

(j) The constants of the oil obtained from the petroleum-ether extractive are as follows:

Refractive Index at 20° C.	1.4719
Density at 20° C.	0.9227
Optical Rotation at 20° C.	0.0000
Acid Value (11)	8.9700
Iodine Value (11)	87.1700
Ester Value (11)	150.2300
Saponification Value (11)	159.2000

#### REFERENCES.

- (1) Gerth van Wijk, H. L., "A Dictionary of Plant Names," 1, 1146 (1911).
- (2) Henkel, Alice, U. S. D. A., *Bur. Plant Ind., Bull.*, 26, 9-10 (1913).
- (3) Gregory, G., "A Dictionary of Arts and Sciences," 3, page unnumbered (1882).
- (4) Cozzens, I., "Annals of the Lyceum of Natural History of New York," 1, Part I, 42-45 (1824).
- (5) Rogers, W. B., *A. J. P.*, 7, 56-62 (1835).
- (6) Frankforter, G. B., and Martin, A. W., *Ibid.*, 76, 151-158 (1904).
- (7) Brubaker, H. W., *Ind. Eng. Chem.*, 11, 950 (1919).
- (8) Peacock, J. C., and Peacock, B. L., *Jour. A. Ph. A.*, 14, 673-678 (1925).
- (9) Bidwell, G. L., and Sterling, W. F., *J. A. O. A. C.*, 8, 295-301 (1925).
- (10) Dragendorff, G., "Plant Analysis" (1894).
- (11) "The Pharmacopœia of the United States of America," XI, 444, 445, 446, 473, 474, 475 (1936).
- (12) *J. A. O. A. C.*, Methods of Analysis, 3rd Edition, 14, 15, 21, 102, 103, 104, 106, 107, 108, 109, 110, 111, 284, 285, 306, 307, 308, 309 (1930).
- (13) Woodman, A. G., "Food Analysis," 3rd Edition, 20, 21 (1931).
- (14) *J. A. O. A. C.*, 19, 71-72 (1936).

### DRUG COLLECTING AND CULTIVATION IN MISSISSIPPI.

BY W. W. BARKLEY.\*

Mississippi shows quite a diversity of plant life. We find rolling, treeless prairies in the Northeastern and Jackson Prairie Belts; hardwood forests in the Northwestern section, and extensive pine forests in the southern part of the state.

As is usually the case, we find in Mississippi one ecological factor predominating, *i. e.*, the soil.

Briefly considering the more important of these factors, we find—Mississippi, lying directly east of the Mississippi River and north of the Gulf of Mexico, is somewhat more than 300 miles in length North and South. This is sufficient to produce a noticeable difference between the flora of the northern and southern parts of the state.

Mariam<sup>1</sup> in his "Temperature Life Zone" places the entire state within the Austroriparian area of the Lower Austral Zone (although in the extreme northeastern corner are found a number of species which properly belong in the Carolinian area of the Upper Austral Zone). The winter temperature of the coastal region is about fifty degrees Fahrenheit, while in Northeastern Mississippi there is frost much of the winter. During the summer the temperature is above eighty degrees over the whole state.

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<sup>1</sup> Mariam, C. Hart, "Life Zones and Crop Zones," *Bulletin No. 10*, U. S. Biological Survey.

The altitude ranges from a few feet above tide water along the Gulf to an elevation of about 800 feet above sea-level in the northeastern corner of the state. This difference in elevation has, undoubtedly, an appreciable effect upon plant distribution.

All of Mississippi receives over fifty inches of rainfall per year, with the coastal region receiving about ten inches more.

Thus, we find a range of 800 feet in altitude and 300 miles in latitude, a variance of ten inches in rainfall and twenty degrees in winter temperature, with practically identical summer temperature. These ranges are sufficient to produce some of the diversity in vegetation, yet the marked dissimilarity of the various regions must be largely due to soil differences.

Topographically and geologically, Mississippi may be divided into ten more or less distinctly marked regions. Lowe<sup>1</sup> lists these as Tennessee River Hills, Northeastern Prairie Belt, Pontotoc Ridge, Flatwoods, North Central Plateau, Jackson Prairie Belt, Loess or Bluff Hills, Yazoo-Mississippi Delta, Long Leaf Pine Belt and the Coastal Pine Meadows.

