *Equisetum* with impunity. Surely its effect on the

EQUISETACEAE

Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Equisetum giganteum (cont'd) COLA DE IGUANA COLA DE RATON COLA GRANDE DE CABALLO HIERBA DE PLATERO LIJA VEGETAL LIMPIA-PLATA TEMBLADERA TEMBLADORA YERBA DE PLATERO	joint, and with numerous slim, jointed branches protruding in a whorl around each joint of the main stem. The fertile branches have 6 to 8 grooves and bear terminal conelike spore-bearing heads.	(to 2,000 m) from Venezuela to Mexico; also in swamps and lagoons from Trinidad to Martinique and Haiti.	by the bundle. The astringent decoction is commonly imbibed as a diuretic and is believed to be beneficial to the liver.[324] Manfred says it is highly valued in cases of bloody diarrhea. The pulverized dried plant is taken in doses of 20 to 30 g. in wine two or three times a day; or 40 to 60 g. of the chopped plant may be boiled for 10 minutes and the decoction imbibed over a period of 24 hours. This decoction is also used for washing the head twice a month to stop falling hair; in acute cases, it is used 2 or 3 times a week.[297] In reference to this plant (erroneously as *E. arvense*), Chiossone wrote—"Much used. Vulnerary, caustic, hemostat. Very effective as decoction or infusion for dysentery, liver or kidney troubles, bladder stones, gravel or kidney stones and all urinary tract ailments. Stomachic and useful in diabetes. Externally used as a poultice or wash in cases of wounds, ulcers, abscesses, tumours, callouses, and as a gargle for polyps and oral bleeding; as an inhalant for nasal bleeding."[97] Of 700 prescriptions put forward by Burgstaller Chiriani in the Fifth Edition of his *La Vuelta a los Vegetales* (1974),[79] COLA DE CABALLO is an ingredient in 114. These prescriptions are remedies for dyspepsia, stomach upsets and inflammation, indigestion, flatulence, intestinal upsets, diarrhea, liver trouble, grippe and colds, inflammation of the anus, stomach and duodenal ulcers, diverticulitis, infant colitis, cirrhosis of the liver, cystitis, uremia, urethritis, kidney inflammation, kidney stones, gallstones, retention of urine, colic of the kidneys, hemorrhoids, vaginitis, edema, arteriosclerosis, stiff joints, rheumatoid arthritis, prostrate trouble, hyperthyroidism, diabetes, tachycardia, pounding of the heart, precordial pain, angina, thrush, stomatitis, skin infections, urticaria, dandruff, eczema, psoriasis, itching, ringworm, contusions, bruises, swellings, water on the knee, bunions, mumps, pimples, intestinal parasites, varicose veins, varicose ulcers, erysipelas, typhoid fever, abscesses,	human system should be studied, especially in view of the current promotion of *E. hyemale* as a healthful "tea" in the USA. **Food & Other Uses**

EQUISETACEAE

Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Equisetum giganteum (cont'd)			boils, mange, athlete's foot, diaper rash, ear infections, vertigo, headache, delayed menstruation, putrid wounds, tooth cavities, allergy, anxiety, sneezing, asthmatic coughs, sore throat, hoarseness. The decoction is taken to overcome obesity and to stimulate bile secretion, and is given to infants as a tonic. The macerated plant is applied as a soothing and sedative poultice.	

SELAGINELLACEAE

Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Selaginella lepidophylla Spring. (Fig. 2) BIRD'S NEST MOSS DORADILLA FLOR DE PIEDRA MUCH-KOK RESURRECTION CLUB MOSS RESURRECTION PLANT ROCK ROSE ROMPE PIEDRAS ROSE OF JERICHO SIEMPRE-VIVE	A perennial moss-like plant, with fibrous roots, forming a rosette 5 to 10 cm tall. When very old, it develops a main stem to 25 cm high. The branches are much-divided and separated at the base. Leaves are minute (.5 mm long), scale-like, closely overlapping. Spores are in quadrangular spikes 6 to 12 mm long. The entire plant, except roots, is green when fresh; when dry, it turns reddish brown, and curls inward, forming a tight ball; when placed in tepid water,it unrolls and becomes green and fresh again. It can be dried and revived 3 or 4 times but eventually dies.	Native on limestone bluffs bordering rivers in western Texas; on walls of canyons in pine forests in northern Mexico; south, at cool elevations, to Peru.	The *hierbateria* "Un Rincón de Selva" in Caracas sells little plastic bags of the fragmented plant and recommends the decoction as a remedy for kidney stones. The plant is common in Mexican herb markets and is a popular remedy for kidney and liver complaints.[301] As a diuretic, to reduce edema, 3 cups of the plant decoction are taken every morning.[404] To relieve painful dyspepsia, a cup of a 5% decoction is taken after every meal. One method of preparation is to boil 5 or 6 plants in 700 g water, strain, sweeten, then boil again to the consistency of sirup.[301] (Lavadores prescribes 10 g plant in 200 cc water.[257]) This sirup is taken in cases of venereal disease and as an emmenagogue. The plant, softened with boiling water, is rubbed on external ulcers.[404]	Contains chlorophyll, glucose, gum, pigment, albumin, carbonic acid, silicic acid, sulphuric acid, hydrochloric acid and phosphoric acid; potassium, sodium, calcium, magnesium and iron.[301] In pharmacologic assay, the plant has shown anti-atherogenic activity.[226] **Food & Other Uses** Widely grown in greenhouses and sold as a curiosity.
Selaginella pallescens Spring. (*S. cuspidata* Link; *S. Emmeliana* Van Geert) (Fig. 3) CHAYOTE DE CERRO DORADILLA MOSS FERN MUCHCOC	Fernlike plant forming a dense rosette to 30 cm high; branches are much-divided and separated nearly to the base; erect, spreading or becoming horizontal with age. Leaves are scalelike, 0.5 to 1 mm long,	Grows wild on the shady side of cliffs in oak and lesser forests in northern Mexico and south to northern Colombia and Venezuela. Stand-	In Merida, Yucatan, the entire plants are sold in the fresh state. They are boiled and the decoction taken as a diuretic and emmenagogue.[324] It is employed also in treating gonorrhea, bladder ailments and liver troubles.[472] In Guatemala, the plant is considered antimalarial, dig-	**Food & Other Uses** This is the species most commonly grown in the United States as a houseplant.

SELAGINELLACEAE

Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Selaginella pallescens (cont'd) MUTSCOC SWEAT PLANT TEPECHA-YOTLI	4-ranked, sharply pointed at the tip. They may be bright green bordered with white or entirely green. There is a yellow-green form. Spore spikes are quadrangular, 6 to 12 mm long. If dehydrated, the branch tips will turn brown and curl inward, and the plant will die.	ley wrote that it grows in dry regions of Yucatan and Guatemala.	estive, antiasthmatic and diaphoretic.[4] Costa Ricans take the plant decoction as a diuretic and remedy for gallstones; it is recommended as a tonic for nursing mothers.[367] Perhaps it is the same plant that is utilized by Cuna Indians as a remedy for "female sickness" and by the Choco as an antidote for snakebite, under the local names HELECHO (fern) and NAIBE UGIGWI.[134] Indians of northwestern Venezuela use an infusion of *S. mnioides* A. Br. (GUARE PISCHA: PEPAYAPARURMANI) as a bath to treat mania. A medicinal bath is also prepared with an unidentified species called UARIN BIESSHA.[174]	

DICKSONIACEAE

Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Dicksonia gigantea Karst. (*D. ghiesbreghtii* Maxon) (Fig. 4) HELECHO FAMILIAR	A tree fern, possibly 2 to 3 m or more in height, with stout trunk bearing the rough bases of cast-off fronds. Fronds are featherlike, numerous, erect, in a terminal rosette; petioles tough, woody, purplish brown and (like the summit of the trunk) coated with brown silky, hairlike scales.	Guatemala and Mexico.	Petioles (to 22 cm long) sold by herb vendors in Parroquia Market, Guatemala. They say that if a woman wants to have a baby, she boils the petiole and drinks the decoction regularly for 3 months.[341] (With only the petiole and no complete frond to study, Dr. Robert G. Stolze, Custodian, Pteridophyte Herbarium of the Field Museum of Natural History, Chicago, has given this "educated guess" as to its identity. There are two other tree ferns of the same family in Guatemala, but it seems most likely that the petiole belongs to *D. gigantea.*) Indian women in northwestern Venezuela employ another tree fern, *Cyathea divergens* Kunze (called UAP-HIA) as a remedy for backache during the menstrual period.[174]	**Food & Other Uses**