Since there is little commercial demand for most of the drug plants, much of the supply of crude drugs comes from small collectors. Such collections have long afforded a gainful occupation for many people, especially in rural sections. Since colonial days, many plants have been regarded as having curative properties, although many are quite probably without virtue. These plants are, as a result, required in the manufacture of proprietary medicines, for home remedies, and in the case of many, in the regular drug trade. Plants having little commercial demand are usually supplied entirely by individual drug collectors.

In each community in Mississippi, there is usually at least one drug collector, often this collector is a negro. A major portion of the drugs collected by these people is sold into the regular drug trade. Most of the "negro doctors" collect their own drug plants as needed.

It has been noticeable that the natural supply of medicinal plants has been reduced as agricultural development has progressed. This has, however, reached a maximum in Mississippi, where very little land is taken into cultivation and large areas of land are being abandoned due to poor tilling and resultant erosion. On the abandoned land, a progression is in process which is resulting in the invasion of these areas by much of the original vegetation except in more spare stand. The result is that a few drug plants are to be found more abundantly now than formerly. Many species of drug plants are becoming rare, however. This is due to the avarice of the collectors and not the results of cultivation.

The supply of many species of drug plants is sufficiently abundant in many sections of Mississippi that their collection might be used to augment the family income. The plants that have become rare, such as ginseng, goldenseal and gold thread, have a relatively high market value and furnish good returns for the time expended. Also many others when occurring abundantly are well worth collecting.

The first rule<sup>2</sup> for collecting drug plants is that the collector be sure it is the

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<sup>1</sup> Lowe, E. N., "Plants of Mississippi," a list of flowering plants and ferns. Mississippi State Geological Survey, *Bulletin No. 17* (Feb. 1921).

<sup>2</sup> Christenson, D. V., "Collection of Medicinal Plants in Florida," State of Florida, Department of Agriculture, N. S., 45, 1-32 (1930).

right plant he is collecting. In most cases negro collectors are fairly accurate in their collecting. However, the author has found cases of gross error—one instance in particular. "Ed" was found collecting *Commandra umbellatum* (L) Nutt. for *Coptis trifolia* (L) Salisb.

"All crude drugs, such as herbs, roots, leaves, barks, flowers and seeds should be carefully and thoroughly dried.<sup>37</sup>" They should be protected from molding and insect damage, and packed without intentional or unintentional adulteration, in clean containers.

Perennial roots, rhizomes, bulbs, tubers or bark are usually collected during the fall, winter or early spring; leaves and herbs (entire above ground portion) when the plant is in full bloom; and flowers when freshly opened. This means collections during most of the year. The negro drug collectors often wrongly collect bark and roots during the growing season instead of in winter, and leaves when the plant is in fruit.

Herbs are usually collected at the proper time, because they are heaviest then, and flowers (obviously) when in bloom. Negro doctors collect material preferably when needed, if available, although they usually have a small supply of dried drug on hand.

While interest in the possibility of successful cultivation of drug plants for market is growing in many parts of the United States, the author knows of no such enterprise in Mississippi, with the obvious exception of cotton. Even the production of naval stores, for which the state was famous, is at a stand-still. However, there is no reason why some of the drug plants in greater demand could not be grown profitably in many parts of the state.

A list of drug plants of Mississippi follows: These are the plants producing drugs that are more or less in demand and might be grown profitably. The first fifty or more drugs listed are in reasonably consistent demand, the remainder are only in limited demand.

#### MISSISSIPPI DRUG PLANTS.

Aletris farinosa	Coptis trifolia
Aletris aurea	Apocynum cannabinum
Myrica cerifera	Datura stramonium
Myrica carolinensis	Cypripedium pubescens
Prunus serotina	Cypripedium parviflorum
Viburnum prunifolium	Mentha piperita
Sanguinaria canadensis	Spigelia marilandica
Caulophyllum thalictroides	Lobelia inflata
Iris versicolor	Podophyllum peltatum
Eupatorium perfoliatum	Passiflora incarnata
Arctium minus	Chimaphila maculata
Gelsemium sempervirens	Phytolacca americana
Trilisa odoratissima	Xanthoxylum clava-herculis
Nepeta cataria	Serenoa serrulata
Collinsia canadensis	Polygala senega
Cimicifuga racemosa	Ulmus fulva
Veronica virginica	Hydrangea arborescens
Hydrastis canadensis	Rhus glabra
Panax quinquefolium	Mentha spicata
Chionanthus virginica	Chelone glabra