POLYPODIACEAE

Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Adiantum capillus-veneris L. AVENCA AVENCA CABELO DE VENUS CABELLERA DE VENUS CABELO DE VENUS CILANTRILLO CILANTRILLO DE OJO DE AGUA CULANTRILLO CULANTRILLO CAPILAIRE CULANTRILLO DE POZO MAIDENHAIR VENUS-HAIR FERN	A perennial fern with a brown, hairy, creeping rhizome and slender, fibrous roots. Stems (stipes) are erect, wiry, smooth, glossy, black, 10 to 25 cm tall. Fronds are divided into thin, fan-shaped bright green leaflets.	Native to southern Europe, western Asia. northern, southern and tropical Africa, western Siberia, India, Polynesia, southeastern USA, Bermuda, Cuba, Puerto Rico, Jamaica, tropical and subtropical America.	In Mexico, Colombia and Brazil, a sweetened decoction (or sirup) of the entire plant (to 12 g in 500 cc water) is taken as an expectorant and pectoral.[301,388] In Yucatan, as an emmenagogue and to dissolve urinary calcifications, they prepare a decoction of 8 to 10 g of the plant in 300 cc water and take it 3 to 4 times a day.[257] In Mexico and Argentina, the plain decoction is taken to relieve sore throat and rheumatism, also as a digestive, an emmenagogue and to expedite labor and promote the discharge of lochia after childbirth. It is said to alleviate liver complaints as well.[297,301] This fern has a reputation in Latin America as a hair restorer. For this purpose, the entire plant is dried and the powder, mixed with olive oil, is massaged into the scalp.[257] These various uses reflect those of Europe and Asia, where they doubtless originated.	**Food & Other Uses**
Adiantum tenerum Sw. BLACK-STICK MAIDENHAIR CAPILARIA DE MEJICO CULANTRILLO CULANTRILLO DE MEJICO CULANTRILLO DE POZO MAIDENHAIR SLENDER MAIDENHAIR FERN	A perennial fern with a short, thick rootstock coated with glossy dark brown hairs. The few erect fronds are from 25 to 110 cm long, the stems (stipes) dark purplish brown, smooth, gleaming; the blades 15 to 70 cm long, 15 to 60 cm wide, divided into leaflets roughly like small hands with stubby fingers, 8 to 25 mm long.	Native to rocky, moist hammocks, sink holes and stream banks of southern Florida, the Bahamas, West Indies, northern South America and southern Mexico.	In Cuba and Mexico, this fern is boiled and the decoction taken as a remedy for chest complaints and catarrh.[301,417] The people of Jamaica make a "tea" of this fern alone or boiled with *Dryopteris* sp., *Peperomia pellucida* HBK. and leaves of *Anacardium occidentale* L. (qq.v.) and drink it to overcome colds.[31] In Mexico, an emmenagogue is prepared by boiling 5 g of the plant in 0.5 liter of water.[301] Indians of northwestern	**Food & Other Uses**

POLYPODIACEAE

Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Adiantum tenerum (cont'd)			Venezuela bathe themselves with an infusion of any of several species, including *A. polyphyllum* Willd., *A. pulverulentum* L., *A. serratodentatum* Willd. and *A. tetraphyllum* Willd. (all called UAP HIA), as a general cure-all.[174]	
Asplenium serratum L. CULANTRILLO DORADILLA DE LAS ANTILLAS DORADILLA DE LA TIERRA DORADILLE EN SCIE NEW WORLD BIRD'S-NEST FERN TOOTH-LEAVED SPLEEN-WORT WILD BIRD-NEST FERN	An epiphytic fern with a thick, erect rhizome surrounded by brown fuzzy roots and, at the apex, covered with hairlike dark brown scales. The crown consists of perhaps 7 or 8 upright, arching leaves, smooth, 50 to 100 cm long, 7 to 14 cm broad, undivided, oblanceolate, tapering to the short, stout, often purplish stem (stipe); dark green and glossy above, paler and duller beneath, the midrib often purplish on the underside; margins are very finely toothed, sometimes irregularly indented. The sori are in parallel rows on the upper reverse of fertile leaves.	Inhabits shaded, damp places, especially along streams in dense woods, growing on rocks, old fallen tree trunks and on bases of living trees throughout the West Indies and from Mexico to Brazil. First found in southern Florida in 1877, now plentiful from Big Cypress Swamp southward.	In Haiti, the leaves and rhizome are powdered and prepared as a decoction or sweetened sirup, which is taken 3 times a day to relieve obstructions of the liver and spleen; also used for stubborn diarrhea and spasms or hysteria.[403] It is said to banish nervous tics.[297] In Cuba, the decoction is reputedly able to dissolve calcifications of the liver, and it is recommended in pulmonary inflammation and bronchitis.[417] In northwestern Venezuela, Indians employ the infusion of various species, including *A. auritum* Sw., *A. cyrtopteron* Kunze, *A. hastatum* Klotzsch and *A. praemorsum* Sw., for bathing to overcome fever and as a general cure-all.[174] *A. pumilum* Sw. (Florida, West Indies and Mexico to Brazil) is used medicinally in Yucatan, where it is called CULANTRILLO or ZIZALCHEN.[472]	**Food & Other Uses**

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Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Blechnum occidentale L. DORADILLA HELECHO PALMA BOBA UAP-HIA	A fern, with an erect or upward-curving brown scaly rootstock, to 12 cm long and 2 cm thick, sending out many creeping stolons and sending up a tuft of erect, stiff leaves. Leaves are 30 to 75 cm long, 6 to 25 cm wide, the fertile leaves long-stemmed; oblong-lanceolate or ovate, with a long, slender tip below which the upper segments are usually joined; the lower segments are separate leaflets, alternate, oblong, 8 to 20 mm wide, leathery, reddish when young. Sori are massed along both sides of the midrib (not reaching the tip) of all leaflets on fertile fronds.	Native to dry, open scrub, damp hollows or humid hilly forests in southern Louisiana, northern Florida, Cuba, Puerto Rico, the Lesser Antilles, and from Mexico to Argentina. Naturalized in Hawaii.	Indians of northwestern Venezuela use the infusion of this fern (and of another widely distributed tropical American species, *B fraxineum* Willd.) for bathing, as a general cure-all.[174] In Argentina, the leaf decoction of *B. occidentale* is a remedy for nervous conditions and hysteria. Mixed with wine, it is taken at bedtime to cure constipation or taken 3 times a day to dissolve kidney and bladder stones.[297]	**Food & Other Uses**
Campyloneurum phyllitidis Presl. (*Polypodium phyllitidis* L.; *P. medicinale* Rojas) CALAGUALA COW TONGUE LENGUA DE SIERPE LENGUA DE VACA PASA DE NEGRO STRAP-FERN	An epiphytic fern with a creeping rhizome 5 to 10 cm long, 5 to 8 mm thick, wrapped in a tangle of brown hairy rootlets. Fronds are erect, stiff, 0.3 to 1.2 m long, in tufts, on short stems (stipes) 1 to 10 cm long; blade narrow-oblong or narrow-lanceolate, undivided; 4 to 8 cm wide at the center, tapering at both ends; firm-textured, smooth, glossy on both surfaces, with a white	Grows wild on trees, in limestone sinkholes, on rocky stream banks and rocky slopes in semi-shady sites, in southern Florida, on Abaco, Grand Bahama, Andros, New Providence and Crooked Island in the Bahamas and from Cuba to Tobago;	A decoction of the entire plant or the fronds is taken as a treatment for syphilis on the island of Margarita[228] and in Venezuela.[397] It is much utilized in Cuba as a sudorific, a remedy for delayed or painful menstruation, and to dissolve calcifications in the gall bladder, urinary bladder or kidneys. It is often used for washing the hair, to preserve and embellish it. A poultice of the crushed fronds is applied to alleviate a stitch in the side or "false pneumonia."[417] In Jamaica, the plant decoction is drunk as a	**Food & Other Uses**