<i>Gossypium hirsutum</i>	<i>Marrubium vulgare</i>
<i>Euonymus atropurpureus</i>	<i>Ostrya virginiana</i>
<i>Aralia racemosa</i>	<i>Ptelea trifoliata</i>
<i>Dioscorea paniculata</i>	<i>Solanum carolinense</i>
<i>Hamamelis virginiana</i>	<i>Erigeron canadensis</i>
<i>Liquidambar styraciflua</i>	<i>Arisæma triphyllum</i>
<i>Capsicum frutescens</i>	<i>Dryopteris marginalis</i>
<i>Monarda punctata</i>	<i>Hepatica acutiloba</i>
<i>Pinus palustris</i>	<i>Verbascum thapsus</i>
<i>Ricinus communis</i>	<i>Rumex crispus</i>
<i>Stillingia sylvatica</i>	<i>Lactuca scariola</i>
<i>Sassafras variifolium</i>	<i>Oxydendrum arboreum</i>
<i>Sambucus canadensis</i>	<i>Gnaphalium obtusifolium</i>
<i>Tilia americana</i>	<i>Betula lenta</i>
<i>Smilax pseudo-china</i>	<i>Acorus calamus</i>
<i>Brassica nigra</i>	<i>Epigæa repens</i>
<i>Salix nigra</i>	<i>Frageria virginiana</i>
<i>Verbena hastata</i>	<i>Fraxinus americana</i>
<i>Asclepias tuberosa</i>	<i>Brassica alba</i>
<i>Juglans cinerea</i>	<i>Quercus alba</i>
<i>Eryngium aquaticum</i>	<i>Geranium maculatum</i>
<i>Chamæirium luteum</i>	<i>Chenopodium ambrosioides</i>
<i>Ilex verticillata</i>	<i>Amanita muscaria</i>
<i>Leontodon taraxacum</i>	<i>Gentiana lutea</i>
<i>Scrophularia marilandica</i>	<i>Delphinium consolida</i>
<i>Cornus florida</i>	<i>Drosera rotundifolia</i>
<i>Solidago suaveolens</i>	<i>Aralia spinosa</i>
<i>Senecio aureus</i>	<i>Ipomœa pandurata</i>
<i>Alnus rugosa</i>	<i>Lobelia cardinalis</i>

#### CONFERENCE ON VENEREAL DISEASE CONTROL WORK.

A conference on Venereal Disease Control Work was held in Washington December 28-30, 1936, under the direction of Surgeon General Thomas Parran of the Public Health Service. "The Section on Coöperation of the Private Physician in the Control of Venereal Diseases" was held in the AMERICAN INSTITUTE OF PHARMACY, 50 or more physicians being in attendance. These sessions were held under the chairmanship of Udo J. Wile, M.D., University of Michigan; W. W. Bauer, M.D., Bureau of Health and Public Instruction, A. M. A., served as secretary.

Papers were presented on "Teaching Venereal Disease Control in the Medical School," Paul A. O'Leary, M.D., of the University of Minnesota, and J. G. Hopkins, M.D., Columbia University College of Physicians and Surgeons.

"The Postgraduate Training of Physicians," Thomas B. Turner, M.D., Johns Hopkins, University School of Medicine; Carroll S. Wright, M.D., Temple University School of Medicine.

"Service Provided Physicians by the Health Department," A. J. Casselman, Bureau of Venereal Disease Control, New Jersey State Department of Health.

"The Physician and the Control of Prenatal Syphilis," A. B. Cannon, M.D., Columbia University College of Physicians and Surgeons; P. C. Jeans, M.D., U. of Iowa College of Medicine.

**Dean Moursund**, of Baylor University Medical School, Dallas, Texas, was in attendance at the sessions held in the AMERICAN INSTITUTE OF PHARMACY.

Many papers were presented in the various sections held in other buildings, dealing with all phases of the subject. The address of welcome was made by Surgeon General Thomas Parran, on "The General Purpose of the Conference."

Among the subjects discussed were, "Present Trends in the Standardization of Anti-syphilitic Drugs;" "The Value of Present Therapeutic Methods in the Control of Communicability;" "Prophylaxis."

Judging from those present at the INSTITUTE OF PHARMACY, there were several hundred in attendance at the sessions.