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Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Campyloneurum phyllitidis (cont'd)	midvein. Sori are golden brown, two-rowed between the main horizontal veins. Spores are yellow.	also from southern Mexico to Uruguay.	cold remedy and as a general beverage.[31]	
Dryopteris spp. SHIELD FERN UAP-HIA WOOD FERN	Terrestrial ferns, with a slender or stout, naked or scaly, erect or wide-creeping rootstock. Fronds grow singly or in tufts; erect, with long scaly stems, continuous, not jointed at the rootstock. Blades (fertile and infertile similarly shaped) are ovate or triangular; rarely simple; usually once-, twice- or thrice- divided; the segments lobed; hairy or hairless; firm in texture. Sori are circular or elliptical; usually borne on the backs of the veins.	Generally found in humid forests. Many species in the West Indies and tropical America; a few in North America; some in the Old World tropics.	Indians of northwestern Venezuela bathe with the infusion of various species, including *D. aspidioides* C. Chr., *D. columbiana* C. Chr., *D. patens* Kuntze, *D. subincisa* Urb. and 4 unidentified species growing around Kunana, to relieve fever and as a general cure-all.[174]	**Food & Other Uses**
Phlebodium aureum John Smith (*Polypodium aureum* L.) (Figs. 5, 6 and 7). AVENCA DOURADA CALAGUALA CARRAGUALA GOLD FOOT FERN LISUMBEIN POLIPODIO POLIPOL	An epiphytic fern, with a creeping, winding rhizome, 8 to 15 mm thick, densely coated with golden brown or coppery hairlike scales. Fronds are not close together; arching or spreading; on glossy, brown stems (stipes) 15 to 30 cm long. Blade is ovate-oblong, bright green, yellowish green or blue-green; 30 cm to 1.2 m long, 20 to	Grows wild on rough palm trunks (especially palmetto or others with persistent leaf bases), on oak trees and on disintegrating limestone; in humid situations over most of mainland Florida (except the northwest), the Keys,	Portions of the rhizome (lengths of 10 to 25 cm) are sold in Caribbean and tropical American herb markets. In San Felipe and Barquisimeto, Venezuela, the decoction is acclaimed as a panacea. There is hardly any ailment for which it has not been recommended, from kidney complaints to heart trouble.[324] In Coro, the vendors stress its use for kidney problems.[327] In Mexico, a decoction of 4 g rhizome for each cup of water is taken as a sudorific and pectoral.[301]	The rhizome contains ecdysterone and two ecdysones, one of which has been named polypodoaurein.[227] **Food & Other Uses**

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Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Phlebodium aureum (cont'd)	40 cm wide, divided into oblong, pointed segments 10 to 30 cm long and 2.5 to 5 cm wide, sometimes overlapping and often wavy-edged. Large sori parallel both sides of segment midribs.	the Bahamas and West Indies (in Curacao only on top of Christoffelberg); also in much of Mexico, Central and South America. Widely cultivated in greenhouses. There are various horticultural forms.	Cubans make a decoction of a 5 cm length of rhizome for each cup of water and drink it as a daily dose to relieve hypertension. In Cienfuegos, the decoction is a remedy for stomach ailments and internal tumors. In other parts of the island, it is taken to alleviate asthma, catarrh and cardiac difficulty; also applied externally on contusions.[417] The rhizome is purgative and enters into antivenereal preparations. In Brazil, a liquid extract of the rhizome is taken to relieve hoarseness and respiratory trouble. A decoction of the fronds is employed to stop hemorrhages.[110] The name CALAGUALA is applied to various species. In Panama, it is given to *Polypodium atenuatum* HBK. The herb vendors state positively that the rhizome they sell is not from *P. aureum,* POLIPOL. They say to scrape the hairy rhizomes, boil with water and honey and take the decoction as a remedy for cancer anywhere in the body. Elsewhere the decoction of the rhizome is famed as a diuretic and treatment for syphilis, gout, rheumatism and contusions.[341] Also called CALAGUALA are *Polypodium adiantiformе* Foster and *P. crassifolium* L., of the West Indies and tropical America, the rhizomes of which are utilized much like those of the foregoing.[388 417] In Honduras, the name CALAGUALA is attached to *Polypodium leucotomos.* From 1963 to 1969, there was widespread interest in reports from Honduras of successful treatment of cancer patients with a saponin called "calagualine" derived from the rhizomes of this species.[215] Several people brought quantities of the rhizomes to Florida, seeking scientists to test them for antitumor activity. Some were forwarded to the National Cancer Institute, Bethesda, Maryland. There, tests showed no activity against cancer cells, and an extract prepared in Honduras	

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Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Phlebodium aureum (cont'd)	(which was found in Bethesda to be "pure sucrose") also gave negative results. Rhizomes from Honduras were tested by Merck and found to be of no value against three types of tumors. Experiments by the late Dr. Morris Kupchan (using *P. aureum* rhizomes collected in Florida) were equally unproductive.[326]			
Pityrogramma calomelanos Link ISRIE W'WIRI KAPILARIE W'WIRI SILVER FERN WHITE BACK FERN	A terrestrial fern, to 1 m high, with a thick, erect or reclining rhizome. Fronds are clustered, erect, the leaf stem (stipe) dark purple, glossy, 20 to 40 cm long, the blade pyramidal, 25 to 50 cm long and 15 to 30 cm wide, thrice-divided, each featherlike subdivision bearing numerous, deeply cut leaflets; coated on the underside with a silvery white, waxy, powdery, camphor-scented substance. Spores are borne in strips along the veins.	A common wild fern of Trinidad and Central and South America, usually in wet thickets; often a weed of disturbed ground. Has been occasionally-found in Florida. Occurs also in tropical Africa. There are various horticultural forms clutivated in subtropical gardens and northern greenhouses.	In Trinidad, the decoction or infusion of the fronds may be taken to relieve fever, hypertension, consumption, influenza, coughs and colds and to induce menstruation.[557] In Surinam, the whole plant, with roots, is boiled and the decoction drunk to relieve bronchitis. The leaves are applied on wounds to stop bleeding.[205]	**Food & Other Uses**
Polypodium asplenifolium L. (*P. suspensum* L.; *P. laxifrons* Liebm.) POLIPODIO COLGANTE POLYPODE PENDANT	An epiphytic fern, with a short-creeping rhizome 2 to 4 mm thick, brittle, covered with shiny, yellow-brown hairlike scales 2 to 4 mm long. Fronds are fairly closely set, 20 to 65 cm long, stems (stipes) are	Grows wild on tree trunks and stems of tree ferns in forests at medium and higher altitudes from Mexico to Venezuela and accord-	In Cuba, a lukewarm sweetened decoction of the fronds has been taken regularly on an empty stomach to overcome liver complaints and as a treatment for syphilis.[417] In Argentina, it is especially valued as a deobstruent in cases of inflammation of the liver and spleen following	**Food & Other Uses**

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Botanical & Vernacular Names	Plant Description	Origin & Distribution	Medicinal Uses	Properties & Effects (incl. toxicity)
Polypodium asplenifolium (cont'd)	brown or purple-brown, brown-hairy; blades are narrow-oblong, pointed at the apex, 15 to 45 cm long, 2 to 5 cm wide, divided into closely set, alternate, deltoid-oblong, thin segments, 1 to 2.5 cm long, 5 to 10 mm wide; midrib is black and clothed with long brown hairs.	ing to Manfred, flourishes on rocks washed by the surf on the coast of Argentina. It also occurs in Cuba, Jamaica, Hispaniola, Puerto Rico and some of the Lesser Antilles, to Trinidad.	malaria, which causes enlargement of the liver and abdomen. After taking a "tea" made of a half-handful of the fronds in 0.5 liter water, it is said that the organs return to normal.[297] In Haiti, a combined decoction of fronds and roots (8 to 24 g in 1,000 g water, boiled to reduce by 1/3), or 4 to 8 g of plant material prepared as a sirup, serve the same purpose.[403]	
Polypodium polypodioides Watt (Fig. 8) COLADILLA DORADILLA FOUGERE GRIMPANTE GRAY POLYPODY HELECHO QUE RESUCITA LIANE COURESSE POLYPODE RESURRECTION FERN	An epiphytic fern, with far-creeping, flexuous rhizomes, woody, 1 to 2 mm thick, coated with small brown scales. Fronds to 25 cm long, are set some distance apart, erect, on scaly stems (stipes) 2.5 to 15 cm long. Blades are oblong-lanceolate, 4 to 15 cm long, 1.5 to 6 cm wide, deeply divided into narrow, oblong segments 2.5 to 5 mm wide, densely covered on the underside with gray scales having dark centers. During dry seasons the fern turns brown, curls up and appears lifeless; when rains	Grows wild abundantly, especially in shade on limbs of live oak trees in central and southern Florida. Common on rocks and on trees in woods on Abaco, Grand Bahama, New Providence and Crooked Island in the Bahamas; from Cuba and Jamaica to Trinidad and from northern South America to Argentina at	Rolls of the dry fern are sold by herb vendors in Puerto Rico, and the decoction is said to be beneficial to the blood.[104] An infusion of the fronds is taken to lower blood pressure.[368] Throughout Cuba, the plant is sold and the infusion is esteemed as a remedy for liver ailments. In Camaguey, it is considered also strengthening to the heart. It is prepared and marketed as a patent medicine, "Elixir de Doradilla." The whole plant is put into earthen jars of water, which is given to invalids when they are thirsty.[417] Dieseldorff refers to an unidentified species of *Polypodium* as SISQUICHE. He says that the plant grows on old trees in the cold regions of	**Food & Other Uses**